**Local Garbage in a Global Controversy: The Ames Resource Recovery Plant Dioxin Emission Debate**

In late 2000, biologist and environmental activist Barry Commoner, his research team, and the North American Commission for Environmental Cooperation released a study about the emission of dioxins in North America, which were believed to be entering the food chain of and causing a rise in cancer rates in the Inuit of the Nunavut. Cement kilns were among the largest emitters of dioxins, especially in Mexico, but thanks to wind patterns, two sources in the United States were most responsible for the surge of dioxins in the Nunavut, according to the study: the Harrisburg Resource Recovery Facility in Harrisburg, Pennsylvania, and the Ames Power Plant being fed the waste stream from the Arnold O. Chantland Resource Recovery Plant in Ames, Iowa.

Despite its name, the Harrisburg plant is basically a waste-to-energy plant, which burns all the trash to produce energy. The Ames facility, however, is a true resource recovery plant. These plants, which many cities placed their hopes in during the 1970s, extracted the marketable materials out of the waste stream and then used anything that couldn’t be recycled or marketed as fuel. Most people originally considered the plants to be very environmentally progressive, but nearly all of them failed because of mechanical difficulties and high costs. The Ames plant survived thanks to the pragmatic engineering mindset of the community, a high degree of employee retention and empowerment to make changes, and a belief that valuable farmland should not be turned into landfill. The city firmly believed that they were making an investment in environmental conservation.

Barry Commoner began educating the public about scientific issues in the late 1950s when some began to be alarmed about the amount of radiation in the atmosphere caused by Nuclear Testing. Commoner and colleagues at Washington University in St. Louis began the Baby Tooth Survey, collecting over 200,000 baby teeth in less than a decade to measure the amount of fallout in the atmosphere. By using baby teeth, an object of study so personal and able to cause an emotional impact, the group was able to help mobilize mothers to encourage President John F. Kennedy to support the Nuclear Test Ban Treaty. Instead of assuming the usual academic stance of objectivity, Commoner made no bones about his environmental activism. He believed it was the duty of all scientists to relate highly technical information in lay terms so average citizens could use the information to affect policy changes. By the 1970s, he had created four “informal” laws of ecology that would shape his views throughout his career:

1. Everything is Connected to Everything Else

2. Everything Must Go Somewhere

3. Nature Knows Best

4. There is No Such Thing as a Free Lunch.

He had a holistic view of the environment, which led him to believe that everything was connected to everything else. In *The Closing Circle: Man, Nature and Technology* he wrote about what happened when someone tossed a battery into trash that would be burned in an incinerator:

Mercury vapor is carried by the wind, eventually brought to earth in rain or snow. Entering a mountain lake, let us say, the mercury condenses and sinks to the bottom. Here it is acted on by bacteria which convert it to methyl mercury. This is soluble and taken up by fish; since it is not metabolized, the mercury accumulates in the organs and flesh of the fish. The fish is caught and eaten by a man and the mercury becomes deposited in his organs, where it might be harmful. And so on.[[1]](#footnote-1)

In 1980, Commoner and his Center for the Biology of Natural Systems (CBNS) moved to Queens College in New York, just as New York was beginning to debate the safety of numerous waste-to-energy projects the state had planned. Commoner believed that the process of turning waste into energy created dioxins that didn’t exist in the materials alone. He also noticed that the most effective argument in rallying public support against the projects was warning citizens about the potential risks of dioxin exposure, writing that generally, “the public acceptance of the proposed incinerator would stand or fall on the expected effect of the dioxin emissions on the people exposed to them.”[[2]](#footnote-2) He pointed out that evaluating dioxins is particularly difficult because it involves so many different kinds of science: chemistry, physics, physiology, biochemistry and biology. Still, Commoner and his team succeeded in winning over public opinion in New York by arguing the dioxin rates anticipated by the Department of Sanitation and the consultant hired by the city were too low. For the next twenty years, studying the risks of dioxins in WTE plants and mobilizing support against the plants would remain a major priority for Commoner.

