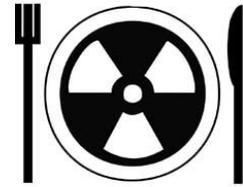




Protecting Health,
Safety & Democracy

A Food Irradiation



Fact Sheet

Big Risks and No Reward: Problems with the Proposed Honolulu Food Irradiation Facility

In June 2005, Pa'ina Hawaii, a fruit company, proposed to build a food irradiation facility near the Honolulu airport. The company plans to use radioactive cobalt-60 to irradiate fruit and vegetables, including papayas, for export to the mainland and possibly elsewhere. This facility proposal creates serious safety risks to create an unwanted product.

A Dangerous Material

Cobalt-60 is a radioactive material that emits gamma radiation, which can cause cancer. Every 5.27 years cobalt 60 loses half of its radioactivity (its half-life).

A Dangerous Location

The irradiation facility is planned to be built right next to the Honolulu international airport, very near Hickam Air force base and the Kamehameha Military Reservation. It will be within just miles of Pearl Harbor, Sand Island State Park, the University of Hawai'i at Manoa, and other important military sites, state parks, and schools.

Potential for an Accident

Lack of Safety Measures?

Large portions of Pa'ina Hawaii's June 20 Material License Application to the U.S. Nuclear Regulatory Commission (NRC) have been blacked out (or "redacted"). Therefore, it is not known whether the application includes two critical safety measures that were installed at a similar irradiation facility using cobalt-60 in Milford Township, PA – or whether the Hawaii irradiator has been redesigned to accommodate these measures.

The NRC ruled on Nov. 4, 2004 that the facility – which also used a Gray*Star "Genesis" irradiator – required:

- "a backup generator to provide a continuous power supply for the pump which

drives air flow through the chamber containing the cobalt-60;” and

- “a light-beam trip-switch to trigger an audible and visual alarm if a cask containing a replacement cobalt source is positioned so that it will traverse over the existing sources.”¹

As it is, an alarm may be inadequate. A device should be installed to immediately halt the installation of new cobalt-60 sources if they are in danger of falling in a hazardous manner.

Further, Pa’ina Hawaii’s application gives no indication whether the irradiator pool could withstand an accidental dropping of cobalt-60 shipping casks, which, lined with lead, are extremely heavy. A cask-drop incident could result in the release of radioactive contamination into the environment.

Again, because Pa’ina Hawaii’s NRC application has been heavily redacted, the public is simply unable to determine whether all government regulations have been met.

Lack of Experience

Gray*Star’s Genesis irradiator has virtually no track record. It is believed to have been put into commercial operation only once before – at the Milford facility. And while no accidents were reported there, the facility shut down after less than two years in operation – hardly long enough to assess its safety.

A Dubious Company History

The track record of Gray*Star, the company supplying the irradiator, is suspect.

In 1987, the Nuclear Regulatory Commission cited the company for its “apparent lack of sufficient technical knowledge”² and for failing to adequately monitor a leaking cobalt-60 tank³ at its facility in Mine Hill, N.J.

And in 2001, the NRC rejected Gray*Star’s design for an irradiator using

cesium-137, a highly radioactive nuclear-bomb waste that caused the worst U.S. irradiation accident in history (near Atlanta in 1988). NRC officials said the experimental machine might not be able to “protect health and minimize danger to life and property.”⁴ Babcock & Wilcox, which made the doomed nuclear reactor at Three Mile Island, was a partner in the venture.⁵

Inadequate Planning?

Because Pa’ina Hawaii’s NRC application has been heavily redacted, it is not known whether it includes contingency plans for the following:

- Earthquakes and tsunamis, of which Hawai’i has a long history.
- The fact that the irradiator site is literally surrounded by the Honolulu International Airport, where crashes could occur.

A lack of these contingency plans for these hazards would be a grave oversight.

Inadequate Training?

Training for those who would operate Pa’ina Hawaii’s irradiator amounts to less time than a high school drivers-education class.

For example, before an employee could run the irradiator without supervision, he/she would only receive one month of on-the-job training.

Before an operator who has not run the irradiator for more than one year could run the irradiator unsupervised, he/she must operate the irradiator for only one day while under supervision.

And, during the irradiator’s first month in operation, an employee could be permitted to run the machine for an undetermined period without supervision.

Terrorist Threat

Permitting the construction of a new cobalt-60 facility runs contrary to growing concerns about the dangers of terrorists using radioactive materials for “dirty bombs.” Ironically, on April 14 – two months before Pa’ina Hawaii filed its NRC application – the University of Hawai’i removed 100 pieces of cobalt from its Manoa campus. More ironic still, the UH facility is less than 10 miles from the proposed Pa’ina Hawaii site.

According to the *Honolulu Advertiser*: “The [National Nuclear Security Administration] has launched a national Radiological Threat Reduction Program to recover and secure materials that could be used to make such weapons. ‘The removal of these radiological sources has greatly reduced the chance that radiological materials could get into the wrong hands,’ said Paul Longworth, NNSA deputy director for nonproliferation. ‘The University of Hawai’i, its surrounding neighbors and the international community are safer today as a result of this effort.’”⁶

Despite these concerns, Pa’ina Hawaii’s security measures are vague at best: “The security of licensed material is always considered to be extremely important. However, due to recent heightened concerns over terrorism, the issue of security is emphasized. Thus, additional steps have been taken to insure that the licensed material is not stolen or otherwise released to the environment by those who may wish to intentionally harm others.” If additional measures will be taken, they have been redacted from Pa’ina Hawaii’s NRC application.

