

In early 1977, a set of Worldwide Environmental Protection Guidelines was developed to insure the Corporatewide pursuit of an integrated approach to the management of Monsanto's impact on the environment. These guidelines and their attendant programs have been further developed and are presented in the attachments. Several additional guidelines directed at achieving worldwide consistency in environmental management and at environmental management matters where Monsanto does not have operating control are currently under development.

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JRS:ms

Attachment

DSW 117664

COMPANY CONFIDENTIAL

STLCOPCB4032199

Monsanto must manage its environmental impact on the workplace, the immediate plant area, and the world at large. Worldwide Environmental Protection Guidelines provide an integrated approach to this task; protection of the environment and people -- employees, customers, and the general public -- and to full compliance with the law of the land, wherever Monsanto operates.

Where applicable laws and regulations result in unreasonable restraint (beyond that needed to protect health and the environment), Monsanto will work to change them through appropriate legal or legislative procedures. Similarly, Monsanto will not hesitate to go beyond existing regulations where necessary, to protect health and the environment.

Recognizing that environmental protection is an evolving science, Monsanto is committed to improving its performance as its capabilities improve and national standards become more stringent.

The first five Guidelines that follow are site-related and have been established to protect the workplace and plant environments, where Monsanto has operating control. The sixth guideline relates to Monsanto involvement with service companies which support Monsanto's business from their plant site.

GUIDELINES - 9/1/78

1. EFFLUENT AND EMISSION CONTROL - Monsanto will operate its processes including waste treatment in such a manner that discharges do not endanger health or the environment. Operating companies will:

- Analyze site effluents and process emissions for regulated substances and other toxic materials.
- Control effluents and emissions at or below levels permissible under applicable regulations or permits, and, where necessary, or in cases not defined above, to levels judged adequate to protect health and environment.
- Determine effluent and emissions wasteloads from specific processes where this information is required for:
 - (a) solution of present or prospective compliance problems.
 - (b) process specific BAT (best available technology) and BACT (best available control technology) control.
 - (c) "pretreatment" prior to discharge to public treatment plants and
 - (d) the design and construction of new plants, expanded capacity, or process improvements, including ex-US installations.

The EPC must be informed of, and must approve any exceptions to this Policy. The CAC will be notified of such approvals.

2. SOLID WASTE CONTROL - Establish Monsanto monitored and/or controlled disposition of all solid wastes.
3. PLANT ENVIRONMENTAL ASSESSMENTS - Establish and maintain an environmental assessment of all plant sites.
 - The assessment will include information on local air and water quality, soil and vegetation sampling, relationships with regulatory agencies, and the effects of our presence on the surrounding environment.
4. DEEP-WELL INJECTION - Reduce Monsanto's dependency on deep-well injection of wastes and maintain surveillance of secure operation and performance of existing wells.

- GUIDELINES -

5. INDUSTRIAL HYGIENE - Determine and monitor workplace stresses, and maintain Monsanto workplace environment standards.

REVIEW-APPROVAL-EXCEPTIONS

- The Industrial Hygiene section of DMEH, working with the operating companies, will establish, review, and approve all Monsanto workplace environment standards prior to their adoption, and in this process will notify the Environmental Policy Committee of those that do not meet U.S. Standards as a minimum.
 - It is our intent to use Monsanto standards, or local legal standards, whichever is more demanding, for design and operation of our plants.
 - If the situation at a specific location appears to justify an exception to Monsanto standards, the Environmental Policy Committee will be notified by the Environmental Policy Staff of the exception. The EPC may approve such exceptions after examining the relevant supporting information.
 - The Corporate Administrative Committee will be notified of such approvals of exceptions.
6. OUTSIDE PROCESSORS - Select companies for support of Monsanto operations - through product conversions, custom manufacture, formulating, packaging, by-product sales, and other services involving Monsanto products/technology - which will operate with concern for worker safety and protection of the environment.
- Formalize all agreements by contract.
 - Ensure that the companies selected have all available relevant information on the Monsanto products and technology (including toxicological and environmental factors) with which they are involved.
 - Terminate contracts with outside processors if they are found to be performing unsatisfactorily.

DSW 117667

WORLDWIDE ENVIRONMENTAL PROTECTION GUIDELINE PROGRAMS - 9/1/78

The first five Monsanto Worldwide Environmental Protection Guidelines set forth goals for the management of the workplace and plant environments. Guideline #6 has also been provided to cover environmental responsibility related to service companies supporting Monsanto's business from their plant site.

The CAC and EPC approved programs and target dates related to each Guideline are set out below. Also included are brief notes which may be helpful in understanding the tone, extent, and meaning of the Guidelines and the status of Guideline compliance as of August, 1978.

