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VI. CROSS-REFERENCE: Pledge Manual and Responsible Care

VII. REFERENCE: Responsible Care Program

The Monsanto Pledge

INTRODUCTION

OVERVIEW

Introduction

Monsanto Company is dedicated to ensuring the safety of our employees, customers, communities and the environment. Through the Monsanto Pledge, we have committed publicly to pursue a course of environmental stewardship -- one that goes beyond what is required by the law.

Background

The Pledge represents Monsanto's environmental commitment to sustainable development. Each of the company's environmental programs and commitments is embodied by the seven-point Monsanto Pledge.

The Monsanto Pledge

It is our pledge to

- *reduce all toxic and hazardous releases and emissions, working toward an ultimate goal of zero effect;*
- *ensure no Monsanto operation poses any undue risk to our employees and our communities;*
- *work to achieve sustainable agriculture through new technology and practices;*
- *ensure groundwater safety;*
- *keep our plants open to our communities and involve the community in plant operations;*
- *manage all corporate real estate, including plant sites, to benefit nature; and*
- *search worldwide for technology to reduce and eliminate waste from our operations, with the top priority being not making waste in the first place.*

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COMPANY CONFIDENTIAL

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Purpose

At the core of the Pledge is our belief that the public grants us the right to operate every day -- and every day we must work to earn that right. The Pledge recognizes that outstanding environmental, safety and health performance isn't a cost of doing business, but is integral to our business success. It assumes that compliance with the law and our internal requirements is basic, wherever we do business.

The environmentalism embodied in the Pledge is far more than compliance. The Monsanto Pledge sets the overall direction of the company's environmental, safety and health program. Specific policies, goals, standards and procedures detail our efforts to achieve the Pledge.

In This Section

Included in this introductory section are the following topics:

Topic	See Page
Monsanto Global ESH Policies	I-3
Responsible Care®	I-8

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I1. MONSANTO GLOBAL ESH POLICIES

I1.1 Introduction

All of Monsanto's operations worldwide observe seventeen Monsanto Global ESH Policies that help ensure that our products and operations fully protect human health, safety and the environment -- while meeting or exceeding existing regulations.

This section describes the following approved policies:

- Pollution Prevention
- Employee and Community Safety and Health
- Process Safety and Emergency Response
- Product Stewardship
- Chemical Distribution
- Groundwater and Soil Quality
- Outside Processors,
- Community Awareness at Manufacturing Sites,
- ESH Reviews of Capital Projects,
- ESH Reviews of Divestitures or Acquisitions of Property and/or Businesses,
- ESH Protection for Investments Over Which the Company Does Not Have Operating Control,
- Reproductive Hazards in the Workplace,
- Safe Handling of Carcinogens,
- Contractor/Guest Environmental, Safety and Health,
- Use of Animals in Research Facilities,
- Ozone-Depleting Chemicals (CFCs), and
- ESH Compliance Auditing.

I1.2 Pollution Prevention

The company will

- work toward the ultimate goal of ensuring zero effect attributable to waste in all media,
- research, design and operate its facilities to minimize the generation of process and nonprocess waste and the potential effect of chemical releases to the environment, and
- comply with regulations while minimizing environmental threat and long-term liability for the waste and releases that remain.

Continued on next page

I1. MONSANTO GLOBAL ESH POLICIES, Continued

I1.3 Employee and Community Safety and Health

The company will

- provide a healthful and safe environment for it employees, site visitors, contractors and neighbors,
- evaluate employee health status,
- determine and monitor workplace factors affecting employee safety and health,
- comply with both the company's workplace exposure levels and governmental safety and health regulations, and
- review major capital projects to protect the health of its people at work and that of people in the community.

I1.4 Process Safety and Emergency Response

The company will

- research, develop, design and operate processes in a manner that protects the health and safety of employees, site visitors, contractors and neighbors, and
- apply such standards and programs as necessary, beyond compliance with appropriate governmental regulations, to manage operational risks at a level that ensures its continuing right to operate.

All company sites will complement this effort with strategies to mitigate risk in the event of an incident, including site emergency response and support of comparable efforts within the community.

I1.5 Product Stewardship

The company will

- research, develop, design, assess, manufacture, market and dispose of its products so that they meet societal needs and do not pose undue risk to human health or to the environment during all stages of their life cycles, and
- work with product stakeholders (suppliers, employees, distributors, customers, consumers and disposers) to understand and reduce risks associated with the life cycle of the company's products.

I1.6 Chemical Distribution

The company will reduce potential risk in the distribution of chemicals to

- its employees,
- the public,
- carriers,
- distributors,
- contractors,
- customers' employees, and
- the environment.

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I1. MONSANTO GLOBAL ESH POLICIES, Continued

I1.7 Groundwater and Soil Quality	The company will • design and operate facilities to protect groundwater and soil quality, • assess groundwater and soil quality at its facilities and pursue remedies for releases that threaten health or the environment, and • address on-site and off-site contamination of groundwater and soil attributable to its operating and waste practices to ensure protection of health and the environment.
I1.8 Outside Processors	To support its operations, the company will select outside processors that will operate with concern for • worker safety, • regulatory compliance, • community protection, and • protection of the environment.
I1.9 Community Awareness at Manufacturing Sites	The company will • foster its employees' and the public's right-to-know through a commitment to openness, involvement and community dialogue, and • be responsive to questions and concerns about human safety, health and the environment at its manufacturing sites.
I1.10 ESH Reviews of Capital Projects	The company's capital projects will • meet Monsanto policies, goals and procedures, • be in compliance with existing and anticipated governmental regulatory requirements, and • be reviewed at all levels for environmental, safety and health impact before, and as a condition of, project funding.
I1.11 ESH Reviews of Divestitures or Acquisitions	The company will review divestitures or acquisitions of property and/or businesses for environmental, safety and health factors and any attendant liability issues.

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I1.12 ESH Protection for Investments Over Which Company Has No Operating Control	Compliance with applicable local laws, regulations and practices will be required, at a minimum, for those investments over which the company does not have operating control.
I1.13 Reproductive Hazards in the Workplace	The company will use all appropriate information to ensure avoidance of reproductive effects in • workers of both sexes, and • offspring of workers.
I1.14 Safe Handling of Carcinogens	The company will • provide safe and healthful working conditions for its employees, and • comply with all governmental regulations concerning exposure to carcinogens.
I1.15 Contractor/Guest ESH	Continuous improvement in contractor/guest environmental, safety and health performance is necessary to create an injury-free and incident free environment at all company sites for employees and their guests.
I1.16 Use of Animals in Research Facilities	The company will ensure that • all animals used in its research programs are involved in projects of importance to society, and • the animals receive humane and professionally competent care and treatment.
I1.17 Ozone-Depleting Chemicals (CFCs)	The company will • initiate actions at all of its worldwide sites to minimize the uses and environmental releases of the chemicals subject to this manual, and • seek out acceptable substitute chemicals, when possible, on or before applicable compliance dates set by the site's local country laws and regulations

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I1. MONSANTO GLOBAL ESH POLICIES, Continued

I1.18 ESH Compliance Auditing	The company will conduct environmental, safety and health compliance audits to confirm that site management systems are in place to ensure continuous improvement and compliance with both governmental regulations and corporate, business unit and subsidiary policies and procedures.
I1.19 Voluntary Programs	Included in these policies are Monsanto's voluntary programs to prevent pollution and improve safety performance.

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COMPANY CONFIDENTIAL

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I2. RESPONSIBLE CARE®

I2.1 Introduction

Monsanto actively participates in the chemical industry's Responsible Care initiative, the most ambitious initiative on environmental, safety and health issues ever undertaken by a manufacturing industry. Responsible Care is woven into the very fabric of Monsanto's commitment to environmental, safety and health protective worldwide. It is an important tool to help the company fulfill the Monsanto Pledge.

NOTE: Responsible Care® is a registered service mark of the Canadian Chemical Producers Association and the U. S. Chemical Manufacturers Association, and is an initiative that is being adopted increasingly in countries around the world.

I2.2 Purpose

Responsible Care is an important part of the operation of every Monsanto facility. It is a vital part of our effort to earn the public's trust and the privilege of continued operation.

By weaving Responsible Care elements into its environment, safety and health initiatives, Monsanto is forming the solid foundation it needs to ensure the welfare of its employees, customers, communities and environment.

I2.3 Codes of Management Practice

The following table lists the six Responsible Care codes of management practice included in the Monsanto Pledge Policies and the purpose of each.

Code of Management Practice	Purpose
Community Awareness and Emergency Response	To bring company operations and local communities together through communication and cooperative emergency planning.
Distribution	To make the transportation of chemicals safer, regardless of the carrier or mode of shipment.
Pollution Prevention	To decrease the amount of pollution and hazardous waste generated by manufacturing operations.
Process Safety	To prevent fires, explosions or chemical releases from manufacturing plants and processes.
Employee Health and Safety	To improve continuously the protection of employees, contract workers and visitors at company sites.
Product Stewardship	To reduce the risks to health, safety and environment at every stage of the company's products, from proposal to disposal.

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The Monsanto Pledge

It is our pledge to:

- *reduce all toxic and hazardous releases and emissions, working toward an ultimate goal of zero effect;*
- *ensure no Monsanto operation poses any undue risk to our employees and our communities;*
- *work to achieve sustainable agriculture through new technology and practices;*
- *ensure groundwater safety;*
- *keep our plants open to our communities and involve the community in plant operations;*
- *manage all corporate real estate, including plant sites, to benefit nature; and*
- *search worldwide for technology to reduce and eliminate waste from our operations, with the top priority being not making it in the first place.*

Monsanto
January 1990



Richard J. Mahoney
Chairman and Chief Executive Officer
Monsanto Company

DSW 108252

INTERNAL GLOBAL ESH
REQUIREMENTS SETTING PROCEDURE

OVERVIEW

Introduction

This procedure describes the process to be used in setting global internal environmental, safety and health (ESH) policies, goals, standards and procedures.

Policy

Global ESH requirements and guidance documents are developed to support the Monsanto Company's commitment to ensuring the safety and health of our employees, guests, customers and communities and the protection of the environment.

Goals

The goals of this procedure are to ensure that Monsanto employees clearly understand

- what constitutes Monsanto global requirements, (policy, goals, standards and procedures) as opposed to guidance,
- the procedure for turning ideas into Monsanto global ESH requirements, and
- the procedure for providing ESH guidance.

Measuring Progress

The following indicators will be used to measure progress against these goals:

- Monsanto global ESH documents will clearly indicate
  - what is policy, goals, standards and procedures where conformance is a requirement, and
  - what is guidance where conformance is discretionary.
- Understanding of global ESH policies, goals, standards and procedures is consistent throughout Monsanto as demonstrated through a scheduled compliance audit program, and
- The procedure for establishing requirements and providing guidance is approved, documented and current.

For Further Information

When further information or clarification is required, you may contact the following:

ISSUE OWNER
Charles W. Keffer, Jr., ESH Stewardship, A3NB
(314)694-4956

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STLCOPCB4022928

Approval

The content of this procedure was approved by the Environmental Policy Committee on December 4, 1994. It was issued on March 15, 1996.

In This Procedure

This procedure contains the following sections:

Section	See Page
P.1 DEFINITIONS	P-3
P.2 REQUIREMENTS SETTING PROCEDURE	P-4
P.3 ORGANIZATION, ROLES & RESPONSIBILITIES	P-6
P.4 GUIDANCE PROCEDURE	P-8
APPENDIX P-A Global Internal ESH Requirements Decision-Making Process Flow Table and Diagram	P-10
APPENDIX P-B Global Internal ESH Requirements Decision-Making Responsibility Flow Chart	P-14

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STLCOPCB4022929

P.1 DEFINITIONS

P.1.1 Introduction

This section lists the terms used in this procedure.

P.1.2 Definitions

The following table defines the terms used in this procedure:

Term	Definition
Policy	Sets direction for what we do.
Goal	Translates policy into specific action plans and targets.
Standard	Defines performance criteria for policies and/or goals.
Procedure	Establish the way to accomplish specific policies and/or goals.
Requirement	Policy, goal, standard or procedure.
Compliance	Conformance to requirements.
Guidance	Provides suggestions/ideas for issue(s) management (non-requirement).

OSW 108255

P.2 REQUIREMENTS SETTING PROCEDURE

P.2.1 Introduction

The Global Internal ESH Requirements Setting Procedure establishes the method for the formation of

- ESH direction (*policy*),
- ESH action plans and targets (*goal*),
- performance criteria for policies and goals (*standards*),
- method to accomplish specific policies and goals (*procedure*), and
- suggestions/ideas for issues management (*guidance*) for Monsanto Company.

The decision authority is clear. The procedure clearly defines the role and status of policy, goals, standards and procedures (*requirements*) versus guidance (*non-requirements*).

P.2.2 Scope

This procedure applies to all Monsanto Company internal ESH policies, goals, standards and procedures.

P.2.3 Key Elements

The procedure includes the following key elements:

- value analyses,
- input from affected groups and functions, and
- global policy and goal approval by corporate and group executives.

Continued on next page

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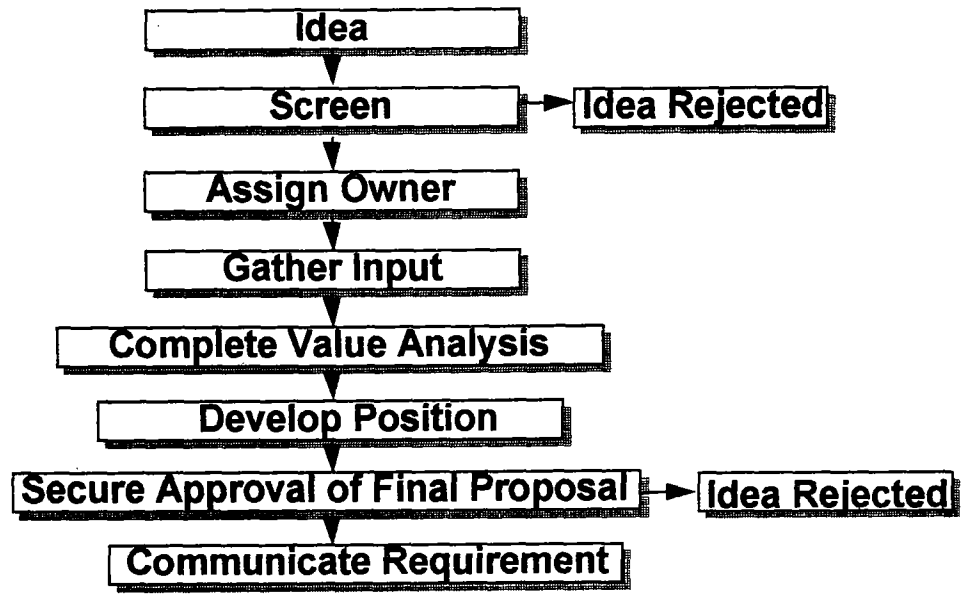
P.2.4 Procedure Flow

The decision-making procedure used to establish Monsanto global internal requirements is consistent with the front-end of the Monsanto ESH Compliance model. A simplified flow chart of the front-end of the model is provided below.



A detailed procedure flow diagram is shown in Figure 1 of Appendix P-A.

P.2.5 Document Identification

Each section of every global internal ESH document must be clearly identified as policy, goal, standard, procedure or guidance when issued.

Documents must be clear as to what is required and what is discretionary.

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P.3 ORGANIZATION, ROLES & RESPONSIBILITIES

P.3.1 Introduction

This section outlines the organization, roles and responsibilities for setting internal ESH environmental, safety and health policies, goals, standards and procedures.

P.3.2 Organization

The following list outlines the make-up of the organization:

- Management Board (MB)/Operations Council (OC)
- Manufacturing Leadership Council (MLC)
- Global ESH Steering Committees
  - Environmental
  - Safety and Health
- Area/Issue Core Team
  - Environmental (Air, Water, Solid Waste, Remediation)
  - Safety and Health (S&PP, I.H./Medical)
  - Special Issues (Ad Hoc)

P.3.3 Roles & Responsibilities

A summary of lead roles and responsibilities for the organization is shown in the following table:

Activity	Lead Role & Responsibility
Capture Issues (Ideas)	Global ESH Steering Committee
Screen Issues (Prioritize)	Global ESH Steering Committee
Assign Issue Owners (Teams)	Global ESH Steering Committee
Evaluate (Value Analysis)	Area/Issue Core Teams
Influence (Recommend)	Area/Issue Core Teams
Establish Position (Approve) • Policy & Goals • Standards & Procedures[1]	Management Board/Operations Council Manufacturing Leadership Council
Communicate Requirements to Proper Parties	Area/Issue Core Teams
Interpret (Final Requirements)	Area Core Teams

[1] Consistent with Current Policies & Goals

A detailed responsibility flow chart is included as Appendix P-B.

Continued on next page

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P.3.4 External Requirements Management

Area/Issue Core Teams also have primary responsibility for development and communication of compliance programs for external requirements consistent with the ESH Compliance Model.

P.3.5 Decision Authority

The following table lists the decision authority for global internal ESH policies, goals, standards and procedures:

Authority	will ...
CEO of Monsanto and/or the Management Board/Operations Council (MB/OC)	approve new global ESH policies and goals for the enterprise.
Manufacturing Leadership Council (MLC)	approve new global ESH standards and procedures consistent with global ESH policies and goals.
VP, ESH Stewardship,	act as point of contact from the Steering Committees/MLC to the MB/OC.

P.3.6 Work Flow Summary

A summary of the work flow for developing a recommendation and obtaining approval is shown below:



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Continued on next page

P.3.7 Strategic Plan	The Global Environmental and Safety & Health Steering Committees will develop annual ESH operations strategic plans for compliance with external and internal requirements. The plans will be distributed to business units for use in resource planning by commercial and operations management.

DSW 108260

P.4 GUIDANCE PROCEDURE

P.4.1 Introduction	This section describes the procedure for handling guidance.
P.4.2 Development	Guidance for an issue can be developed and distributed by an individual or team with expertise related to the issue.
P.4.3 Approvals	There are no approvals required for guidance since guidance is discretionary.

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APPENDIX P-A

Global Internal ESH Requirements
Decision-Making Procedure Flow Table
(See also, Process Flow Diagram - Figure 1)

Step	Action
1	Ideas for global requirements arise (e.g., from legislation or learning) in any part of Monsanto.
2	SBUs, MBS, Corporate Stewardship and World Areas transmit these ideas to the Global Environmental (E) or Safety and Health (S&H) Steering Committee.
3	The appropriate Global E or S&H Steering Committee (GSC) • makes a screening assessment of the likely value of a global requirement based on the idea, and • prioritizes the idea relative to other ideas.
4	The GSC judges whether the highest priority ideas merit development. NOTE: If not judged to merit development, the idea is discarded and the rationale for discarding the proposal is communicated to the originator.
5	The GSC identifies the members of a team and assigns the idea to the team. The Team may be • an existing team (Area Core Team, e.g. Water Core Team), or • assembled for this purpose (Issue Core Team). It should have the competencies necessary to undertake Step 6.
6	The team • flags the idea as an "issue" to those responsible for ESH compliance, • solicits and receives input from locations, business units, MBS and Corporate Stewardship, • undertakes benchmarking (particularly in respect of goals and standards) when necessary, • develops a detailed proposal, and • undertakes a value analysis.

Continued ..

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STLCOPCB4022937

APPENDIX P–A (con't)

<table>
<tr><th>Step</th><th colspan="2">Action</th></tr>
<tr><td>7</td><td colspan="2">The proposal, which might be for no action, guidance or a global requirement, is reviewed (and possibly revised) byt he GSC.

NOTE: This process may involve several interactions between the team and the GSC.</td></tr>
<tr><td rowspan="4">8</td><td colspan="2">The GSC reviews the proposal and takes action as follows:</td></tr>
<tr><td>If ...</td><td>then ...</td></tr>
<tr><td>The proposal cannot be endorsed,</td><td>the GSC decides whether the proposal should be
• reworked by the team, or
• discarded, with the rationale for discarding the proposal communicated to the originator.</td></tr>
<tr><td>The GSC considers the proposal for a requirement should only be guidance,</td><td>the team or GSC can issue the guidance.</td></tr>
<tr><td></td><td>The proposal can be endorsed as a requirement,</td><td>it is transferred to the Manufacturing Leadership Council (MLC).</td></tr>
<tr><td rowspan="4">9</td><td colspan="2">The MLC reviews the proposal and takes action as follows:</td></tr>
<tr><td>If ...</td><td>then ...</td></tr>
<tr><td>The proposal is for a global standard or procedure and the MLC endorses it,</td><td>the MLC approves the procedure or standard including, as appropriate, steps for obtaining compliance exceptions to the requirement.</td></tr>
<tr><td>The proposal cannot be endorsed,</td><td>it is referred back to the GSC (Step 7).</td></tr>
<tr><td></td><td>The proposal is for a global policy or goal and the MLC endorses it,</td><td>it is transferred to the Management Board/ Operations Council (MB/OC).</td></tr>
</table>

Continued ...

