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# The Plan of Ten Thousand Mistakes

Minnesota's Misguided  
Food Irradiation 'Education' Project



Critical Mass Energy and Environment Program

Washington, D.C.

July 2003

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# The Plan of Ten Thousand Mistakes

In the fall of 2002, the Food and Nutrition Service of the United States Department of Agriculture provided the Minnesota Department of Children, Families and Learning with a \$151,000 grant to develop education materials in three Minnesota school districts on the issue of food irradiation.

Billed as a project to provide school personnel, parents and students with information on food irradiation, it was actually designed to promote irradiation and convince school districts to order irradiated meat for Child Nutrition Act programs they offer.

Furthermore, the project has numerous flaws, including questionable survey research techniques, failure to provide balanced information, the withdrawal of one of the three school districts, dissemination of inaccurate information, and failure to translate material for non-English-speaking students and parents.

## How It Began

The first call for an irradiation education pilot project seems to have come from officials of the American School Food Service Association (ASFSA) and the American Commodities Distribution Association (ACDA). In a March 20, 2002 letter to Dr. Peter Murano, Deputy Administrator of the USDA's Food and Nutrition Service (FNS), ASFSA President Dr. Marcia Smith and ACDA President Gary Gay stated:

"[T]he pilot should include an educational component so that state agencies, schools, and parents would be fully informed about the process of irradiation, as well as its benefits and

limitations. Further, it should undergo a rigorous evaluation by USDA to determine whether it would be appropriate to offer irradiated products to all schools."<sup>1</sup>

During the time frame in which this letter was sent, the U.S. Congress was in the process of considering a new Farm Bill. While the Farm Bill was being considered in the Senate, several provisions related to food irradiation were tucked into the massive 396-page Manager's amendment that was made part of the legislation during the last day of consideration. One of those provisions was Section 4201 (I)<sup>2</sup>, which instructed the Secretary of Agriculture not to prohibit the use of "approved food safety

technology” in any of the commodity purchases USDA made for the various nutrition programs it administered. Among those nutrition programs specifically mentioned was the National School Lunch Program. The intent of this provision was to remove the prohibition against the use of irradiation for ground beef purchased by USDA for the National School Lunch Program.<sup>3</sup>

All of the food irradiation provisions survived further congressional deliberations and the Farm Bill – technically, the Farm Security and Rural Development Act of 2002 – was signed into law by President George W. Bush on May 12, 2002. After several months of public comments, with over 90 percent of comments opposed to purchasing irradiated meat for school lunches, USDA removed the prohibition on the use of irradiation for ground beef purchased for the National School Lunch Program on May 29, 2003.<sup>4</sup>

### The Minnesota Irradiation ‘Education’ Project Proposal

Soon after the Farm Bill’s enactment, communications began between the Minnesota Department of Children, Families and Learning (CFL) and the USDA’s FNS about funding an irradiation education effort in Minnesota. It is unclear when the communications began, because FNS has failed to provide that information in response to a Freedom of Information Act request filed January 17, 2003, by Public Citizen.<sup>5</sup>

What is clear is that FNS approved a grant of \$151,245 to the Minnesota CFL to conduct an “educational campaign” on food irradiation, based on a September 30, 2002 project proposal.<sup>6</sup> The proposal makes it apparent that the “education” program is little more than a campaign to promote irradiation. In fact, the authors made the following assertion in their grant proposal:

“A successful outcome of the educational campaign will be the acceptance and introduction of irradiated ground beef in select school

districts.”<sup>7</sup>

USDA has indicated that prototype materials developed from the Minnesota project will be used and distributed to school districts nationally.<sup>8</sup>

### SureBeam’s Web of Influence

The project proposal lists representatives from nine entities as “pilot partners” for the education campaign.<sup>9</sup> None are from consumer organizations. But the pilot partners did include representatives from the SureBeam Corporation, a major food irradiation company based in San Diego; the Minnesota Beef Council, which is partially subsidized by SureBeam;<sup>10</sup> and International Dairy Queen Corporation, which uses the SureBeam irradiation process to treat the hamburger meat used in some of its stores.<sup>11</sup>

Another pilot partner is the Minnesota School Food Service Association, the state affiliate of the American School Food Service Association (ASFSA). It is interesting to note the general counsel of the ASFSA, Marshall Matz, also represents irradiation companies in his legislative advocacy practice. Among his clients is Titan-Scan,<sup>12</sup> a division of the Titan Corporation of San Diego. The SureBeam Corporation was also a division of Titan before SureBeam was spun off in August 2002.<sup>13</sup>

In essence, nearly half of the pilot partners for the Minnesota irradiation education project had ties to the SureBeam Corporation.

