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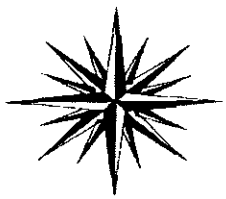

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Strategic Intelligence and Business Information Services

INTELLIGENCE ANALYSIS:
Dioxin Assessment

June 8, 1999

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OVERVIEW

For the last ten years dioxin has been the source of great debate between industry and numerous environmental and health organizations. After ten years of research, the EPA has yet to publish its findings on the sources and human health effects of dioxin.

FINDINGS

In 1997 the World Health Organization (WHO) and the U.S. Environmental Protection Agency (EPA) declared that dioxins are known to increase the likelihood of cancer and that a global and national reassessment of dioxin be performed. Additionally, they acknowledged that the most toxic dioxin, 2,3,7,8-tetrachlorodibenzo-p-dioxin, to be a class 1 carcinogen. In 1990 the WHO set a safe daily exposure level to 10 picograms per kilogram of body weight. Since then many organizations have fought to lower these exposure limits or to set the exposure limit to zero. Therefore, in 1998 the limits were lowered to one to four picograms per day.

Ninety percent of human exposure to dioxin occurs through diet. When dioxin emissions settle onto soil they enter the food chain by being ingested by grazing animals. A study by Dr. Arnold Schecter of SUNY Binghamton, estimated that the average daily intake of dioxin is "at least 50 times greater than what EPA estimates is a virtually safe dose of dioxin." Some toxic chemicals have equal effects on different animals at nearly the same contamination excepts dioxins.

Numerous studies on dioxin have demonstrated that exposure to dioxin causes the following diseases in humans:

- Chloracne
- Immune system depression
- Changes in the normal ratio of boys to girls
- Birth defects
- Endometriosis
- Low testosterone levels
- Increase in glucose tolerance that suggests rising diabetes rates
- Developmental effects
- Cancers and tumors

Dioxin and dioxin-like compounds are unintentionally created whenever chlorine-based chemicals are produced, used or burned. Dioxin, when released into the air, is then categorized as a Persistent Organic Pollutant (POP). POPs released into the environment can travel through air and water to regions that may be extremely distant from their original sources. In addition to dioxin the United Nations Environmental Programme (UNEP) has identified eleven other POPs: furans, PCB's, DDT, chlordane, heptachlor, hexachlorobenzene, toxaphene, aldrin, dieldrin, endrin, and mirex.

The International POPs Elimination Network (IPEN) is a global network of public interest non-governmental organizations (NGO), sponsored by the United Nations, that work for the global elimination of POPs. Since its inception in 1998 the IPEN has gained participation of NGO's on

six continents. The goal of the IPEN is to develop a plan that would result in a global, legally binding convention to phase out the production, use and sources of POPs. The organization has held two major symposiums called the Intergovernmental Negotiating Committee. The first meeting (INC1) was held in Montreal in June of 1998 and the most recent meeting (INC2) was held in Nairobi in January of 1999. According to the IPEN POP Elimination Platform, "For POPs that are generated as unwanted by-products [e.g. dioxins and furans], currently available measures that can achieve a realistic and meaningful level of release reduction and/or source elimination should be pursued expeditiously, and this should be done by actions that are feasible and practical and additional measures should be explored and implemented." Additionally, the Platform states, "...for those POPs that are generated as unwanted contaminants, by-products and combustion products, identify and phase-out significant anthropogenic sources. In identifying sources, consideration should be given to industrial processes, waste disposal technologies, and anthropogenic products and materials routinely associated with the generation of POPs during their ordinary lifecycle..." In addition to a phase out plan, negotiators are developing criteria and procedures for identifying additional POPs as candidates for global action.

Groups such as Greenpeace, the World Wildlife Federation, Indigenous Environmental Network, the Inuit Circumpolar Conference, and Physicians for Social Responsibility made interventions at both INC meetings on key points such as the elimination goal of a future treaty, the need for safer alternatives, and full disclosure of information without regard to national security.

Environmental and health organizations throughout the nation and globally have established anti-dioxin campaigns. With the elimination of dioxin being the ultimate goal, each organization addresses different facets of the dioxin lifecycle. Because dioxin is produced whenever chlorine-containing materials are burned, activists and organizations focus on the practices which generate dioxin. The greatest source of dioxin is the incineration of municipal and hazardous materials, pulp and paper, and especially chlorine and PVC plastics. When the materials are burned, chlorine is released and reacts with available phenol compounds to form dioxin. It is believed that the major source of dioxin is the chemical industry and its processes that use chlorine in the production of pesticides, pharmaceuticals, cosmetics, detergents, solvents, plastics and dyes.

Municipal authorities in Lille, France ordered the closure of three municipal waste incinerators because of high dioxin concentrations in locally produced milk. This was the first time any waste incinerators in the country had been closed before reaching their operational age limit. In May of 1999 eggs and chicken were pulled from the shelves of Belgian stores and restaurants because of severe dioxin contamination. The source of the contamination was traced to imported citrus pulp for animal feed that had been mixed with industrial waste.