DSW 117668

STLCOPCB4032203

V. WE WILL HELP OUR PEOPLE MAXIMIZE THEIR CONTRIBUTION TO THE CORPORATION.

To achieve this objective, we will:

- Search out, select and employ the most competent people available.
- Devise and administer imaginative compensation systems and benefit programs which recognize the high caliber of our personnel and emphasize contribution to near and long term results.
- Organize to give individuals maximum participation in the decision-making process as they strive to achieve our agreed-upon goals.
- Design and implement development programs which assist individuals in realizing their potential while providing Monsanto the continually growing competence and skills necessary to our future.

DSW 117816

GUIDELINE PROGRAMS - 9/1/78

1. EFFLUENT AND EMISSION CONTROL

Program

- (a) Complete wide-scan analysis of all plant effluents requiring it by Jan. 1, 1980.
- (b) Complete "extended" wide-scan analysis, broadened to include additional materials falling under EPA regulation, by Jan. 1, 1982.
- (c) Complete analysis of process stacks and vents judged to be critical by Jan. 1, 1981.
- (d) Maintain compliance with permits and regulations controlling effluents and emissions.
- (e) Determine wasteloads for specific processes as required for special needs.

Status - 8/1/78

<u>Effluents</u> - Total U.S. Plants	65
Wide-Scan analysis complete	6
Wide-Scan analysis scheduled or in process	18
Analysis not scheduled	25 - 5
Analysis not required	16 - 36

Note - Since the status report dated 2/23/78, wide-scan analyses completed, in process, or scheduled have increased from 4 or 5 to 24. The extent of analytical work required at 20 plants still must be determined.

<u>Emissions</u> - Total U.S. Plants	65
"Total plant emissions" analysis complete	2
Analysis scheduled or in process	8
Analysis not yet scheduled	24
Analysis not required	31

Note - "Total plant emissions" is defined as the emissions from process stacks or vents judged to be critical, and includes pollutants for which ambient air quality standards have been established (SO₂, particulates, photochemical oxidants, non-methane hydrocarbons, CO, and NOx). Substantial analytical work for specific additional materials has also been completed.

DSW 117669

STLCOPCB4032205

GUIDELINE PROGRAMS - 9/1/78

Specific process effluent and emission wasteloads analyses

Analyzed or	Process effluent wasteload, complete	- 20
Sampled for	Process effluent wasteload, partial	- 12
Analysis	Process emission wasteloads from	
	stacks judged to be critical	- 6

Note - This work is proceeding logically as specific wasteload information is required for any of the reasons cited in the Guideline.

2. SOLID WASTE CONTROL

Program

- (a) Carry out Programs for analysis/characterization of wastes from all plants, as appropriate, to assure disposal in a responsible manner.
- (b) Place all off-site disposal under contract with routine monitoring by 12/79.
- (c) Provide disposal site operators with available relevant information on the properties and safe handling practices for Monsanto wastes.

Status

- (a) 14 plants dispose of wastes on-site.

Anticipating requirements under RCRA:

- (1) 11 operations are acceptable or require minor upgrading.
 - (2) 3 operations will require major upgrading or closure.
 - (3) Required improvement plans are complete for 3 sites and scheduled for 11.
- (b) 77 plants dispose of wastes off-site.
 - (1) Approximately 70% of off-site disposal operations are under acceptable contract and are routinely monitored. Completion is scheduled for Dec., 1979.
 - (2) Disposal site operators have been informed of safe handling practices for Monsanto wastes.
 - (3) Increased involvement of Purchasing personnel in contract development, price negotiation, and invoice handling is targeted.

DSW 117670

STLCOPCB4032206

GUIDELINE PROGRAMS - 9/1/78

3. PLANT ENVIRONMENTAL ASSESSMENTS

Program

- (a) Complete Initial Surveys by Jan. 1, 1980.
- (b) A committee of environmental network personnel, chaired by one DEO, prepare and submit to the EPC for its review and approval an outline description of the documentation to be included in an Initial Survey and a Final Assessment by 3/31/79.
- (c) Complete Final Assessments by Jan. 1, 1982.

Status - 8/1/78

Final Environmental Assessments have been completed for 26% of the Domestic plants and 11% of the ex-U.S. plants. Assessments are in progress at an additional 56% of the Domestic and 55% of the ex-U.S.

4. DEEP-WELL INJECTION

Program

- (a) No new deep-well disposal systems will be installed except to replace current active systems.
- (b) Establish immediate ceiling of 5000 gpm maximum injection rate for the corporation. This limit does not include compatible clean brines which are defined to be solutions of inorganic salts having a pH in the range of 5-10 and containing no significant level of toxic materials, and having a total organic carbon level no greater than 100 ppm.
- (c) An alternate disposal plan will be developed by Jan. 1, 1981 for each process waste stream currently discharged into deep wells.
- (d) The alternate disposal plans will be implemented to achieve one of the following:
 - (1) Comply with legal requirements.
 - (2) Eliminate the disposal of a waste stream which is resulting in or has the potential of creating conditions which are deemed socially irresponsible.
- (e) The status of implementation of the alternate disposal plans will be formally reviewed annually following plan development.