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APPENDIX P–A (con't)

<table>
<tr><th>Step</th><th colspan="2">Action</th></tr>
<tr><td rowspan="3">10</td><td colspan="2">The MB/OC reviews the proposal and takes action as follows:</td></tr>
<tr><td>If ...</td><td>then ...</td></tr>
<tr><td>The MB/OC endorses the proposal,</td><td>it approves the policy or goal including, as appropriate, steps for obtaining compliance exceptions to the requirement.</td></tr>
<tr><td></td><td>The proposal cannot be endorsed,</td><td>it is referred back to the GSC (Step 7).</td></tr>
<tr><td>11</td><td colspan="2">If the GSC has a proposal for a requirement (which it had endorsed) referred back to it by the MLC or the MB/OC, it may
• distribute it as a guidance,
• decide to discard it, or
• rework it and resubmit it for approval.</td></tr>
</table>

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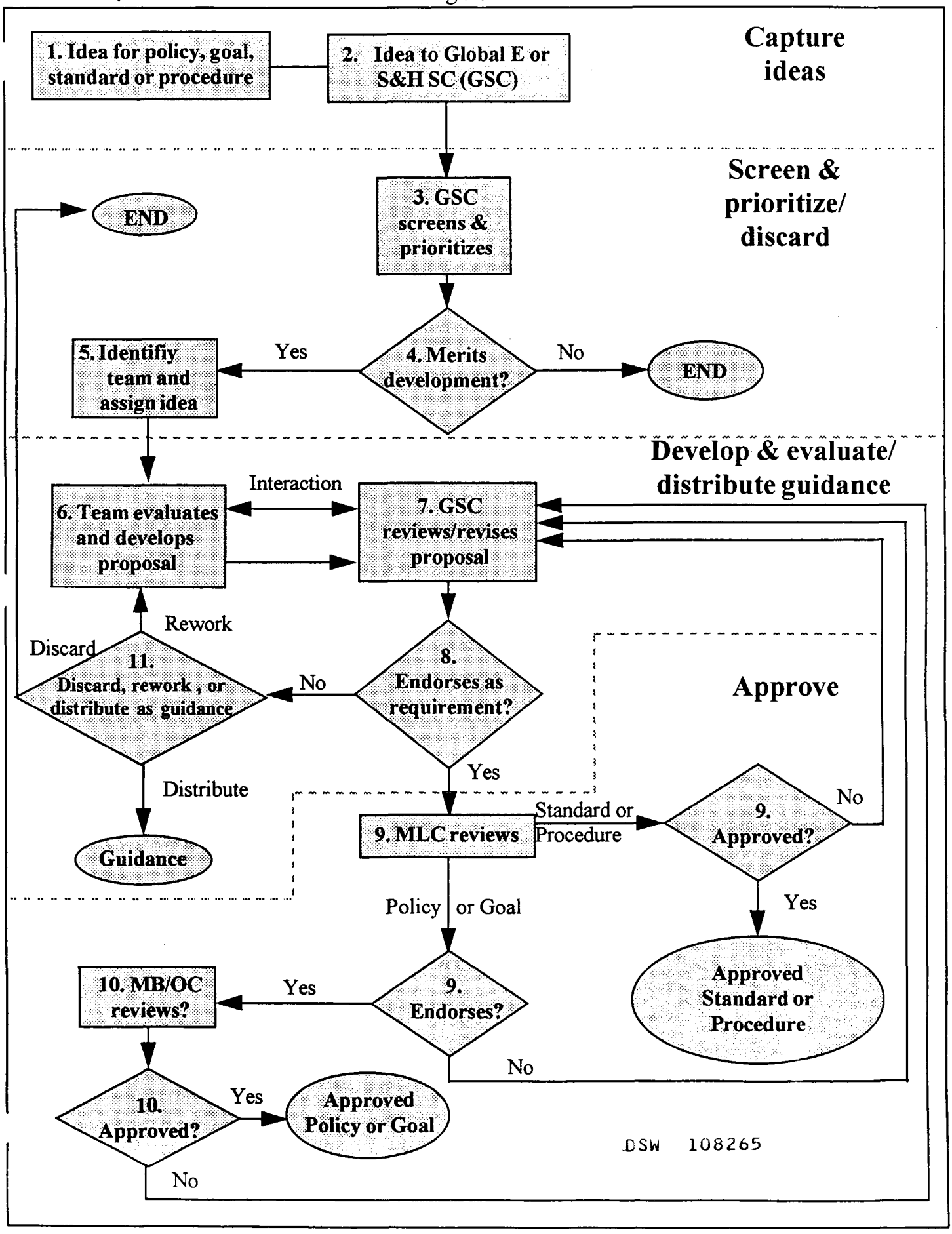
STLCOPCB4022939

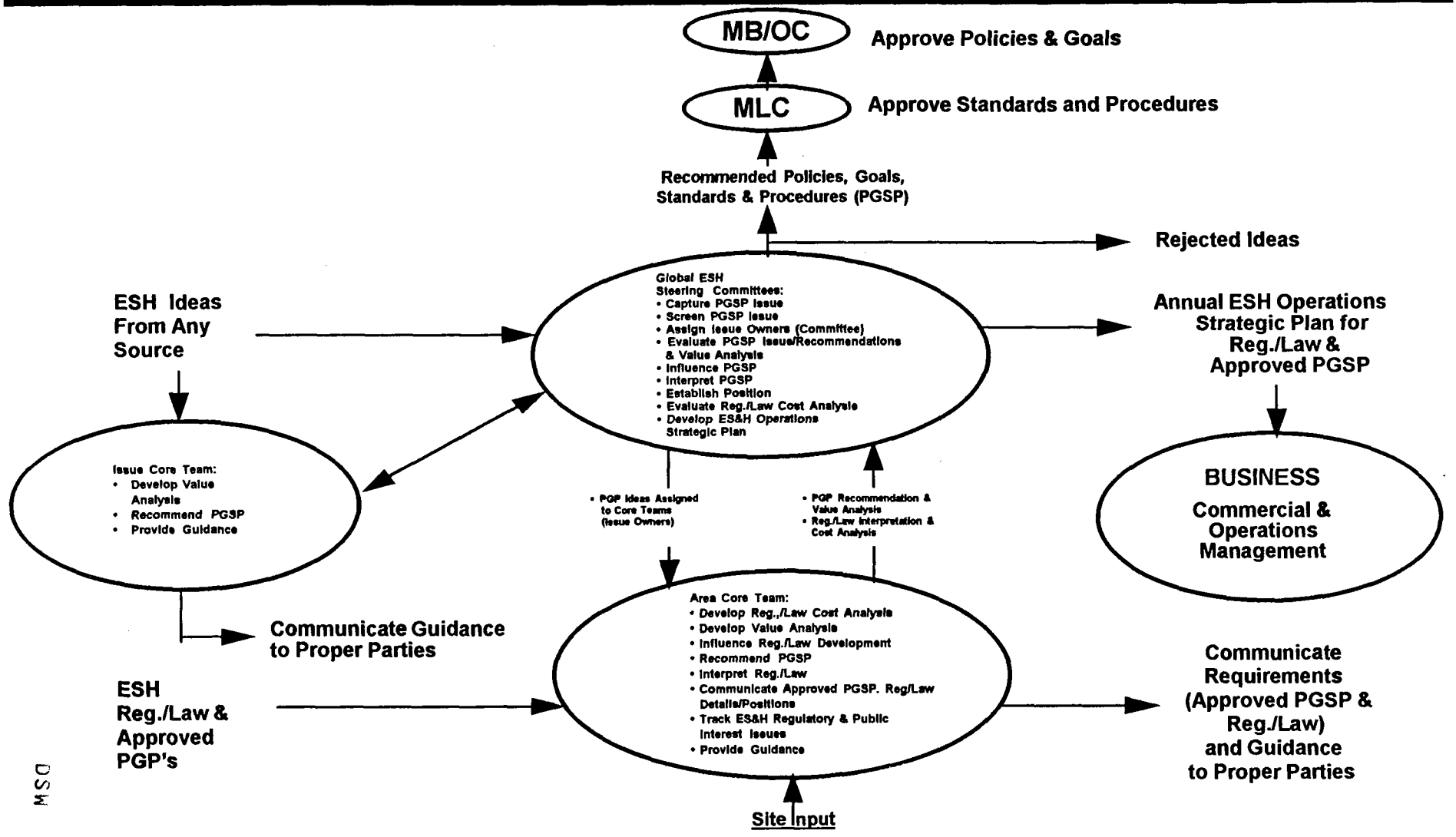
Figure 1



COMPANY CONFIDENTIAL

STLCOPCB4022940

Global Internal ESH Requirements Decision-Making Responsibility Flow Chart



COMPANY CONFIDENTIAL

DSW 108266

STLCOPCB4022941

Program 1

Pollution Prevention

OVERVIEW

Introduction

This program describes the policies, goals, standards and procedures necessary to implement Monsanto's pledge to "*reduce all toxic and hazardous releases and emissions, working toward an ultimate goal of zero effect.*"

Policy

The company will work toward the ultimate goal of ensuring zero effect attributable to waste in all media. It will research, design and operate its facilities to minimize

- the generation of process and nonprocess waste, and
- the potential effect of chemical releases to the environment.

For waste and releases that remain, the company will

- comply with regulations,
- minimize environmental threat, and
- minimize long term liability.

Continued on next page

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Goals

These specific goals must be integrated into the business units' release reduction plans.

Compliance Date	Goal
End of 1992	Assess potential human health impacts for selected routinely emitted air emissions at owned facilities.
End of 1992	Assess measurable impacts of the company's effluents on receptor water quality at owned facilities.
End of 1994	Have all company-owned sites located in the United States be "PCB-free".
End of 1995	• Reduce by 70% the company's worldwide SARA Section 313, European Community Priority Pollutant List (EC129) and carbon monoxide releases to all media and off-site transfers. • Prepare study grade estimates to achieve nonbrine treated surface discharge if total withdrawal from deep wells is required.
End of 1999	• Discontinue the deep well injection of Resource Conservation and Recovery Act (RCRA) hazardous waste streams and virtually eliminate injection of SARA Section 313 toxic chemicals. • Ensure that the company's name will not appear on the list of companies making significant use of injection wells for disposal of SARA chemicals for the reporting year 2000 and beyond.

Measuring Progress

The following indicators will be used to measure progress against these goals:

- Assessments of current plant air emissions and water releases.
- Annual progress toward
  - achievement of 70% worldwide SARA Section 313 chemical, EC129 and carbon monoxide releases and off-site transfer reduction goal, and
  - achievement of the goal to discontinue deep well injection of RCRA hazardous waste streams and toxic SARA Section 313 chemicals.
- Achievement of contingency planning for reduction of use of deep well injection withdrawal.

Continued on next page

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STLCOPCB4022943

For Further Information

When further information or clarification is required, you may contact the following:

ISSUE OWNERS

WASTE MANAGEMENT
Dennis B. Redington, ESH Stewardship, A3NA
(314)694-6503

ASSESSMENT
Charles W. Keffer, Jr., ESH Stewardship, A3NA
(314)694-4956

Program Approval

The content of this program was revised and approved by the Environmental Policy Committee on February 18, 1994. It was reformatted (only) on March 15, 1996.

In This Program

This program contains the following procedures.

Procedures		See Page
P1.1	Reducing Releases and Emissions from Process and Nonprocess Waste	P1-4
P1.2	Handling Underground (Deep Well) Injection Waste	P1-5
P1.3	Handling Land Disposal and Land Application	P1-6
P1.4	Assessing Impact of Air Emissions	P1-8
P1.5	Assessing Impact of Water Releases	P1-9

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P1.1 REDUCING RELEASES AND EMISSIONS FROM PROCESS AND NONPROCESS WASTE

P1.1.1 Introduction

This topic describes procedures to be used to accomplish the company's specific goals for reducing releases and emissions from process and nonprocess waste.

P1.1.2 Process Waste Release Reduction

The operating companies will integrate into their release reduction plans the corporate goal of reducing all toxic and hazardous releases and emissions to all media, working toward an ultimate goal of zero effect.

The company's hierarchy to reduce releases from processes is as follows:

- source reduction,
- reuse, recycling or co-product sale, and
- incineration or other treatment to reduce the volume and/or toxicity of pollutant streams.

P1.1.3 Additional Reduction Measures

Additional measures that should be taken in the reduction of process waste include

- the emphasis of the development and use of technologies that improve competitive positions, and
- the establishment of an effect-based release reduction target every five years beginning in 1995, with an effects model to be developed by the end of 1993.

The business units will integrate into release-reduction plans the corporate multi-media goal to, by the end of 1995, reduce by 70% the worldwide releases to all media and off-site transfers of SARA 313, EC129 and carbon monoxide chemicals as listed in January 1990.

P1.1.4 Nonprocess Waste

Each facility will maintain an inventory of all nonprocess waste generation, including

- power generation,
- office and maintenance operations,
- general warehouse trash,
- packaging/shipping materials, and
- similar sources.

P1.1.5 PCBs

All company-owned sites (e.g. warehouses, plants, offices) in the United States will minimize the potential for releases of polychlorinated biphenyls (PCBs) by becoming "PCB-free" by the end of 1994.

NOTE: "*PCB-free*" means free of "contaminated articles" as defined by TSCA.

DSW 108270

STLCOPCB4022945

P1.2 HANDLING UNDERGROUND (DEEP WELL) INJECTION WASTE

P1.2.1 Introduction

This topic describes procedures to be used to accomplish the company's specific goals for deep well injection wastes.

P1.2.2 Existing Deep Well Use

The company will

- Stop injection of RCRA hazardous waste streams by the end of 1999,
- Apply best feasible technology to virtually eliminate injection of SARA 313 chemicals,
- Demonstrate progress by achieving in 1996 an 80% reduction of injected SARA chemicals against the 1990 base reporting year, and
- Ensure that its name will not appear on the list of companies making significant use of deepwells for disposal of SARA chemicals for the year 2000 and beyond.

P1.2.3 Contingency Plan for Deep Well Withdrawal

The company will use the following methods to prepare for the potential of regulations mandating the withdrawal from deep wells.

- Perform study-grade estimates to achieve non-brine, treated surface discharge to select optimal technical strategies for total withdrawal from deep wells by the end of 1995, and
- Continue to challenge the technical impediments to total withdrawal from deep wells.

P1.2.4 New Uses of Deep Wells

New internal or external uses of deep wells for nonhazardous wastes and nontoxic chemicals are not permitted. The Management Board/Operations Council will consider new uses of deep wells only on an exception basis and within the constraints of this chapter.

A *new use of deep wells* is defined as

- injection of streams from new products, or
- the addition of substances not previously injected at that site.

The economics of any project appropriation request which involves deep well use must be based on disposal technology other than the use of deep wells.

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STLCOPCB4022946

P1.3 HANDLING LAND DISPOSAL AND LAND APPLICATION

P1.3.1 Introduction

This topic describes the procedures to be used to accomplish the company's specific goals for handling land disposal and land application.

P1.3.2 Landfill

The company will not practice landfill of

- acutely hazardous wastes, and
- incinerables.

NOTES:

- *Acutely hazardous wastes* are those listed in 40CFR261.33(e), plus any mixtures containing greater than 5 percent of the listed wastes.
- *Incinerables* are hazardous wastes or wastes managed as hazardous, with a heat of combustion greater than 6000 BTU/lb.

P1.3.3 Hazardous Waste and Managing Wastes as Hazardous

For hazardous wastes and wastes managed as hazardous, fixation of particularly mobile, persistent or bioaccumulative wastes will be accomplished whenever warranted and feasible. When making the decision to manage wastes as hazardous, the company will take into account

- public expectations,
- emerging trends, and
- worldwide company practice regarding the same or similar wastes.

P1.3.4 Off-Site Landfills

The company will subject contractors hired for land disposal of process wastes to contracting and assessment requirements, as described in Program 7, *Outside Processors.*

In the United States, the use of off-site hazardous waste landfills will be

- approved by the Management Board/Operations Council, and
- limited in number.

P1.3.5 Medical Wastes

Company sites will arrange to

- incinerate medical wastes generated at the company's locations, prior to land disposal of residues, and
- obtain assurance of incineration of medical wastes via manifests or equivalent documents.

P1.3.6 Non-Monsanto Wastes

The company will discourage use of Monsanto facilities to commercially treat, store or dispose of non-Monsanto wastes. Any such use or joint ventures (other than in-site guest/host relationships) must be reviewed and approved by the Management Board/Operations Council.

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P1.3.7 Land Application of Process Byproducts and Residues	The company will prepare proposals for land application of process byproducts and residues, for beneficial use or disposal, by using as guidance the *Monsanto Guidance Document: Land Application of Process Byproducts and Residues.* The ESHA (formerly EC-201/202) discipline (including 5-year reviews) will be followed.
P1.3.8 Land Application Approval	The company will require approval of all new applications by the appropriate Director of Manufacturing and Business Unit Director, ESH. The Management Board/Operations Council must approve new applications if beneficial use is not included.
P1.3.9 Documentation	Each company location will maintain a record of the on-site and commercial waste treatment, storage and disposal sites it uses.

DSW 108273

STLCOPCB4022948

P1.4 ASSESSING IMPACT OF AIR EMISSIONS

P1.4.1 Introduction

This topic describes the procedure to be used to accomplish the company's specific goals of assessing potential human health impacts for selected routinely emitted air emissions.

P1.4.2 Assessing Impact of Air Emissions

The company will

- conduct and maintain an ongoing assessment of potential human health impacts for selected, routinely emitted air pollutants, and
- develop appropriate control strategies to reduce identified, potentially unreasonable risks of harm to human health in surrounding communities.

P1.4.3 Air Pollutant Studies

The company will conduct studies of air pollutants which must include pollutants that are

- listed under Section 112(b) of the U. S. Clean Air Act,
- established cancer unit risk values by the USEPA,
- contained on the International Agency for Research on Cancer (IARC) Group 1 and 2A lists, and
- site-specific and identified by the plant as warranting consideration (including those in significant quantities reportable via SARA Section 313).

NOTE: For locations outside the U.S., the study must also cover pollutants included on any local regulatory list which the location manager deems important.

P1.4.4 Air Pollutant Lists

The company will maintain a list of all air pollutants ranked by the established and approved protocols. If the list contains pollutants with a relatively significant ranking and a protocol requirement, the location must

- determine potential maximum downwind concentrations for such pollutants at specified receptors representative of the exposed population,
- analyze appropriate assessments of potential health impacts at the community receptor points according to protocols established by the company's ESH Stewardship staff,
- identify any potentially unreasonable risk to human health, and
- reduce this risk to acceptable levels through appropriate actions and in an expeditious manner.

P1.4.5 Assessment Schedule

All required air emission assessments should be conducted for each of the company's worldwide manufacturing sites within two years of the Environmental Policy Committee's approval of the information in this chapter.

Business units will

- review the status of the assessments annually,
- identify any significant changes that have occurred at a plant site,
- determine whether the assessment should be repeated, and
- complete any necessary reassessments within 12 months.

DSW 108274

STLCOPCB4022949

P1.5 ASSESSING IMPACT OF WATER RELEASES

P1.5.1 Introduction

This topic describes the procedures to be used to accomplish the company's specific goals for reducing water release pollutants.

P1.5.2 Reducing Water Release Pollutants

The table below describes the overall procedure the company will use to accomplish the goal of reducing water release pollutants.

Step	Action
1	Conduct aquatic safety assessments to determine the measurable impacts of the company's effluents on receptor water quality, including • direct and indirect discharges (if applicable), and • the mitigating impacts of the publicly owned treatment works (POTW) as they relate to indirect discharges.
2	Identify any potentially unacceptable impacts to the aquatic environment.
3	Mitigate potentially unacceptable impacts in a timely manner.
4	Conduct a reconfirming assessment to verify that the impacts have been reduced to acceptable levels.

P1.5.3 Assessment Schedule

All required surface water release assessments should be conducted for each of the company's worldwide manufacturing locations within two years of the Environmental Policy Committee's approval of the information in this program.

Business units will

- review the status of the assessments annually,
- identify any significant changes that have occurred at a location,
- determine whether the assessment should be repeated, and
- complete any necessary reassessment within 12 months.

DSW 108275

Program 2

Employee and Community Safety and Health

OVERVIEW

Introduction

This program describes the policies, goals, standards and procedures necessary to implement Monsanto's pledge to "*ensure no Monsanto operation poses any undue risk to our employees and our communities.*"

Policy

The company will

- provide a healthful and safe environment for its employees, site visitors, contractors and neighbors,
- evaluate employee health status,
- determine and monitor workplace factors affecting employee safety and health,
- review major capital projects to protect the health and safety of its people at work and that of people in the community, and
- comply with the company's workplace exposure levels and governmental safety and health regulations.

Goals

These specific goals must be integrated into the company's employee and community safety and health plan.

Compliance Date	Goal
Ongoing	Approach zero adverse safety and health effects for the company's employees, site visitors and site contractors, including zero occupational injuries and illnesses.
End of 1996	Reduce by 50% the company's 1991 level of accidental releases of hazardous materials from production operations.
End of 1997	Certify all appropriate facilities into the U.S. OSHA Voluntary Protection Program (VPP) or equivalent.

Measuring Progress

To measure progress against these goals, the following indicators will be used:

- Annual progress toward
  - the business units' goals for the Total Recordable Rate (TRR), and
  - entry of 100% of U.S. manufacturing and service locations into VPP by the end of 1997,
- Systematic reviews of safety management, employee health and industrial hygiene, and
- Releases as reported by the company's worldwide system.

Continued on next page

For Further Information

When further information or clarification is required, you may contact the following:

ISSUE OWNER:
John L. Henshaw, ESH Stewardship, A3NB
(314)694-8830

TECHNICAL CONTACTS:
INDUSTRIAL HYGIENE
Paul A. Easterday, MBS-ESH, A3NL (314)694-8836

OCCUPATIONAL MEDICINE
John H. Baker, ESH Stewardship, A2SB (314)694-8806
Alan L. Engelberg, ESH Stewardship, A2SB (314)694-8896

SAFETY AND PROPERTY PROTECTION
John W. Venitz, MBS-ESH, A2SA (314)694-7067

Program Approval

The content of this program was revised and approved by the Environmental Policy Committee on October 22, 1992. Section P2.4, *Spill Prevention*, was added by the Manufacturing Leadership Council on September 27, 1994. It was reformatted (only) on March 15, 1996.

In This Program

This program contains the following procedures.

Procedures		See Page
P2.1	HEALTH SURVEILLANCE AND ASSESSMENT	P2-3
P2.2	DATA MANAGEMENT	P2-4
P2.3	REVIEWS AND GUIDANCE	P2-5
P2.4	SPILL PREVENTION	P2-6
P2.5	PERSONNEL TRAINING & SECURITY	P2-7

DSW 108277

STLCOPCB4022952

P2.1 HEALTH SURVEILLANCE AND ASSESSMENT

P2.1.1 Introduction

This section describes procedures to be used to accomplish the company's specific goals regarding approaching zero adverse health effects and zero occupational injuries and illnesses.

P2.1.2 Health Monitoring and Assessment

The company will monitor and evaluate the effects of work exposures on employee health by providing occupational health surveillance in all locations.

Health surveillance and periodic health assessments will be conducted by the company or contract health professionals in accordance with the Occupational Medicine Program as defined in the company's *Occupational Medicine Program Manual.*

P2.1.3 Workplace Surveillance

The company will conduct workplace surveillance to

- identify potential health risks,
- evaluate hazards based on current toxicology and epidemiological information, and
- initiate appropriate safeguards to protect employee health.

DSW 108278

STLCOPCB4022953

P2.2 DATA MANAGEMENT

P2.2.1 Introduction

This section describes procedures to be used to accomplish the company's specific goals regarding employee safety and health.

P2.2.2 Data Management - MARS

The company will collect and enter the following into the *Monsanto Environmental Health Information Analysis & Reporting System* (MARS) data base:

- workplace materials,
- worker exposure,
- work history, and
- employee health assessment data.

The MARS data base will be used to perform epidemiological and other appropriate studies to

- evaluate worker health, and
- enhance worker protection.

P2.2.3 Data Management - Other

The company will

- establish procedures for classifying and recording injuries and illnesses,
- monitor company-wide performance and adherence to federal and local regulations on recordkeeping,
- issue monthly summaries of appropriate statistics,
- produce publications designed to improve awareness and to communicate relevant technologies to the workplace,
- develop ways to understand the causation of injuries and exposures, and
- develop techniques for prevention of injuries and exposures.

DSW 108279

STLCOPCB4022954

P2.3 REVIEWS AND GUIDANCE

P2.3.1 Introduction

This section describes procedures to be used to accomplish the company's specific goals regarding employee and community safety and health and Voluntary Protection Program (VPP) certification.

P2.3.2 Audits and Reviews

The company will perform periodic on-site audits and reviews of worldwide operations to evaluate the status of safety, occupational health and industrial hygiene programs.

The company will utilize observations and recommendations to

- achieve and maintain regulatory and code compliance,
- attain appropriate technological sophistication,
- reduce the probability of illnesses and injuries, and
- support employee safety and health education.

P2.3.3 Loss Prevention Reviews

The company will conduct safety and industrial hygiene reviews on design, startup and operational issues for major new installations and expansions.

P2.3.4 Regulations, Policies, Goals and Procedures

The company will achieve and maintain compliance with its policies, goals, standards and procedures and governmental regulations for

- facility design,
- safe work and operational practices,
- injury and illness recordkeeping,
- workplace exposures,
- health surveillance, and
- community safety and health.