In 2002, Rep. Ed Markey of Massachusetts introduced the “Dirty Bomb Prevention Act.”

Markey specifically cited irradiation facilities as opportunities for terrorists. He expressed concern that terrorists might use conventional explosives to blow up irradiation

facilities – for example, by detonating a large truck bomb nearby or hiding explosives in a cobalt-60 shipment to a facility. He said that terrorists could take advantage of the lack of security around irradiation facilities and attempt to obtain radioactive materials to use in a dirty bomb.

Markey cited a study by the Federation of American Scientists stating that the detonation of a foot-long rod of cobalt-60 from a food irradiation plant could contaminate 1,000 square kilometers, with a 10 percent risk of death from cancer for residents living inside a 300 city-block area for 40 years following detonation.

“The NRC, when faced with the reality that irradiation facilities are vulnerable to attack, have said essentially ‘please stand by,’” Markey said. “But the terrorists are not going to stand by.”

Further, Markey said that the NRC does not require criminal or security background checks for technicians with access to irradiation equipment. Failure to require these checks defies common sense.

Additionally, Markey said that from 1997-2002, the NRC reported that nearly 1,500 radioactive sources were reported lost or stolen, and that less than half of them were found. “FedEx and Lands’ end seem to do a better job at tracking clothing purchases than the NRC does at tracking radioactive materials,” the Congressman said.

As it is, there are more than 2 million radioactive sources in the U.S. Why add yet another – particularly one of dubious economic value?

The proximity to numerous military installations – potential targets for attack – makes the Pa’ina Hawaii proposal even more reckless. These include Pearl Harbor, Hickam Air Force Base, the Kamehameha and Aliamanu Military Reservations, and a Coast Guard Reservation.

Transport of Radioactive Materials

Pa'ina Hawaii's cobalt-60 will be procured from REVISS Services in Buckinghamshire England and/or MDS Nordion in Kanata, Canada. Though Pa'ina Hawaii states it will not be involved with transporting the cobalt-60, we are highly concerned about the methods by which this material will be transported and the safety precautions.

Will the cobalt-60 be transported to the facility by airplane or ship? What is the track record of moving cobalt-60 thousands of miles in the air or over water? If the material will be flown, risks to the Honolulu International Airport, and surrounding residents, businesses and properties are self-evident.

Environmental Impact

Plainly, an Environmental Impact Statement should be conducted. What are the necessary steps to ensure that the NRC will require one?

Irradiation facilities produce ground-level ozone. According to the EPA, ozone can damage lung tissue, aggravate respiratory disease, and make people more susceptible to respiratory infections. Children are especially vulnerable to ozone's harmful effects, as are adults with existing disease. But even otherwise healthy individuals may experience impaired health from breathing ozone-polluted air. Elevated ozone levels also inhibit plant growth and can cause widespread damage to crops and forests. Ozone is the a component of smog, presenting the country's most serious air pollution problem.

How Does Cobalt-60 Get into the Environment?

This is taken verbatim from the EPA website: www.epa.gov/radiation/radionuclides/cobalt.htm:

“Occasionally, medical or industrial radiation sources are lost or stolen. We call these ‘orphan sources.’ They pose a significant risk:

- On a number of occasions, people have handled them, not knowing what they were, and have been exposed.
- Sometimes sources find their way into municipal landfills, where it is illegal to dispose of them.
- Because of their metallic housings, sources can get mixed in with scrap metal and pass undetected into recycling facilities. If melted in a mill, they can contaminate the entire batch of metal and the larger facility, costing millions of dollars in lost productivity and cleanup costs.”

Also, radioactive water could leak due to cracks in pool walls. A plume of radioactive water could create groundwater and soil pollution. Cobalt-60 has a half-life of 5.27 years, meaning contamination could remain in the environment for many years.

Notes

¹ In the matter of CFC Logistics Inc., Memorandum and Order, NRC Atomic Safety and Licensing Board, Michael C. Farrar, Presiding Officer. Docket No. 30-36239-ML, ASLBP No. 03-814-01-ML, Nov. 4, 2004.

² U.S. Nuclear Regulatory Commission, Order Revoking License, Precision Materials Corporation, Docket No. 30-22063, License No. 29-20777-01, EA 87-156, Feb. 10, 1988.

³ U.S. Nuclear Regulatory Commission, Report No. 030-22063/87-01, Docket No. 030-22063, License No. 29-20777-01, Oct. 27, 1987.

⁴ United States of America, Nuclear Regulatory Commission, Atomic Safety and Licensing Board Panel, In the Matter of GRAYSTAR, INC. Docket No. SSD 99-27, ASLBP No. 00-778-06-ML, Feb. 27, 2001.

⁵ “Divergent Views on Food Irradiation Expressed as Gray*Star Readies New Equipment.” *Food Chemical News*, June 30, 1997.

⁶ Brannon, Johnny. “Key ingredient in ‘dirty bombs’ removed from UH.” *Honolulu Advertiser*, April 14, 2005.



215 Pennsylvania Ave., S.E.
Washington, D.C. 20003
USA

tel: +1 (202) 546-4996

fax: +1 (202) 547-7392

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Safety & Democracy

cmep@citizen.org
www.citizen.org/cmep