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July 17, 2003

Administrative Judge Michael C. Farrar
Presiding Officer
Atomic Safety and Licensing Board Panel
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

RE: In the Matter of CFC Logistics, Inc.
Materials license application
Docket No. 03036239

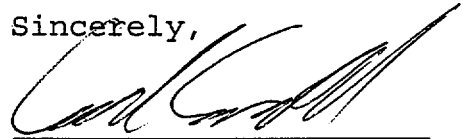
37-30804-02

Dear Judge Farrar:

Please find the enclosed Reply of Requestor pursuant to the above matter. Copies of the enclosed have been also been served on CFC Logistics, Inc.; the Office of the Secretary, U.S. Nuclear Regulatory Commission; Region I, U.S. Nuclear Regulatory Commission; and the Office of Commission Appellate Adjudication, U.S. Nuclear Regulatory Commission. Please return a file-stamped copy in the enclosed envelope.

Thank you for your time and consideration in this matter.

Sincerely,



Robert J. Sugarman
Carl W. Ewald
Counsel for Requestors

Enclosures

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July 17, 2003

Dr. Charles N. Kelber
Special Assistant
Atomic Safety and Licensing Board Panel
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

RE: In the Matter of CFC Logistics, Inc.
Materials license application
Docket No. 03036239

Dear Dr. Kelber:

Please find the enclosed Reply of Requestor pursuant to the above matter. Copies of the enclosed have been also been served on CFC Logistics, Inc.; the Office of the Secretary, U.S. Nuclear Regulatory Commission; Region I, U.S. Nuclear Regulatory Commission; and the Office of Commission Appellate Adjudication, U.S. Nuclear Regulatory Commission. Please return a file-stamped copy in the enclosed envelope.

Thank you for your time and consideration in this matter.

Sincerely,



Robert J. Sugarman
Carl W. Ewald
Counsel for Requestors

Enclosures

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

In matter of :
CFC LOGISTICS, INC. : DOCKET NO. 03036239
materials license application :
:
:

REPLY OF REQUESTORS TO CFC LOGISTICS, INC. RESPONSE REGARDING THE
APPLICATION FOR A MATERIALS LICENSE

I. BACKGROUND AND PROCEDURAL HISTORY

Requestors are citizens of Milford Township who live in close proximity to a CFC Logistics, Inc. ("CFC") irradiation facility in their residential neighborhood. CFC has submitted an application which proposes construction of an irradiation facility. The proposed irradiation facility critically threatens requestors' health, safety, and property. Accordingly, requestors submitted a request to the Nuclear Regulatory Commission ("Commission") on June 23, 2003 asking for a hearing regarding CFC's pending materials license application to operate an irradiator at its Milford Township facility.

On July 10, 2003, CFC served its Response to the request alleging improper service and lack of standing. Requestors subsequently submitted a Contingent Motion for Waiver of Regulation on July 15, 2003, which asked the Commission to waive

10 C.F.R. § 2.1205(f)(1) requiring service of the hearing request by requestors upon CFC. Requestors also served their hearing request on CFC on July 15, 2003.

As shown below, the Commission should grant the request for a hearing because the hearing request was timely and properly served, and the requestors have standing.

II. THE REQUESTORS HAVE COMPLIED WITH 10 C.F.R. § 2.1205(f)(1).

A. SERVICE WAS TIMELY BECAUSE NUMEROUS REQUESTORS ARE STILL WITHIN THE THIRTY-DAY PERIOD TO REQUEST A HEARING AND THUS HAVE PROPERLY SERVED APPLICANT

CFC, in its Response to Petitioners' Request For a Hearing, argues that the request should be denied because the requestors did not serve CFC with a copy of their request at the same time as they filed it. 10 C.F.R. § 2.1313(a) states, "[h]earing requests...must be served [to] ensure receipt by close of the business day on the due date for the filing." Requestors complied with 10 C.F.R. § 2.1205(f)(1) because they served CFC such that CFC received a copy of their request before the due date for filing for most requestors (Request and Certification attached hereto as Exhibit A, affidavits attached hereto as Exhibit B, and list of requestors within time period attached hereto as Exhibit C).

The due date for filing a request is set by 10 C.F.R. § 2.1205(d), which states a requestor "...shall file a request for a hearing within - ...(2) If a Federal Register notice is not

published in accordance with paragraph (d)(1), the earliest of (i) Thirty days after the requestor receives actual notice of a pending application..." Notice was not published pursuant to Section 2.1205(d), so the due date for the filing is thirty days after actual notice.

Therefore, CFC was timely served because most of the requestors became aware of the CFC Logistics, Inc. application and its status less than thirty days ago. (See Exhibit B). Applicant received service on June 30 by the Commission and again on July 15 by requestors - less than 30 days before the due date". Thus, because most requestors served CFC within the thirty-day time period to file a hearing request, they timely served CFC in compliance with 10 C.F.R. § 2.1205(f)(1).

B. IF SOME REQUESTORS DID NOT COMPLY WITH 10 C.F.R. § 2.1205(f)(1), CFC WAS NOT PREJUDICED AND A MERE NON-PREJUDICIAL TECHNICALITY SHOULD NOT BAR THE REQUESTORS AND THE COMMISSION FROM THE OPPORTUNITY TO EXAMINE A REQUEST FOR HEARING ON THE MERITS

As shown supra, the requestors have complied with Section 2.1313(a) because they served CFC on July 15, 2003, within the due date for filing. (See Exhibit B). Moreover, CFC actually received service from the Commission on June 30, 2003. Service was only late for two (2) of twenty-five (25) requestors. The Commission should consider the application on the merits because CFC suffered no prejudice and the rules require the fair resolution of issues in adjudicatory proceedings.

NRC regulations "provide a *latitude* to the Commission....to ensure a prompt yet *fair* resolution of contested issues in adjudicatory proceedings." NRC Statement of Policy on Conduct of Adjudicatory Proceedings, 48 NRC 18, 19 (1998) (emphasis added). CFC's contention that "while it may be permissible to allow latitude to parties regarding complicated matters within any hearing process, it is not permissible to allow any party the ability to circumvent simple procedural rules, such as service requirements, whenever it sees fit" is *unsupported* by case law or Commission authority. (Applicant's Response at 8) (emphasis omitted). The Commission Statement of Policy makes it crystal clear that the purpose of the Commission is "to provide a fair hearing process, to avoid unnecessary delays..., and to produce an informed adjudicatory record that supports agency decision making on matters related to [the Commission's] responsibilities for protecting public health and safety, the common defense and security, and the environment." Id.

Further, the Policy clearly states that "the opportunity for *hearing should be a meaningful one* that focuses on the genuine issues and real disputes...By the same token, however, applicants for a license are also entitled to a prompt resolution of disputes concerning their applications." Id. (emphasis added); See also Sequoyah Fuels Corporation (Gore, Oklahoma Site Decontamination and Decommissioning Funding), 39 NRC 116, 119

(1994) ("this authority [the Commission] makes it clear that proposed contentions must be dealt with fairly.").

In its Response (Response at 4), CFC selectively quotes the Commission as stating that, "[t]he Commission may condition the exercise of that right [of intervention] upon the meeting of reasonable procedural requirements...", from Duke Power Co., (Catawba Nuclear Station, Units 1 and 2), 16 NRC 460, 469 (1982), vacated in part on other grounds, 17 NCR 1041 (1983). The applicant misleadingly omitted the following sentence from Duke which states, "*[b]ut no procedural requirement can lawfully operate to preclude from the very outset a hearing on an issue both within the scope of the petitioner's interest and germane to the outcome of the proceeding.*" Id. (emphasis added). This clearly refutes CFC's argument. As held in Duke, the very case CFC relies upon, the Commission should not dismiss the hearing request simply because CFC was not served by the requestors until July 15, 2003. Such a decision would operate to preclude a hearing at the very outset based on a procedural requirement, and would do so where service was timely for twenty-three (23) of twenty-five (25) requestors.