NOTE: If regulatory requirements are unavailable or inadequate to protect worker health and safety, the company will establish policies, standards and procedures where appropriate.

DSW 108280

STLCOPCB4022955

P2.4 SPILL PREVENTION

P2.4.1 Introduction	This section describes procedures to be used to accomplish the company's specific goals regarding the reduction of accidental releases of hazardous materials.
P2.4.2 Spill Prevention Activities	The company will conduct spill prevention activities in accordance with *Program 3, Process Safety and Emergency Response.*

DSW 108281

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STLCOPCB4022956

P2.5 PERSONNEL TRAINING AND SECURITY

P2.5.1 Introduction

This section describes procedures to be used to accomplish the company's specific goals regarding approaching zero adverse health effects and zero occupational injuries and illnesses for the company's employees, site visitors and site contractors.

P2.5.2 Contract Employees

The company will provide contract employees with any required occupational health surveillance, safety and industrial hygiene indoctrination in accordance with *Program 14, Contractor/Guest Environmental, Health and Safety.*

P2.5.3 Employee Education and Training

The company will advance occupational health and safety consciousness through

- employee training, orientation and education in safety and health,
- employee participation in trade and professional associations, and
- other cooperative endeavors.

P2.5.4 Security

The company will establish security procedures and systems to control entry and exit of personnel and materials at its sites.

DSW 108282

STLCOPCB4022957

Program 3

Process Safety and Emergency Response

OVERVIEW

Introduction

This program describes the policies, goals, standards and procedures necessary to implement Monsanto's pledge to "*ensure no Monsanto operation poses any undue risk to our employees and our communities.*"

Policy

The company will research, develop, design and operate processes in a manner that protects the health and safety of

- employees,
- site visitors,
- contractors, and
- neighbors.

The company will go beyond compliance with applicable governmental regulations by applying standards and programs necessary to manage operational risks at a level which ensures Monsanto's right to operate.

These efforts include site strategies to mitigate risk in the event of an incident, such as

- site emergency response, and
- support of comparable efforts within the community.

Goals

These specific goals must be integrated into the company's process safety and emergency response plans.

Compliance Date	Goal
Ongoing	Sustain no major losses from catastrophic incidents.
	Retain Monsanto's preferred risk status with insurers.
	Incur no major injuries to employees or neighbors from a plant process incident.
End of 1996	Reduce by 50% the company's 1991 level of accidental releases of hazardous materials from production operation.

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Measuring Progress

The following indicators will be used to measure progress against these goals:

- Annual progress reports on
  - S&PP Compliance Audits, and
  - Site In-Depth Process Safety Audits,
- The HHM Report of the Monsanto Leadership Council (MLC) once every two years,
- Annual cost of property and business interruption insurance,
- Monthly reports on SARA Title III, Section 304, Reportable Releases Against Goals, and
- S&PP Quarterly Property Loss Reports.

For Further Information

When further information or clarification is required, you may contact the following:

ISSUE OWNERS
John L. Henshaw, ESH Stewardship, A3NB
(314)694-8830

Dennis B. Redington, ESH Stewardship, A3NA
(314)694-6503

TECHNICAL CONTACT
SAFETY AND PROPERTY PROTECTION
Anthony A. Thompson, MBS-ESH, A2SA
(314)694-6029

Program Approval

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In This Program

This program contains the following procedures.

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P3.1 PROCESS DEVELOPMENT AND DESIGN	P3-3
P3.2 PROJECT REVIEWS	P3-4
P3.3 HIGH HAZARD MATERIALS (HHM) PROGRAM	P3-5
P3.4 OPERATIONAL SAFETY MANAGEMENT	P3-6
P3.5 EMERGENCY RESPONSE	P3-8

STLCOPCB4022959

P3.1 PROCESS DEVELOPMENT AND DESIGN

P3.1.1 Introduction

This section describes procedures used to accomplish the company's specific goals for process development and design.

P3.1.2 Documentation

Every new process will be characterized in a document that describes all materials, equipment and process conditions, including known safe limits. Examples of these documents are:

- *Tentative Process,*
- *Red Book,* and
- *Process for Engineering Design.*

Design and engineering will be based on such documentation for

- a new process, and
- existing operations if an established process exists.

The basis for design of all major operating components and critical safety systems will be recorded in a design manual.

P3.1.3 Technical and Engineering Standards

The engineering organizations will maintain standards needed to allow safe and effective designs which should incorporate relevant consensus standards as appropriate.

Additionally, the Safety and Property Protection (S&PP) staff shall provide supplemental guidance through

- Design Guides,
- Tecfacts, and
- Related documents (e.g. S&PP, Europe/Africa's *Guidance Notes*).

DSW 108285

STLCOPCB4022960

P3.2 PROJECT REVIEWS

P3.2.1 Introduction

This section describes procedures used to accomplish the company's specific goals for review of new or expanded facilities, processes and products.

P3.2.2 Requirements

All projects (new or expanded processes, products or facilities) will undergo safety reviews to

- ensure adherence to applicable internal and external standards, and
- examine the design for potential hazards.

Appropriate participation from the Environmental, Safety and Health (ESH) staff is required for projects managed by a Business Unit's (BU's) engineering organization.

P3.2.3 Types of Reviews

All major projects will undergo both a preproject and a design stage review. Major projects should also have a prestartup review to confirm that all recommendations from prior reviews and hazard analyses, if performed, have been addressed.

New processes will undergo a research stage review.

DSW 108286

STLCOPCB4022961

P3.3 HIGH HAZARD MATERIALS (HHM) PROGRAM

P3.3.1 Introduction

This section describes procedures used to accomplish the company's specific goals for the management of HHMs.

P3.3.2 Definition

High Hazard Materials (HHMs) are those materials that, if accidently released, would pose the greatest threat to neighbors and employees. A higher level of controls and operating standards are applied to these materials.

P3.3.3 Program Elements

The major elements of the HHM program include the

- use of Hazard and Operability Studies (HAZOPs),
- preparation of a standard/guidance document for each HHM, and
- conductance of audits once every three years.

DSW 108287

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STLCOPCB4022962

P3.4 OPERATIONAL SAFETY MANAGEMENT

P3.4.1 Introduction

This section describes procedures to be used to accomplish the company's specific goals for the maintenance of safe process operations on a continuing basis.

P3.4.2 Operating Procedures

Each site must keep current written procedures for all processes covering

- necessary operating instructions,
- safe handling of materials,
- safe operating limits, and
- responses to deviations, including emergency steps.

P3.4.3 Operator Training

All production and maintenance operators must

- undergo training to acquire the necessary skills and knowledge for safe execution of their responsibilities,
- adequately demonstrate their competence before they assume their positions, and
- receive periodic reinforcement of their training.

P3.4.4 Contractor Safety

The company will provide contract employees with any required occupational health surveillance and safety and industrial hygiene indoctrination in accordance with *Pledge Chapter 14, Contractor/Guest Environmental, Safety and Health.*

The sites will meet the requirements of the *Contractor/Guest Environmental, Safety and Health (Chapter 14).*

P3.4.5 Management of Change

Any change in equipment, process or procedures that goes beyond what is recognized as the safe operating regime shall be governed by a "management of change" procedure to ensure proper

- safety review,
- authorization,
- training, and
- implementation.

This procedure will also apply to capital projects on all changes made subsequent to the previous safety review.

A separate procedure will apply to changes in the line organization.

P3.4.6 Critical System Inspections

A program involving inspection, replacement and/or testing of critical equipment or safety systems must be maintained for reliable operations and system integrity.

Continued on next page

P3.4.7 In-Depth Process Audits

At intervals not to exceed three years, all operations shall undergo intensive audits to examine

- areas of change,
- non-routine occurrences,
- new information, and
- other unusual factors.

These audits are to ensure that no new hazards have been introduced and appropriate safety margins have been maintained.

P3.4.8 Incident Investigations

All significant incidents that threatened, or could have threatened, the integrity of the process or the well-being of involved personnel will be investigated by a specially appointed team which will establish causes and make recommendations to prevent recurrence.

P3.4.9 Spill Prevention Activities

All locations will

- develop and implement a system to reduce, track and investigate accidental releases, and
- initiate continuous improvement actions to achieve zero effect from these releases.

DSW 108289

STLCOPCB4022964

P3.5 EMERGENCY RESPONSE

P3.5.1 Introduction

This section describes procedures used to accomplish the company's specific goals for an emergency response program.

P3.5.2 Program Elements

Effective emergency response includes not only those actions to mitigate and control the incident within the fenceline but also actions that address the potential impact on the community. Consequently, a site emergency response program should include

- emergency procedures,
- emergency drills, and
- community preparedness.

P3.5.3 Emergency Procedures

Written emergency procedures will be available and kept current for each process, as well as for the total site. They will cover actions at each stage of the emergency including shutdown and evacuation. All employees must be trained in these procedures.

P3.5.4 Emergency Drills

Site managers will test and audit their emergency plan annually and revise it as necessary. At intervals determined by the site, the emergency drill will include the active involvement of community resources associated with emergency management.

P3.5.5 Community Preparedness

The site managers will

- review with appropriate community officials the nature and extent of potential incidents from the site, and
- provide the community with assistance in emergency planning if requested.

DSW 108290

STLCOPCB4022965

Program 4

Product Stewardship

OVERVIEW

Introduction

This program describes the policies, goals, standards and procedures necessary to implement the implicit promises made in the Pledge regarding Monsanto's products.

Policy

The company will research, develop, design, assess, manufacture, market and dispose of its products so that they

- meet societal needs, and
- do not pose undue risks to human health or the environment during all stages of their life cycles.

The company will work with product stakeholders (suppliers, employees, distributors, customers, consumers and disposers) to understand and reduce risks associated with the life cycle of the company's products.

Goals

The following specific goals must be integrated into the company's product stewardship plans.

- Practice the principles and key elements of Product Stewardship, as specified in appropriate programs around the world, at all the company's global operations.
- Provide appropriate safety and handling information, including Material Safety Data Sheets (MSDSs), to potentially exposed employees, contract employees and product receivers.

  NOTE: Materials Safety Data Sheets (MSDSs) and Safety Data Sheets (SDSs) are interchangeable terms and refer to similar requirements in different countries.
- Work toward the goal of no undue risk through systematic risk reduction throughout a product's life cycle.
- Gain a competitive advantage by applying product stewardship principles that add value to the company's product offerings.

Continued on next page

DSW 108291

Measuring Progress

To measure progress against these goals, the following indicators will be used:

- Demonstrated progress in meeting internal and external requirements for all new product introductions (i.e., ESHA approvals and governmental approvals);
- Demonstrated progress in determining product hazards;
- Visible growth in knowledge of the use of company products and the resultant exposures to people and the environment;
- Availability of adequate environmental, safety and health data to the ultimate product receiver;
- Increased understanding and diminution of the risks and environmental impacts associated with a product throughout its life cycle; and
- Differentiation of company products in the marketplace.

For Further Information

When further information or clarification is required, you may contact the following:

ISSUE OWNER
J. Ron Condray, ESH Stewardship, A3NA
(314)694-8883

Program Approval

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In This Program

This program contains the following procedures.

Procedures	See Page
P4.1 ESH INFORMATION AND RISK CHARACTERIZATION	P4-3
P4.2 RISK MANAGEMENT SYSTEM	P4-5
P4.3 PRINCIPLES AND KEY ELEMENTS	P4-6

DSW 108292

STLCOPCB4022967

P4.1 ESH INFORMATION AND RISK CHARACTERIZATION

P4.1.1 Introduction

This section describes procedures to be used to accomplish the company's specific goals regarding environmental, safety and health information and risk characterization.

P4.1.2 Definitions

Terms are used in this program as defined in the following table.

Term	Definition
Product	Chemical substances and mixtures, materials and equipment, articles, licensed technology and services related to product use that are • sold, • distributed in commerce, or • otherwise provided.
Product Receiver	An entity (not an individual) to whom the company transfers product. This includes product receivers such as brokers or transporters who may not fall into the traditional customer category.

P4.1.3 Product Risk Characterization

A preliminary product risk characterization (ESHA Level 1 to 3, as appropriate, and an R&D MSDS) with adequate supporting environmental, safety and health exposure information will accompany

- new chemical products,
- new isolated process intermediates, and
- significant new uses for existing chemical products.

This information will be furnished

- at the earliest practical stage of R&D, and
- prior to off-site shipment.

A product risk characterization (including an ESHA Level 4 or equivalent, a final MSDS and a shipping classification) will be completed before new product commercialization.

P4.1.4 MSDS Program

The company's process for generating and maintaining an MSDS is comprehensive and, when coupled with human experience and professional judgement, will fulfill the requirement for a product risk characterization, although an ESHA Level 5 is preferable.

Significant new information will be reviewed in a timely fashion as part of the MSDS program to satisfy regulatory and product risk characterization requirements.

An MSDS review/product risk characterization or an ESHA Level 5 will be periodically performed commensurate with product risk. Revisions will be performed, at a minimum, every five years.

Continued on next page

P4.1.5 Product Files or Information Systems

Product files or information systems will be maintained for all products or product families, and will contain the data necessary to fulfill regulatory requirements and perform product risk characterizations and assessments as appropriate. The data will include:

- Material Safety Data Sheets,
- References to relevant literature or internal reports dealing with health and safety (toxicology, epidemiology, industrial hygiene, flammability, reactivity, etc.),
- Relevant information on composition, physical properties, raw materials, manufacturing processes, principal byproducts, protective measures, exposure information, energy requirements, wastes and disposal practices,
- Information on use, including handling, transport, packaging and storage, which will either be
  - estimated (typically for new products), or
  - obtained by visits or reviews of customer, distributor and consumer practices,
- A critical review of health and environmental effects and exposure information, such as
  - ESHA Level 1 to 3, as appropriate,
  - ESHA Level 4,
  - ESHA Level 5,
  - *Monsanto Workplace Permissible Exposure Guideline* (MWPEG) Reviews,
  - Health Effect Reviews, and
  - Toxicology Reviews,
- Technology Risk Reviews, and
- Health concerns of customers, employees or the public.

DSW 108294

STLCOPCB4022969

P4.2 RISK MANAGEMENT SYSTEM

P4.2.1 Introduction	This section describes procedures to be used to accomplish the company's specific goals regarding systematic risk reduction.
P4.2.2 Approach	A systematic approach to risk management will be implemented and maintained for new products. Existing products will be managed on a case-by-case basis.
P4.2.3 Options	Risk management options, where needed, will be an integral part of the followup to each phase of a product risk characterization (as detailed in section 4.1, *ESH Information and Risk Characterization*).
P4.2.4 Product Labeling	All products will be appropriately labeled for hazard or risk and will conform at a minimum to governmental requirements and appropriate consensus standards (e.g. OSHA, EU, ANSI, ISO, etc.).
P4.2.5 Documented Actions	Documented risk management actions will be recorded in product files. (Examples of specific risk management actions are detailed in section P4.3, *Principles and Key Elements.*)

DSW 108295

STLCOPCB4022970

P4.3 PRINCIPLES AND KEY ELEMENTS

P4.3.1 Introduction

This section describes procedures used to accomplish the company's specific goals regarding the principles and key elements of Product Stewardship, including

- product and process design and improvement,
- employee education,
- product use feedback,
- information provided to contract manufacturers, distributors, customers and other direct product receivers,
- information received from suppliers, and
- responsibilities involved.

P4.3.2 Product and Process Design and Improvement

R&D materials used in the laboratory will be handled under Prudent Laboratory Practices (as outlined in TSCA Section 5) or equivalent guidance.

Pollution prevention principles (see Program 1, *Pollution Prevention*) will be included as review criteria in technology risk reviews for new and existing chemicals and will be incorporated into the ESHA (or equivalent) assessments.

P4.3.3 Employee Education

Employee education in the safe handling and use of chemicals is addressed in Program 2, *Employee and Community Safety and Health.*

P4.3.4 Product Use Feedback

Employees with significant customer interaction will be trained to recognize and feed back to the company's ESH network, information about product use and misuse.

Feedback systems will be nurtured and expanded as appropriate to listen to stakeholders, including commercial and technical service liaisons with customers, product hotlines, poison control centers, etc.

P4.3.5 Information Provided to Contract Manufacturers

In addition to items covered in Program 7, *Outside Processors*, the company will provide guidance and information to contractor personnel on the safe handling and transportation of company products.

Continued on next page

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STLCOPCB4022971

P4.3.6 Information Provided to Direct Product Receivers

As appropriate, the company will

- ensure that MSDSs and other appropriate safety documents are provided to all direct product receivers,
- actively involve product receivers in dialogue and outreach regarding appropriate risk characterization, management and reduction,
- assist in conducting audits,
- work with the product receiver, when improper practices involving company products are identified, to improve the practices,
- take appropriate action, including termination of sale if necessary, to obtain adequate improvement, and
- actively seek product-receiver involvement in the continuous improvement of company products and as a means of differentiating those products in the marketplace on the basis of ESH stewardship.

P4.3.7 Information Received From Suppliers

Up-to-date and high quality product information including, as appropriate, composition data and MSDSs, will be obtained from suppliers for all new materials.

In addition, suppliers will be actively engaged in assessing environmental, safety and health impacts of raw materials as appropriate, commensurate with raw material risks.

P4.3.8 Responsibilities

Product stewardship responsibilities are defined in the following table.

Function	Responsible Party
Overall product stewardship	Assigned employee(s) in each business unit, free-standing division or world area
Pledge oversight and CMA Responsible Care® Product Stewardship Coordination	ESH Stewardship
Development of information needed for product evaluations, including periodic reevaluation of new information relevant to the product	ESH Stewardship and Business Units, coupled with assistance from Monsanto Business Services (MBS)

DSW 108297

STLCOPCB4022972

Program 5

Chemical Distribution

OVERVIEW

Introduction

This program describes the policies, goals, standards and procedures necessary to implement Monsanto's pledge to "*ensure no Monsanto operation poses any undue risk to our employees and our communities.*"

Policy

The company will reduce the potential risk to its employees, the public, carriers, distributors, contractors, customers' employees and the environment in the distribution of chemicals.

Goals

Business units must work toward incident-free performance in the distribution of chemicals, including

- raw materials,
- intermediates,
- finished products,
- byproducts, and
- wastes.

Measuring Progress

Appropriate measurement systems will ensure continuous improvement toward stated goals and objectives.

For Further Information

When further information or clarification is required, you may contact the following:

ISSUE OWNER
J. Ron Condray, ESH Stewardship, A3NA
(314)694-8883

TECHNICAL CONTACT
David E. Williams, Distribution, F2WI
(314)694-8644

Program Approval

The content of this program was revised and approved by the Environmental Policy Committee on October 22, 1992. It was reformatted (only) on March 15, 1996.

In This Program

This program contains the following procedures.

Procedures		See Page
P5.1	INCIDENT REDUCTION	P5-2
P5.2	SAFETY STANDARDS FOR WAREHOUSES AND TERMINALS	P5-5

DSW 108298

STLCOPCB4022973

P5.1 INCIDENT REDUCTION

P5.1.1 Introduction

This section describes procedures used to accomplish the company's specific goals for incident reduction in chemical distribution in order to effect incident-free performance.

P5.1.2 Definition

An *incident* is defined as any undesirable event occurring during a chemical distribution process over which the company has direct control or influence that results in

- an injury,
- an unintentional release of a chemical, and/or
- damage to property or the environment.

P5.1.3 Actions

To achieve the goal of incident-free performance, the company will

- improve the carrier selection process to identify and contract transportation services with carriers who consistently demonstrate safe performance in the movement of the company's chemical products,
- continually improve the safety of chemical transportation practices through application of Total Quality/Total Partnership concepts and tools,
- continue to support the agricultural business units' Bulk No-Spill Delivery Program,
- develop and apply technological advancements to improve chemical distribution safety and share these with the industry as appropriate,
- provide technical advice and assistance through its emergency response system in a responsible and timely manner for "outside plant gate" incidents involving its chemical products,
- measure and continuously improve its response capabilities, and
- have trained personnel physically present, in an expeditious manner, at the emergency site
  - upon request of the local emergency responder or public official, or
  - when the company feels a qualified emergency team can lessen the severity of an incident or ease a community's concerns about the company's products.

Continued on next page

DSW 108299

STLCOPCB4022974

P5.1.4 Emphasis Areas

The company's effort to effect incident-free performance will include the emphasis areas shown below.

Emphasis Area	Details
Emergency Response	• Each shipping location will have a current plan for responding to chemical transportation emergencies involving products/materials within its scope. • The locations' emergency responders will receive regular training that meets or exceeds regulatory or industry standards. • Training history for all emergency response personnel will be documented. • Partnerships with local communities & local emergency responders along chemical transportation routes, as well as in those communities where its chemical plants are located, will be encouraged. • The total emergency response plan will be continuously monitored and improved. • Detailed post-incident reports and preventive action plans will be provided as training aids to all emergency responders.
Community Awareness	• Community outreach programs will be supported by offering plant facilities and mutual training to emergency responders in communities neighboring the company's distribution network. • Through routine communication with the public, continuous improvement in safe chemical distribution will be emphasized and public concerns will receive response. • Trained plant employees will be the company's "ambassadors" to the community to convey company progress and commitment to improving the safety of chemical distribution and the effectiveness of its emergency preparedness and response.

Continued on next page

DSW 108300

STLCOPCB4022975

P5.1.4
Emphasis Areas
(con't)

Emphasis Area	Details
Risk Assessment	• Distribution accidents/incidents and any resulting loss of containment will be reduced according to a documented distribution risk management methodology. • An initial qualitative risk assessment methodology will be made available for use. • Quantitative risk assessment models will be evaluated for especially sensitive materials.
Compliance	• Regulatory changes that affect the distribution of the company's products will be monitored and changes will be communicated to shipping locations. • Compliance audits and training will be conducted at all company shipping locations as appropriate and reported annually.
Adding Value	The company will recognize, as appropriate, the potential for adding value to it products.

DSW 108301

STLCOPCB4022976

P5.2 SAFETY STANDARDS FOR WAREHOUSES AND TERMINALS

P5.2.1 Introduction

This section describes the procedures used to accomplish the company's specific goals for incident reduction in chemical distribution in order to effect incident-free performance as related to warehouses and terminals that receive the company's products.

P5.2.2 Standards

To extend a seamless policy of operating safety results to warehouses and terminals that receive the company's products, the following standards, comparable to the company's, will be incorporated.

- Precontracting requirements will be used to assess firms that can handle the company's products in a manner that is safe for its employees, the public and the environment.
- Information on the company's policies, procedures and requirements regarding the safe handling and transportation of chemicals will be provided to warehouse and terminal personnel.
- Total Quality Management concepts and tools will be applied to all aspects of contract management for continuous improvement in safety and reliability of provided services.
- Agreed-upon performance measurements and periodic reviews will be used as indicators of progress toward zero-incident status.
- The recognition of public concerns about emergency preparedness and safe distribution practices will be extended to all the company's distribution locations.

P5.2.3 Emphasis Areas

The company's effort to extend a seamless policy of operating safety results to warehouses and terminals that will receive the company's products will include the emphasis areas shown below.