### Friends in High Places: Dr. Elsa Murano and Dr. Peter Murano

It should be noted that two high-ranking officials at USDA also have ties to the SureBeam Corporation. Dr. Elsa Murano, the USDA’s current Under Secretary for Food Safety, has spent her career promoting food irradiation. She served as a professor in charge of research programs at the Linear Accelerator Facility at Iowa State University in Ames, Iowa from 1992 to 1995.<sup>14</sup> This program was designed to use electron-beam irradiation (the process used by SureBeam) to treat food.<sup>15</sup> Her husband, Dr.

Peter Murano, worked with her on that research along with Dr. Dennis G. Olson.<sup>16</sup>

Both Dr. Murano and Dr. Olson left Iowa State in 1995 to join the faculty of Texas A&M University, where they continued their work in food irradiation. In 1997, Elsa Murano was named the Director of Food Safety at the University's Institute for Food Science and Engineering. In May 2000, their colleague from Iowa State, Dr. Dennis Olson, left academia to become Vice President for Product Applications at SureBeam.<sup>17</sup>

In June 2000, SureBeam announced that it had entered a strategic alliance with Texas A&M University: in exchange for donating \$10 million of irradiation equipment to the university, SureBeam would be given use of a university building for processing and for joint research.<sup>18</sup> Elsa Murano served on the so-called Project Bright-Star Team at Texas A&M, which negotiated with SureBeam on the agreement.<sup>19</sup>

In a trade publication, Olson gushed about working once again with his former academic colleague.

"SureBeam chose to partner with Texas A&M rather than build its own facility for several reasons, Olson said. The company was interested in having facilities in different parts of the country; the university had a good reputation; it provided a unique facility; the building was available; and Professor Elsa Murano, one of the leaders in food irradiation is on the faculty of the Institute."<sup>20</sup>

In 2001, Elsa Murano was appointed to the National Advisory Committee for Meat and Poultry Inspection at USDA. During the Committee's June 2001 meeting, Dr. Murano was interviewed by the Bush administration to serve as USDA's Under Secretary for Food Safety. At that meeting, she approached several consumer representatives about their feelings regarding removing the prohibition on the use of irradiation for ground beef products purchased for the National School Lunch Program. She was advised not to start with the National School Lunch Program because she would encounter major parental opposition.<sup>21</sup> She was

nominated by the Bush administration on July 10, 2001 and was eventually confirmed by the U. S. Senate on September 26, 2001.

In December 2001, her spouse, Dr. Peter Murano was appointed to Deputy Administrator for Special Nutrition Programs at USDA's Food and Nutrition Service.<sup>22</sup> In that capacity, he is responsible for the child nutrition programs which USDA administers, including the National School Lunch and National School Breakfast Programs.<sup>23</sup>

As noted above, in March 2002, a letter was sent by representatives of ASFSA and ACDA to Dr. Peter Murano calling for a pilot project to serve irradiated food in the National School Lunch program.

### Dr. Michael Osterholm

In the background of the Minnesota project is Dr. Michael Osterholm, the director of the University of Minnesota's Center for Infectious Disease Research & Policy (CIDRAP). Osterholm has been in and out of state government over the past several years. He served as the state's chief epidemiologist, where he used his position to promote irradiation.<sup>24</sup> Osterholm left to start his own consulting firm, only to return to the state government to head CIDRAP in September 2001.<sup>25</sup> CIDRAP's website has a special section on food irradiation and has regular updates on the food irradiation education project taking place in Minnesota.<sup>26</sup> Among the funders of CIDRAP is SureBeam.<sup>27</sup>

### The Testing Grounds: Three Minnesota School Districts

On January 16, 2003, the Minnesota CFL announced the selection of three school districts that would participate in the irradiation "education" project:<sup>28</sup> Spring Lake Park, in the Twin Cities Metro area; Sauk Rapids, near St. Cloud; and Willmar, a rural district in the center part of the state. The reason for selecting these districts has never been explained very clearly. USDA claimed that the Minnesota CFL had complete control over the selection of the school districts,

but there was at least one news account that indicated that Spring Lake Park was specifically recruited by USDA.<sup>29</sup>