This Commission has repeatedly held that, "[i]t is neither Congressional nor Commission policy to exclude parties because the niceties of pleading were imperfectly observed. Sounder practice is to decide issues on their merits, not to avoid them

on technicalities." Houston Lighting and Power Company (South Texas Project, Units 1 and 2), 9 NRC 644, 649 (1979). See e.g. North Atlantic Energy Service Corporation (Seabrook Station, Unit 1), 48 NRC 157, 166 (1998); Arizona Public Service Company (Palo Verde Nuclear Station, Unit Nos. 1, 2 and 3), 33 NRC 397, *4 (1991); Vermont Yankee Nuclear Power Corporation (Vermont Yankee Nuclear Power Station), 25 NRC 838, 860 (1997). Moreover, in North Atlantic Energy Service Corporation, the Commission held that "[e]xcept for egregious pleading defects, it is not good policy to dismiss contentions merely for procedural reasons, especially where...the challenged activities could potentially affect public health and safety." North Atlantic Energy Service Corporation, 48 NRC 157, 166 (1998).

Here, requestors petitioned for a hearing to present evidence supporting their public safety and health concerns and the Commission should not dismiss the request. It should examine these concerns and contentions on the merits.

Further, requestors' failure to serve the request on applicant is not egregious because there is no prejudice, the failure was inadvertent, and was promptly cured upon notice. CFC actually received service by the Commission on June 30, 2003. Moreover, CFC was able to respond to the request within ten (10) days as prescribed by 10 C.F.R. § 2.1307 and actually filed an extensive sixteen (16) page response to a two (2) page hearing

request. CFC has never alleged any prejudice.

CFC argues extensively that an attorney should be held more strictly to the rules than a layperson. (Response at 8). This argument is directly contrary to the Commission's clear Policy. The Policy clearly holds that a procedural defect should not prevent consideration on the merits.

Applicant erroneously claims that the Commission Statement of Policy on Conduct of Licensing Proceedings "has stated that lay representatives are not held to as high a standard as lawyers." (Response at 8). The Statement of Policy does not in any way articulate this standard. The Commission does distinguish, however, between counsel experienced in NRC practice and counsel not experienced in NRC practice. In Arizona Public Service Company, the Commission observed that petitioner's counsel was "new to [Commission] practice and should not be held to the same drafting standards as experienced counsel." Arizona Public Service Company (Palo Verde Nuclear Station, Unit Nos. 1, 2 and 3), 33 NRC 397, *4 (1991). Similarly, requestors' counsel in this case is inexperienced in Commission practice and unfamiliar with the regulations governing hearing requests, and thus should not be held to the same standard as counsel experienced in Commission practice.

Strict enforcement of 10 C.F.R. § 2.1205(f)(1) as it applies to the service of the hearing request by requestors upon CFC

would needlessly prevent the Commission from examining the hearing request on the merits, would prevent requestors from presenting evidence due to a mere non-prejudicial technicality, and would prohibit requestors from having a fair and meaningful hearing focused on genuine issues.

Additionally, requestors were not knowingly in default, and followed Commission advice in filing the petition. Counsel was retained and given direction to file just at the thirty days period for two of the requestors. In filing the request for a hearing, requestors consulted Karl Farrar Esq., Commission General Counsel in King of Prussia, PA, for guidance and direction as to procedures to follow. Mr. Farrar directed requestors that a letter requesting the hearing should be addressed to John Kinneman at the Commission in King of Prussia, PA, and the Commission Office of General Counsel in Rockville, MD. Mr. Farrar did not inform requestors that they must or should send a copy of this letter to. Requestors attempted in good faith to provide adequate and proper service, assuming the Commission would provide further notice or direction.

Finally, if the Commission should find two of the requestors did not meet their obligations under the regulations governing requests for hearings, the Commission should not dismiss the hearing request. The Statement of Policy on Conduct of Licensing Proceedings provides the standard for imposing sanctions for

violation of procedural rules. It states:

"[i]n selecting a sanction, boards should consider the relative importance of the unmet obligation, its potential for harm to other parties or the orderly conduct of the proceeding, whether its occurrence is an isolated incident or part of a pattern of behavior, the importance of the safety or environmental concerns raised by the party, and all of the circumstances. Boards should attempt to tailor sanctions to mitigate the harm caused by the failure of a party to fulfill its obligations and bring about improved future compliance...A spectrum of sanctions from minor to severe is available...For example, the boards could warn the offending party that such conduct will not be tolerated in the future..." Statement of Policy on Conduct of Licensing Proceedings, 13 NRC 452, 454 (1981).

Here, the alleged violation is very minor. At least twenty-three (23) of twenty-five (25) requestors were clearly in compliance with Section 2.1205 (f)(1). CFC has not been prejudiced by its failure to receive service by requestors on June 23, 2003. The process has not been delayed. CFC received notice of the hearing request from the Commission shortly after the Commission received notice, filed a lengthy answer to the hearing request, did so within ten (10) days of receiving notice of the hearing and this is the first instance of alleged noncompliance. Further, this application concerns critical issues of safety. This is an application for licensing of a new irradiator in a residential neighborhood. It raises issues of design, capacity and security measures which severely threaten the health and safety of requestors. (Preliminary Report of R.

Alvarez attached as Exhibit D). Alvarez clearly warns that:

"[p]otential sources for environmental contamination include air emissions from air circulation around the vessel [containing the cobalt-60], the storage of radioactive waste in the form of resins collected from water chemistry controls, the cracking of the vessel from a loss of coolant, mishandling of Co-60 rods during transportation, loading and discharge, cracking and leaks from the Co-60 rods." (Preliminary Report of R. Alvarez Exhibit D).

Pursuant to the Statement of Policy, considering the minor, non-prejudicial, inadvertent, and isolated nature of the alleged violation, and the serious safety and health concerns raised by requestors, any sanction should be limited to a warning.

III. THE REQUESTORS HAVE STANDING BECAUSE THEY LIVE IN CLOSE GEOGRAPHIC PROXIMITY TO THE PROPOSED IRRADIATION FACILITY AND THEIR HEALTH, SAFETY AND PROPERTY WILL BE HARMED.

CFC argues that requestors do not have standing. Requestors clearly have standing because they live in close proximity to the proposed irradiation facility and their health, safety and property will be harmed if the Commission grants the license.

In order to satisfy the standing required to request a hearing, "[a] petitioner must allege an 'injury in fact' which must be within the 'zone of interests'" protected by the Commission. Niagra Mohawk Power Corporation (Nine Mile Point Nuclear Station, Unit 2), 18 NRC 213, 215 (1983). The Commission values public participation in its decision-making, and therefore

liberally construes judicial standing tests. See Portland General Electric Company, 4 NRC at 616. Additionally, in evaluating standing, the Commission construes the hearing request in favor of the requestor. See Georgia Institute of Technology, 42 NRC at 115.

The purpose of the Commission is "to provide a fair hearing process, to avoid unnecessary delays..., and to produce an informed adjudicatory record that supports agency decision making on matters related to the [the Commission's] responsibilities for protecting public health and safety, the common defense and security, and the environment." NRC Statement of Policy on Conduct of Adjudicatory Proceedings, 48 NRC 18, 19 (1998).

Requestors have an injury in fact if injury is threatened. See Georgia Institute of Technology, 42 NRC at 115. The Commission in Georgia Institute of Technology affirmed the Board's determination finding standing because it was "neither 'extravagant' nor 'a stretch of the imagination' to presume that some injury, 'which wouldn't have to be very great,' could occur within ½ mile of the research reactor." Id. at 117. Though Georgia Institute of Technology involved a nuclear reactor, the Commission articulated the general principle that "[w]hether and at what distance a petitioner can be presumed to be affected must be judged on a case-by-case basis, taking into account the nature of the proposed action and the significance of the radioactive

source." Georgia Institute of Technology, 42 NRC at 116.

Here, requestors have standing per se because they live in close proximity to the proposed irradiation facility. Moreover, as alleged in the request, the proposed irradiation facility threatens their health and safety, as well as their property, which are well within the "zone of interests" protected by the Commission.