Emphasis Area	Details
Selection Criteria	Documented selection criteria that include appropriate safety measures will be maintained.
Information Flows	Defined flows of information concerning company policies, procedures and requirements on the safe handling of its products will be maintained.
Performance Reviews	Reviews of performance against company requirements will be conducted on a specified review cycle.
Risk Management	Risk management and emergency preparedness activities will be supported at all the company's distribution locations.

DSW 108302

STLCOPCB4022977

Program 6

Groundwater and Soil Quality

OVERVIEW

Introduction

This program describes policies, goals, standards and procedures necessary to implement Monsanto's pledge to "*ensure groundwater safety.*"

Policy

The company will

- design and operate facilities to protect groundwater and soil quality,
- assess groundwater and soil quality at its facilities,
- pursue remedies for releases that threaten health or the environment, and
- address on-site and off-site containment of groundwater and soil attributable to its operating and waste practices to ensure protection of health and the environment.

Goals

The following specific goals will be integrated into the company's groundwater and soil quality plans:

- Establish an active groundwater assessment program at the company's facilities.
- Ensure there are no adverse public health impacts attributable to the company's wastes.
- Minimize the financial impact of remedial action and third-party liability attendant to waste sites.
- Resolve, as soon as reasonably possible, the company's share of liability and remedial plans for Superfund sites where it has a responsibility, while securing timely and cost-effective resolution.

Measuring Progress

To measure progress against these goals, each plant subject to reporting will submit an annual groundwater assessment summary.

For Further Information

When further information or clarification is required, you may contact the following:

ISSUE OWNER
Dennis B. Redington, ESH Stewardship, A3NA
(314)694-6503

DSW 108303

Program Approval

The content of this program was revised and approved by the Environmental Policy Committee on October 22, 1992. It was reformatted (only) on March 15, 1996.

Continued on next page

In This Program This program contains the following procedures.

Procedures	See Page
P6.1 ASSESSMENT	P6-3
P6.2 PROTECTION	P6-4
P6.3 SUPERFUND	P6-5

DSW 108304

STLCOPCB4022979

P6.1 ASSESSMENT

P6.1.1 Introduction

This section describes assessment and response procedures used to accomplish the company's specific goals to

- establish an active groundwater assessment program in its facilities, and
- ensure there are no adverse public health impacts attributable to the company's wastes.

P6.1.2 Assessment Plans

Programs for assessment and tracking of groundwater quality will be organized at

- all major locations, and
- lesser sites that have known groundwater issues.

P6.1.3 Corrective Action

Appropriate assessment of impacts on human health and the environment will be carried out when on-site abandoned waste or groundwater contamination is discovered.

Corrective action will be taken, as necessary, in a planned, orderly process to remediate soil or groundwater impacts that threaten human health and the environment.

P6.1.4 Followup Plans

Followup plans will address priority concerns. The assessment status and plans will be updated in a summary report during the second quarter of each year.

P6.1.5 Newly Purchased Sites

Any newly purchased, existing operation will be subjected to the seven-point protocol for assessment of possible groundwater contamination. The issue owner of this chapter will supply a copy of the assessment protocol upon request.

DSW 108305

STLCOPCB4022980

P6.2 PROTECTION

P6.2.1 Introduction

This section describes operating and design procedures used to accomplish the company's specific goals to ensure there are no adverse public health impacts attributable to the company's wastes.

P6.2.2 Groundwater Protection Plans

Each location will maintain a Groundwater Protection Plan that includes inspection, testing and maintenance of facilities that could contaminate groundwater, e.g.

- sewers,
- process lines,
- sumps,
- tanks, and
- loading/unloading areas.

The groundwater protection plans and designs will be commensurable with the risk posed by the specific situations.

P6.2.3 Facility Design

To provide improved assurance against groundwater contamination, new, replacement or expansion facility designs (including sewers and lines) will consider such options as

- aboveground and/or double containment,
- improved materials of construction, and/or
- cathodic protection.

New, replacement or expanded surface impoundments for wastewater treatment or storage must be approved by the Management Board/Operations Council on an exception basis.

P6.2.4 Storage Tanks

New storage tanks for materials that could cause contamination will be provided with impervious secondary containment (e.g. dikes, liners, vaults, double wall) unless a clear showing is made on a tank-by-tank basis during project reviews that vessel contents (e.g. dilute wastewaters) or setting (e.g. in-battery containment or other adequate containment systems) do not warrant such containment.

Existing storage tanks will be reviewed in normal environmental audits.

DSW 108306

STLCOPCB4022981

P6.3 SUPERFUND

P6.3.1 Introduction

This topic describes procedures used to accomplish the company's specific goals to

- minimize the financial impact of remedial action and third-party liability attendant to waste sites, and
- resolve its share of liability and remedial plans for sites where it has a responsibility while securing timely and cost-effective resolution.

P6.3.2 Action to be Taken

When the company becomes aware of involvement in "Superfund" sites, it will

- act to ensure that there are no public health impacts attributable to its wastes,
- actively participate in potentially responsible parties' efforts to achieve settlement, and
- seek a leadership role, when appropriate, to facilitate resolution.

The business units will cooperate to establish responsibility for sites where several units contributed wastes.

P6.3.3 Legal Approach

The company intends a lessened legalistic approach to site cleanup negotiations through the following actions:

- Where company responsibility is fairly established, the company will not delay cleanup unnecessarily by legal, yet negatively perceived, steps.
- The company 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 the site-specific decisions.

DSW 108307

STLCOPCB4022982

Program 7

Outside Processors

OVERVIEW

Introduction

This program describes policies, goals, standards and procedures necessary to implement Monsanto's pledge to "*ensure no Monsanto operation poses any undue risk to our employees and our communities.*"

Policy

To support its operations, the company will select outside processors that will operate with concern for

- worker safety,
- regulatory compliance,
- community protection, and
- protection of the environment.

Goal

The company will pursue into its outside processor plan the specific goal to manage the company's exposure to present and future liabilities associated with the use of outside processors by maintaining current assessments and written contracts for each outside processor used.

Measuring Progress

To measure progress against this goal, each business unit, subsidiary or world area will maintain records that document the

- outside processors used,
- status of assessments, and
- status of contracts.

For Further Information

When further information or clarification is required, you may contact the following:

ISSUE OWNER
Dennis B. Redington, ESH Stewardship, A3NA
(314)694-6503

Program Approval

The content of this program was revised and approved by the Environmental Policy Committee on February 18, 1994. It was reformatted (only) on March 15, 1996.

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DSW 108308

STLCOPCB4022983

In This Program This program contains the following procedures.

Procedures	See Page
P7.1 OUTSIDE PROCESSORS	P7-3
P7.2 TOLL MANUFACTURERS	P7-4

DSW 108309

STLCOPCB4022984

P7.1 OUTSIDE PROCESSORS

P7.1.1 Introduction

This section describes procedures to be used to accomplish the company's specific goals regarding outside processors.

P7.1.2 Applicability

This section applies to firms which provide services related to Monsanto chemicals, products or wastes. This includes toll manufacturers, which are a subset of Outside Processors and which are detailed in the next section of this chapter.

P7.1.3 Selection Elements

The company will use only outside processors that have been selected and periodically assessed to ensure their

- ability to protect the public, employees and the environment adequately from any adverse effect of the company's chemicals, products or wastes,
- compliance with all applicable laws and regulations,
- knowledge of potential hazards and any applicable manufacturing requirements associated with the handling of company materials, and
- use of waste disposal methods and locations as specified by contracts, with recordkeeping of all material use and waste disposal.

P7.1.4 Assessments

Before they are used by the company, outside processors will be subject to

- contracts,
- on-site assessments,
- approval by the appropriate Director of Manufacturing or equivalent, and
- approvals and reviews by others as appropriate.

NOTE: The business unit Director of ESH coapproves selection of waste management firms, including cleaning firms.

P7.1.5 Assessment Requirements

Initial assessments are intended to be thorough and multi-disciplinary. Periodic reassessments will concentrate on general performance and deficiencies previously defined.

P7.1.6 Waste Management

For outside processor categories other than toll manufacturing (waste management, cleaning services, etc.), a processor's waste management practices will be reviewed as part of the on-site assessment.

P7.1.7 Worldwide Applicability

These elements will be implemented worldwide, with modifications to reflect local conditions and the extent of the company's operating control.

DSW 108310

STLCOPCB4022985

P7.2 TOLL MANUFACTURERS

P7.2.1 Introduction

This section describes procedures to be used to accomplish the company's specific goals regarding toll manufacturers.

P7.2.2 Applicability

This section applies to toll manufacturers, which are firms under arrangements where Monsanto owns two or more of the following factors:

- raw materials,
- process technology, or
- some or all of the output.

Pilot plant operations for process development and/or market introduction are included.

P7.2.3 Accountability

The Director of Manufacturing is the primary person accountable for ensuring that the initial assessments, contracts and other provisions are in place prior to commencing operations.

Approval must be based on the assessment and any waivers (see 7.2.9, Waivers).

The Director of Manufacturing will consult as needed with business and environmental management.

The decision to toll will be reviewed and reapproved by the Director of Manufacturing and business management at least every three years.

P7.2.4 Selection Elements

In addition to the selection elements listed for outside processors, the company will use only toll manufacturers that have been selected and periodically assessed to ensure their

- ability to produce to market demands, producing quality product cost-effectively,
- capability to manage key external relations, and
- financial condition, which must be able to prevent business interruption and support the value of indemnifications.

P7.2.5 Initial Assessment

Sites will be assessed against Monsanto as the standard.

The initial assessment is intended to be thorough and to cover

- environmental compliance,
- groundwater history/protection,
- safety and IH status and programs,
- waste management,
- knowledge of Monsanto technology, and
- general knowledge/performance against the tenets of Responsible Care or similar programs worldwide.

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DSW 108311

STLCOPCB4022986

P7.2.6 Reassessment and Additional Requirements

Periodic reassessment will be conducted at least every three years.

For those operations under contract to Monsanto, tollers must also have a

- spill response plan, and
- Groundwater Protection Plan.

P7.2.7 Waste Management

Toll manufacturers, including bulk terminals and transloading, will

- take title to, adopt and own any wastes generated, and
- manage them as their own under manifests and contracts.

P7.2.8 Shipping Operations

Toll manufacturers involved in shipping of hazardous or regulated materials for Monsanto will be supported and controls verified to be in place at the same level as such operations at Monsanto locations.

P7.2.9 Cost Accounting

Where feasible and desired by the Director of Manufacturing, costs of toller assessment, oversight and management will be borne by the tolled products at the cost-of-goods level.

P7.2.10 Waivers

The Director of Manufacturing is authorized to

- reduce the scope of assessments where warranted,
- waive requirements for prior assessments or contracts in abnormal situations, and
- accept, conditionally or otherwise, any deficiencies noted in the assessments.

Any such waivers must be resolved or reapproved every three years or less. Where improvements are stipulated as a condition of approval, the work plan will be reviewed annually.

P7.2.11 Exclusions

Vendor equipment tests or bench-scale manufacture of small quantities/samples are conditionally excluded, dependent on

- coverage by purchase order or contract,
- Monsanto stipulation of return of materials or disposal method/location of wastes, and
- exchange of material safety and handling information.

P7.2.12 Termination

A termination plan, put into place when toll operations are initiated, will be executed when operations are discontinued.

DSW 108312

STLCOPCB4022987

Program 8

Community Awareness at Manufacturing Sites

OVERVIEW

Introduction

This program describes the policies, goals, standards and procedures necessary to implement Monsanto's pledge to "*keep our plants open to our communities and involve the community in plant operations.*"

Policy

The company will

- foster its employees' and the public's right-to-know through a commitment to openness, involvement and community dialogue, and
- be responsible to questions and concerns about human safety, health and the environment at its manufacturing sites.

Goals

The business units must integrate into their community awareness plans the specific goal to establish active community advisory panels, as appropriate, at manufacturing sites.

Measuring Progress

The following indicators will be used to measure progress against this goal:

- Annual progress toward establishing community advisory panels, as appropriate, at each manufacturing site.
- Annual dissemination of data on toxic chemicals and other chemicals of local concern at each manufacturing site, as appropriate.
- Wide distribution of the *Environmental Annual Review* to report the company's status against stated environmental, safety and health goals.
- Appropriate progress toward developing routine and convenient ways for interested parties to become familiar with the company's
  - manufacturing sites,
  - operations,
  - products, and
  - efforts to protect human safety and health and the environment.

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DSW 108313

For Further Information

When further information or clarification is required, you may contact the following:

ISSUE OWNER
John L. Henshaw, ESH Stewardship, A3NB
(314)694-8830

TECHNICAL CONTACT
Larry J. O'Neill, MBS Public Affairs, G5WA
(314)694-2890

Program Approval

The content of this program was revised and approved by the Environmental Policy Committee on October 22, 1992. It was reformatted (only) on March 15, 1996.

In This Program

This program contains the following procedures.

Procedure	See Page
P8.1 COMMUNITY INVOLVEMENT AND DIALOGUE	P8-3
P8.2 INFORMATION ON CHEMICAL RELEASES/INCIDENTS	P8-5

DSW 108314

P8.1 COMMUNITY INVOLVEMENT AND DIALOGUE

P8.1.1 Introduction

This section describes procedures to be used to accomplish the company's specific goals for community involvement and dialogue.

P8.1.2 Openness Policy

Each manufacturing site will implement a policy of openness that provides convenient ways for interested individuals to become familiar with the facility and its

- operations,
- products, and
- efforts to protect human safety, health and the environment.

P8.1.3 Activities

To involve the community in plant operations, the following activities, among others, may be used:

- community advisory panels,
- open houses,
- plant tours, and
- environmental awareness days.

P8.1.4 Community Outreach

Community outreach programs will be implemented at each manufacturing site to inform key audiences (emergency responders, government officials, the media, employees, other businesses and the community) about the facility's

- emergency response program,
- chemical inventory,
- impact evaluation, and
- potential risks to the community.

P8.1.5 Information Details

The information provided will include details on such topics as

- waste minimization,
- emissions reduction,
- health effects of chemicals, and
- efforts to ensure safe transport of chemicals.

All information will also include planned improvements in each of these critical areas as well as expansion activity and other projects of general interest to the community.

P8.1.6 Ongoing Communications

An ongoing dialogue with employees and members of the community will be used to

- assess and respond to their questions and concerns about environmental, safety and health issues, and

- involve them in the community outreach effort.

Continued on next page

DSW 108315

STLCOPCB4022990

P8.1.7 Assessments	Each manufacturing site will conduct an ongoing assessment of employee and community questions and concerns about the site. The effectiveness of the ongoing community communications effort will be evaluated regularly by the site.
P8.1.8 Training	Communications training will be provided for key site and company personnel who communicate with employees and the public concerning human safety, health and the environment.

DSW 108316

STLCOPCB4022991

P8.2 INFORMATION ON CHEMICAL RELEASES/INCIDENTS

P8.2.1 Introduction

This section describes procedures to be used to accomplish the company's specific goals regarding information on chemical releases and incidents.

P8.2.2 Chemical Releases/ Incidents Information

Each operating location will make available to appropriate audiences (neighbors in the community, employees and the news media), timely information about

- routine or accidental releases of toxic and other chemicals of local concern, and
- progress in achieving the company's stated emissions reduction and pollution prevention goals and future plans.

P8.2.3 Personal Communications

When possible, the information on chemical releases should be at a personal, face-to-face level and should emphasize listening to others and discussing their concerns and ideas.

P8.2.4 Annual Publication

The company will publish and distribute an *Environmental Annual Review* that articulates the company's

- environmental, safety and health policies, and
- progress toward achieving stated environmental, safety and health goals.

DSW 108317

STLCOPCB4022992

Program 9

Environmental, Safety and Health Reviews of Capital Projects

OVERVIEW

P9.1 Introduction

This program describes the policy and procedure to be used for environmental, safety and health reviews of capital projects.

P9.2 Policy

The company's capital projects will

- meet Monsanto policies, goals, standards and procedures,
- be in compliance with existing and anticipated governmental regulatory requirements, and
- be reviewed at all levels for environmental, safety and health impact before, and as a condition of, project funding.

P9.3 Responsibilities

The Vice President, Corporate Stewardship, Environmental, Safety and Health or his/her designee will review those projects requiring approval by the Chief Operating Officer (COO), the Chief Executive Officer (CEO) or the Board of Directors (BOD).

A system for reviewing other projects will be administered by the Business Unit Directors, ESH.

P9.4 Procedure

A formal project premise review will be held for COO, CEO or BOD level projects or other projects with major technology changes as determined by the business unit, technology and engineering directors.

The effects of the public climate of opinion and of existing and future governmental, environmental regulations that may apply also are to be considered. Employees assigned to evaluate a new location for operation will prepare an internal environmental impact assessment addressing potential environmental limitations at the site as a result of the existing socioeconomic and biophysical conditions.

P9.5 Exceptions Approval

Any exceptions to this chapter must be approved by the Monsanto Management Board and/or Operations Council.

P9.6 For Further Information

When further information or clarification is required, you may contact the following:

ISSUE OWNER
Dennis B. Redington, ESH Stewardship, A3NA
(314)694-6503

DSW 108318

Continued on next page

STLCOPCB4022993

P9.7 Program Approval	The content of this program was revised and approved by the Environmental Policy Committee, October 22, 1992. It was reformatted (only) on March 15, 1996.

DSW 108319

Program 10

Environmental, Safety and Health Reviews of Divestitures or Acquisitions of Property and/or Businesses

OVERVIEW

P10.1 Introduction

This program describes the policy and procedure for environmental, safety and health reviews of divestitures or acquisitions of property and/or businesses.

P10.2 Policy

The company will review divestitures or acquisitions of property and/or businesses for environmental, safety and health factors and any attendant liability issues.

P10.3 Primary Responsibility

Negotiations for acquisitions or divestiture of property or business units and the securing of final corporate approval are the primary responsibility of the involved business unit.

P10.4 Procedure

During the course of negotiations, company review of environmental, safety and health factors and any attendant liability issues is required. This review should be arranged through the office of the business unit's Director, ESH, who will in turn:

- involve appropriate environmental, safety and health staff and Environmental Law, and
- arrange for review by
  - the Vice President, Stewardship, Environmental, Safety and Health, and/or
  - the Vice Chairman.

The review should be completed *prior* to seeking Board of Directors' approval of the acquisition or divestiture.

P10.5 For Further Information

When further information or clarification is required, you may contact the following:

ISSUE OWNER
Dennis B. Redington, ESH Stewardship, A3NA
(314)694-6503

P10.6 Program Approval

The content of this program was revised and approved by the Environmental Policy Committee, October 11, 1992. It was reformatted (only) on March 15, 1996.

DSW 108320

STLCOPCB4022995

Program 11

Environmental, Safety and Health Protection for Investments Over Which the Company Does *Not* Have Operating Control

OVERVIEW

P11.1 Introduction

This program describes the policy for environmental, safety and health protection for those investments over which the company does *not* have operating control.

P11.2 Policy

Monsanto Global Environmental, Safety and Health programs apply at all sites worldwide where the company has operating control.

Where greenfield investments are made, Global Environmental, Safety and Health Programs apply.

Compliance with applicable local laws, regulations and practices will be required, at a minimum, for those investments over which the company does *not* have operating control.

NOTE: If such applicable rules and practices do *not* provide environmental, safety and health protection that would be acceptable for company-controlled sites, the company will:

- initiate actions to bring about the necessary upgrades, and
- recognize the upgrade costs in initial project evaluations.

P11.3 For Further Information

When further information or clarification is required, you may contact the following:

ISSUE OWNER
Charles W. Keffer, Jr., ESH Stewardship, A3NA
(314) 694-4956

P11.4 Program Approval

Revised and approved by the Operations Council, May 29, 1996. Updated issue owner on November 22, 1996.

DSW 108321

STLCOPCB4022996

Program 12

Reproductive Hazards in the Workplace

OVERVIEW

P12.1 Introduction

This program describes the policy and procedures to be used to avoid reproductive hazards in the workplace.

P12.2 Policy

The company will use all appropriate information to ensure avoidance of reproductive effects in

- workers of both sexes, and
- offspring of workers.

P12.3 Procedures

The company will

- conduct appropriate toxicological tests of its raw materials, products, intermediates and byproducts,
- review current literature for information on the hazards of chemicals and physical agents that the company uses or produces,
- assess safety and health implications and the potential reproductive hazards posed by these chemicals and physical agents,
- minimize exposure to potentially harmful materials or activities by substitution with less risky chemicals or processes when feasible, through the use of engineering, work practices, and reliable protective equipment,
- provide the most accurate information currently available on materials or work practices thought to have reproductive health effects, and
- offer counseling by qualified health professionals to employees about workplace reproductive concerns.

P12.4 Responsibility

The procedures will be administered through the ESH Departments of Monsanto Business Services (MBS) and Corporate Stewardship.

Continued on next page

DSW 108322

P12.5 For Further Information

When further information or clarification is required, you may contact the following:

ISSUE OWNER:
Daniel M. Jaffee, ESH Stewardship, A3NA
(314) 694-5556

TECHNICAL CONTACTS:
INDUSTRIAL HYGIENE
Paul A. Easterday, MBS-ESH, A3NL (314)694-8836

OCCUPATIONAL MEDICINE:
Alan L. Engelberg, ESH, MBS A2SB (314)694-8896

P12.6 Program Approval

The content of this program was revised and approved by the Environmental Policy Committee, October 22, 1992. It was reformatted (only) on March 15, 1996. Updated issue owner on November 22, 1996.

DSW 108323

STLCOPCB4022998

Program 13

Safe Handling of Carcinogens

OVERVIEW

P13.1 Introduction

This program discusses the policy and procedures to be used for the safe handling of carcinogens.

P13.2 Policy

The company will

- provide safe and healthful working conditions for its employees, and
- comply with all governmental regulations concerning exposure to carcinogens.

P13.3 Procedures

To ensure the safe handling of carcinogens, the company will

- evaluate any data and take appropriate actions if any data suggests that a chemical to which its employees are exposed is a carcinogen, and such chemical is *not* subject to governmental regulations,
- take appropriate action to reduce exposure to the lowest reasonable level, unless exposure is already at such a level, if the data establishes the chemical as a human carcinogen,
- initiate a study (individually or with others) to confirm or disprove the chemical as an *experimental or suspect carcinogen*, if data establishes the chemical as an experimental or suspect carcinogen, and
- discontinue use and manufacture if it is concluded that a material cannot be produced or used without jeopardizing employee health.

NOTE: During each study, exposure will be reduced to and/or minimized at the lowest reasonable level.

P13.4 For Further Information

When further information or clarification is required, you may contact the following:

ISSUE OWNER:
John L. Henshaw, ESH Stewardship, A3NB
(314)694-8830

TECHNICAL CONTACT:
Paul A. Easterday, MBS - ESH, A3NL
(314)694-8836

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DSW 108324

STLCOPCB4022999

P13.5 Program Approval	The content of this program was revised and approved by the Environmental Policy Committee on October 22, 1992. It was reformatted (only) on March 15, 1996.

DSW 108325

Program 14

Contractor/Guest Environmental, Safety and Health

OVERVIEW

Introduction

This program sets forth an environmental, safety and occupational health (ESH) standard applicable to contractors and guests who perform services on or visit company property. All services administered by individual sites or by company engineering groups are covered.