### *Spring Lake Park*

According to Minnesota CFL census figures, the Spring Lake Park school district has 4,258 students, of whom 598 are minorities (Native American, Hispanic, African-American, Asian/Pacific Islanders).<sup>30</sup> According to the latest available figures, 922 students were eligible for free or reduced price school lunches.<sup>31</sup>

### *Sauk Rapids*

Sauk Rapids has 3,000 students, of whom 87 are minorities.<sup>32</sup> About 645 students were eligible for free or reduced price school lunches.<sup>33</sup> It should also be noted that Sauk Rapids now serves as the headquarters for Huisken Meats.<sup>34</sup> As the Minnesota irradiation “education” project proposal points out, Huisken Meats was the first meat processor in the United States to use the SureBeam irradiation process on frozen hamburger patties.<sup>35</sup>

### *Willmar*

The Willmar school district has 4,382 students. Significantly, 1,175 of those students are minorities (1,042 are Hispanic).<sup>36</sup> It is interesting to note that Willmar had one of the highest non-English speaking student populations as a percentage of enrollment in the state, with 16.1 percent.<sup>37</sup> Willmar is a poultry processing center in Minnesota, so it attracts workers from Mexico to work in the plants there.<sup>38</sup> More than 1,700 students are eligible for free or reduced price lunches in the school district.<sup>39</sup>

## The Surveys

In late February 2003, surveys were e-mailed to school personnel in the three school districts (teaching and non-teaching personnel) and telephone surveys were conducted from among 150 parents (50 from each school district) on food safety and food irradiation. Partici-

pation was voluntary by school personnel.

The response rate by school personnel was as follows: Spring Lake Park – 39 percent; Sauk Rapids – 44 percent; Willmar – 49 percent. No breakdown was provided as to how many teachers versus non-teaching personnel responded.<sup>40</sup> It should be noted that there was no indication that any of the survey materials was available in languages other than English.

On March 18, 2003, Public Citizen, the Government Accountability Project, and three Minnesota-based organizations sent a letter to Eric Bost, USDA’s Under Secretary for Food, Nutrition and Consumer Services, critiquing the Minnesota education project and urging him to halt it due to its pro-irradiation bias.<sup>41</sup> Mr. Bost is the USDA Under Secretary who oversees all Child Nutrition Programs and the Food Stamp Program.

## Test Materials Sent Out to School Districts

In early April 2003, five different flyers were distributed to the three school districts to be disseminated to school personnel and parents. No opposing views to irradiation were included in the material sent out, although Public Citizen’s website was listed for those interested in finding other views. It should be noted that none of the material was available in languages other than English.<sup>42</sup>

On April 17, 2003, another letter was sent to Under Secretary Eric Bost objecting to the pro-irradiation bias of the materials sent out to the school districts.<sup>43</sup> Nothing in the materials sent to the three schools mentioned any of the research citing potential harmful health effects of consuming chemicals produced when foods are irradiated, or studies that point to the formation of increased levels of trans-fatty acids in ground beef after it has been irradiated.

On May 2, 2003, Under Secretary Bost responded to both the March 18 and April 17 letters. His response did not address any of the specific objections listed in the two letters, but stated he and the organizations would have to

agree to disagree.<sup>44</sup>

### Parents in Spring Lake Park Oppose the Project

The most visible opposition to the irradiation education project came in the Spring Lake Park District, where parents, led by Mary Strohmayr and Jody Scott Olson, attempted to get the district to end its participation in the project. (It is interesting to note that the Spring Lake Park School superintendent Don Helmstetter often quoted Dr. Michael Osterholm to the dissident parents in arguing against pulling out of the education project.)

The parents received national recognition in the press for their efforts. After several months, Helmstetter stated that the school district would not be buying irradiated beef this year and has no intention to do so in the future. If the district considers purchasing it at a future date, Helmstetter promised to hold a public forum to discuss the issue with parents, teachers, students and the general public prior to making a decision.

### Sauk Rapids Pulls Out

In early May 2003, the Sauk Rapids School District pulled out of the irradiation education campaign. According to School Superintendent Greg Vandal, he came to the conclusion that he was being placed in a position of promoting irradiation, so he refused to distribute the five flyers to school personnel and parents. In *National School Board News*, Mr. Vandal stated:

“It was our sense that we were moving beyond the point of study and being positioned by all parties as being proponents of a product that we merely agreed to study as opposed to endorse.”<sup>45</sup>

### No Comprendo in Willmar

The high number of non-English speaking students in Willmar should have served as a red flag for the irradiation education project leaders: If the kids don't speak English, it is likely that their parents don't either. If the parents can't

speaking English, they probably can't read it either. It is also very likely that a high proportion of these families are eligible to participate in the Child Nutrition Act programs sponsored by the school district. So, if the surveys are in English and the education materials are in English, a large number of parents and their children in the Willmar school district were not able to participate in this project and were consequently disenfranchised. It is unconscionable that the Drs. Murano let this occur.