A. THE REQUESTORS HAVE STANDING PER SE

The law is that persons in close proximity to radioactive uses have standing per se. Contrary to applicant's Response, the Commission's decision in Armed Forces Radiobiology Research Institute is relevant and on-point. The Commission in Armed Forces found that its decision regarding geographic proximity and standing in Virginia Electric and Power Co. controlled the Armed Forces application for a cobalt-60 storage facility because "the concept of geographic proximity is not limited to cases involving Part 50 licenses [nuclear reactors]." Armed Forces Radiobiology Research Institute, (Cobalt-60 Storage Facility), 16 NRC 150, 154 (1982). The Commission in Armed Forces held:

"[W]e have never required a petitioner in such geographic proximity to the facility in question to establish, as a precondition to intervention, that his concerns are well-founded in fact...Rather, close proximity has always been deemed to be enough, standing alone, to establish the requisite interest." Armed Forces Radiobiology Research Institute, 16 NRC at 154 quoting Virginia Electric and Power Co., 9 NRC at 56.

Similarly, in Houston Lighting and Power Company, the Commission stated that a Petitioner "may base its standing upon a showing that his or her residence...is 'within the geographic zone that might be affected by an accidental release of fission products.'" Houston Lighting and Power Company (South Texas Project, Units 1 and 2), 9 NRC 439, 443 (1979) quoting Louisiana Power and Light Company (Waterford Steam Electric Station, Unit 3), 6 AEC 371, 372 fn. 5 (1973). Corporation and General Atomics (Gore, Oklahoma Site), 40 NRC 64, 73 (1994) (emphasis added).

As held by the Commission in Armed Forces, requestors have standing when "at least one member of petitioner's organization lives as close as three miles from the substantial source of radioactive material." Armed Forces Radiobiology Research Institute, 16 NRC at 154 (emphasis added). It relied on the holding in Duke Power Co. v. Carolina Environmental Study Group where the Supreme Court "suggested generally that the release of any sort of radiation constitutes an injury in fact to persons in the area surrounding a nuclear facility." Id. citing Duke Power Co. v. Carolina Environmental Study Group, 438 U.S. 59, 74 (1978).

Here, requestors live only one half ($\frac{1}{2}$) of a mile to two (2) miles from the proposed irradiation facility. Therefore, all requestors are well within the standard of Armed Forces.

B. EVEN IF THE COMMISSION FINDS GEOGRAPHIC PROXIMITY DOES NOT EQUAL STANDING PER SE, REQUESTORS HAVE STANDING BECAUSE THEY WILL SUFFER ACTUAL INJURY

Requestors still have standing even if the Commission requires them to demonstrate more than proximity. The Commission in Georgia Institute of Technology held that, "[f]or standing, the petitioner must allege a concrete and particularized injury that is fairly traceable to the challenged action and likely to be redressed by a favorable decision." Georgia Institute of Technology (Georgia Tech Research Reactor), 42 NRC 111, 115 (1995); See also Lujan v. Defenders of Wildlife, 504 U.S. 555, 560 (1992); Sequoyah Fuels Corporation and General Atomics (Gore, Oklahoma Site), 40 NRC 64, 73 (1994).

Here, a causal connection exists between the Commission granting the license and the threat of injury to requestors' health, safety and property through possible negligent or intentional exposure to radiation and radioactive waste. This concrete and particularized injury will be redressed by a favorable decision. The irradiation facility has a maximum capacity for 1,000,000 curies of cobalt-60, is designed atypically, and may be the first of its kind in the United States. (Preliminary Report of R. Alvarez Exhibit D).

Further, enough evidence has been presented thusfar to conclude there is at least a *possibility* that ozone and/or cobalt-60 could be emitted into the air or public water supply

from the facility or during transport in the local area causing harm to requestors. Requestors' expert found:

"[p]otential sources for environmental contamination include air emissions from air circulation around the vessel [containing the cobalt-60], the storage of radioactive waste in the form of resins collected from water chemistry controls, the cracking of the vessel from a loss of coolant, mishandling of Co-60 rods during transportation, loading and discharge, cracking and leaks from the Co-60 rods." (Preliminary Report of R. Alvarez Exhibit D).

While the Commission has stated that proximity alone does not suffice for standing in materials licensing cases, See International Uranium (USA) Corporation (White Mesa Uranium Mill; Alternate Feed Material), 1998 NRC LEXIS 12 (1998), the CFC license at issue here is not a standard materials licensing case; the proposed facility has a maximum capacity of 1,000,000 curies, and the design is not typical of irradiation facilities using cobalt-60 and may be the first of such a design in the United States. (Preliminary Report of R. Alvarez attached as Exhibit D). Due to the high amount of cobalt-60 that will be used at the facility and its atypical design, the potential for injury to requestors may be greater. Id.

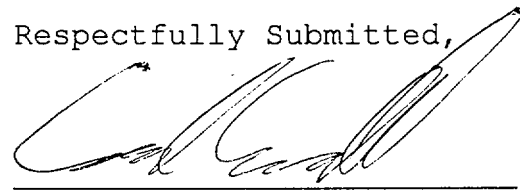
The Commission's decision to grant CFC a license is a direct threat to requestors' health and safety. Additionally, requestors' property value will fall if the Commission grants CFC a license. Finally, requestors allege national security concerns that potentially leave the facility and requestors vulnerable to

terrorism. Contrary to applicant's Response, these concerns are not addressed in the license application because applicant requested that security measures *not* be made publicly available. (Response at 12 fn. 14). Therefore, requestors have standing because they will suffer actual harm to their health, safety and property.

V. CONCLUSION

For the foregoing reasons, requestors respectfully request that the Commission grant a hearing because their request is timely and properly served, and they have requisite standing.

Respectfully Submitted,



ROBERT J. SUGARMAN
I.D. No. 03332
CARL W. EWALD
I.D. No. 85639
Counsel for Requestors

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Dated: 7/17/03

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* Also admitted in NY, DC

June 23, 2003

John Kinneman
Branch Chief
Nuclear Regulatory Commission
475 Allendale Road
King of Prussia, PA 19406

RE: License application by CFC Logistics, Inc. (docket number
03036239)

Dear Mr. Kinneman:

Please accept this letter as a request on behalf of several residents of Milford Township for a hearing before the Nuclear Regulatory Commission (NRC) regarding the above application to use cobalt-60 in the irradiation of food at 4000 AM Drive, Quakertown, PA 18951 in Milford Township, Pennsylvania. See exhibit for list of requestors.

Requestors Tom Helt, Kelly Helt and Andrew Ford have standing to request a hearing because they live approximately half a mile from the proposed irradiation facility. All of the remaining requestors live less than two miles from the facility. See exhibit. Given the significant potential risks associated with nuclear materials, they and their property will be affected by an NRC decision to grant CFC Logistics, Inc. a license.

This request for a hearing is timely. Philip Stein and Judy Szela learned of the pending application on Friday, May 23, 2003 when Mr. Stein went to a local store, and the owner told him about the proposed irradiation at the CFC facility. Notice of CFC's application to the NRC for a license to use cobalt for the irradiation of food was not published in the Federal Register. Therefore, because notice was not published in the Federal Register, this request is timely because it is being filed 30 days after the requestor received actual notice of the pending application (the limitation period is tolled to the next business day if, as is the case here, the day on which the time period ends is a Sunday. 10 C.F.R. § 2.1314). 10 C.F.R. § 2.1205(d).

EXHIBIT

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tabbies

The remaining requestors learned of the pending application approximately one week ago, and are therefore well within the 30-day time limitation prescribed by 10 C.F.R. § 2.1205(d).

The use of cobalt to perform irradiation is a highly hazardous activity which is a threat to employees, neighbors, and the public. The proposed irradiation facility is unsafe because it is not sufficiently isolated from residents of Milford Township. Because irradiation plants are relatively small, they are often unregulated and lack adequate security, posing a serious threat to national security and the local community. See Samuel Epstein, M.D., *Food Irradiation Threatens Public Health*, Environmental News Service, Mar. 8, 2002. There is no public evidence of any precautionary measures for this facility. Further, irradiation plants pose environmental and public health dangers by generating high levels of ozone that is particularly harmful because of its close proximity to the ground. *Id.* Moreover, irradiation plants must be regularly replenished with cobalt, thereby increasing transportation hazards (nationally and locally) as frequent shipments of highly radioactive material must be made to the plant. See Samuel S. Epstein, M.D. & Wenonah Hauter, *Preventing Pathogenic Food Poisoning: Sanitation, Not Irradiation*, International Journal of Health Services, Vol. 31 No. 1, 2001. Some irradiation facilities expose workers to dangerous levels of radiation when they frequently have to open irradiation chambers, See Donald Louria, *Zapping the Food Supply*, Bulletin of the Atomic Scientists, Vol. 46 No. 5, June 1990, as shown by incidents at New Jersey irradiation plants leaving workers injured after exposure to near-fatal doses of cobalt-60, and the public sewer system contaminated after introducing cobalt-60 contaminated water into the system, residents will be affected as well. See *Dangers of Irradiation Facilities: A legacy of deaths, injuries, accidents and cover-ups*, Organic Consumers Association (first published by Public Citizen (www.citizen.org), March 14, 2001.