The process described in this chapter was developed to define requirements for all company locations to ensure continuous improvement toward incident-free and injury-free performance for employees and all contractors and guests.

Policy

The company will pursue continuous improvement in contractor/guest environmental, safety and health performance to create an injury-free and incident-free environment at all company sites for employees and their guests.

Scope

This chapter applies initially to all company locations in the United States. The intent is to work toward worldwide implementation.

For Further Information

If further information or clarification is required, you may contact the following:

ISSUE OWNER:
John L. Henshaw, ESH Stewardship, A3NB
(314)694-8830

TECHNICAL CONTACT:
J. Kent Underwood, Specialty Products Engr. & Mfg. Services, F4EA
(314)694-6901

Program Approval

The content of this program was revised and approved by the Environmental Policy Committee on October 22, 1992. It was reformatted (only) on March 15, 1996.

In This Program

This program addresses the following areas:

Areas	See Page
P14.1 MANAGEMENT PROCESS	P14-2
P14.2 RESPONSIBILITIES	P14-5
P14.3 CONTRACTOR REQUIREMENTS	P14-6
P14.4 SUPPORTING DOCUMENTATION	P14-7

P14.1 MANAGEMENT PROCESS

P14.1.1 Introduction

The management process used for contractor/guest environmental, safety and health is designed to ensure that the company will

- go beyond current regulations,
- take an industry leadership position in contractor/guest safety, and
- ensure continuous improvement toward incident and injury-free performance.

P14.1.2 Definitions

The table below defines terms used in this program.

Term	Definition
Certified Monsanto Representative	Employees designated by the location management to administer the Contractor/Guest ESH Policy.
Contract	The document that contains terms and conditions of the agreement between the company and the contractor and which serves as proof of their respective obligations.
Contractor	Any non-company person performing physical work at a site under a company purchase order or contract.
Guest	Any person visiting, performing work or providing a service at a company-managed site, including company employees who are not permanently assigned to that location.
Master Monsanto Representative	The location administrator/facilitator responsible for ensuring effective implementation of the Contractor/Guest ESH process at the location, including training and certification for other Certified Monsanto Representatives.

P14.1.3 Approach

The company's contractor/guest environmental, safety and health process defines a fully integrated approach to the management of all contractors and guests within company facilities.

P14.1.4 Intent

The process is **not** intended to restrict management prerogatives, but rather to provide the consistency to help ensure that

- the Monsanto Pledge is fulfilled, and
- the highest organizational priority is placed on the health and safety of company employees, guests and the communities in which the company operates.

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STLCOPCB4023002

P14.1.5 Requirements

Through this process, it is intended that

- all services performed by contractors on company sites will be covered by written contracts,
- the contractor is made aware of the requirements of this chapter before bidding, and
- appropriate requirements are incorporated into the written contract.

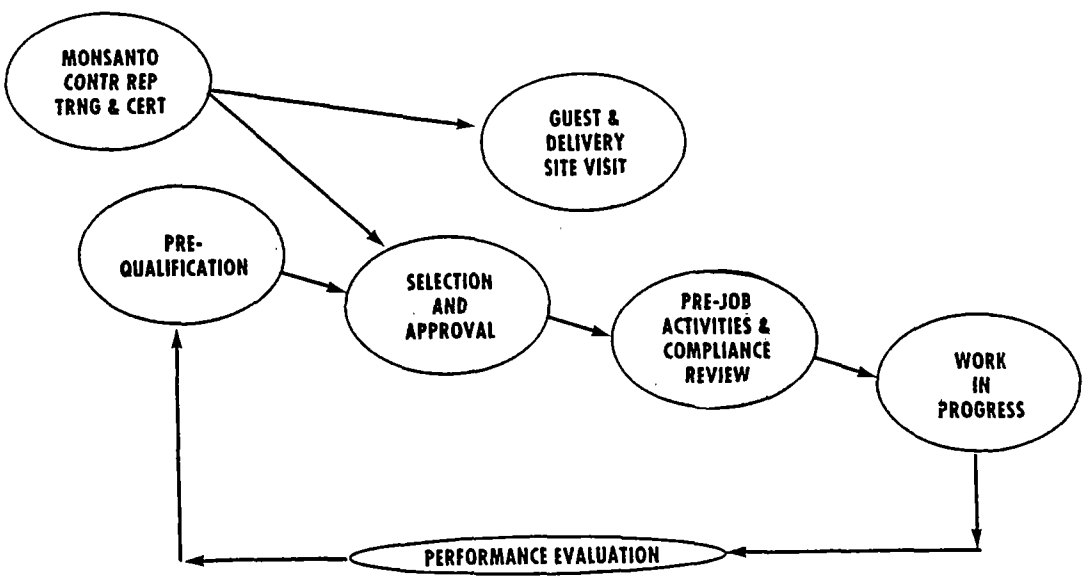
P14.1.6 Steps Used

The following management process steps are described in this section:

- Contractor representative training and certification,
- Guest and delivery site visits,
- Prequalification,
- Selection and approval,
- Pre-job activities and compliance review,
- Work-in-progress, and
- Performance evaluation.

P14.1.7 Management Flow Chart

The following diagram shows the flow of the management process steps:



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P14.1.7 Management Steps

Steps used in the management process for contractor/guest environmental, safety and health are described in the following table:

Step	Description
Contractor Representative Training & Certification	Provides for the identification and consistent training of all individuals with responsibilities for selection and management of contractors and guests working at and visiting within company facilities.
Guest and Delivery Site Visit	Provides a consistent approach to the orientation and control of all guests, visitors and delivery people who enter company facilities. This process also applies to those not under contract.
Pre-Qualification	Provides a consistent approach to identifying and selecting contractors, vendors and service providers who • practice effective safety programs, and • demonstrate leadership and performance in their industry.
Selection and Approval	Provides a framework for the contracting of services, which includes the identification of all ESH requirements based on the task and the preidentified risk. This process stresses clear communication of the company's performance expectations before the contract is finalized.
Pre-Job Activities and Compliance Review	Defines a systematic approach for verifying that the contractor and all of the contractor's employees meet the contractual requirements, including • orientation, • training, • medical testing, and • substance-abuse screening. Plant, business unit and job-specific expectations are emphasized.
Work-in-Progress	Provides a means for the management and audit of the contractor's activities to the ongoing compliance with the company's policies, procedures and requirements. This process focuses on the cooperation between the company's certified representative and the contractor's management to achieve successful and injury-free completion of work.
Performance Evaluation	Provides a defined method for the evaluation of and feedback on a contractor's performance, whether the contracted work is for a defined task or ongoing services. Performance evaluations are fed into the contractor prequalification process and, after evaluation, contractors either remain on the prequalification list or are removed from it.

P14.2 RESPONSIBILITIES

P14.2.1 Introduction

This section describes the responsibilities of company employees and contractors/guests to ensure continuous improvement in environmental, safety and health matters.

P14.2.2 Table of Responsibilities

The table below lists responsibilities necessary for the contractor/guest ESH management process.

Responsible Party	Responsibilities
Location Manager	• Ensuring implementation of this chapter. • Documentation and approval of deviations from the process. **NOTE**: No deviation from regulatory requirements will be permitted.
Company Authorized Representative	• Signing contracts in form previously approved by Purchasing and Law Departments.
Contractor Representative	
Certified Monsanto Representative	• Administration of the *Contractor/Guest ESH* Policy.
Master Monsanto Representative	• Administer and facilitate effective implementation of the Contractor/Guest ESH process at the location, including training and certification for other Certified Monsanto Representatives.
Contractor/Guest	• Compliance with this chapter as incorporated into the contract or otherwise communicated in order to ensure safe operations. • Communicate in English at a level of proficiency that ensures their safety and the safety of others. **NOTE**: Exceptions to the English communication requirement may be granted only by the location manager.

DSW 108330

P14.3 CONTRACTOR REQUIREMENTS

P14.3.1 Introduction

This section describes the requirements of those engaged in contract work with the company.

P14.3.2 Contractor Requirements

In accordance with the objective of providing for employee and guest safety in the execution of contract work, the company will utilize contractors who have

- a demonstrated high degree of compliance with workplace laws/standards, policies and practices,
- a history of good health and safety performance,
- proof of adequate insurance coverage, and
- a substance-abuse treatment program reasonably equivalent to that of the company, if involved in safety-sensitive work.

P14.3.3 Supervision of Contract Employees

Contractors will have a competent, well-trained supervisor in charge at the site at all times when its employees or those of its subcontractors are present. The company will <u>not</u> undertake direct supervision of contractor employees.

When a contractor employee has no on-site supervision, the contractor should work with the company's certified representative to provide for appropriate implementation of this chapter.

DSW 108331

STLCOPCB4023006

P14.4 SUPPORTING DOCUMENTATION

P14.4.1 Introduction

This section lists documentation used to support the standard discussed.

P14.4.2 Manual Requirements

This chapter is supported by the *Contractor/Guest ESH Guideline Manual* which incorporates the following requirements:

- Contractor Management Systems,
- Working in an Operating Facility,
- Housekeeping,
- Fire Protection and Prevention,
- Hazardous Work Permits,
- Occupational Health/Workplace Exposure Monitoring,
- Vehicle Safety,
- Waste Management,
- Occupational Medicine, and
- Management of Change.

DSW 108332

STLCOPCB4023007

Program 15

Use of Animals in Research Facilities

OVERVIEW

Introduction	This program contains details of the company's policy and practices regarding the use of animals in research facilities.
Policy	The company will ensure that all animals used in its research programs • are involved in projects of importance to society, and • receive humane and professionally competent care and treatment.
For More Information	When further information or clarification is required, you may contact the following: ISSUE OWNER: John L. Henshaw, ESH Stewardship, A3NB (314)694-8830 TECHNICAL CONTACT: G. Alan Nickols, Monsanto Animal Care and Use Committee Team Leader, T3P (314)694-1165
Program Approval	The content of this program was revised and approved by the Environmental Policy Committee on October 22, 1992. It was reformatted (only) on March 15, 1996.

DSW 108333

STLCOPCB4023008

P15.1 DETAILS

P15.1.1 Introduction

This section describes the details of the company's practices regarding the use of animals in research facilities.

P15.1.2 Background

The company

- develops pharmaceutical, consumer goods, agricultural and industrial products that are used to
  - treat diseases,
  - grow food, and
  - better the quality of human life throughout the world, and
- works to ensure that these products
  - provide valuable benefits to society, and
  - are safe to use.

P15.1.3 Need for Use of Laboratory Animals

In conducting research to ensure product efficacy and safety, company scientists use a variety of new technologies, such as

- computer models,
- cell culture systems, and
- other processes.

These technologies are used to

- identify effective products early in the process, and
- detect potential health problems or undesirable side effects.

These systems are limited, however, because they do not fully represent the complex processes of the human body. For this reason, product research and evaluation requires the use of laboratory animals.

P15.1.4 Information Requirement

The company requires all scientists, technicians and managers associated with animal research programs to be fully cognizant and supportive of the specifics and spirit of this chapter.

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STLCOPCB4023009

P15.1.5 Program Supervision

The facilities and management programs established to support company animal research are

- directed and monitored by an attending doctor of veterinary medicine, and
- fully accredited by the American Association for the Accreditation of Laboratory Animal Care (AAALAC).

All company research with animals is conducted under the review and supervision of Animal Care and Use Committees (ACUCs) appointed by senior management. Each ACUC consists of

- scientists,
- veterinarians,
- at least one non-scientist, and
- at least one person not affiliated with the company.

The committees regularly report their findings to senior management and appropriate governmental regulatory officials.

P15.1.6 Research Animals Used

Since rodents account for over 90% of all research subjects, the vast majority of animals used by company researchers are rabbits, rats and mice. The remainder includes dogs, pigs, sheep, cattle, goats and occasionally monkeys.

Laboratory animals are purchased from companies that raise animals specifically for research. Livestock are purchased from commercial farms.

NOTE: The company does not buy animals from pounds or shelters.

P15.1.7 Animal Use Protocol

Since the company's goal is to give the highest consideration to the well-being of all animals used in research, it has established the following procedure:

STEP	ACTION
1	Assign all company research animals to a specific protocol under the direction of a principal investigator.
2	Review each protocol according to procedures prescribed by governmental regulations and adhered to by the ACUC. **NOTE:** This must be done before research can commence.
3	Review and approve each protocol by an attending veterinarian and the ACUC.
4	Maintain records of research use and routine care for each animal.

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P15.1.8 Research Facilities

The company conducts all animal research in modern, well-maintained facilities that meet or exceed all regulatory standards.

Housing spaces include

- special facilities to quarantine newly arrived animals,
- isolation facilities, and
- conventional holding rooms to care for required animals.

Environmental conditions such as room temperature, humidity, ventilation and lighting are carefully monitored and controlled.

P15.1.9 Regulatory Review

The company is registered with the United States Department of Agriculture as a research facility. Under the provisions of the Animal Welfare Act, the company

- has regular inspections of its facilities, and
- files an annual report.

P15.1.10 Information Requests

General information on the company's policy and procedures regarding animals used in research may be requested from Monsanto ESH Communications, 800 North Lindbergh Blvd., St. Louis, Missouri 63167. The phone number is (314)694-2890.

P15.1.11 Visits and Tours

Although the company's animal research facilities are not generally open to the public, visits and tours can be arranged by contacting the above address.

Because of the nature of the research work under way, the company may restrict access to certain areas to ensure the health and safety of the animals.

NOTE: Recordings, filming, taping, photography and related activities are prohibited except as specifically approved.

DSW 108336

STLCOPCB4023011

Program 16

Ozone Depleting Chemicals

OVERVIEW

Introduction

This program describes the policy, scope, site applicability and procedure for minimizing the uses and environmental releases of ozone-depleting chemicals (CFC's).

Policy

The company will

- initiate actions at all of its sites worldwide to minimize the uses and environmental releases of the chemicals subject to this program, and
- seek out acceptable substitute chemicals, when possible, on or before applicable compliance dates set by the site's local country laws and regulations.

Scope

The following chemicals are those listed in the *Montreal Protocol* and are the minimum number subject to this policy:

CFC-11	CFC-213
CFC-12	CFC-214
CFC-13	CFC-215
CFC-111	CFC-216
CFC-112	CFC-217
CFC-113	Halon-1211
CFC-114	Halon-1301
CFC-115	Halon-2402
CFC-211	Carbon Tetrachloride
CFC-212	Methyl Chloroform

Each company site should add to the list any other chemicals of local country concern and treat them according to this policy in conformance with local country laws and regulations.

Applicable Sites

Company sites subject to this policy include the following where the company owns or operates facilities or equipment that use or contain one of the chemicals subject to this policy:

- plants,
- offices,
- R&D facilities,
- sales offices,
- warehouses, and
- farms.

This coverage includes any subsidiary in which the company is a greater than 50 percent owner.

Continued on next page

For Further Information

When further information or clarification is required, you may contact the following:

ISSUE OWNER:
Charles W. Keffer, Jr., ESH Stewardship, A3NA
(314)694-4956

TECHNICAL CONTACT:
L. Glen Kurowski, MBS - ESH, A3NL
(314)694-6355

Program Approval

The content of this program was revised and approved by the Environmental Policy Committee on October 22, 1992. It was reformatted (only) on March 15, 1996 and August 15, 1996.

DSW 108338

P16.1 PROCEDURES

P16.1.1 Introduction

This section describes the procedures to be used to carry out Monsanto's policy regarding ozone depleting chemicals.

P16.1.2 Site Procedure

Where applicable, the management of each worldwide site will

- develop an inventory of uses and/or equipment containing any of the chemicals subject to this policy, and
- establish a plan for compliance with this policy that contains the minimum elements specified in P16.1.3 through P16.1.7.

P16.1.3 Refrigeration Equipment

For refrigeration equipment, replace the refrigerant with an acceptable substitute when

- the equipment needs to be replaced, or
- the original refrigerant is no longer available.

P16.1.4 Explosion Suppression and Fire Extinguishing Equipment

Replace explosion suppression or fire extinguishing chemicals subject to this program with an acceptable substitute when

- the equipment needs to be replaced, or
- the original chemical is no longer available.

Where practical, provisions should also exist to provide for such chemical replacement after a system discharge.

P16.1.5 New Equipment Purchases

After January 1, 1994, no new refrigeration, explosion suppression or fire extinguishing equipment will be purchased that contains any chemical subject to this program, if substitute chemicals are reasonably available.

P16.1.6 Process and Other Uses of Chemicals

For process and other uses of chemicals subject to this program, the company will, by January 1, 1996, develop plans to cease using such chemicals.

P16.1.7 Best Management Practices

In advance of any applicable laws and regulations, all sites will institute best management practices to

- minimize the uses and environmental releases of any chemicals subject to this program, and
- seek opportunities for the use of acceptable substitute chemicals, where possible, consistent with good business practices and employee safety/health considerations.

DSW 108339

COMPANY CONFIDENTIAL

STLCOPCB4023014

Program 17

Environmental, Safety and Health Compliance Auditing

OVERVIEW

Introduction

This program describes the auditing policy and procedures to be taken to confirm that site management systems are in place to ensure continuous improvement and compliance with government regulations and company, business unit and subsidiary policies and procedures.

Policy

The company will conduct environmental, safety and health compliance audits to confirm that site management systems are in place to ensure continuous improvement and compliance with both government regulations and company, business unit and subsidiary policies and procedures.

For Further Information

When further information or clarification is required, you may contact the following:

ISSUE OWNER:
John L. Henshaw, ESH Stewardship, A3NB
(314)694-8830

TECHNICAL CONTACTS:
SAFETY AND PROPERTY PROTECTION
James R. Atkinson, MBS-ESH, A2SA (314)694-6074

INDUSTRIAL HYGIENE
Paul A. Easterday, MBS-ESH, A3NL (314)694-8836

OCCUPATIONAL MEDICINE
Alan L. Engelberg, ESH Stewardship, A2SB (314)694-8896

ENVIRONMENTAL COMPLIANCE
Richard J. Edwards, MBS-ESH, F2EI (314)694-6739

Program Approval

The content of this program was revised and approved by the Environmental Policy Committee, October 22, 1992. It was reformatted (only) on March 15, 1996.

DSW 108340

STLCOPCB4023015

P17.1 PROCEDURES

P17.1.1 Introduction

This section describes the procedures to be used in ESH Compliance Auditing.

P17.1.2 Standard

Each business unit and subsidiary will be responsible for ensuring that audits are conducted in accordance with criteria shown in the following table:

ESH Compliance ..	will ..
Auditing Programs	• be consistent with the five-step auditing approach as outlined by the outside consulting firm of Arthur D. Little, and • follow protocols approved by the MBS-ESH and ESH Stewardship staff.
Auditors	• be appropriately trained, knowledgeable of the subject they audit, and skilled as compliance auditors, and • be independent of the location/site they audit.

P17.1.3 Audit Frequency

ESH compliance audits will be performed on a three-to-five year maximum cycle.

Frequency for each site will be reviewed by the Management Board and/or Operations Council and will depend upon

- results of the last audit,
- degree of risk,
- complexity, and
- compliance issues.

P17.1.4 Audit Reviews

Reports of the actual audit findings and/or recommendations will be reviewed by appropriate legal staff and distributed, at a minimum, to

- site managers,
- directors of manufacturing (or equivalent for non-manufacturing locations),
- legal, and
- ESH Stewardship.

P17.1.5 Followup

Audit findings/recommendations followup will be the responsibility of each operating company and subsidiary.

ESH Stewardship will request periodic status reports of auditing and followup corrective actions for communication to upper management.

DSW 108341

STLCOPCB4023016

Communication Procedure 1

Employee Health and Exposure Communications

OVERVIEW

Introduction

This section describes the company's procedure for handling the communication of hazards of chemical substances and physical agents in the workplace to employees who may be exposed.

For More Information

When further information or clarification is required, you may contact the following:

ISSUE OWNER:
John L. Henshaw, ESH Stewardship, A3NB
(314)694-8830

TECHNICAL CONTACTS:
INDUSTRIAL HYGIENE
Paul A. Easterday, MBS-ESH, A3NL (314)694-8836

OCCUPATIONAL MEDICINE
Alan L. Engelberg, MBS-ESH, A2SB (314)694-8896

Procedure Approval

The content of this procedure was revised and approved by the Vice President, Environmental, Safety and Health on October 22, 1992. It was reformatted (only) on March 15, 1996.

In This Procedure

The following procedures are covered in this section.

Procedures	See Page
CP1.1 Communication, Education and Training	CP1-2
CP1.2 Access to Medical and Exposure Records	CP1-6
CP1.3 Communication Responsibilities	CP1-8

DSW 108342

STLCOPCB4023017

CP1.1 COMMUNICATION, EDUCATION AND TRAINING

CP1.1.1 Introduction

This section discusses procedures involving the communication, education and training of employees whose work provides potential exposure to a hazardous chemical substance.

CP1.1.2 Definitions

Terms used in this procedure are defined in the following table:

Term	Definition
Access to Records	The opportunity to review an employee's medical and exposure records on-site and, if requested, receipt of or opportunity to make a copy of the records.
Designated Representative	Any individual or organization to whom the employee has given written authorization to have access to the employee's medical or exposure records for a specific purpose on a specified occasion.
Epidemiology Studies	Scientific investigations of potential relationships between workplace exposures and health outcome of company employees or other occupational populations, as outlined in a study protocol.
Exposure Records	Records of an employee's work history and the level of exposure to potentially harmful or toxic substances or agents and analyses of such records.
Medical Records	Reports of physical examinations, medical tests and other medical information on the employee in the company's possession.

CP1.1.3 Education and Training

All employees whose work provides potential exposure to a hazardous chemical substance will

- have ready access to reference material, such as Material Safety Data Sheets (MSDSs), and
- receive training in the nature of the hazards and appropriate work practices, protective measures and emergency procedures.

Training will be provided to employees

- when newly assigned to an area with potentially hazardous exposures, and
- annually thereafter.

Continued on next page

DSW 108343

STLCOPCB4023018

CP1.1.4 Industrial Hygiene Monitoring

Employees who participate in individual (personal) industrial hygiene monitoring will be informed of the sampling results.

All employees in an area where ambient air concentrations or physical agents are monitored should be informed of

- area concentrations,
- their relationship to relevant federal, state or local permissible exposure limits,
- the company's policies, goals and procedures, and
- intended corrective action where required.

United States Specific: For certain substances, OSHA regulations require written notification to the employee.

CP1.1.5 Physical Exams and Medical Tests

An employee will be informed about results of health evaluations and medical tests.

Copies of medical information will be sent to private physicians upon the employee's request and only with written authorization.

United States Specific: The employee will be informed in writing about results of health evaluations performed for occupational surveillance.

CP1.1.6 Health Studies by Company

When employees have been involved in epidemiology or other health studies conducted by or on behalf of the company, an executive summary of the study results prepared by MBS ESH and ESH Stewardship will be communicated in writing to the responsible business unit director of ESH and site managers.

Communications with employees regarding health studies will be coordinated by the business units' director of ESH as described in CP1.3, *Communication Responsibilities.*

Continued on next page

DSW 108344

CP1.1.7 Outside Health Studies

A multitude of epidemiological, animal and other health studies are conducted annually by the company and by others. These studies vary widely in terms of

- new knowledge provided,
- scientific validity,
- conclusiveness of the findings,
- applicability to humans or the work environment, and
- other factors.