### Evaluation of the Program

As this is being written, the education project coordinators are conducting an evaluation of the materials used in the education project. The preliminary results show that there are serious methodological flaws with the evaluation phase of this project. First, preliminary results from school personnel in the two remaining school districts show that a substantial number of them are not participating in the evaluation phase.

As of June 18, 2003, only 156 responded from the two remaining school districts in the study (735 school personnel participated in the initial survey from the three original school districts).<sup>46</sup> Second, the preliminary results show that some who are participating in the evaluation phase never participated in the initial survey conducted in February.

The Minnesota CFL has produced a PowerPoint presentation in which only percentages are presented of parents' responses to the evaluation survey.<sup>47</sup> When asked whether raw numbers would be available, Minnesota CFL officials indicated that they did not know.<sup>48</sup> According to a recent press report, 55 of the 100 parents in the two remaining school districts responded to the evaluation survey.<sup>49</sup>

### Who's Running the Show?

It is interesting to note that the results of the Minnesota education project will first be unveiled not to USDA – the federal department that funded the project – but to a private

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organization, the American School Food Service Association, at its annual conference in Reno, Nevada on July 20, 2003.<sup>50</sup> As noted above, ASFSA first approached USDA about funding a pilot irradiation education project in March 2002.<sup>51</sup> However, contrary to the expressed wishes of ASFSA, the limitations of irradiation were never presented during the Minnesota “education” project and, thus far, the project has not received “a rigorous evaluation by USDA.”

## Conclusion/Recommendations

Based on this compilation of facts and timeline of events, it is evident that the Minnesota pilot program is a failure. The original FNS grant of \$151,245 to the Minnesota CFL has been wasted because it was designed as an irradiation promotion program — not a true education program. Furthermore, the Minnesota project has been fraught with problems that make its results highly questionable:

1) The information in the materials was one sided and did not include all points of view.

For example, the flyers failed to mention recent health studies that point to potentially harmful effects from eating irradiated food. It is important to take into account this research, especially considering the vulnerable population at the center of this experiment — children.

2) The materials given to parents, teachers, and students were only printed in English. They should have been available in Spanish, at the very least, considering the high percentage of non-English-speaking Hispanic students in one of the school districts participating in the project. The materials should have been printed in all languages that are relevant and necessary, with consideration given to immigrant communities in different school districts.

3) The Minnesota materials should not be used because of the problems with the project as detailed in this report. The clear ties that industry has to government officials, and the influence they have in the decision making process, points to a corrupt system that should not be rewarded.

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## Notes

<sup>1</sup> Letter from Gary Gay and Marcia Smith to Dr. Peter Murano, March 20, 2002. See <http://www.ams.usda.gov/fst/comments/fst378a.htm>. It is interesting to note that these two organizations have also been lobbying USDA to drop the pathogen testing requirements for ground beef sold to the National School Lunch Program. They have argued by irradiating meat, pathogen testing would not be needed and their clients could save money in bidding on National School Lunch Program contracts. See <http://www.ams.usda.gov/fst/comments/fst378.htm>, paragraph entitled “Cost Effectiveness”.

<sup>2</sup> (I) USE OF APPROVED FOOD SAFETY TECHNOLOGY.—  
(1) IN GENERAL.—In acquiring commodities for distribution through a program specified in paragraph (2), the Secretary shall not prohibit the use of any technology to improve food safety that—  
(A) has been approved by the Secretary; or  
(B) has been approved or is otherwise allowed by the Secretary of Health and Human Services.  
(2) PROGRAMS.—A program referred to in paragraph (1) is a program authorized under—  
(A) this Act;  
(B) the Food Stamp Act of 1977 (7 U.S.C. 2011 et seq.);  
(C) the Emergency Food Assistance Act of 1983 (7 U.S.C. 7501 et seq.);  
(D) the Richard B. Russell National School Lunch Act (42 U.S.C. 1751 et seq.); or  
(E) the Child Nutrition Act of 1966 (42 U.S.C. 1771 et seq.)”