Requestors have not had an opportunity to voice their concerns about CFC's license application to the NRC. Evidence as to the undue chronic and accidental spill risk would be presented. We respectfully request that the requestors be granted a hearing to do so.

Sincerely,



Robert J. Sugarman

cc: General Counsel, Nuclear Regulatory Commission

CFC Logistics, Inc. license application (docket number 03036239)

Hearing requestors

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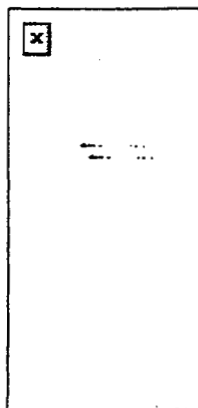
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Bulletin of the
Atomic
Scientists

June 1990

Vol. 46, No. 5



Zapping the food supply

Donald B. Louria

New arguments are boiling up over an old idea--irradiating food with ionizing radiation to kill microorganisms and prolong shelf life. The idea of exposing food to gamma radiation is over 30 years old, and in 1963 the Food and Drug Administration (FDA) began to permit the irradiation of wheat. Over the years, a few more foodstuffs such as spices and tea were added to the FDA's list of candidates for irradiation. But in 1984 the FDA started to approve irradiation of a much broader list of products which now includes meat, poultry, and fresh fruits and vegetables. Simultaneously the FDA has increased the levels of radiation that may be used. The FDA's recent willingness to allow most of the food supply to be irradiated--and at high doses--has triggered an acrimonious debate.

The amount of radiation involved is substantial. The FDA has approved a 3,000,000 rad dosage for treating spices, 300,000 rad for pork, and 100,000 rad for fresh fruits and vegetables. These intensities are millions of times greater than that of an ordinary chest X-ray (which is typically about 20 millirad). The announced goal of promoters of food irradiation is to obtain general approval for the use of up to one million rad. ←

Irradiation does not make food radioactive, nor has alleged radioactivity been at issue in the debate. But there is concern that foods processed by irradiation may contain radiolytic products that could have toxic effects. ←

The source of radiation is either cobalt 60 or cesium 137. The prospect of increased transportation and handling of cobalt and cesium--dangerous substances--has caused negative publicity. Some irradiation proponents say food processors could theoretically use as-yet-undeveloped linear acceleration techniques instead. But if food irradiation becomes commonplace any time soon, cesium or cobalt

will be used.

The major objective of irradiation is to destroy microorganisms that cause food to spoil. For example, irradiating chicken should reduce the outbreaks of salmonella that are probably caused by careless or unhygienic methods in production and processing. Irradiating pork might reduce the already limited risk of trichinosis, and irradiating turkey would diminish the number of episodes of diarrhea that result from eating undercooked meat. William McGivney, an advocate of the technology, asserts that "irradiation offers a means to decontaminate, disinfect and retard the spoilage of the food supply."¹ Most opponents counter that adequate cooking and hygienic preparation will accomplish the same goal.

Promoters of irradiation emphasize that the shelf life of various foods will be increased. But these proponents have not produced any projections of the actual economic, or other, benefits of longer shelf life, especially in a developed country that has an abundant food supply. It may be easier to imagine that less developed countries might benefit if the shelf life of foodstuffs could be prolonged. But advocates have made no estimates of the extent to which better preservation would reduce world hunger, or of the cost of widespread food irradiation in less developed countries.

Irradiation is expected to reduce the need to use toxic chemicals as post-harvest fumigants, but some evidence indicates that irradiated foods are more, not less, subject to infection with certain fungi.²

At dispute in the controversy over food irradiation are the quality of the FDA's safety assessment, the loss of nutritional value that irradiated foods undergo, the risk of environmental contamination posed by irradiation facilities, and the possible cancer-causing nature of irradiated foods. An additional dispute revolves around the motives of the Energy Department, which has promoted irradiation and is the potential supplier of cesium 137, a waste byproduct of nuclear reactors.

- **Safety.** The FDA judged safety based on five of 441 available toxicity studies. Of the available literature, claimed the FDA, only these five animal studies were "properly conducted, fully adequate by 1980 toxicological standards and able to stand alone in support of safety."³

But when these studies were reviewed at the Department of Preventive Medicine and Community Health of the New Jersey Medical School, two were found to be methodologically flawed, either by poor statistical analyses or because negative data were disregarded.⁴ One of the two also suggested that irradiated food could have adverse effects on older animals. In a third FDA-cited study, animals fed a diet of irradiated food experienced weight loss and miscarriage, almost certainly due to irradiation-induced vitamin E dietary deficiency.⁵ This

study, which used foods that had been subjected to large doses of radiation, indicated that irradiated food suffered nutritional loss.

These three studies do not document the safety of food irradiation, and why the FDA relied on them is mystifying. The two other studies cited by FDA appear to be sound, but these studies investigated the effects of diets consisting of foods irradiated at doses below the current FDA-approved general level of 100,000 rad. Therefore they cannot be used to justify irradiation of foods at the levels currently approved by the FDA. Now, as the FDA considers adopting 300,000 rad as the general dosage level, the agency has not requested new studies, but is relying on some of the older studies it failed to include as methodologically sound.

Ethical and methodological barriers make it nearly impossible to study the effects of a diet of irradiated foods in human subjects. One small, controversial study carried out in India in the mid-1970s looked at the effects of feeding irradiated and unirradiated foods to 15 children with severe protein and total-calorie malnutrition.⁶ Five children were fed unirradiated wheat, five freshly irradiated wheat, and five ate irradiated wheat that had been stored for a minimum of three months. Children who had eaten freshly irradiated wheat had unusually high rates of chromosomal abnormalities in their blood (especially polyploidy). No such changes occurred in the group that ate irradiated wheat that had been stored. Although some animal studies have supported the results of this study, it has provoked an acerbic debate. Clearly, the study has major flaws: the size of the sample is too small, subjects were not properly randomized, and statistical methods are unclear. A more recent study of 70 subjects was conducted in China.⁷ In contrast to the severely malnourished subjects in the Indian study, all the Chinese subjects were healthy young men and women. The experimental group ate irradiated foods that had been stored for an extended period of time. (Also, the group's diet was essentially wheat-free.) Both groups—those receiving irradiated foods and the control group—showed some increases in chromosomal abnormalities during the test period. Those given irradiated foods appeared to have a slightly increased rate of abnormalities. While neither of these studies are conclusive, they should not be dismissed. If the malnourished are particularly vulnerable to the dangers of an irradiated diet, hundreds of millions of malnourished people could be at risk. More studies on chromosomal abnormalities are necessary, but there are ethical as well as methodological problems in designing and conducting them.

- **Nutrition.** There is impressive evidence that irradiated foods lose vitamin content, particularly vitamins A, C, E, and some of the B complex.⁸ The amount of vitamin loss varies from one type of food to another, but in general there is a direct relationship between the amount of irradiation and the extent

of nutritional value lost. Data on foods irradiated with 100,000 rad cannot be relied on to predict vitamin losses in foods irradiated with 300,000 or 1,000,000 rad. Some studies indicate that cooking irradiated foods causes an additional, inordinate loss of nutrients.⁹ In addition, little is known about the nutritional effects of freezing and thawing food that has been irradiated. ←

Those who favor irradiation do not deny the loss of vitamin content, but often assert that these nutritional losses will not harm people who eat a generally nutritious and balanced diet. Others suggest that irradiated foods should be fortified with vitamins, or that the public should be urged to take vitamin supplements. In less developed countries, reducing the food supply's nutritional value would seem to raise a major ethical question. Asking the world's 800 million malnourished and 2 billion undernourished to make a possible trade-off between longer shelf life and less nutrition seems harsh, particularly before more complete information on the nutritional value of irradiated foods is available.