Studies should be communicated to employees who have potential exposure to a substance when the studies are known to

- be scientifically sound, and
- present significant new information concerning the potential hazards of a material to workers.

NOTE: Where possible, significant potential hazards of materials should be communicated from the company rather than from outside sources.

CP1.1.8 Communication Document and Dissemination Plan

A draft *Communication Document and Dissemination Plan* will be developed upon request, initially within MBS ESH, to ensure that

- the study results are properly interpreted, and
- the communiqué will be properly reviewed and disseminated to all operating units and/or plants.

CP1.1.9 Study Results to be Considered

In determining where the results of a study should be communicated, the following factors should be evaluated:

- scientific validity and conclusiveness of the study,
- significance of any new results,
- applicability of the study to employees,
- significance of any potential hazard identified, and
- plans for follow-up studies.

Continued on next page

DSW 108345

STLCOPCB4023020

CP1.1.10 Written Communication Plans

Each manufacturing and laboratory location should have written *Employee Health and Exposure Communications Plans* which address

- communication of and training on the hazards of chemical substances and physical agents in the workplace and proper handling methods, protective measures and emergency procedures;
- handling of employee inquiries and expressions of concern about exposures;
- handling of employee and designated representative requests for access to medical and exposure records;
- communication of abnormal physical exam/medical test findings;
- regular communication of the industrial hygiene program and of exposure levels vs. standards;
- identification of materials or other subjects needing special communications efforts and plans for development of such programs locally or with the help of MBS ESH or others, and
- notification to employees of their right of access to their medical and exposure records.

DSW 108346

CP1.2 ACCESS TO MEDICAL AND EXPOSURE RECORDS

CP1.2.1 Introduction

This section describes the procedures for access to employee medical and exposure records.

CP1.2.2 Right of Access Notification

Each location should

- make notification of the existence, location and right of access to medical and exposure records a part of its new hire orientation program, and
- post or otherwise inform all employees of this information and right annually.

CP1.2.3 Employee Inquiries

Any employee inquiry about work exposures must be addressed by site management. The location physician, industrial hygienist or other appropriate management representative(s) should

- meet with the employee, and
- provide a specific response based on the factual information available.

The appropriate business unit director, ESH, Human Resources representative and ESH Stewardship representative should be consulted in any nonroutine situation.

Europe/Africa Specific: The director of DMHS Europe/Africa should be consulted in any nonroutine situation in Europe/Africa.

CP1.2.4 Employee Access to Medical and Exposure Records

Access to an employee's medical or exposure records, if generated, will be provided

- within 15 working days after the company receives a request in person or in writing from that employee, or
- as required by law if more stringent.

NOTE: Unless otherwise specified by law, trade secret information may be deleted from the records provided to an employee or designated representative but they must be informed of such deletion.

CP1.2.5 Employee Access to Other Records

In addition to individual medical and exposure records, an employee may have access to general exposure records (such as area samples) for the work area and the individual exposure records (with all identifiers deleted) of other employees in the same work environment.

CP1.2.6 Location of Written Requests

Written requests for medical and exposure records will be kept at the location housing the records.

Continued on next page

CP1.2.7 Designated Representative Access

A designated representative with the appropriate written authorization from the employee will be provided access to an employee's medical and exposure records within 15 working days of receipt of the authorization.

When requests for access to records are made from a designated representative, the following should be advised:

- appropriate managers,
- Human Resources representatives,
- ESH representatives, and
- the assistant general counsel, Environmental Law.

Europe/Africa Specific: When Europe/Africa sites are involved, the Department of Medical and Health Sciences Europe/Africa should be advised.

CP1.2.8 United States Specific Regarding Designated Representative Access

U.S. OSHA rules require that an employee's recognized or certified collective bargaining agent will be treated as a designated representative without regard to written employee authorization with respect to access to

- employee exposure records (with all identifiers deleted), and
- analyses of group medical and exposure records.

Final reports of completed epidemiological studies of unionized employees will be provided to the union involved on specific written request.

CP1.2.9 OSHA and NIOSH Access

An OSHA inspector who presents a written access order approved by the Assistant Secretary of Labor for OSHA will be given immediate access to records specified by the order. Requests should be reported immediately to the assistant general counsel, Environmental Law.

Requests by NIOSH have been supported by the courts but should be cleared by the assistant general counsel, Environmental Law, before being granted.

NOTE: No order is required for access to exposure records.

Reference: Reference should be made to *29 CFR Part 1910, Access to Employee Exposure and Medical Records, Final Rule 9-29-88.*

DSW 108348

CP1.3 COMMUNICATION RESPONSIBILITIES

CP1.3.1 Introduction

This section describes the communication responsibilities regarding employee health and exposure.

CP1.3.2 Communications Responsibilities

Responsibilities for employee health and exposure communications are shown in the following table:

Responsible Party	Responsibility
ESH Stewardship/ MBS ESH	• Development of a *Communication Document and Dissemination Plan* for new health hazard information (upon request). • Consultation in any nonroutine employee inquiry. • Identification of health hazards of chemical substances, physical agents, and biological agents in the workplace (joint responsibility with business units' directors of ESH and site management).
Business Units' Directors of ESH	• Identification of health hazards of chemical substances, physical agents, and biological agents in the workplace (joint responsibility with ESH Stewardship and site management). • Consultation in development of communication plan for new health hazard information. • Consultation in any nonroutine employee inquiry. • Transmittal of draft statements, announcements and supporting data to appropriate site management.
Site Management	• Consultation in development of communication plan for new health hazard information. • Identification of health hazards of chemical substances, physical agents, and biological agents in the workplace (joint responsibility with ESH Stewardship and business units' directors of ESH. • Addressing of employee inquiries regarding work exposure. • Communication, in writing, of any applicable, reliable study results to site employees.
Line Management	• Communications to and education and training of employees regarding health hazards.

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CP1.3.2 Communications Responsibilities (con't)

Responsible Party	Responsibility
Location physician, nurse and/or industrial hygienist	• Interpretation of data and consultation during the review of medical and exposure records. • Consultation, when necessary, with employees regarding inquiries about work exposures.
Human Resources representative	• Consultation in any nonroutine employee inquiry.
Director of Medical and Health Sciences (DMHS)	• Consultation regarding subjects needing special communication efforts and plans for program development. Europe/Africa Specific: • Consultation in any nonroutine employee inquiry. • Communication of applicable, reliable health study results.
Europe/Africa Environmental and Regulatory Affairs Management	• Development of a *Communication Document and Dissemination Plan* which is appropriate for laws and customers governing handling of employee health and exposure information in those countries.

Continued on next page

CP1.3.3 Information Significance Determination

When there is a question regarding the significance of study results to be communicated to appropriate employees company-wide, the matter will be referred to the following directors by any member of concerned management:

- Medical and Health Sciences,
- Industrial Hygiene,
- Toxicology,
- Epidemiology,
- Medical,
- Business Unit ESH,
- Environmental Law,
- Manufacturing,
- Human Resources, and
- Public Affairs.

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Communication Procedure 2

Transmittal to the United States Environmental Protection Agency of Substantial Risk Information Under The Toxic Substances Control Act

OVERVIEW

Introduction	This section describes the company's procedure for handling the reporting of information to the United States Environmental Protection Agency (USEPA) under the 8(e) substantial risk section of the Toxic Substances Control Act (TSCA).
Abstract of TSCA 8(e) Requirements	TSCA Section 8(e) requires that the EPA be immediately informed of any person (company) who • manufactures, processes or distributes in commerce a chemical substance or mixture, and • obtains information which reasonably supports the conclusion that such substance or mixture presents a substantial risk of injury to health or the environment.
For Further Information	When further information or clarification is required, you may contact the following: ISSUE OWNER J. Ron Condray, ESH Stewardship, A3NA (314)694-8883 TECHNICAL CONTACT MBS PRODUCT STEWARDSHIP Roger M. Weppleman, C2NB (314)694-3469
Procedure Approval	The content of this procedure was revised and approved by the Vice President, Environmental, Safety and Health on October 22, 1992. It was reformatted (only) on March 15, 1996.

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CP2.1 DETAILS

CP2.1.1 Introduction

This section gives details on the company's method for handling the reporting of information to the USEPA under TSCA 8(e).

CP2.1.2 Reporting Responsibility

The requirements of Section 8(e) of the TSCA apply to "*..any person who manufactures, processes or distributes in commerce.*" It is the company's position that the "*person*" who engages in the commercial activity is only the business organization, whether a sole proprietorship, corporation, partnership or association.

CP2.1.3 Designated Company TSCA 8(e) Individuals

Company organizations that might receive TSCA 8(e) information will have a designated individual to whom such information shall be communicated. At least annually, the director of regulatory management (DRM), Toxic Substances, will publish a list of the designated individuals, including the name of the Senior Medical Officer.

CP2.1.4 Employee Notification of 8(e)

All exempt company employees and others so designated by their organizational unit (plant nurses, contract physicians, scientists and engineers, etc.) within organizations that might receive or have access to TSCA 8(e) information, shall

- be informed of the provisions of Section 8(e), and
- be reminded annually of 8(e) requirements.

Records documenting the information communication will be maintained by the DRM, Toxic Substances.

CP2.1.5 Information Transmittal Chain

Information of the type given in the requirements abstract and detailed by EPA in their *TSCA Section 8(e) Reporting Guide* dated June 1991, should follow the following information transmittal chain:

- Employee submits information to supervisor,
- Supervisor immediately relays information to the location or department manager, whichever is applicable,
- Location or department manager transmits information to the proper designated individual in the organization, and
- Designated individual transmits information directly to the Senior Medical Officer.

CP2.1.6 Timing of Information Flow

It is imperative that the flow of information through this transmittal chain be rapid. In the event of nonavailability of a member of the communication network at the time information is first obtained, such member should be bypassed in the interest of speed.

Continued on next page

CP2.1.7 Records of Information

All individuals involved in submission of substantial risk information to the Senior Medical Officer should keep a record of date of receipt and pertinent identifying details.

CP2.1.8 8(e) Committee

The designated official 8(e) committee will make decisions with respect to information that must be reported to the EPA under Section 8(e) of the TSCA. This committee will be comprised of

- the Senior Medical Officer,
- environmental counsel,
- DRM, Toxic Substances, and
- the appropriate business unit director(s) of ESH or their designates (MBS Product Stewardship).

CP2.1.9 Committee Decisions

Appropriate senior management will be informed of committee decisions.

In the event that a committee decision is not unanimous, the next appropriate level of management shall be consulted and the matter will be resolved at the highest level, if necessary.

CP2.1.10 Employee Notification of Committee Action

Information submitted by employees will be handled according to the following table:

If...	and...	then...
An employee submits information	the information is submitted through company channels	the employee will be notified of action taken by the 8(e) committee and the reasons for such action.
An employee submits information directly to the EPA without the company's prior knowledge	the company has evaluated and determined the information is not reportable under 8(e)	the company should review the situation to determine what action, if any, it should take with the EPA.

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Communication Procedure 3

Recording Allegations of Significant Adverse Reactions Under the Toxic Substances Control Act

OVERVIEW

Introduction	This section describes the company's procedure for handling the Recordkeeping Requirements of the United States Environmental Protection Agency's (USEPA) Final Rule Under Section 8(c) of the Toxic Substances Control Act (TSCA).
Abstract of 40 CFR Part 717	Manufacturers and certain processors of chemical substances and mixtures must maintain records of significant adverse reactions to health or the environment alleged to have been caused by a substance, mixture, article, process, effluent or emission. These records are subject to USEPA inspection. (Reference: 40 CFR Part 717 - 48 FR 38178 - August 22, 1983) NOTE: The Rule does not apply to pesticides, food, food additives, drugs or cosmetics when manufactured, processed or distributed only for these uses.
For Further Information	When further information or clarification is required, you may contact the following: ISSUE OWNER: J. Ron Condray, ESH Stewardship, A3NA (314)694-8883 TECHNICAL CONTACT: MBS PRODUCT STEWARDSHIP Roger M. Weppleman, MBS-ESH, C2NB (314)694-3469
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In This Procedure

The following procedures are covered in this section:

Procedures	See Page
CP3.1 ADVERSE REACTION ALLEGATIONS HANDLING	CP3-3
CP3.2 HEALTH AND ENVIRONMENTAL ALLEGATIONS HANDLING	CP3-6
CP3.3 LITIGATION CLAIMS	CP3-9
APPENDIX CP3.A - Reporting Form for Allegations of Significant Adverse Reaction to Health	CP3-10
APPENDIX CP3.B - Flow Diagram of Monsanto Procedure for Handling Allegations Subject to TSCA 8(c)	CP3-11
APPENDIX CP3.C - TSCA 8(c) Review Procedure of Litigation Claims	CP3-12

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STLCOPCB4023031

CP3.1 ADVERSE REACTION ALLEGATIONS HANDLING

CP3.1.1 Introduction

This section describes the procedure for handling allegations of adverse reactions under TSCA.

CP3.1.2 Definitions

The table below defines terms used in this procedure. (See Section 717.3 of the Rule for a complete listing of definitions.)

Term	Definition
Allegation	A statement made without formal proof or regard for evidence. NOTE: In this instance, the allegation infers that a chemical substance or mixture has caused a significant adverse reaction to health or the environment.
Known human effect	A commonly recognized human health effect of a particular substance or mixture described in: • scientific articles or publications abstracted in standard reference sources, or • the firm's product labeling or material safety data sheets (MSDS). NOTE: An effect is not a "known human effect" if it meets any of the following criteria: • significantly more severe toxic effect than previously described, • manifestation of a toxic effect after a significantly shorter exposure period or exposure level than described, or • manifestation of a toxic effect by an exposure route different from that described.
Significant adverse reaction	Reactions that may indicate • a substantial impairment of normal activities, or • long lasting or irreversible damage to health or the environment.

CP3.1.3 Rule Exemptions

The following are exemptions from the Rule that relate to the company:

- Activities involving solely mining or other extractive functions,
- Significant adverse reactions that are known human effects, and
- Significant adverse reactions to the environment directly attributable to incidents of environmental contamination that have been reported to the United States federal government under any applicable authority.

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CP3.1.4 Allegation Receptors

Because allegations can come from a variety of sources including employees, contractors, customers and neighbors, the company's receiving network must be broad. Initial receptors include

- plant, laboratory and other company location supervision,
- plant and other company location managers,
- the company's medical community at all locations,
- the offices of the business unit directors of ESH,
- sales and marketing contacts,
- switchboard operators at all locations, and
- environmental network contacts.

CP3.1.5 Key Contacts

Each domestic plant or other company-designated domestic location or laboratory will have at least one identified and trained TSCA Section 8(c) key contact. Key contacts for the general offices will be

- the business unit director, ESH or designee (MBS, Product Stewardship),
- representatives of the Business and Research Support Services (BRSS), and
- the director of regulatory management (DRM), Toxic Substances, or designee.

The business unit director, ESH has the responsibility under this procedure for free-standing divisions and subsidiaries of which the company

- owns 50 percent or more of the voting stock or other equity rights, or
- has power to control the management and policies of the firm.

CP3.1.6 Recordkeeping

The TSCA Section 8(c) file will be kept in the Office of the DRM, Toxic Substances. The file structure will conform to requirements of Section 717.15 of the Rule.

CP3.1.7 Record Retention

Files pertaining to adverse reactions to health of employees will be retained for 30 years.

Files pertaining to other adverse reactions will be maintained for five years.

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CP3.1.8 Communications

Disposition of written allegations will be communicated back to the individual making the allegation. The key contact will facilitate the communication.

A summary of the TSCA Section 8(c) procedure will be periodically

- communicated to all affected employees, and
- updated as appropriate.

CP3.1.9 Recording Oral Allegations

Monsanto Form 8(c)A (shown as Appendix 20.A) is available to be used for all employee related oral allegations of health effects and can be used at the discretion of the business unit director, ESH for external oral health allegations.

All key contacts must note the date of receipt on a written allegation.

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CP3.2 HEALTH AND ENVIRONMENTAL ALLEGATIONS HANDLING

CP3.2.1 Introduction

This section describes the procedure for handling health or environmental allegations. This procedure is further shown on a flowchart in Appendix CP3.B.

CP3.2.2 Review and Decision Process

The company's Toxic Substances Control Act (TSCA) Section 8(c) procedure consists of a four-step review and decision process as detailed in the following table.

NOTE: A determination that an allegation is not recordable under the Rule can be made at any step in the process.

<table>
<tr><th>Step</th><th>Action</th></tr>
<tr><td>1</td><td>Initial receptors will transfer to the key contact at their location
• persons making oral allegations, and
• written allegations.

Decisions regarding the disposition of allegations are made according to the following table:
<table>
<tr><th>If ...</th><th>and ...</th><th>then ...</th></tr>
<tr><td>the initial receptors are members of either the Occupational Medicine (DMHS-OM) group (physicians) or the office of the business unit director, ESH</td><td>the allegation is oral</td><td>these individuals may judge at Step One if the allegation is excluded.</td></tr>
<tr><td>the decision is made that the allegation is excluded</td><td>the allegation is oral or written</td><td>it will not be acted on under this procedure.</td></tr>
<tr><td>the allegation is not excluded</td><td>the allegation is oral</td><td>the key contact will inform the alleger that such allegation may be recordable under the Rule, and request that the alleger submit a written and signed allegation to the key contact.</td></tr>
</table></td></tr>
</table>

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CP3.2.2 Review and Decision Process (con't)

Step	Action		
2	The key contact at a location or the appropriate business unit director of ESH for the general offices will provide company employees with Form 8(c)A for oral allegations. The written allegations will then be reviewed by a key contact who will make a decision according to the following table:		
	If ...	**and ...**	**then ...**
	the allegation is written	the allegation is exempt from the Rule	it will be discarded.
		the allegation is not exempt	it will be sent to the appropriate business unit director, ESH for review.
3	The business unit director, ESH will review allegations received from location key contacts and general office key contacts. If the allegation is not recordable under the Rule, it will be discarded.		

Continued on next page

CP3.2.2 Review and Decision Process (con't)

<table>
<tr><th>Step</th><th>Action</th></tr>
<tr><td>4</td><td>The business unit director, ESH, will form a committee to make decisions with respect to allegations that must be recorded under the Rule.

This committee will be chaired by the business unit director, ESH, and consist of the appropriate members of
• OM for human effects,
• Environmental Sciences staff for environmental effects,
• Environmental Law staff, and
• the DRM, Toxic Substances.

Step 4 decisions will be made according to the following table:
<table>
<tr><th>If ...</th><th>then ...</th><th>and ...</th></tr>
<tr><td>the allegation is not recordable under the Rule</td><td>the allegation will be discarded</td><td rowspan="2">the business unit director, ESH will provide feedback to the location key contact.</td></tr>
<tr><td>the allegation is recordable under the Rule</td><td>the DRM, Toxic Substances will place the allegation and documents mandated by the Rule in the TSCA Section 8(c) file</td></tr>
</table>
</td></tr>
</table>

CP3.2.3 Wear-Dated® Hotline

Allegations received by the Wear-Dated® hotline will be handled as follows:

Step	Action
1	Allegations received by the Wear-Dated® hotline will be documented by the phone operator on a standard form.
2	The documented call will be reviewed by the Fibers Product Safety department for TSCA 8(c) relevance.
3	The hotline allegations that are judged by the Fibers Product Safety department as meeting TSCA 8(c) recordkeeping requirements will be forwarded to the DRM, Toxic Substances for filing.

CP3.3 LITIGATION CLAIMS

CP3.3.1 Introduction

This section describes the procedure necessary to process litigation claims.

CP3.3.2 Detailed Procedure

The steps for handling litigation claims are detailed below.

Step	Action
1	(a) Litigation complaints will be reviewed by the law department asking the following questions for relevance to TSCA 8(c) recordkeeping: • Is the claim against a Monsanto product or process? • Is the product(s) in question one that is covered by TSCA, i.e., other than pesticide, herbicide, food, food additive or pharmaceutical? • Is the claim a health or environmental claim? (b) If all criteria is met, the claim will be sent to the OM group. Exceptions to this include claims against the Agricultural Group, Nutrition and Health Care Products that will be sent to these respective groups when the law department is unsure of the answer to the second question.
2	(a) Litigation claims forwarded to the law department will be reviewed by the OM group and based on EPA's definitions of • *known human effects*, and • *significant adverse reactions* (40 CFR 717). (b) OM may need to contact the appropriate business unit director, ESH for assistance with environmental effects. (c) Claims meeting TSCA 8(c) criteria will be forwarded to the DRM, Toxic Substances, for filing. (d) Claims that do not meet this criteria will be dropped from further TSCA review of this step.
3	The DRM, Toxic Substances will request from the law department a copy of the complaint, abstract and answer.
4	The law department will forward a copy of the complaint, abstract and answer to the DRM, Toxic Substances for filing in the TSCA 8(c) file. The complaint, abstract and answer will constitute the TSCA 8(c) recordable allegation and followup for all litigation filings.

CP3.3.3 Flow Diagram

A flow diagram of the TSCA 8(c) process for litigation complaints appears as Appendix CP3.C.