<sup>3</sup> “Irradiation of raw materials or finished products will not be allowed an intervention step.” Technical Data Supplement (TDS) for the Procurement of Frozen Ground Beef Items

– TDS 136, June 2000, modified June 2002, United States Department of Agriculture, Agricultural Marketing Service, Livestock and Seed Program, p. 2.

<sup>4</sup> See <http://www.usda.gov/news/releases/2003/05/0172.htm>

<sup>5</sup> Public Citizen filed a FOIA for the information on January 17, 2003. The FNS responded on February 20, 2003, but did not supply all of the information requested. Public Citizen filed an appeal to the FOIA response on March 5, 2003. As of July 9, 2003, Public Citizen had not received a response to this appeal.

<sup>6</sup> “Proposal for Food Safety Educational Campaign in Minnesota Schools: Acceptance of Irradiated Ground Beef,” presented by Minnesota Department of Children, Families and Learning, Revised September 30, 2002.

<sup>7</sup> *Ibid.*, p. 6.

<sup>8</sup> See <http://www.fns.usda.gov/cga/PressReleases/2003/irradiation-q&as.htm>

“What will be done to prepare schools for the introduction of irradiated ground beef products?

“The Farm Bill conference report language indicates that USDA should consider ‘the acceptability by recipients of products purchased’ by USDA for commodity distribution. Therefore, before irradiated ground beef products are made available for order by schools, USDA will make every effort to encourage schools to educate food service personnel, parents, and the community concerning irradiated ground beef products. Shortly after the release of specifications, FNS will provide all school districts with



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an informational package to help them to decide whether to order irradiated beef products beginning January 2004. The package will be mailed in June 2003 and will include a letter from Under Secretary Bost strongly encouraging schools to notify parents, students, and the community if they are planning to order irradiated beef. In addition, the package will include a brochure with answers to commonly asked questions about irradiation. This letter will also include Web site addresses for the brochure as well as the site for the U. S. Food and Drug Administration (FDA) irradiation consumer information. The letter will give information regarding the community educational materials currently under development by the State of Minnesota that will be available to schools in fall 2003.”

The educational materials developed, tested and evaluated by Minnesota will be unveiled at the American School Food Service Association annual meeting in July and will be delivered to FNS shortly thereafter with availability targeted for fall 2003. The materials have been specifically designed to educate communities, parents, students, teachers, school food service personnel, and school administrators. Educational materials will emphasize the fact that irradiation does not replace existing food safety requirements for preparing ground beef for distribution in the NSLP. Materials will explain that irradiation is a food safety measure which supplements currently required proper hygiene, good sanitation practices, and safe-handling and preparation practices in the processing plant and school cafeterias.”

<sup>9</sup> “Proposal for Food Safety Educational Campaign in Minnesota Schools: Acceptance of Irradiated Ground Beef.” p. 7.

<sup>10</sup> Willette, Janet Kubat. “Checkoff Revenue Hits All-Time Low,” *Agri-News*, March 4, 2003.

<sup>11</sup> “Proposal for Food Safety Educational Campaign in Minnesota Schools: Acceptance of Irradiated Ground Beef,” p. 4.

<sup>12</sup> Washington Representatives 2002, Columbia Publishing, Inc., p. 1231.

<sup>13</sup> See <http://biz.yahoo.com/e/021115/sure10-q.html>

<sup>14</sup> Biography of Dr. Elsa Murano. See <http://www.usda.gov/agencies/gallery/murano.htm>

<sup>15</sup> <http://www.extension.iastate.edu/foodsafety/rad/laf.html>

<sup>16</sup> Murano, Elsa, Peter Murano, Dennis Olson, Stephen G. Sapp, Dermot Hayes. 1995. *Food Irradiation: A Handbook for Industry*. Ames, IA: Iowa State University Press.

<sup>17</sup> See [http://www.citizen.org/documents/Revolving\\_Door\\_\(PDF\).PDF](http://www.citizen.org/documents/Revolving_Door_(PDF).PDF)

<sup>18</sup> See <http://www.titan.com/investor/archives/pressreleases/000615.html>

<sup>19</sup> Mermelstein, Neil H., “New E-Beam Research Facility Exemplifies the Value of Pilot Plants,” *Food Technology*, October 2000, p. 98.

<sup>20</sup> Ibid.