- **Environmental issues.** Opponents of food irradiation have raised four interrelated environmental issues: the dangers of transporting radioactive isotopes to hundreds of treatment facilities, the environmental practices of those facilities, the danger of worker exposure in environments where irradiation chambers are frequently opened to allow foodstuffs to pass in and out rapidly, and potential security problems at irradiation plants. — what!!!

If all the poultry in the United States were to be irradiated, hundreds of new irradiation plants would be needed. There are about forty plants of a size suitable for food irradiation already in operation. Most of these plants are used primarily to irradiate disposable medical equipment. In New Jersey, which has the highest concentration of these facilities, plant safety records are not encouraging. Virtually every New Jersey plant has a record of environmental contamination, worker overexposure, and regulatory failings. }

A serious accident occurred at a Decatur, Georgia, cesium irradiator in June 1988. That facility was shut down after a cesium leak exposed 10 workers to radiation and contaminated medical supplies and consumer products.¹⁰ Clean-up costs at the Decatur plant have climbed to more than \$15 million, and no conclusions have been reached about the cause of the accident.

Unlike major nuclear facilities, irradiation plants will be relatively small and are unlikely to be well protected. Opponents fear these plants will be particularly vulnerable to sabotage or terrorist attack and express similar concerns about the safety and security of large numbers of shipments of highly radioactive materials. If food irradiation becomes commonplace, hundreds of irradiation plants will need to have their inventories of cesium 137 or cobalt 60 replenished on a

regular basis.

- **The cancer threat.** The irradiation process produces unique radiolytic products whose chemical and toxic properties have not been characterized. In-vitro tests in the laboratory suggest that some of these products may cause mutations, and these tests have led critics of irradiation to contend that some irradiated foods may prove carcinogenic. But there are no substantial data from epidemiological studies on either animals or humans to support that contention. Unless the chemical properties of all the radiolytic products are identified, and animals studies using amplified doses are conducted, there is no way to prove that a cancer risk exists and, if so, whether it would fall within acceptable limits. Adequate evidence for prudent decisions on the cancer risk of food irradiation will not be available for some time.
- **The Energy Department connection.** The Energy Department, through its Byproducts Utilization Program, tries to develop commercial uses for radioactive waste products. Creating a commercial demand for cesium, which is a waste product of both weapons production and civilian nuclear power, has been one of its expressed goals since the early 1980s. Energy Department memoranda indicate that the department's plan included pricing cesium so low that it would drive Canadian cobalt out of the market.¹¹

Some critics charge that the Energy Department has been even more devious. They claim that the department was less interested in disposing of cesium than it was in overturning the ban on reprocessing civilian nuclear fuel. These critics claim that the department calculated that widespread food irradiation would eventually deplete the available supplies of cesium 137. At that point, the irradiation industry would begin to lobby for the reprocessing of spent fuel, and the department could use the industry to overcome the political and economic obstacles to reprocessing nuclear fuel. Once reprocessing was permitted, the Energy Department could separate the plutonium in spent fuel, which it could then use in weapons.¹²

There is no reason to adopt every new technology that is suggested. Ideally, food irradiation should be made to compete on a commercial basis with other technologies. If it had no disadvantages or dangers, the marketplace alone would decide its fate. Most food processors now think that irradiation is costly and less effective than other methods of preservation, and consumers are resistant to the idea of radiation-treated foods. But the adoption of food irradiation technologies raises questions of public health. Many local authorities have opted for alternative technologies. In Florida, the Citrus Commission/Department of Agriculture has chosen to use two other processes—fly-free zones and cold treatment. Hawaiian officials rejected federal funds offered to build an irradiation facility for processing papaya; instead, the papaya processor will use non-

chemical treatments such as dry and steam heat or double hot water dips. Some biotechnological researchers are confident that recombinant DNA technologies will eventually create pest-resistant fruits and vegetables with extraordinarily long shelf lives.

If food irradiation is adopted prematurely, research on its health effects will be hampered. Widespread use of the technology will make it impossible to detect any but the most obvious of adverse effects, because it will be impossible to define a control population for purposes of study. This problem will be further complicated if irradiation levels are increased to 1 million rad.

Labeling is currently required to notify the consumer when whole foods have been irradiated. The label includes written notice and the international irradiation symbol, the "radura"—a stylized flower which has caused some confusion because of its close resemblance to the Environmental Protection Agency's logo. Prepared or packaged foods, foods prepared for restaurant or school cafeteria use, and foods which merely contain some irradiated ingredients are exempt from labeling.

While the FDA has approved wholesale food irradiation, other regulators are less eager. More than a dozen state legislatures, concerned about the environmental and health risks of irradiated food, have restricted its sale and distribution. Maine has banned both irradiation facilities and all irradiated food except spices. New York and New Jersey recently enacted two-year moratoriums on the sale or distribution of irradiated foods, and New Jersey has prohibited the "manufacture" of such food items. Other states contemplating restrictive legislation include Massachusetts, Pennsylvania, Minnesota, Oregon, and Alaska. Bills have been introduced in Congress to place a two-year moratorium on irradiated foods while the National Academy of Sciences reviews the health, environment, and worker safety issues. Great Britain has banned irradiated food, although legislation has been introduced into Parliament to overturn the ban. West Germany, Australia, Denmark, Sweden, and New Zealand have all banned or severely limited the implementation of food irradiation.

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March 14, 2001

THE DANGERS OF IRRADIATION FACILITIES A LEGACY OF DEATHS, INJURIES, ACCIDENTS AND COVER-UPS

Thanks to Public Citizen for this summary

Supporters of food irradiation often say that irradiation facilities are safe. They say accidents rarely happen. They say injuries and deaths are infrequent. They say the public is in no danger.

The historical record says otherwise. Since the 1960s, dozens of accidents-- as well as numerous acts of wrongdoing-- have been reported at irradiation facilities throughout the United States and the world. Radioactive water has been flushed down toilets into the public sewer system. Radioactive waste has been thrown into the garbage. Radiation has leaked. Facilities have caught fire. Equipment has malfunctioned. Workers have lost fingers, hands, legs and, in several cases, their lives. Company executives have been charged with cover-ups and, in one case, sentenced to federal prison.

The debate over food irradiation would not be complete without an understanding of the risks associated with the technology itself. Here are some examples of what can go wrong.

ACCIDENTS AT GAMMA-RAY FACILITIES

Decatur, Georgia

In June 1988, a capsule of radioactive cesium-137-- a waste product from nuclear weapons production-- sprung a leak at a Radiation Sterilizers plant near Atlanta. Though the leak was contained to the site, two of the three exposed workers spread radioactivity to their cars and homes. And an estimated 70,000 milk cartons, contact lens solution boxes and other containers were shipped out after they were splashed with radioactive water. Only about 900 of the contaminated containers were recalled. The ensuing taxpayer-funded cleanup cost more than \$30 million, after which a government report concluded that "the public health and safety could have been compromised."

Dover, New Jersey

In June 1986, two senior executives of Palo Alto, CA-based International Neutronics were indicted on federal charges of conspiracy, mail fraud and wire fraud in connection with an October 1982 spill of 600 gallons of water contaminated by radioactive cobalt-60. After a pump malfunctioned, workers were instructed to pour the radioactive water down a shower drain that emptied into the public sewer system. Workers were also ordered to wear their radiation-detection "badges" in such a way to falsify radiation levels. In the words of a federal prosecutor, company executives "bamboozled" Nuclear Regulatory Commission (NRC) inspectors by delaying an inspection of the facility, where food, gems, chemicals and medical supplies were irradiated. A \$2 million cleanup included the cost to dispose of radioactive material at a nuclear waste dump in South Carolina. Company vice president Eugene O'Sullivan, a former member of the U.S. Atomic Energy Commission, was convicted of conspiracy and fraud in October 1986.