When Commoner’s study came out in the fall of 2000, the city of Ames, Iowa, was stunned. Commoner claimed that:

-Dioxin formed during burning of high chlorine-content fuels, such as municipal solid waste (MSW), is transported thousands of miles through the atmosphere before being deposited in the Canadian Arctic

-Ames is among the top one or two dioxin polluters of Nunavut, Arctic Canada

In May 2001, Commoner challenged the City of Ames to conduct emissions tests to see the amount of dioxins that were being produced at the power plant receiving the waste from the resource recovery plant. The tests were going to cost $80,000, but Professor Robert Brown, Director of Iowa State University’s Center for Sustainable Environmental Technologies offered to do a study for $5,000. Brown refuted Commoner’s study, and then Commoner refuted Brown’s study, leaving the lay representatives of the City Council to determine which scientist to believe.

**The Activity:**

After heated debates on paper and in the local press, Barry Commoner is coming to Ames to debate Robert Brown about the dioxin emissions of the Ames Power Plant, which is producing refuse-derived fuel with material from the Arnold O. Chantland Resource Recovery Plant.

Your teacher will put you into one of four factions or make you an indeterminate townsperson. The four factions are:

-The local engineers and public works employees who created the plant and had kept it operational for 25-years

-Robert Brown and the academic engineering community and the EPA

-Barry Commoner and the Center for the Biology of Natural Systems

-The Nunavut Inuit, who were found to have high levels of dioxins in their food supply

The indeterminates will pretend to be people from the city of Ames and will represent opinions and concerns that they believe would realistically reflect those of concerned citizens. (Examples could include parent, homeowner, farmer, environmental activist, etc.)

Everyone should use the materials in the bibliography to craft their arguments. The best source for a general background on the plant and debate is Angie Gumm’s “The Ames Anomaly: How ‘A Small Town with a Pretty Big Idea’ Came to Have the Only Resource Recovery Plant in the Country,” *The Annals of Iowa*, Fall 2011

**Schedule (one-hour classes):**

**Class 1:** Activity is explained, roles are distributed, access to bibliographic materials is explained, and factions have time to meet and exchange information

**Homework:** Read “The Ames Anomaly: How ‘A Small Town with a Pretty Big Idea’ Came to Have the Only Resource Recovery Plant in the Country”

**Class 2:** Discuss article, field questions about activity

**Homework:** Read “The Inuit’s Struggle with Dioxins and Other Organic Pollutants,”

*American Indian Quarterly* 26 no. 3 (Summer, 2002); Start Barry Commoner, *Making Peace with the Planet*. New York: Pantheon Books, 1990.

**Class 3:** Discuss readings

**Homework:** Use materials in bibliography to craft speeches (5-10 minutes depending on class-size)

**Class 4:** One (could be more depending on class size) representative from each faction speaks and answers questions from other factions and Indeterminates

**Homework:** Next student(s) from factions should craft speeches

**Class 5:** Next representative(s) from each faction speaks, answering some arguments from the previous class and answering questions from other factions and Indeterminates

**Homework:** Indeterminates craft speeches

**Class 6:** Indeterminates speeches and answer questions

**Homework:** Faction members work on rebuttal speeches

**Class 7:** Representative(s) from each faction gives speech #2 and answers questions

**Homework:** Next students from factions craft speeches

**Class 8:** Next representative(s) from each faction gives speech #2 and answers questions

**Homework:** Indeterminates craft speeches

**Class: 9:** Indeterminate speeches

**Class 10:** Vote on what the Ames City Council should do and Post-Mortem discussion about environmental justice and risk assessment in solid waste management handling

1. Barry Commoner, *The Closing Circle: Nature, Man, and Technology* (New York: Alfred A.

   Knopf, 1971), 40. [↑](#footnote-ref-1)
2. Barry Commoner, *Making Peace with the Planet* (New York: Pantheon Books, 1990), 111 [↑](#footnote-ref-2)