GUIDELINE PROGRAMS - 9/1/78

Status - 8/1/78

MAP

Current Disposal Rate	-	50 gpm*
* (Additional IDA wastes of 50 gpm in late 1978 or early 1979)		
Technology Definition	-	15% complete
Target Disposal Rate		
1/1/83	-	0 gpm

MCI

Current Disposal Rate	-	3265 gpm
Technology Definition	-	50% complete
Target Disposal Rates		
1/1/82	-	3130 gpm
1/1/84	-	1400 gpm
1/1/85	-	400 gpm

MIC

Current Disposal Rate	-	300 gpm
Technology Definition	-	40% complete
Target Disposal Rates		
1/1/80	-	290 gpm
1/1/83	-	250 gpm
1/1/84	-	0 gpm

MPR

Current Disposal Rate	-	25 gpm
Technology Definition	-	60% complete
Target Disposal Rates		
1/1/81	-	0 gpm

MTC

Current Disposal Rate	-	500 gpm
Technology Definition	-	20% complete
Target Disposal Rate		
1/1/80	-	100 gpm

DSW 117672

STLCOPCB4032208

GUIDELINE PROGRAMS - 9/1/78

5. INDUSTRIAL HYGIENE

Program

(a) Complete Base Data Surveys by:

U.S. - Jan., 1978
ex-U.S. - Jan., 1979

(b) Complete workplace environmental baseline monitoring by:

U.S. - Jan., 1979
ex-U.S. - Jan., 1981

(c) Establish and maintain written sustaining programs, which include monitoring and corrective action plans for workplace exposures.

U.S. - July, 1980
ex-U.S. - July, 1982

(d) Establish and attain compliance with Monsanto workplace environment standards as required by law or prescribed by DMEH.

Status - 8/1/78

The first two parts of the Industrial Hygiene Program specify rather precise completion dates for both base data surveys and baseline monitoring. Because of the nature of these two exercises, neither are probably ever totally complete. With the constant installation of new processes, process modification, changes in work practices, changes in regulations, etc., there will always be base data surveys to be made and baseline monitoring to be done. Progress toward the accomplishment of these two exercises cannot be expressed with the precision the stated program implies and the dates set forth in the first two parts of the program should be viewed as approximate time-frames.

According to the information that has been provided, U. S. base data surveys are essentially complete and all ex-U.S. base data surveys will be completed during 1979.

Considerable progress has been made in baseline monitoring in the U.S. However, it would not appear that this project could be called completed until some time in 1980.

Considerable progress is being made in baseline monitoring ex-U.S. The only geographical areas particularly lacking in this regard would appear to be Mexico and South America. However, all companies indicate January 1981 as being a realistic date for the completion of baseline monitoring ex-U.S.

DSW 117673

STLCOPCB4032209

GUIDELINE PROGRAMS - 9/1/78

The most critical factor leading to full compliance is set forth in Item (c). All of the companies believe that by July 1980 for the U.S. and July 1982 for ex-U.S., they will have established and will be maintaining written sustaining programs, which will include monitoring and corrective action plans for workplace exposures.

6. OUTSIDE PROCESSORS

Program

- (a) Complete initial processor review and eliminate/upgrade companies found to be inadequate:

U.S. - Jan. 1, 1979
ex-U.S. - Jan. 1, 1980

- (b) Establish a continuing pre-contract assessment and review program:

U.S. - Jan. 1, 1979
ex-U.S. - Jan. 1, 1980

Status - 8/1/78

Within U.S.

There are some 200 outside processors performing a variety of services, from cleaning drums to preparing special intermediates. About 50% of these are under contract; most of the remainder operate under purchase orders. Each Monsanto company has completed an initial assessment of its processors. As a result, six have been terminated. MCP, MAP, MP&R, and MTC either have or plan to have all processors under contract by 1/79. MIC intends to execute contracts as present arrangements expire; MCI plans to have all under contract by 1/80. Corporate Purchasing is preparing prototype contracts for general use and is prepared to handle the purchasing aspects of these service arrangements.

Outside U.S.

We have less complete information on ex-U.S. outside processors. Fifteen have been identified. Both MTC and MIC need further information on processors performing services of their operations in Europe. MTC uses a number of small companies for dyeing and texturizing fiber. It is expected that by the end of 1979 we will have all ex-U.S. outside processors identified, categorized and in compliance with this Guideline.