Honolulu, Hawaii

In 1979, decontamination began at the state-run Hawaiian Developmental Irradiator at Fort Armstrong where, years earlier, radioactive water leaked onto the roof and the front lawn. Nearly 100,000 pounds of steel, 250 cubic feet of concrete and 1,100 cubic feet of soil were removed and taken to the nuclear waste dump in Hanford, Wash. The plant was shut down in 1980 and the remaining cobalt-60 was shipped to the University of Hawaii. Hawaii taxpayers paid most of the \$500,000 cleanup.

Parsippany, New Jersey

In June 1974, William McKimm, the radiation director at an Isomedix cobalt-60 facility, was exposed to a near-fatal dose of 400 rems while irradiating medical supplies. McKimm was critically injured and hospitalized for a month. Two years later, a fire near the cobalt storage pool released chemicals into the pool that caused the cobalt rods to corrode and leak. Radioactive water was then flushed down the toilet into the public sewer system. Eventually, concrete around the cobalt-60 pool, as well as the toilet and bathroom plumbing, was found to be radioactive and taken to a nuclear waste dump. The amount of radiation released into the public sewer system was never determined.

Rockaway, New Jersey

In 1977, Michael Pierson was exposed to a near-fatal dose of 150-300 rems at a Radiation Technology facility when a system designed to protect workers from radioactive cobalt-60 failed. In 1986, the NRC cited company executives for intentionally disabling the system. In 1988-- after more than 30 NRC violations, including one for throwing out radioactive garbage with the trash-- company president Martin Welt and nuclear engineer William Jouris were charged in

federal court with 11 counts of conspiracy to defraud the NRC, making false statements and violating the Atomic Energy Act. Welt, who threatened to fire workers who didn't lie to NRC investigators, was also charged with obstruction of justice. Both men were convicted. Jouris was sentenced to probation; Welt was sentenced to two years in prison, placed on three years probation and fined \$50,000.

ACCIDENTS AT ELECTRON-BEAM FACILITIES

In 1991, a Maryland worker ignored safety warnings and received a 5,000-rad dose from a 3 million electron-volt linear accelerator. He lost four fingers.

In 1992, a mishap at a 15 million electron-volt linear accelerator in Hanoi cost the facility's research director a hand and several fingers.

FATAL ACCIDENTS IN OTHER COUNTRIES

In February 1989, three El Salvadoran workers suffered serious burns and radiation sickness when they were exposed to cobalt-60. None had received formal training to operate the equipment, which was made by Atomic Energy of Canada Limited. Eventually, one worker died and the others had their legs amputated.

In 1975, an Italian worker was exposed to cobalt-60 when he bypassed all safety controls, climbed onto a conveyor belt and entered the irradiation chamber. He died 12 days later.

In 1982, a Norwegian worker received a 1,000-rem cobalt-60 dose while trying fix a jammed conveyor belt. He died 13 days later.

In 1990, an Israeli worker was exposed to cobalt-60 after an alarm failed. He died 36 days later.

In 1991, a worker in Belarus was exposed to cobalt-60 after several safety features were circumvented. He died 113 days later.

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To learn more about food irradiation, visit <http://www.citizen.org/cmep>.

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PREVENTING PATHOGENIC FOOD POISONING: SANITATION, NOT IRRADIATION Page 1 of 3

**PREVENTING PATHOGENIC FOOD POISONING: SANITATION,
NOT IRRADIATION***

by Samuel S. Epstein, MD, and Wenonah Hauter

Bacterial food poisoning can be readily prevented by long overdue basic sanitary measures rather than by ultra hazardous irradiation technologies.

The food and nuclear industries, with strong government support, have capitalized on recent outbreaks of pathogenic *E. Coli* 0157 meat poisoning to mobilize public acceptance of large-scale food irradiation. Already, the Food and Drug Administration (FDA) is allowing the use of high-level radiation to "treat" beef, pork, poultry, eggs, vegetables, fruit, flour, and spices, while the U.S. Department of agriculture (USDA) proposes the imminent irradiation of imported fruit and vegetables.

... the proposed "electronic pasteurization" label is a euphemistic absurdity, especially since the FDA's approved meat irradiation dosage of 450,000 rads is approximately 150 million times greater than that of a chest X-ray, besides circumventing consumers' fundamental right to know.

Caving in to powerful corporate industry interests, both House and Senate Appropriations Committees have recently proposed to sanitize the FDA's weak labeling requirements for irradiated food by eliminating the word "irradiated" in favor of "electronic pasteurization"; this term was proposed by the San Diego-based Titan corporation, an erstwhile major defense contractor using highly costly linear accelerator "E-beam" technology, originally designed for President Reagan's "Star Wars" program, to shoot food with a stream of electrons traveling at the speed of light. However, the proposed "electronic pasteurization" label is a euphemistic absurdity, especially since the FDA's approved meat irradiation dosage of 450,000 rads is approximately 150 million times greater than that of a chest X-ray, besides circumventing consumers' fundamental right to know.

Furthermore, the new labeling initiative is reckless. Irradiated meat is a very different product from cooked meat. Whether the meat is irradiated by linear accelerators or by pelletized radioactive isotopes, the resulting ionizing radiation produces highly reactive free radicals and peroxides from unsaturated fats. U.S. Army analyses in 1977 revealed major differences between the volatile chemicals formed during irradiation and during the cooking of meat. Levels of the carcinogen benzene in irradiated beef were found to be some tenfold higher than in cooked beef. Additionally, high concentrations of six poorly characterized "unique radiolytic chemical products," admittedly "implicated as carcinogens or carcinogenic under certain conditions," were also identified.

Levels of the carcinogen benzene in irradiated beef were found to be some tenfold higher than in cooked beef.

Based on these striking changes in the chemistry of irradiated meat, the FDA's 1980 Irradiated Food Committee explicitly warned that safety testing should be based on concentrated extracts of irradiated foods, rather than on whole foods, to maximize the concentration of radiolytic products. This would allow development of sufficient sensitivity for routine safety testing. In 1984, Epstein and Gofman more specifically urged that "stable radiolytic products could be extracted from irradiated foods by various solvents which could then be concentrated and subsequently tested. Until such fundamental studies are undertaken, there is little scientific basis for accepting industry's assurances of safety." In an accompanying comment, the FDA was quoted as admitting that "it is nearly impossible to detect [and test radiolytic products] with current techniques" on the basis of which the agency's claims of safety persist.

While refusing to require standard toxicological and carcinogenicity testing of concentrated extracts of radiolytic products from irradiated meat and other foods, the FDA instead has relied on some five studies selected from 441 published prior to the early 1980s, on which its claims of safety are still based. However, the chairperson of the FDA's Irradiated Food Task Committee, which reviewed these studies, insisted that none were adequate by 1982 standards, and even less so by 1990s standards. Furthermore, a detailed analysis of these studies revealed that all were grossly flawed and non-exculpatory.

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PREVENTING PATHOGENIC FOOD POISONING: SANITATION, NOT IRRADIATION... Page 2 of 3

Food irradiation results in major micronutrient losses, particularly in vitamins A, C, and E and the B complex. As admitted by the USDA Agricultural Research Service, these losses are synergistically increased by cooking, resulting in "empty calorie" food; this is a concern of major importance for malnourished populations

These results are hardly surprising given that a wide range of independent studies before 1986 clearly identified mutagenic and carcinogenic radiolytic products in irradiated food and confirmed evidence of genetic toxicity in tests on irradiated food. Studies in the 1970s by India's National Institute of Nutrition reported that feeding freshly irradiated wheat to monkeys, rats, and mice and to a small group of malnourished children induced gross chromosomal abnormalities in blood and bone marrow cells, and mutational damage in the rodents.

Food irradiation results in major micronutrient losses, particularly in vitamins A, C, and E and the B complex. As admitted by the USDA Agricultural Research Service, these losses are synergistically increased by cooking, resulting in "empty calorie" food; this is a concern of major importance for malnourished populations. Radiation has also been used to clean up food unfit for human consumption, such as spoiled fish, by killing odorous contaminating bacteria.

... the Department of Energy continues its decades-long aggressive promotion of food irradiation as a way of reducing disposal costs of spent military and civilian nuclear fuel by providing a commercial market for cesium nuclear wastes.

