HAZARDOUS WASTE MANAGEMENT

Minimize the quantities of hazardous waste generated and emphasize recycle or sale of those wastes which cannot be eliminated. For the remaining wastes, select treatment or disposal practices taking into consideration compliance with regulations, cost effectiveness, environmental impact and long term liability. Establish Monsanto monitored and/or controlled disposition of all hazardous wastes. Continue waste management programs that favor alternatives to land disposal and that support hazardous waste reduction.

PROGRAM

Except as modified by item 5) below, this guideline applies to all worldwide Monsanto facilities.

1. ***Waste Management***

   Corporation will manage its process wastes using methods which reflect the following order of preference:

   (a) Reduction of waste generation by process improvement.

   (b) Reuse, recycle or co-product sale.

   (c) Incineration or other treatment to render waste less hazardous.

   (d) Land or ocean disposal of treatment residuals or wastes not amenable to the above.

   Beyond regulatory requirements, landfill of "acutely hazardous" wastes[1] and "incinerables"[2] will not be practiced. Fixation of particularly mobile, persistent or bio-accumulative wastes will be accomplished wherever warranted and feasible, or where required by regulations.

   Wastes, which are not RCRA hazardous, will be evaluated for present and future environmental risk and managed in an appropriate manner approved by the unit Director of Environmental Operations. (To be completed by 1/1/89).

   The most cost-effective mix of Monsanto owned or approved contractor facilities (see Guideline #5 for contract and assessment requirements) shall be used with a goal of minimizing the number of non-Monsanto sites used, providing optimal control over long term security and liability.

   An evergreen record of both on-site and commercial waste treatment, storage and disposal sites will be maintained by each plant.

   Monsanto will retain ownership of all property known to contain wastes with the potential to cause injury to health or the environment unless otherwise approved by the Environment, Safety and Health Committee. The use of company facilities to treat, store or dispose of non-Monsanto wastes is normally discouraged. Any such use or joint ventures for waste management must be reviewed and approved by the ES&H Committee.

2. ***Waste Reduction***

   Each operating unit and each manufacturing location will assign a hazardous waste reduction coordinator responsible for monitoring and facilitating that unit's reduction efforts.

   Units shall set annual numerical reduction goals and report progress against those goals yearly through the Manufacturing Management Council to the Environment, Safety and Health Committee.

   The use of lower rate-of-return criteria, higher future waste management costs, an allowance for future liability or other means of providing resource priority for reduction projects is encouraged.

3. ***Deep Well Injection Program***

   Monsanto will continue to operate its deepwell disposal systems in a sound manner protective of public health and the environment. Each plant using

[1]As listed in 40 CFR 261.33(e), plus any mixtures containing greater than 5%.
[2]Wastes with a heat of combustion of greater than 6,000 BTU/#.

on-site or off-site deepwell disposal will have and maintain contingency plans for exiting deepwells. There will be no new use of deepwells except as approved by the Environment, Safety and Health Committee on an exception basis. All new project appropriation requests will be based on the economics of disposal technology other than deepwells.

4. ***Corrective Action***

When on-site abandoned waste or groundwater contamination is discovered, appropriate assessment and corrective actions will be carried out. Any necessary projects will be scheduled with a goal of implementing identified remedial projects prior to 1990. When we become aware of possible involvement in "Superfund" sites, we will actively participate in generator group efforts to achieve settlement and expedite clean-up. At sites where we are a/the major contributor, we will seek a leadership role when appropriate to facilitate resolution. The Manufacturing Management Council will establish responsibility for sites where several operating units contributed wastes. It shall be a goal of the corporation to resolve prior to 1990 our liability and remedial plans for presently known sites where we have major responsibility.

We intend a lessened legalistic approach to site CLEANUP negotiations. Where our responsibility is fairly established, we will not delay cleanup unnecessarily by legal, yet negatively perceived litigious steps. We will pursue fair legislation and regulations on the general issues in the public arena, but minimizing legal risk will not be the determining factor in site-specific decisions.

5. ***Ex-U.S. Locations***

The above program elements and timing will be implemented at ex-U.S. locations, but with modifications as necessary to reflect local limitations, restraints to compliance, and the extent of Monsanto's operating control. Status and direction of local programs will be reviewed in planned environmental audits of these facilities.

STATUS/OBSERVATIONS

Waste Management

- Landfill of "incinerables" and "acutely hazardous" wastes has been essentially eliminated.
- The planned goal of waste internalization has evolved due to cost considerations, the availability of acceptable external alternatives and limitations associated with internal alternatives. A long-term strategy is still being finalized with a goal of continuing, but minimizing external dependence and risk.
- Previous plans to develop internal decision methodology for evaluating disposal of hazardous wastes were not realized, being overtaken by the development of regulatory disposal restrictions and treatment requirements.

Waste Reduction

- Each operating unit, including Europe/Africa, has assigned waste management coordinators responsible for establishing reduction programs and reporting progress. The use of goals, however, is not yet universally practiced.
- Performance against goals is measured and reported annually to the Manufacturing Management Council and the ES&H Committee, using a corporate-wide computerized data base. The 1986 results reflect a 39% reduction vs. the 1982 base year.

Deepwell Injection Programs

- Excellent progress has been made toward the definition of technology and project requirements to enable withdrawal from deepwell disposal. Various flow reduction projects have been and continue to be completed, but defined major expenditures are being withheld pending regulatory developments under RCRA regarding the use of deepwells.
- Due to small projects, but largely to the sale of the Texas City Plant in 1986, corporate deepwell flow at process capacity has been reduced to less than 3,000 gpm.
- Emergency contingency plans for deepwell withdrawal have been prepared and are in place.

Corrective Action

- Monsanto involvement has been alleged at 58 "Superfund" sites, 48 federal and 10 state. Most of the sites indicate minor or "de minimis" involvement, but Monsanto has a leadership role at 16 sites.

(Revised and Approved: Environmental, Safety & Health Committee June 25, 1987.)

DSW 117703

STLCOPCB4032239