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TO: SITE KEY CONTACT _____

Form 8(c)A
11/92

APPENDIX CP3.A

REPORTING FORM FOR ALLEGATIONS OF SIGNIFICANT ADVERSE REACTION TO HEALTH

Toxic Substances Control Act, Section 8(c) 40 CFR Part 717

NAME OF ALLEGER: _____ DATE: ____/____/____ (MO / DAY / YR)

ADDRESS: (If not employee)

_____ SITE LOCATION: _____

SITE LOC. CODE: _____

(If health effect only): M ☐ F ☐ YR. OF BIRTH: _____

Employer (if other than Monsanto): _____

DESCRIPTION OF ALLEGED AVERSE HEALTH EFFECT:

1. WHAT IS THE HEALTH EFFECT BEING CLAIMED? _____

2. HOW LONG DID IT LAST? _____

3. HOW OFTEN HAVE YOU EXPERIENCED EFFECT? _____

4. IN WHAT WAY DID IT AFFECT YOUR NORMAL ACTIVITIES? _____

5. HOW WERE YOU EXPOSED? _____

WHAT SUBSTANCE, MIXTURE, PROCESS OR OPERATION DO YOU THINK CAUSED THE EFFECT YOU DESCRIBED:

_____

_____

_____

_____
Signature

FOR COMPANY USE ONLY:

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RECEIVED ON: _____ BY: _____

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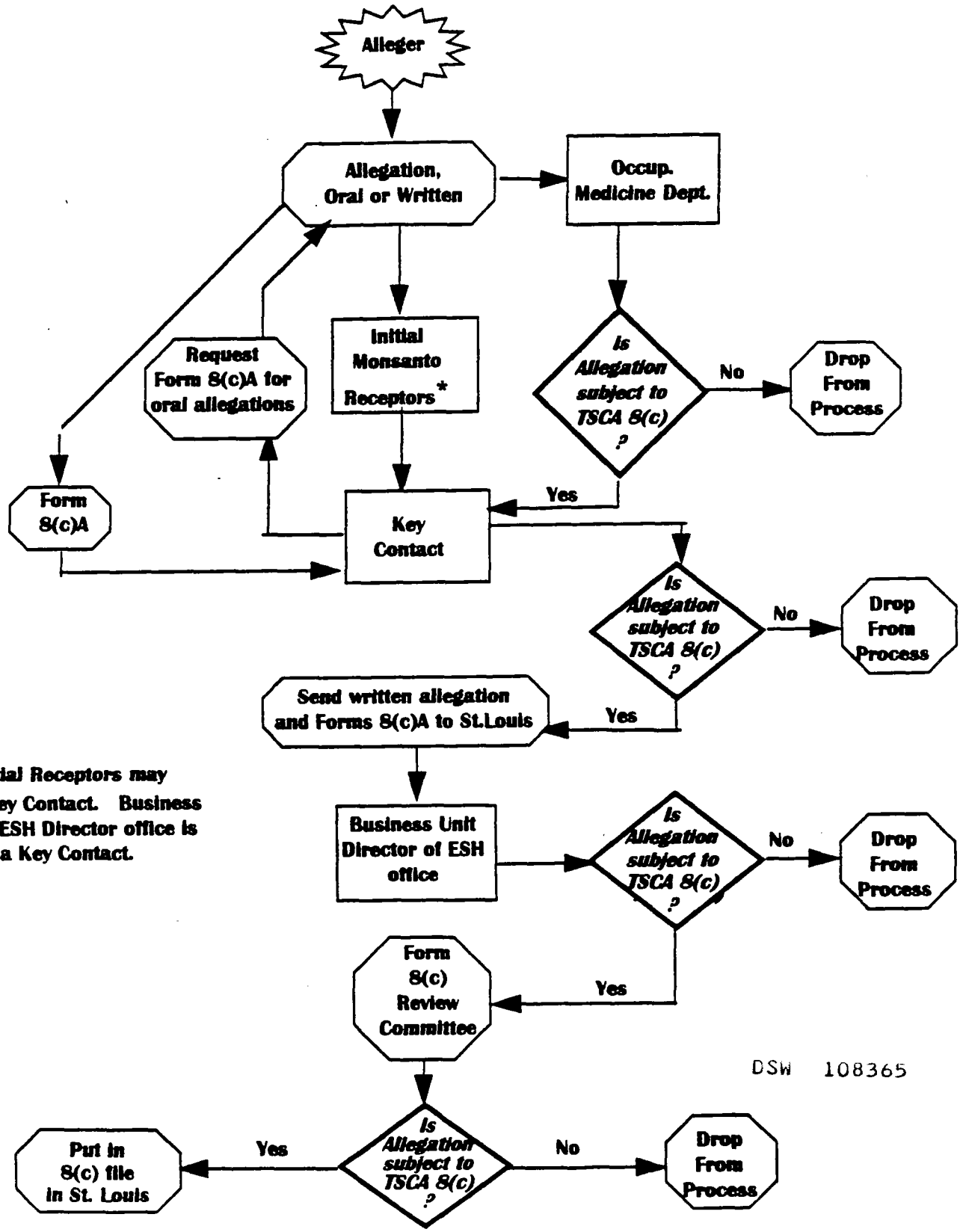
APPENDIX CP3.B

Flow Diagram of Monsanto Procedure for Handling Allegations Subject to TSCA 8(c)



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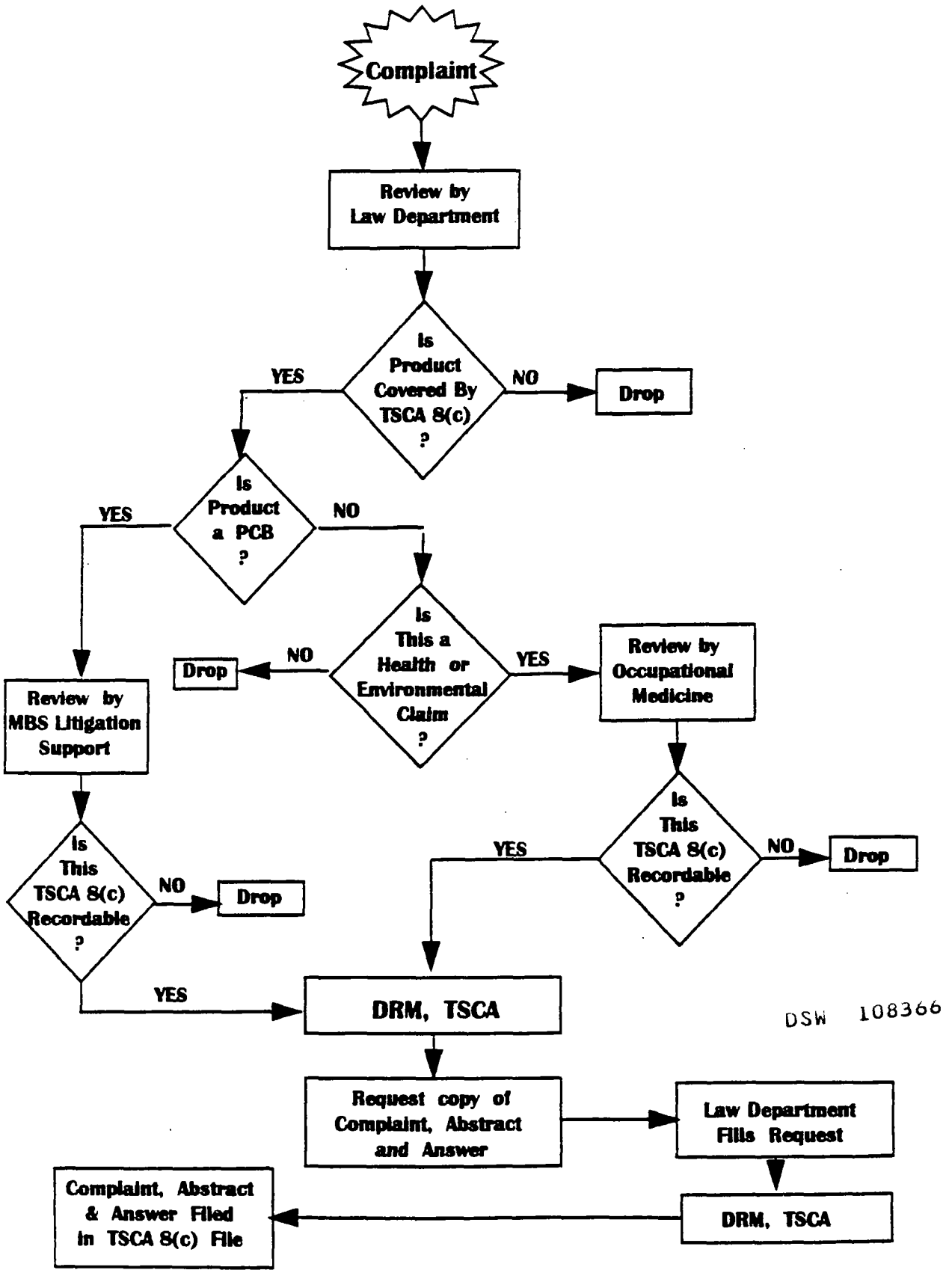
APPENDIX CP3.C

TSCA 8(c) Review Procedure of Litigation Claims



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Communication Procedure 4

Premanufacture Notification to United States Environmental Protection Agency Under The Toxic Substances Control Act

OVERVIEW

Introduction

This section describes the company's procedure for development of premanufacture notification (PMN) to the United States Environmental Protection Agency (USEPA) as required under Section 5 of the Toxic Substances Control Act (TSCA).

Requirements Abstract

A PMN is required to be submitted to USEPA for all new chemical substances at least 90 days before the substance can be manufactured for commercial purposes.

NOTE: A number of substances are exempted from these requirements including, but not limited to,

- drugs,
- food and food additives,
- pesticides,
- R&D substances,
- nonisolated intermediates, and
- substances on the TSCA inventory.

For Further Information

When further information or clarification is required, you may contact the following:

ISSUE OWNER:
J. Ron Condray, ESH Stewardship, A3NA
(314)694-8883

TECHNICAL CONTACT:
MBS PRODUCT STEWARDSHIP
Roger M. Weppleman, MBS-ESH, C2NB
(314)694-3469

Procedure Approval

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STLCOPCB4023042

In This Procedure

The following areas are covered in this procedure:

Areas	See Page
CP4.1 PMN REQUIREMENTS	CP4-3
CP4.2 PMN PROCESS	CP4-5
CP4.3 FOLLOWUP ON A PMN	CP4-8
CP4.4 RESPONSIBILITIES	CP4-10

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CP4.1 PMN REQUIREMENTS

CP4.1.1 Introduction

This section describes the various requirements for the development of premanufacture notifications.

CP4.1.2 PMN Determination Checks

At a very early stage of new product development, including isolated intermediates and new imports, several checks should be made to determine if a PMN will be required for the product. These checks include determining if the product is

- exempt under TSCA, or
- "new" under TSCA.

CP4.1.3 Exemptions

Section 2(b) of TSCA exempts broad classes of substances such as pesticides, food, food additives, mixtures and others.

The PMN rule exempts

- small quantities for R&D purposes,
- substances for test marketing low volume and polymer manufacture,
- impurities,
- some byproducts,
- some articles, and
- nonisolated intermediates.

CP4.1.4 Exemption References

Refer to TSCA law and regulations or the company's PMN manual for details or contact

- the business unit director of ESH or designee, or
- the director, regulatory management (DRM), Toxic Substances (TSCA).

CP4.1.5 TSCA Non-Confidential Inventory

To determine if the substance is "new" under TSCA, the business unit director of ESH or their designee should search the TSCA nonconfidential inventory for the substance.

If the substance is on the TSCA nonconfidential inventory, it is not new under TSCA definition and a PMN is not required.

CP4.1.6 TSCA Confidential Inventory

If the substance in question is not on the nonconfidential inventory, the confidential inventory must be searched.

To search the confidential inventory, a *Bona Fide Intent to Manufacture* (BIM) notice must be submitted to USEPA. A copy of the instruction for submitting a BIM can be found in 40CFR720.25. Send a copy of the BIM to the DRM, TSCA for corporate recordkeeping purposes.

CP4.1.7 New Substances

If USEPA reports that the substance is not on the confidential inventory, then the substance is a new substance under TSCA and a PMN is required unless the material is exempt under Section 4.1.3.

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CP4.1.8 Contacts Listed	Each PMN will identify a technical contact in addition to an authorized official. The technical contact will typically be • the business unit director, ESH, or designee (MBS Product Stewardship), • a commercial development representative, or • an R&D contact.
CP4.1.9 Submission Timing	The PMN must be submitted to USEPA at least 90 days before the product can be manufactured for commercial purposes, including test marketing.

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CP4.2 PMN PROCESS

CP4.2.1 Introduction

This section details the process necessary to develop a PMN.

CP4.2.2 Procedure Details

The PMN process should be integrated into the development scheme of a new project. In most cases, the PMN development will be initiated during the earliest phases of commercialization of a product.

CP4.2.3 Initiating a PMN

The following table lists the steps necessary to initiate a PMN.

Step	Action
1	Business unit contact (MBS Product Stewardship) submits an ESHA document, if one has not already been submitted, to the Toxicology Group. NOTE: See ESHA Procedures.
2	Business unit contact (MBS Product Stewardship) drafts a PMN using USEPA form.
3	Business unit contact (MBS Product Stewardship) calls a scoping meeting, consisting of, at a minimum, • the business unit contact, • the business unit director of ESH or designee (if not serving as a contact), • a member of the Environmental Sciences Center (or other qualified environmental effects expert, if appropriate), • a toxicologist, and • the DRM, TSCA. Copies of the PMN drafts, along with approved ESHA for the substance are supplied to the participants in advance. NOTE: The scoping meeting can be bypassed at the discretion of the business unit contact.
4	A scoping meeting is held with decisions made by the business unit contact regarding • the scope and detail of optional information to supply, • the need for an optional risk analysis and, if desired, assignments to toxicology, industrial hygiene, etc., and • the need for an ESHA before PMN submission. NOTE: It is appropriate at this stage of product development to initiate a Material Safety Data Sheet (MSDS) and a TF-837 for label and freight classification.

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CP4.2.4 Finalizing a PMN

The following table lists the steps involved in finalizing a PMN:

Step	Responsible Person(s)	Action
1	Business unit contact (MBS Product Stewardship)	Prepares final draft using input from the scoping meeting as well as followup input from DMHS.
2	Business unit contact (MBS Product Stewardship) with patent department representative	• Reviews final draft for confidential information, and • Develops appropriate confidentiality claims with substantiation, where necessary.
3	Scoping meeting participants	Circulate final draft for review.
4	Business unit contact	Calls meeting for final comments/approvals, if needed.

CP4.2.5 PMN Information Required

The required PMN information falls into the category of either General Information or Risk Assessment Data. USEPA will accept additional data. To assist USEPA with their assessment, in many cases it is desirable to submit

- risk analysis,
- pollution prevention data, or
- other information.

Since the company performs a risk analysis on all new products via the *Pledge* Manual and the ESHA procedures, the information is available for this purpose.

CP4.2.6 PMN Information References

Final rules detailing PMN requirements can be found in 40CFR720. All PMNs must be submitted on USEPA Form 7710-25 (5/95). Copies of this form and instructions for its use are available from the DRM, TSCA.

CP4.2.7 PMN Submissions

After final review/approval, the business unit contact (MBS Product Stewardship) forwards the PMN to the business unit Director of Technology (authorized official) for submission.

The submission will include both confidential and nonconfidential PMNs using applicable USEPA requirements. A copy of each will be provided to the DRM, TSCA for recordkeeping purposes.

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CP4.2.8 PMN Fees

A $2500 fee, sent to a separate USEPA office from where the PMN is sent , is required for all PMNs. Exceptions are

- intermediates filed at the same time as the final product ($1,000 fee), or
- exemptions (zero cost).

A unique six-digit TS-user fee identification must

- be assigned to each PMN, and
- appear on the check.

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CP4.3 FOLLOWUP ON A PMN

CP4.3.1 Introduction

This section describes how PMN followup is handled.

CP4.3.2 USEPA Followup

The USEPA may

- extend the review period by an additional 90 days,
- ask for more information under Section 5(e),
- issue a jointly agreed upon consent order which can include restrictions on manufacture or use in lieu of information, and
- restrict manufacture or use under Section 5(f).

CP4.3.3 Company Followup

The company may

- request USEPA to stop the clock on PMN reviews at any time during the review period, and
- commence manufacturing at any time after the USEPA review period expires, subject to any 5(e) or 5(f) restrictions.

CP4.3.4 Notice of Commence to Manufacture (NCM)

A *Notice of Commence to Manufacture* (NCM) must be submitted to USEPA within 30 days of the first manufacture for commercial purposes.

The information to be included in the notice is detailed in 40CFR720.

Confidential claims must be made again at this time, as appropriate.

Send a copy of the NCM to the DRM, TSCA for corporate recordkeeping purposes.

Once an NCM is filed with the USEPA, the PMN substance is placed on the TSCA inventory.

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CP4.3.5 Phone Contact

All calls from the USEPA will be handled as follows:

Call Content	Response/Action
Non-confidential inquiries	• Discuss at time of call, or defer to obtain answer if unknown or if unsure of USEPA's authority in asking question. • Follow up with written response when deemed appropriate.
Confidential inquiries	• Discuss at discretion of technical contact if inquiry was previously discussed with USEPA or claimed confidential in the PMN. • Address all other verbal confidential inquiries by written response only.
All verbal responses	• Follow up, at technical contact's discretion, with written letter documenting conversation and indicating areas of confidentiality. • Give copy to DRM, TSCA.

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CP4.4 RESPONSIBILITIES

CP4.4.1 Introduction

This section describes responsible parties and responsibilities involved in the PMN process.

CP4.4.2 Responsible Parties and Responsibilities

The following table describes persons involved in the PMN process and their responsibilities.

Responsible Party	Responsibilities
Business Unit Director, ESH or designee (MBS Product Stewardship)	• Determines if product is - exempt under TSCA, - on TSCA non-confidential inventory, or - on TSCA confidential inventory.
Business Unit Contact (MBS Product Stewardship)	• Receives information regarding PMN, • Drafts a PMN, • Calls and makes decisions at scoping meetings, • Prepares and reviews PMN final drafts, • Forwards PMN to the DRM, TSCA, and • Follows up on the PMN submission.
Business Unit Director, Technology	• Serves as company's authorized official, and • Submits PMNs to USEPA.
Director of Regulatory Management (DRM), TSCA	• Reviews and approves all PMNs, • Serves as reference for details regarding PMNs, • Receives copies of BIMs for corporate recordkeeping, • Serves on scoping committee, • Provides PMN submission forms, • Maintains copies of PMNs submitted to USEPA, and • Receives copies of NCMs for recordkeeping.
Technical Contact (as described in Section P4.1.8)	• Receives calls from USEPA on technical matters, • Documents conversations with USEPA and forwards copies to DRM, TSCA, and • Determines if written responses to USEPA conversations are necessary.

DSW 108376

STLCOPCB4023051

Communication Procedure 5

Occupational Fatal Accident Reporting

OVERVIEW

Introduction

This section describes the company's policy and procedures for reporting occupational fatal accidents.

Policy

In case of a fatal accident, the company's Law Department must be contacted in addition to following government, corporate and business unit reporting requirements.

For Further Information

When further information or clarification is required, you may contact the following:

ISSUE OWNER
John L. Henshaw, ESH Stewardship, A3NF
(314)694-8830

TECHNICAL CONTACTS
LAW
Mary M. Tonkin, MBS Law, E1NG
(314)694-2967

Brent J. Gilhousen, MBS Law, E3NK
(314)694-8504

SAFETY & PROPERTY PROTECTION
James R. Atkinson, MBS ESH, A2SA
(314)694-6074

Procedure Approval

The content of this procedure was revised and approved by the Vice President, Environmental, Safety and Health on October 22, 1992. It was reformatted (only) on March 15, 1996.

In This Procedure

The following procedures are covered in this section:

Procedure	See Page
CP5.1 Government Reporting	CP5-2
CP5.2 Monsanto Reporting	CP5-3
CP5.3 OSHA Inspection	CP5-4

CP5.1 GOVERNMENT REPORTING

CP5.1.1 Introduction

This section describes the procedure for reporting an occupational fatal accident to OSHA.

CP5.1.2 OSHA Regulations

OSHA regulations require that the company shall report, **within 48 hours**, any employment accident which

- is fatal to one or more employees, or
- results in hospitalization of five or more employees.

CP5.1.3 Reporting Method

The accident shall be reported to the nearest office of the OSHA Area Director either

- orally (telephone), or
- in writing (facsimile).

CP5.1.4 Report Content

The report shall relate the

- circumstances of the accident,
- number of fatalities, and
- extent of any injuries.

DSW 108378

STLCOPCB4023053

CP5.2 MONSANTO REPORTING

CP5.2.1 Introduction	This section describes the procedure for reporting an occupational fatal accident to the business unit(s) and the company in order to protect the civil rights of company employees.
CP5.2.2 Legal Notification	In addition to routine business unit and company notifications of fatal accidents, the company's attorney(s) for OSHA matters must be notified immediately.
CP5.2.3 Legal Guidance	The company attorney(s) will provide prompt necessary guidance including, where necessary, sending an attorney to the site for on-the-spot counseling.

DSW 108379

STLCOPCB4023054

CP5.3 OSHA INSPECTION

CP5.3.1 Introduction	This section describes the procedure to be used during an OSHA inspection of the site of a fatal accident.
CP5.3.2 OSHA Inspector Access	OSHA inspector(s) should be given access to the site of the accident when the inspector arrives on the premises without requiring a warrant for entry.
CP5.3.3 OSHA Discussions With Employees	The location manager or designee will greet the inspector and state that location employees have been asked not to discuss the accident until advised to do so by the company attorney. The inspector will be advised that this posture is being taken in accordance with the *OSHA Procedure for Investigating Criminal/Willful Violations.*
CP5.3.4 OSHA Inspection of Plant	The OSHA inspector will be permitted to inspect the plant and should be advised of any chemical hazards and protective measures needed, related or not to the accident. If the location is requested to rope off the area of the accident, local discretion should be exercised. **NOTE:** The inspector is not authorized to keep plant management away from any part of the operation.
CP5.3.5 OSHA Inspection of Records	Location personnel will not allow the inspector to view any records or documents at this time other than the lost-time injury log, *OSHA Form 200 and Form 101* or its equivalent, until advised to do so by the company attorney.
CP5.3.6 Delay of OSHA Inspection	If location management believes entry by the inspector must be delayed for a few hours because of exposure, safety, confusion, etc., management will seek such a recommendation from the company attorney at the time of the initial call to the company.

DSW 108380

STLCOPCB4023055

Communication Procedure 6

Transmittal of Toxicology and Health-Related Data To United States Regulatory Agencies

OVERVIEW

CP6.1 Introduction	This section describes the policy and procedure for supplying health-related information to regulatory agencies.
CP6.2 Policy	Health-related information should be submitted through ESH Stewardship.
CP6.3 Test Data Submission	All toxicology or health-related data will be reviewed wit ESH Stewardship prior to submission to any regulatory agency. ESH Stewardship will be informed of all routine submissions by the company's agricultural group of test data required under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA).
CP6.4 Human Health Effects Data	If the submission include data on human health effects, it is preferable that the information be submitted to the regulatory agency by the Department of Medicine and Health Sciences.
CP6.5 Human Health Effects Data	The letter of transmittal for any toxicology or health-related data must include a list of the materials being transmitted, including sufficient bibliographic information for subsequent retrieval of the original data. Any such information transmitted must be recorded and the copy of the final submission retained by both • the Department of Medicine and Health Sciences, and • the involved business unit.

Continued on next page

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CP6.6 Regulatory Agency Agreements

Agreements with a regulatory agency that commit the company to the future transmittal of toxicology or health-related data must

- be reviewed and approved **in advance** by ESH Stewardship,
- have concurrence of ESH Stewardship regarding the feasibility of meeting commitment dates, and
- have appropriate records of such commitments maintained by both the involved operating company and ESH Stewardship in order to ensure future compliance with such agreements.

CP6.7 Exceptions

Any exceptions to the above must be approved by the Director of Medicine and Health Sciences.

CP6.8 For Further Information

When further information or clarification is required, you may contact the following:

ISSUE OWNER:
J. Ronald Condray, ESH Stewardship, A3NA
(314)694-8883

TECHNICAL CONTACT:
MBS PRODUCT STEWARDSHIP
Roger Weppelman, MBS-ESH, C2NC
(314)694-3469

CP6.9 Procedure Approval

The content of this procedure was approved by the Environmental Policy Committee on December 4, 1994. It was reformatted (only) on March 15, 1996.