While the USDA is strongly promoting meat and poultry irradiation, it has been moving to deregulate and privatize the industry by promoting a self-policing Hazard Analysis and Critical Control Point control program; in late 2000, the agency will start a rule-making process to privatize meat inspection. Moreover, the Department of Energy continues its decades-long aggressive promotion of food irradiation as a way of reducing disposal costs of spent military and civilian nuclear fuel by providing a commercial market for cesium nuclear wastes.

Irradiation facilities using pelletized isotopes pose risks of nuclear accidents to communities nationwide from the hundreds of facilities envisaged for the potentially enormous irradiation market; in contrast to nuclear power stations, these facilities are small, minimally regulated, and unlikely to be secure and they require regular replenishment of cobalt (Co-60) or cesium (Cs-137) isotopes, entailing nationwide transportation hazards. Furthermore, linear accelerators, besides plants using radioactive isotopes, pose grave hazards to workers and are subject to virtually no regulation.

... the Nuclear Regulatory Commission files are bulging with unreported documents on radioactive spills, worker overexposure, and off-site radiation leakage. Strangely, the Environmental Protection Agency has still failed to require an Environmental Impact Statement before the siting of food irradiation facilities.

The track record of the irradiation industry is, at best, unimpressive. Robert Alvarez, former senior policy advisor in the Department of Energy, recently warned that the Nuclear Regulatory Commission files are bulging with unreported documents on radioactive spills, worker overexposure, and off-site radiation leakage. Strangely, the Environmental Protection Agency has still failed to require an Environmental Impact Statement before the siting of food irradiation facilities.

The focus of the irradiation and agribusiness industries is directed to the highly lucrative cleanup of contaminated food rather than to preventing contamination at its source. However, *E. coli* 0157 food poisoning can be largely prevented by long overdue improved sanitation. Feedlot pen sanitation, including reduced overcrowding, drinking water disinfection, and fly control, would drastically lower cattle infection rates. Moreover, *E. coli* 0157 infection rates could be virtually eliminated by feeding hay, rather than the standard unhealthy starchy grain, for seven days prior to slaughter. Sanitation would also prevent water contamination from feedlot runoff, incriminated in the recent outbreak of *E. coli* 0157 poisoning in Walkerton, Ontario; runoff will remain a continuing threat even if all meat is irradiated.

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PREVENTING PATHOGENIC FOOD POISONING: SANITATION, NOT IRRADIATION... Page 3 of 3

Pre-slaughter, post-knocking, and post-evisceration sanitation at meat packing plants is highly effective for reducing carcass contamination rates. Testing pooled carcasses for *E coli* 0157 and *Salmonella* contamination is economical, practical, and rapid. The expense of producing sanitary meat would be trivial compared with the high cost of irradiation, including possible nuclear accidents, which would be passed on to consumers. Additional high costs are likely to result from an expected international ban on the imports of irradiated U.S. food, and also from losses of tourist revenues.

... food poisoning can be largely prevented by long overdue improved sanitation. ...
 expense of producing sanitary meat would be trivial compared with the high cost of
 irradiation ...

We charge that the support of the "electronic pasteurization" label by the food and irradiation industries, governmental agencies, and Congress is a camouflaged denial of citizen's fundamental right to know. Rather than sanitizing the label in response to special interests, Congress should focus on sanitation, not irradiation of the nation's food supply.

*Epstein, Samuel S. and Wenonah Hauter, "Preventing Pathogenic Food Poisoning: Sanitation, Not Irradiation," *International Journal of Health Services*, 31(1):187-92, 2001.

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FOOD IRRADIATION THREATENS PUBLIC HEALTH

Date: 020310

From: <http://www.ens.com>

By Samuel Epstein, M.D., March 8, 2002

Chicago, Illinois - Iowa Senator Tom Harkin's last minute provisions in the Senate farm bill allowing irradiated beef to be labelled "pasteurized," instead of the Food and Drug Administration's small print "treated by irradiation" label, is a surprising denial of consumers' fundamental right-to-know.

Consumers are wary of irradiated food, and with good reason even if they don't understand the dangers involved. Irradiated meat is a very different product from cooked meat. Irrespective of whether radiated by radioactive cobalt pellets or rods, X-ray machines or electron beams, the current permissible radiation dosage is about 200 million times greater than a chest X-ray.

As well documented since the 1960s, these massive doses of ionizing radiation produce profound chemical changes in meat. These include elevated levels of the carcinogenic chemical benzene, and also the production of unique new chemicals, known as radiolytic products, some of which have been implicated as carcinogenic.

Additionally, irradiated food has been shown to induce genetic damage in a wide range of studies, including tests on malnourished children by India's National Institute of Nutrition.

Of particular concern in this regard, are a group of readily detectable unique chemicals known as cyclobutanones which have recently been shown to cause chromosomal damage in intestinal cells of rats and humans.

The Food and Drug Administration (FDA) and the U.S. Department of Agriculture (USDA) have ignored the strong evidence on the cancer and genetic risks of irradiated food. Instead, they have relied on a group of five studies, selected from a total of over 400 studies prior to 1980, on which their current claims of safety are based.

The FDA has persisted in these claims even though its own expert Irradiated Food Committee warned that the tests are grossly flawed and inadequate.

Furthermore, as admitted by USDA's Agricultural Research Service, irradiation results in major losses of vitamins, particularly A, C, E and the B complex. These losses are substantially increased by cooking, resulting in empty calorie food, a concern of major importance for the malnourished. Radiation has also been used to clean up food unfit for human consumption, such as spoiled fish, by killing odorous contaminating bacteria.

While the USDA is actively supporting meat and poultry radiation, it has been moving to deregulate and privatize the industry by promoting self-policing programs. Irradiation is also aggressively promoted by the Department of Energy's Byproducts Utilization Program to reduce disposal costs of spent military and civilian nuclear fuel by providing a commercial market for nuclear wastes.

Food irradiation plants pose grave dangers to national security. They are relatively small, unregulated, and unlikely to be secure. As such,

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they are highly vulnerable to sabotage.

Of particular current concern are terrorist attacks to steal radioactive cobalt pellets. These could be mixed with conventional explosives to produce so-called "dirty bombs," whose effects could be devastating.

These plants pose additional dangers to local communities by generating high levels of ozone, a very toxic atmospheric pollutant when it is close to ground level instead of high in the stratosphere where it protects the Earth from ultraviolet radiation.

Not surprisingly, the focus of the radiation and agribusiness industries has been directed to the lucrative clean up of contaminated food, rather than preventing contamination at its source. However, bacterial food poisoning, particularly with E.coli O157, which can be dangerous and lethal to young children, can be largely prevented by long overdue improved sanitation, apart from thorough cooking of meat.

Sanitation in cattle feedlots, including reducing overcrowding, drinking water disinfection and fly control, would drastically reduce cattle infection rates.

Moreover, O157 infection rates could be virtually eliminated by feeding hay seven days prior to slaughter, which the industry is unwilling to do because of higher costs. Sanitation would also prevent drinking water contamination from feedlot run off, incriminated in recent outbreaks of O157 poisoning; this would remain a continuing threat even if all meat were irradiated.

Pre-slaughter and post-evisceration sanitation at meat packing plants are also highly effective for reducing carcass contamination rates. Practical techniques are available for rapid individual or pooled carcasses for fecal and bacterial contamination.

The expense of producing sanitary meat would be trivial compared to the high costs of irradiation, which would be passed on to consumers, apart from assuring its wholesomeness and safety, besides preventing nuclear accidents and terrorism.

Rather than sanitizing the label in response to special interests, Congress should focus on sanitation, not irradiation of the nation's food supply.

For further information on food irradiation, see the recently published article "Preventing Pathogenic Food Poisoning: Sanitation, Not Irradiation," endorsed by over 20 leading international experts, "International Journal of Health Services," volume 31(1):187-192, 2001.