<sup>21</sup> Public Citizen, et. al letter to Senator Tom Harkin, June 16, 2001. See [http://www.citizen.org/cmep/foodsafety/food\\_irrad/articles.cfm?ID=4905](http://www.citizen.org/cmep/foodsafety/food_irrad/articles.cfm?ID=4905)

<sup>22</sup> See [http://www.massapequapost.com/News/2002/1113/Front\\_Page/008.html](http://www.massapequapost.com/News/2002/1113/Front_Page/008.html)

<sup>23</sup> United States Department of Agriculture, Food and Nutrition Service Organizational Chart.

<sup>24</sup> See [http://www.citizen.org/documents/Revolving\\_Door\\_\(PDF\).PDF](http://www.citizen.org/documents/Revolving_Door_(PDF).PDF)

<sup>25</sup> See <http://www.cidrap.umn.edu/cidrap/center/about/index.html>

<sup>26</sup> See <http://www.cidrap.umn.edu/cidrap/content/fs/irradiation/index.html>

<sup>27</sup> See <http://www.cidrap.umn.edu/cidrap/center/support/index.html>

<sup>28</sup> Minnesota Department of Children, Families and Learning, “School Food Safety, Irradiation Education Effort Launched,” press release, January 16, 2003.

<sup>29</sup> Johnson, Kelly. “District 16 Participates in Pilot Program,” *Blaine-Spring Lake Park Life*, January 30, 2003.

<sup>30</sup> Minnesota Department of Children, Families and Learning. “Gender and Ethnicity by District – Grades PK-12 Fall Enrollment,” Data Year 02-03, p.1.

<sup>31</sup> See <http://www.mnplan.state.mn.us/mm/eo.html?Geo=10016&Id=138>

<sup>32</sup> “Gender and Ethnicity by District,” p.1.

<sup>33</sup> See <http://www.mnplan.state.mn.us/mm/eo.html?Geo=10047&Id=138>

<sup>34</sup> See <http://www.whitefordfoods.com/>

<sup>35</sup> “Proposal for Food Safety Educational Campaign in Minnesota Schools: Acceptance of Irradiated Ground Beef,” p. 4.

<sup>36</sup> Gender and Ethnicity by District report, p. 3.

<sup>37</sup> Minnesota Department of Children, Families and Learning, “Non-English Speaking Students,” part of presentation by Tom Gillaspay, Minnesota Department of Planning entitled, “Minnesota Demographic Change,” November 2001.

<sup>38</sup> See <http://www.oweb.com/newulm/journal/stories/n012702a.html>

<sup>39</sup> See <http://www.mnplan.state.mn.us/mm/geo.html?Geo=10347&Id=138>

<sup>40</sup> Minnesota Department of Children, Families and Learning. “Survey Findings: Knowledge And Attitude Of Parents, Teachers, And Staff On Food Irradiation,” March 2003.

<sup>41</sup> Letter from Clean Water Action Alliance, Government Accountability Project, Institute for Agriculture and Trade Policy, Organic Consumers Association, and Public Citizen to Eric Bost, March 18, 2003. <http://www.citizen.org/documents/bostmnletter.pdf>

<sup>42</sup> E-mail communication between Doug Gray, Minnesota Department of Children, Families and Learning and Tony Corbo, Public Citizen, June 6, 2003.

<sup>43</sup> Letter from Clean Water Alliance, Community Nutrition Institute, Government Accountability Project, Institute for Agriculture and Trade Policy, Organic Consumers Association, and Public Citizen to Eric Bost, April 17, 2003. See <http://www.citizen.org/documents/Bostmnletter2.pdf>

<sup>44</sup> Letter from Under Secretary Eric Bost to Tony Corbo, Public Citizen, May 2, 2003.

<sup>45</sup> Chmelynski, Carol. “Schools Can Now Serve Irradiated Meat,” *National School Board News*, June 3, 2003.

<sup>46</sup> E-mail from Doug Gray, Minnesota Department of Children, Families and Learning to Tony Corbo, Public Citizen, June 18, 2003.

<sup>47</sup> E-mail from Doug Gray, Minnesota Department of Children, Families and Learning to Tony Corbo, Public Citizen, June 27, 2003.

<sup>48</sup> E-mail from Doug Gray, Minnesota Department of Children, Families and Learning to Tony Corbo, Public Citizen, June 27, 2003.

<sup>49</sup> Sugarman, Carol. “Minnesota Follow-up Survey Finds Respondents more Positive About Irradiation,” *Food Chemical News*, Vol. 45, No. 21, July 7, 2003.

<sup>50</sup> See footnote 8.

<sup>51</sup> See footnote 1.



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