There is also great debate throughout Europe concerning the high levels of dioxin and PCB's that are found in breast milk and its long-term effects on children. Children are most at risk from the effects of dioxin and other POPs because of the ratio of exposure to body weight. According to Kay Yeuell's article, "No Such Thing as a Bad Kid", a major cause of birth defects is exposure to various chemicals each day. Especially harmful are chemicals, such as dioxin, that are known endocrine disrupters.

The Endocrine Resource Center was created by the Institute for Agricultural and Trade Policy to provide information about endocrine disrupting chemicals, their sources and health effects. Out of the 50 chemicals that are believed to affect the endocrine system, half of those are chlorinated compounds. Even in amounts as small as parts per trillion, these chemicals are believed to have negative effects. Dioxin is believed to create reactions in cells that would not normally be produced by naturally occurring hormones.

Greenpeace and Health Care Without Harm both concentrate their dioxin elimination campaigns on the problems associated with PVC plastic. Greenpeace accuses the chlorine industry to be the source of chlorine in incinerators and all other cases of dioxin release. PVC waste provides half of the chlorine input of municipal incinerators and is therefore accused of being the main source of dioxin emissions.

For 1999 and 2000 Greenpeace will concentrate of identifying and exposing major POP "hotspots" throughout the world. In the US, Greenpeace will emphasize dioxin hotspots as they are related to the PVC industry. Greenpeace's anti-PVC campaign includes a "zero dioxin" strategy. Some aspects of that campaign include:

- A moratorium on new dioxin permits
- A phase out of all existing permits
- A moratorium on all new incinerators and a phase out of burning chlorinated waste at existing incinerators
- Chlorine and chlorine-based bleaches should be eliminated
- Drafting a timetable for PVC phase out

In order to reach some of its goals, Greenpeace will strategically target the most serious sources of global toxic pollution. Greenpeace is developing political allies and using the marketplace and political arenas to strengthen their influence. The UNEP negotiations, the Dioxin Reassessment by the EPA in the mid-nineties and emerging science around endocrine disrupting chemicals create the opportunity for Greenpeace to suggest that the PVC industry is directly threatening global human health, especially children.

Health Care Without Harm and other members of the health community also recognize the relationship between the use of vinyl and dioxin from waste incineration. For example, Catholic Care West, a 37-hospital system in California, has begun to phase out the use of PVC in all medical products. PVC products are the principal source of organically-bound chlorine in medical waste, which proves that PVC is the major root source of dioxin when medical wastes are burned. Other hospitals have begun to segregate PVC from their wastes that are bound for incineration in order to reduce hydrochloric acid, a precursor to dioxin.

Neither Greenpeace, nor Health Care Without Harm, have claimed that dioxin levels have been rising in recent years. Their concern is that the U.S. population already has dioxin levels at or near levels that have caused adverse effects in laboratory animals.

The Center for Health and Environmental Justice, which is associated with Health Care Without Harm, has formed the Stop Dioxin Exposure Campaign. Part of this campaign is the creation of the American Peoples Dioxin Reassessment. The Reassessment is scheduled to run from September of 1999 to February of 2000. The campaign includes 12 scientists and a team of 60 that will draft policy recommendations for each dioxin source. The group will set up public hearings throughout the U.S. to encourage community members to take a part in the campaign. Some of their suggested tactics include:

- Toxic tours
- Junk science awards
- Political rallies
- Assessment of local politicians
- Highlight local companies that are chlorine and dioxin free

Environmentalists see the dioxin problem as a failure of government and the people to regulate industry power. Because controlling dioxin is expensive, industry has maintained relentless pressure on government to relax dioxin standards. The environmentalists argue that instead of producing known products to satisfy existing industrial needs, industry is increasingly producing new forms of matter which not only replace the materials used by existing industries, but which cause extension and modification of those industries.

Dioxin and its role as an endocrine disrupter and a POP will continue to be an important battle for environmentalist and health specialists. For them it will be most important to make everyday citizens aware of the harmful effects of dioxin, especially on children. Environmental and health organizations will continue to provide opportunities to bring together conservationists, environmental justice activists, cancer victims, and breast feeding victims to influence local, state, and national policy on dioxin emissions.

It has been described by activists that there are two basic approaches as to how to control dioxin exposure. Environmentalists believe that industry wants dioxin to be controlled through risk assessment. They believe that industry is willing to judge the harmful effects of dioxin exposure by how much damage is acceptable or tolerable. In other words, industry tries to set a standard as to what the acceptable number of deaths or illnesses are before an exposure limit is determined.

Environmentalists and health advocates would rather institute a precautionary principal. Rather than determining how much, or little, dioxin exposure is acceptable, the precautionary principal promotes ascertaining what precautionary measures can be taken to avoid any harmful effects; a zero tolerance program. The process would search for alternatives to dioxin exposure and phasing out all dioxin-producing processes. This could be a very popular anti-dioxin campaign tenet for women and children's health issues.