Dr. Samuel Epstein is Professor Emeritus Environmental and Occupational Medicine, University of Illinois at Chicago School of Public Health, and Chairman, Cancer Prevention Coalition)

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Top

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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

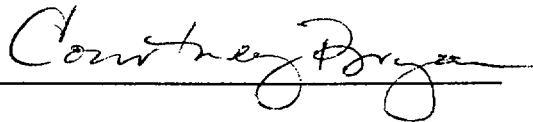
In matter of	:	DOCKET NO. 03036239
CFC LOGISTICS, INC.	:	
materials license application	:	
	:	
	:	

CERTIFICATION OF SERVICE

This is to certify that in this case complete copies of all papers contained in the Request for Hearing have been served upon the following persons, by first class mail and facsimile on

July 15, 2003:

Anthony J. Thompson, Esq.
Christopher S. Pugsley, Esq.
Law Offices of Anthony J. Thompson, P.C.
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Facsimile: (202) 496-0783



COURTNEY BRYAN

SUGARMAN & ASSOCIATES
100 N. 17th Street, 7th Floor
Philadelphia, PA 19103
(215) 864-2500

Affidavit

BRIAN ZERBERT, Pursuant to 28 USC Section 1746,
States as follows:

1 I live at 2066 Huber Dr., Quakertown, PA 18951

2 On June 19th, I became aware of the FCC Logistics
Inc. license Application for a proposed irradiation
facility.

3. I learned of the license application on June 19th
because a lady knocked on my door.

I don't want this in my neighborhood because of
accidents, terrorism, and the lowering of my
property value.

The foregoing is true and correct, subject to the
penalties for unsworn perjury.

Executed this day July 14, 2003.

Brian Zerbert
Brian Zerbert

215 536-0525 (H)
267-246-7972 (W)

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EXHIBIT

B

7-14-03

Affidavit

John GRABOWSKI pursuant to 28 USC Section
1746, STATES AS FOLLOWS:

- 1- I LIVE AT 2065 HUBER DR. QUAKERTOWN PA 18951
John GRABOWSKI 215-529-9978
215-538-9155
- 2- ON JUNE 19TH, I BECAME AWARE OF THE CFC
LOGISTIC, INC. licence application FOR A proposed
IRRADIATION FACILITY
- 3- I LEARNED OF THE LICENCE ON JUNE 19TH WHEN A
LADY CAME TO MY door.

BECAUSE OF THE DANGER OF THE PLANT
REDUCE HOME VALUES AND TERRORISM

THE FOREGOING IS TRUE AND CORRECT, SUBJECT TO
THE PENALTIES FOR UNSWORN PERJURY.

Executed This July 14TH 2003.

John Grabowski

Affidavit

Catherine Hatcher pursuant to 28 USC Section 1746, states as follows:

1. I live at 2086 Huber Dr 215-529-4749
2. On 6-19-03 I became aware of the food irradiation facility.

3. I learned of this license application because ~~Quaman knocked at the door~~

Reasons I don't want: Because it's ^{they plant} dangerous + I don't want that done to my food. I'm afraid of terrorist attacks. It will affect my property value.

The above is true subject to penalties for unsworn perjury.

7/14/03

Catherine Hatcher

Hearing requestors within thirty day time period¹

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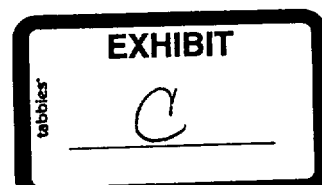
Roseanne Kelsall
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Robert G. Urich
Jennifer Urich
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(215) 529-1630

Brian Zerbert (originally
misspelled as Zunt)
2066 Huber Drive
Quakertown, PA 18951
(215) 536-0565

¹Requestor Judy Szela told these individuals about the CFC Logistics, Inc. license application on June 19, 2003.



carl

From: Robert Alvarez [kitbob@starpower.net]
Sent: Friday, July 11, 2003 11:38 PM
To: Scoutszela@aol.com
Subject: Re: (no subject)

Dear Judy --

Thanks for contacting me. In answer to your lawyer's question:

The irradiator facility has a maximum capacity for 1,000,000 curies of Cobalt-60. Based on a very cursory review of the NRC license application, the design of this facility has the Co-60 contained in a steel vessel, which requires continual water cooling to remove decay heat. The loss of coolant or the failure of the pumps to remove heat from the water may cause the water to boil, pressurization of the vessel, Co-60 rods may overheat, and the vessel to be compromised. Potential sources for environmental contamination include air emissions from air circulation around the vessel, the storage of radioactive waste in the form of resins collected from water chemistry controls, the cracking of the vessel from a loss of coolant, mishandling of Co-60 rods during transportation, loading and discharge, cracking and leaks from the Co-60 rods.

I don't know enough about this design to understand what are the maximum potential accident conditions and their consequences. The same goes for routine operation including equipment failures, maintenance, and operational controls.

This design is not typical of the 60 or so radiation-source irradiators in the US. I'm not sure if there are any other facilities of this type of design in operation. If not, then this design should undergo a rigorous safety analysis, prior to issuance of a license, supported by "proof" of concept engineering data.

It appears to me that the operation is a "first of a kind" because the license application suggests that the company wants to scale up from a relatively small operation of 17,000 curies to it's maximum capacity later on, in increments.

Best Regards,

Bob

EXHIBIT

tabbles

D

carl

From: Kimberly Haymans-Geisler [kh-g@juno.com]
Sent: Friday, July 11, 2003 1:37 PM
To: scoutszela@aol.com; johnsrud@uplink.net; tmackow@comcast.net; skrups@enter.net;
mthomas@onetravel.com; ursusarctos@juno.com
Subject: Robert Alvarez

Biographical Sketch
of

Robert Alvarez

January 2003

Robert Alvarez is a Senior Scholar at the Institute for Policy Studies in Washington, D.C.

Between 1993 and 1999, Mr. Alvarez served as a Senior Policy Advisor to the Secretary of Energy for National Security, Environmental Safety and Health, and Labor. He received two Secretarial Gold medals - the highest award bestowed by the Department. While at DOE Bob played a leading role in several successful initiatives such as:

Securing spent reactor fuel containing weapons-grade plutonium in North Korea.

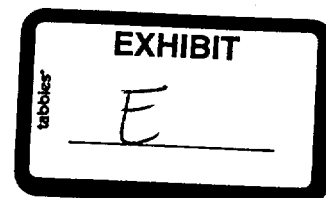
Downsizing of the U.S. nuclear weapons complex and establishing major environmental restoration and waste management projects at closed weapons sites.

Establishing a federal compensation program for nuclear weapons workers made ill from radiation, beryllium and silica.

Prior to joining the DOE, Mr. Alvarez served for five years (1988-93) as Senior Professional Staff for the U. S. Senate Committee on Governmental Affairs, Chaired by Senator John Glenn. As one of the Senate's primary nuclear staff experts, Bob was responsible for oversight, investigations and legislation relative to the Department of Energy, Environmental Protection Agency and Nuclear Regulatory Commission. While working for Senator Glenn, Bob played an important role in the cessation of plutonium for nuclear weapons and the establishment of an environmental cleanup program for the U.S. nuclear weapons program.

In 1975 Bob helped found and served as a Project Director at the Environmental Policy Institute (EPI), a respected national environmental advocacy and research organization. While at EPI, Bob played a prominent role in civilian and military nuclear energy issues.

Bob Alvarez is a national award-winning author and has published several articles in prominent publications including Science Magazine, the Bulletin of Atomic Scientists, The Nation Technology Review, and the Washington Post. He has been featured on National Public Television's Nova Program and was recently featured on CBS "60 Minutes" on March 17, 2002 regarding the challenges associated with military high-level wastes.



UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

In matter of :
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materials license application :
:
:

CERTIFICATION OF SERVICE

This is to certify that in this case complete copies of all
papers contained in the Reply by Petitioners have been served
upon the following persons, by first class mail and facsimile

(where facsimile number is given) on July 17, 2003:

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Administrative Judge
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Special Assistant
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Administrative Judge
Michael C. Farrar
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Office of Commission Appellate Adjudication
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

James Wood
President
CFC Logistics, Inc.
400 AM Drive
Quakertown, PA 18951

A handwritten signature in cursive script, reading "Courtney Bryan", is written over a horizontal line.

COURTNEY BRYAN

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Philadelphia, PA 19103
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