DSW 108382

STLCOPCB4023057

CROSS REFERENCE:
Pledge Manual and Responsible Care®

Pledge Manual	Responsible Care Codes
• Pollution Prevention	• Pollution Prevention, Practices 1 through 11, except Nos. 4 and 8
• Employee and Community Safety and Health	• Process Safety • Employee Safety and Health • Community Awareness and Emergency Response
• Process Safety and Emergency Response	• Process Safety • Community Awareness and Emergency Response
• Product Stewardship	• Product Stewardship
• Chemical Distribution	• Distribution
• Groundwater and Soil Quality	• Pollution Prevention, Practices 13 and 14 • Pollution Prevention, Practice 12
• Outside Processors	• Pollution Prevention, Practice 12
• Community Awareness at Manufacturing Sites	• Community Awareness and Emeregency Response, Practices A1 thru A9 • Pollution Prevention, Practices 4 and 8

DSW 108383



Responsible Care:®
A Public Commitment

GUIDING PRINCIPLES

Member companies of the Chemical Manufacturers Association are committed to support a continuing effort to improve the industry's responsible management of chemicals. They pledge to manage their businesses according to these principles:

- To recognize and respond to community concerns about chemicals and our operations.
- To develop and produce chemicals that can be manufactured, transported, used, and disposed of safely.
- To make health, safety and environment considerations a priority in our planning for all existing and new products and processes.
- To report promptly to officials, employees, customers and the public, information on chemical-related health or environmental hazards and to recommend protective measures.
- To counsel customers on the safe use, transportation and disposal of chemical products.
- To operate our plants and facilities in a manner that protects the environment and the health and safety of our employees and the public.
- To extend knowledge by conducting or supporting research on the health, safety and environmental effects of our products, processes and waste materials.
- To work with others to resolve problems created by past handling and disposal of hazardous substances.
- To participate with government and others in creating responsible laws, regulations and standards to safeguard the community, workplace and environment.
- To promote the principles and practices of Responsible Care® by sharing experiences and offering assistance to others who produce, handle, use, transport or dispose of chemicals.

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STLCOPCB4023059

Responsible Care:®
A Public Commitment

SUMMARY DESCRIPTION

RESPONSIBLE CARE® PROGRAM ELEMENTS

The statement of **Guiding Principles** for Responsible Care® is a commitment by each member company to fully support a continuous effort to improve the industry's responsible management of chemicals. Each member company has pledged to operate according to the Guiding Principles and has signed to that effect. The signed statement is considered an obligation of membership in the Chemical Manufacturers' Association (CMA). The Guiding Principles are based on CMA's 1983 policy statement on health, safety and the environment and on the Canadian Responsible Care® principles. They also incorporate guidance received from member company executive contacts.

Following association adoption of the Guiding Principles, various CMA committees began developing **Codes of Management Practices** in January 1989. Each Code of Management Practices addresses several public concerns. Impetus for developing a specific Code comes from either a substantial public concern(s) identified by the Public Advisory Panel or the industry, a substantive need to take voluntary action, or both. Codes in development address community awareness and emergency response, distribution, pollution prevention, process safety, employee health and safety, and product stewardship. The Codes of Management Practices identify expected management practices as objectives rather than prescribing absolute or quantitative standards. Since the Codes are intended to serve as objectives, they complement existing member company programs or practices that achieve the same goals. Responsible Care®, therefore, becomes an integral part of existing company programs and will cause each company to stretch to continually improve performance.

Another important element in the Responsible Care® initiative is the **Public Advisory Panel** which is composed of a group of environmental, health and safety thought leaders. The panel is an industry (CMA) effort, not a company responsibility. It was assembled and is moderated by an experienced facilitator working at the association's direction. It serves to assist the industry in identifying and developing programs and actions that are responsive, and are viewed as responsive, to public concerns. Meeting several times a year, the panel reviews issues on which CMA requires comment and advice. Panel members also identify areas they believe require industry response, critique all proposed Codes of Management Practices and provide early definition of public concerns involving the chemical industry. Community Advisory Panels at the local or regional level can serve companies and the industry in a similar manner. CMA has developed guidance to facilitate companies formation and operation of local panels.

Effective performance evaluation is a critical element of Responsible Care®. Therefore each Code of Management Practices includes a **Self-Evaluation Form** that measures a company's improved use of the management practices that the Code defines. Member companies will conduct self-evaluations for each Code annually. CMA will compile the results and periodically report industry's collective implementation progress to the public.

To document progress in ways that are meaningful to the public, CMA also will monitor statistical trend data, where available, on industry performance. For example, Superfund Section 313 emissions reporting and Department of Transportation hazardous materials incident statistics will be a component of public reporting for the Pollution Prevention Code and the Distribution Code.

Due to their varying size and operations, member companies will not be expected to be at the same level of performance for each Code of Management Practices at the same time. However, it is expected that each member company report continued progress.

To facilitate and support each member company's continual improvement in the responsible management of chemicals, **Executive Leadership Groups** (ELGs) have formed. ELGs provide an opportunity for corporate leaders to discuss progress and share experiences with implementing elements of Responsible Care®. These regional groups of ten to twenty executive contracts will meet at least once a year to review Codes of Management Practices under development, discuss members' progress with implementing existing Codes, identify areas where individual companies need assistance from CMA or other companies, and to address other priority industry issues.

Endorsement of the Responsible Care® initiative is an **Obligation of Membership** in the association. A member company's obligation to Responsible Care® applies to all of its chemical business. Each member company is expected to make a commitment to Responsible Care® by:

a) signing the Guiding Principles of Responsible Care®;

b) communicating the commitment to Responsible Care® to employees;

c) making good-faith efforts to implement the Codes of Management Practices, participate in the self-evaluation process, and meet the expectations of the Responsible Care® initiative; and

d) using the Responsible Care® name and logo according to CMA's guidelines.

Member companies are also expected to participate in the development of the Codes and programs.

In an extreme case, where a member company has consistently not conducted its operations in accordance with the Guiding Principles and program elements of Responsible Care®, association representatives will meet with the member company's executive contact to seek the company's positive involvement in the program. If this fails to produce a commitment to pursue the objectives of Responsible Care®, appropriate actions will be taken including the disassociation of the company from membership.

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DSW 108387

Responsible Care:® A Public Commitment

QUESTIONS AND ANSWERS
ABOUT RESPONSIBLE CARE®

Q Who had the idea for the Responsible Care® initiative?

A. Executives of the Canadian Chemical Producers Association (CCPA) began developing the concept in 1984. Executives of Chemical Manufacturers Association (CMA) member companies that have Canadian operations brought Responsible Care® to CMA's attention. CMA considered a variety of options and adopted the performance-based Responsible Care® initiative in 1988.

Q How is Responsible Care® different from what the chemical industry has been doing?

A. Many chemical companies have programs that are designed to improve performance. However, Responsible Care® is a broad chemical industry commitment to improve performance through a process that ensures responsiveness to the public's concerns. Two aspects make Responsible Care® unique. First, bylaws obligate CMA member companies, representing 90% of basic industrial production capacity in the United States, to participate in the initiative. And second, through a Public Advisory Panel, the public is directly involved in developing program elements.

Current CMA programs such as Community Awareness and Emergency Response (CAER), Air Quality, Waste Minimization, and National Chemical Response and Information Center (NCRIC) are vital parts of the initiative. Through Responsible Care®'s self-evaluation process and Public Advisory Panel, CMA will identify areas where additional resources need to be developed to help member companies achieve the goals of the initiative. Responsible Care® also encourages member companies to help each other improve performance by sharing experiences and resources in specific areas of chemical operations.

Q Why does the chemical industry need to do anything?

A. Because in spite of past efforts there still are too many incidents involving chemical operations. Politicians and government regulators will respond to the public's concerns about chemicals and our industry if the chemical industry does not respond first. Therefore, it is important for the industry to take continuing positive action to address public concerns.

Q Isn't there some other way? The chemical industry is already doing a lot; can't it just communicate this?

A. The CMA membership concluded that the chemical industry doesn't just have a public relations problem, it has a performance problem. The chemical industry has to respond effectively to public concerns through improved performance. It is clear that the public's expectations are not being met on a performance basis. Until the chemical industry truly understands public concerns and addresses them for a performance standpoint, CMA member companies can't possibly improve the public perception of their industry.

Q Who prepared the Guiding Principles and what are they based on?

A. The guiding Principles are based on CMA's 1983 board-approved policy on "Health, Safety and the Environment" and the Canadian Responsible Care® principles. They are consistent with both. They were prepared by representatives of CMA member companies and approved by the CMA Board of Directors.

Q Why does CMA's Board think Responsible Care® will work?

A. Since Responsible Care® is based on concepts proven in both the Canadian experience and CMA's voluntary programs such as CAER, the CMA membership has confidence that it can achieve improved industry performance. Most important, by signing the Guiding Principles, CMA member companies have demonstrated their commitment to make Responsible Care® work.

Q How much will Responsible Care® cost CMA member companies to implement?

A. Significant resources are needed from member companies, both in terms of the "sweat equity" of participants in the development and support of the program, and in the people and dollars necessary to make the initiative "live" in each company.

These costs have not been quantified because they will be different for each company. However, overall industry costs for Responsible Care® implementation will undoubtedly add to the billions of dollars already being spent by industry to manage health, safety, and environmental issues.

Q Why should a commitment to Responsible Care® be an obligation of membership?

A. Public concerns about chemicals and the industry are the result of collective experience with the entire industry. If the chemical industry is to respond to public concerns effectively, it must act as a total industry. Responsible Care® must be visibly working throughout the industry and, therefore, must be both a commitment and a membership obligation of every company in the association. It is critical to achieve the cultural change needed for the industry to improve performance in a responsive manner. The public must be convinced that the chemical industry is living up to its commitment.

Q Why have a Public Advisory Panel?

A. Responding to public concerns is what Responsible Care® is all about. Therefore, a key component of the initiative is the Public Advisory Panel. The panel helps the industry identify and develop programs and actions that are responsive to public concerns about specific performance problems.

CMA has also developed a guidebook for companies which wish to establish community advisory panels at operating locations.

Q Who is on the Public Advisory Panel? Who sets it up? Can panel members be replaced.

A. The Public Advisory Panel acts as a sounding board for public concerns and as a specially qualified focus group that directly impacts industry policies and programs under Responsible Care®. Meeting five times a year, panel members help CMA identify public concerns and suggest ways to respond to those concerns. Panel members also review proposed Codes of Management Practices and evaluate other features of the initiative. Each meeting is managed by an outside facilitator experienced with panel management. Industry representation is kept to a minimum to encourage an open exchange of views and ideas.

Currently, the panel is a 15-member group composed of individuals from both public and private sectors. To ensure that a wide range of public opinion is expressed, the composition of the panel is diverse. Occupations and interests of members range from business and local government officials to environmental, academic, and consumer activists, a farmer, and an expert in business ethics.

Panel members were selected by the facilitator. Panel membership will periodically change in response to panel members' availability and/or the changing needs of panel expertise. The facilitator will handle such changes.

Q Who will develop the Codes of Management Practices? Will the public have imput?

A. The development of Codes of Management Practices begins with the identification of public concerns by a number of sources, including the Public Advisory Panel and CMA's Board of Directors. CMA reviews these concerns and recommends priorities for Code development. If a public concern cuts across a range of company operations or activities, it may be addressed by more than one Code.

CMA member company experts develop each Code. Every member company has opportunities to comment on the Codes through open meetings and workshops. Public input to the codes is achieved through the Public Advisory Panel. All codes, once approved by CMA's Board of Directors, are made available to others. Use of the Responsible Care® service mark, however, must follow CMA's guidelines and can be used only with CMA approval.

Q Will Responsible Care® Codes of Management Practices become the basis for future legislation and regulation?

A. A very positive result of Responsible Care® should be for its meaningful and workable practices to be reflected in legislation or regulation that the public endorses through government action.

Q How will performance against the practice Codes be measured? Who does the measuring and how are the results reported?

A. Individual company management will evaluate their own performance against the Codes of Management Practices annually by filling out a self-evaluation form for each Code. Companies will feed this information back to CMA. Primary use of such feedback would be to direct the association's support work to areas of the greatest need and highest potential. Over the longer term, these aggregate reports should establish a record of improvement that will enable CMA to communicate industry's performance progress to the public.

Q What will CMA do to help companies address the Codes of Management Practices?

A. CMA will develop support programs to help companies implement the practices defined in the Codes. In general, programs and aids (videotapes, guide-books, educational meetings, etc.) will be similar to the support provided for Title III and CAER. A unique element of Responsible Care® is that member companies will help each other by sharing resources and methods they develop to implement the Codes of Management Practices.

Q Given the kind of data we are reporting under Title III, will the public accept the Responsible Care® initiative now?

A. Disclosures under Title III raise the level of public concern significantly in some cases. But their only effective response is to deal with the concerns through company and industry-wide improvements. This is the essence of Responsible Care®. The experience in Canada and in the United States suggests it can work.

Q Will chemical companies apply the initiative outside the United States?

A. CMA represents North American manufacturers and can best assist its members in implementing Responsible Care® here. However, the initiative is already international in scope. CMA learned from a two-year old Canadian effort. Other countries that have officially adopted Responsible Care® initiatives include Australia, New Zealand, England, Germany, The Netherlands, and France.

CMA's experience with CAER suggests that good initiatives spread rapidly. The United Nations, with U.S. chemical industry assistance, has already developed an international emergency response program modeled on CAER.

CMA has shared Responsible Care® materials with counterpart organizations in Europe, Japan, Australia, and Taiwan.

DSW 108389

STLCOPCB4023064



Responsible Care®: A Public Commitment

COMMUNITY AWARENESS AND EMERGENCY RESPONSE CODE OF MANAGEMENT PRACTICES

Purpose:

The goal of the Community Awareness and Emergency Response (CAER) Code of Management Practices is to assure emergency preparedness and to foster community right-to-know. It demands a commitment to openness and community dialogue. The code has two major components: first, to assure that member facilities that manufacture, process, use, distribute or store hazardous materials initiate and maintain a community outreach program to openly communicate relevant, useful information responsive to the public's questions and concerns about safety, health, and the environment; and second, to help protect employees and communities by assuring that each facility has an emergency response program to respond rapidly and effectively to emergencies.

The community outreach component will communicate program activities and performance under all codes of management practices and will promote an open, ongoing dialogue with employees and the community. Information should be provided about such activities as waste minimization, emission reduction, health effects of chemicals, and efforts to ensure the safe transport of chemicals.

The CAER Code of Management Practices is supported by, and will build on, CMA's CAER process. CAER supports the community's right to know about chemical industry operations and their effect on safety, health, and the environment. CAER originally was a voluntary initiative focused on emergency response issues. The new CAER Code of Management Practices broadens the facility-community dialogue to cover the full range of safety, health and environmental issues.

Relationship to Guiding Principles:

The Code helps achieve several of the Responsible Care® Guiding Principles:

- To recognize and respond to community concerns about chemicals and our operations.
- To report promptly to officials, employees, customers, and the public, information on chemical-related health or environmental hazards and recommend protective measures.
- To participate with government and others in creating responsible laws, regulations, and standards to safeguard the community, workplace and environment.
- To promote the principles and practices of Responsible Care® by sharing experiences and offering assistance to others who produce, handle, use, transport, or dispose of chemicals.

Management Practices:

A. Community Awareness and Outreach

Member facilities that manufacture, process, use, distribute or store hazardous materials shall have a community outreach program that includes:

For Employees:

1. An ongoing assessment of employee questions and concerns about the facility.

2. Communications training for key facility and company personnel who communicate with employees and the public concerning safety, health, and environmental issues.

3. Education of employees about the facility's emergency response plan and safety, health, and environmental programs.

4. An ongoing dialogue with employees to respond to their questions and concerns and involve them in community outreach efforts.

5. A regular evaluation of the effectiveness of the ongoing employee communications efforts.

For Community:

6. An ongoing assessment of community questions and concerns about the facility.

7. An outreach program to educate responders, government officials, the media, other businesses and the community about the facility's emergency response program and risks to the community associated with the facility.

8. A continuing dialogue with local citizens to respond to questions and concerns about safety, health, and the environment, and to address other issues of interest to the community.

9. A policy of openness that provides convenient ways for interested persons to become familiar with the facility, its operations, and products, and its efforts to protect safety, health, and the environment.

10. A regular evaluation of the effectiveness of the ongoing community communications efforts.

B. Emergency Response and Preparedness

Member facilities that manufacture, process, use, distribute or store hazardous materials shall have an emergency response program that includes:

1. An ongoing assessment of potential risks to employees and local communities resulting from accidents or other emergencies.

2. A current, written facility emergency response plan which address, among other things, communications and the recovery needs of the community after an emergency.

3. An ongoing training program for those employees who have response or communications responsibilities in the event of an emergency.

4. Emergency exercises, at least annually, to test operability of the written emergency response plan.

5. Communication of relevant and useful emergency response planning information to the Local Emergency Planning Committee.

6. Facility tours for emergency responders to promote emergency preparedness and to provide current knowledge of facility operations.

7. Coordination of the written facility emergency response plan with the comprehensive community emergency response plan and other facilities. If no plan exists, the facility should initiate community efforts to create a plan.

8. Participation in the community emergency response planning process to develop and periodically test the comprehensive community emergency response plan developed by the Local Emergency Planning Committee.

9. Sharing of information and experience relating to emergency response planning, exercises, and the handling of incidents with other facilities in the community.

MEMBER SELF-EVALUATION

Each member company shall report annually to CMA, or its designated agent, the stage of implementation of each Management Practice in this Code. The reports shall be on the member self-evaluation form attached as Exhibit A.

DSW 108393

STLCOPCB4023068

Responsible Care®:
A Public Commitment

SAMPLE

CHEMICAL MANUFACTURERS ASSOCIATION

MEMBER SELF-EVALUATION FORM

COMMUNITY AWARENESS AND EMERGENCY RESPONSE CODE OF MANAGEMENT PRACTICES

Member Company

Name:_____

Responsible Care® Coordinator

Name:_____

Address:_____

_____

_____

Telephone ( )_____

Number of facilities subject to code_____

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COMMUNITY AWARENESS AND EMERGENCY RESPONSE CODE OF MANAGEMENT PRACTICES

SAMPLE

Instructions:

1. Under the Responsible Care® Initiative, each member company will submit a Self-Evaluation form annually to CMA. To establish the industry baseline, each member company should complete this Self-Evaluation form,

2. Indicate on the cover page the number of member company facilities subject to the Code. Each company must report the implementation category for all facilities subject to the Code on this form.

3. For each Management Practice on the following four pages, indicate the number of facilities that have attained each implementation category. Each facility should appear in only one milestone category per Management Practice. The total number of facilities subject to the Code should equal the number of facilities across all six implementation categories for each Management Practice.

4. Only subject facilities owned or operated as of the reporting date should be included.

5. The implementation categories are:

Category NA -	No action. If no action taken because the management practice is not applicable, please explain.
Category EV -	Evaluating existing company practices against the Management Practice.
Category DP -	Developing plan to implement Management Practice.
Category IA -	Implementing action plan
Category PP -	Management Practice in place.
Category RI -	Reassessing Management Practice implementation.

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Management Practices	Categories					
Community Awareness	**NA**	**EV**	**DP**	**IA**	**PP**	**RI**
1. An ongoing assessment of employee concerns and questions about the facility. Comments on Category NA:_____			SAMPLE			
2. Communications training for key facility and company personnel who will communicate with employees and the public concerning safety, health and environmental issues. Comments on Category NA:_____						
3. Education of employees about the facility's emergency response plan and safety, health, and environmental programs. Comments on Category NA:_____						
4. An ongoing dialogue with employees to respond to their questions and concerns and to involve them in community outreach efforts. Comments on Category NA:_____						
5. A regular evaluation of the effectiveness of the ongoing employee communications efforts. Comments on Category NA:_____						

Category NA - **No action. If no action taken because the management practice is not applicable, please explain.**
Category EV - **Evaluating existing company practices against the Management Practice.**
Category DP - **Developing plan to implement Management Practice.**
Category IA - **Implementing action plan**
Category PP - **Management Practice in place.**
Category RI - **Reassessing Management Practice implementation.**

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	Categories					
	NA	EV	DP	IA	PP	RI
6. An ongoing assessment of community questions and concerns about the facility. Comments on Category NA:_____						
7. An outreach program to educate responders, government officials, the media, other business, and the community about the facility's emergency response program and risks to the community associated with the facility. Comments on Category NA:_____						
8. A continuing dialogue with local citizens to respond to questions and concerns about safety, health, and the environment, and to address other issues of interest to the community. Comments on Category NA:_____						
9. A policy of openness that provides convenient ways for interested persons to become familiar with the facility, its operations, and products, and its efforts to protect safety, health, and the environment. Comments on Category NA:_____						
10. A regular evaluation of the effectiveness of the ongoing community communications efforts.. Comments on Category NA:_____						

SAMPLE

Category NA - **No action. If no action taken because the management practice is not applicable, please explain.**
Category EV - **Evaluating existing company practices against the Management Practice.**
Category DP - **Developing plan to implement Management Practice.**
Category IA - **Implementing action plan**
Category PP - **Management Practice in place.**
Category RI - **Reassessing Management Practice implementation.**

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Emergency Response	Categories NA	EV	DP	IA	PP	RI
1. An ongoing assessment of potential risks to employees and local communities resulting from accidents or other emergencies. Comments on Category NA:_____						
2. A current, written facility emergency response plan which address, among other things, communications and the recovery needs of the community after an emergency. Comments on Category NA:_____						
3. An ongoing training program for those employees who have response or communications responsibilities in the event of an emergency. Comments on Category NA:_____						
4. Emergency exercises, at least annually, to test operability of the written emergency response plan.. Comments on Category NA:_____						
5. Communication of relevant and useful emergency planning information to the Local Emergency Planning Committee. Comments on Category NA:_____						

SAMPLE

Category NA - **No action. If no action taken because the management practice is not applicable, please explain.**
Category EV - **Evaluating existing company practices against the Management Practice.**
Category DP - **Developing plan to implement Management Practice.**
Category IA - **Implementing action plan**
Category PP - **Management Practice in place.**
Category RI - **Reassessing Management Practice implementation.**

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	Categories					
	NA	EV	DP	IA	PP	RI
6. Facility tours for emergency responders to promote emergency preparedness and to provide current knowledge of facility operations. Comments on Category NA:_____						
7. Coordination of the written facility emergency response plan with the comprehensive community emergency response plan and other facilities. If no plan exists, the facility should initiate community efforts to create a plan. Comments on Category NA:_____						
8. Participation in the community emergency response planning process to develop and periodically test the comprehensive community emergency response plan developed by the Local Emergency Planning Committee. Comments on Category NA:_____						
9. Sharing of information and experience related to emergency response planning, exercises, and the handling of incidents with other facilities in the community. Comments on Category NA:_____						
Notes: Please identify any specific problems and/or resources.						

SAMPLE

Category NA - **No action. If no action taken because the management practice is not applicable, please explain.**
Category EV - **Evaluating existing company practices against the Management Practice.**
Category DP - **Developing plan to implement Management Practice.**
Category IA - **Implementing action plan**
Category PP - **Management Practice in place.**
Category RI - **Reassessing Management Practice implementation.**

DSW 108399

STLCOPCB4023074



Responsible Care:®
A Public Commitment

DISTRIBUTION
CODE OF MANAGEMENT PRACTICES

Purpose

The purpose of the Distribution Code of Management Practices is to reduce the risk of harm posed by the distribution of chemicals to the general public; to carrier, distributor, contractor and chemical industry employees; and to the environment. Adherence to the code will lead to continually safer chemical distribution and help member companies to:

- ❑ evaluate the risks associated with chemical distribution and methods to reduce those risks;
- ❑ meet or exceed all regulations and industry standards governing chemical distribution;
- ❑ provide emergency advice and/or assistance to people on the scene in the event of a chemical distribution emergency;
- ