EFFLUENT AND EMISSION CONTROL

PROGRAM

Control pollutant discharges from Monsanto operations so as not to endanger health and the environment.

EFFLUENT CONTROL - Control options for liquid discharges from Monsanto operations will be developed by 7/1/88. These options will apply to both direct discharges and discharges to Publicly Owned Treatment Works (POTW) subject to regulations by permit, letter of agreement, or other arrangement under governmental authority. Materials listed pursuant to Section 307(a) of the U.S. Clean Water Act will be used as a base. At each location where any of these materials is used or produced in any amount, the following information will be developed in the order listed:

1. A qualitative determination of the presence or absence of any of these materials in the discharge.

2. A quantitative determination of the concentration profile of any of these materials found to be present in the discharge at a level of confidence that includes variations due to seasonal effects, product mix, hydraulic loading, production capacity, waste treatment variables, or other site specific parameters.

3. A determination as per items 1 and 2 above for plant intake waters to establish background levels.

4. A determination if receptor water quality can be maintained if each pollutant concentration is controlled at 100 PPB maximum in the discharge unless specified otherwise in existing or proposed effluent guidelines.

5. Identification of a technology and cost (end of pipe or process specific) to control each pollutant in the discharge at a concentration specified by existing or proposed effluent guideline; or if not specified then at 100 PPB maximum if adequate to maintain receptor water quality.

Operating units will review priorities and timetables for each discharge annually.

EMISSION CONTROL - A data bank for specific air pollutants will be developed by 7/1/88. This information will be used as the basis for cost effective/cost avoidance strategies to assimilate future controls imposed on Monsanto locations. Materials listed or being considered for listing under Section 112 (b) (1) (A) of the U.S. Clean Air Act will be used as a base. At each location where any of these materials are used or produced in any amount, the following information will be developed in the order listed:

1. Identification of all emission point sources (Ongoing, Continuous, and Intermittent).

2. Emission point source composition.

3. Emission point source rate in lbs./cwt. product produced.

Operating units will review priorities and timetables for each material annually.

For some materials, it may become appropriate to develop additional information in the following sequence:

1. Dispersion modeling

2. Ambient concentration at fenceline

3. Health/welfare effects assessment

4. Control technology

5. Cost

GENERAL - The following program elements will be implemented as required.

1. Determine the environmental fate of any priority pollutant discharged to surface waters in amounts judged to have the potential to adversely impact health or the environment.

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2. Review the chemistry and operating conditions of each new or modified process after startup to confirm that no micropollutant, in an amount having potential to endanger health or the environment, may have escaped detection by the effluent and emission analytical protocols utilized.

3. Each Operating Company will set goals for reduction of permit limit exceedances and releases reportable under CERCLA to be reviewed annually.

STATUS / OBSERVATIONS

The program for implementing Worldwide Environmental Protection Guideline Number 1 is now in the second year of a planned four year effort. The program concentrates on chemicals identified by Congress and/or the EPA as target chemicals for regulatory action.

Recent World and Legislative actions—such as Bhopal and Senator Waxman's request for detailed discharge (leak) data from our plants—indicated this program is sound. However, both the timing and scope (chemicals being studied) of this program will be subject to increasing pressures as the demand grows for additional details on chemical plant discharges.

Observations on Effluent Program

- Eighty-five percent (85%) of Monsanto plants worldwide have established action plans to implement WWGL #1 for their effluents. The remainder will complete their action plans in 1985.

- Initial results indicate 27 of the 79 plants (worldwide) reporting do not discharge any priority pollutants. Another 31 sites discharge from 1-5, 8 plants 6-10, and only 3 plants discharge greater than 10 priority pollutants. Information is still to be developed for 10 sites.

- The program requires each plant to develop cost-effective solutions to reduce discharge of priority pollutants to low levels (<0.1 ppm).To date, such solutions are known for approximately one-fifth of the priority pollutants that have been identified. The solutions include use of both existing and identified treatment facilities.

- The targeted date for completion of the entire program is July 1988. The remaining investigative work must be given priority in 1985 and 1986. Action plans are in place to complete source quantifications work for 90% of the identified pollutants by the end of 1986.

- The EPA plans to promulgate final effluent guidelines in 1986 for Organic Chemical, Plastics and Synthetic Fiber plants (OCPSF guidelines). Also, the Regional EPA offices, particularly Region IV, are pushing for aquatic toxicity limits in the site permits. This EPA activity is driving the priorities at certain sites.

Observations on Hazardous Air Pollutant Program

- Ninety-four percent (94%) of Monsanto plants (worldwide) have established action plans to implement WWGL #1 for their air emissions. The remainder will be established in 1985.

- Initial results indicate 35 plants do not emit hazardous air pollutants, 28 sites emit from 1-5 and 9 plants 6-10. Information is still to be determined for 7 plants.

- The Air Pollutant Program is conducted in two phases. Phase 1 is to identify the source, composition and emission rate for each hazardous air pollutant. Once known, Phase 2 is to evaluate the impact of these emissions and, if appropriate, the technology and cost necessary for reduction. In 1984, 29% of the hazardous air pollutants identified have been quantified as to composition, source and emission rates (Phase 1).

- Action plans are in place to quantify source, composition and emission rates for 83% of the pollutants identified by the end of 1986.

- Dispersion modeling has been completed for 22% of the pollutant-source combinations identified to date.

- The target date for completion of the data bank is July 1988. Events of the past few months (post-Bhopal) will drive the priorities of the program.

General Program

The General Program element under WWGL #1 requires our plants to:

- Determine the environmental fate of chemical of concern.
- Assess new/modified processes for potential micropollutants of concern.
- Establish goals to reduce permit limit exceedances.

During 1984

- The environmental fate of arsenic was determined at the Carondelet Plant. In addition, action plans were established for conducting environmental fate determinations for six additional priority pollutants at two sites during 1985.
- Eleven new (including 5 interim production facilities) and 7 modified processes were started up. Follow-up reviews for the presence of micropollutants have been completed on three of these startups. Follow-up for the remaining new/modified processes will be required during 1985.
- Over 46 products with the potential for contamination from incidentally produced PCBs have been reviewed/analyzed in order to certify compliance with new PCB regulations.
- Each location established goals for 1985 to reduce permit limit excursions. 1985 goals reflect a significant reduction over 1984 performance.

(Revised and Approved: Environmental Policy Committee, June 1985, as Worldwide Environmental Protection Guideline No. 1.)

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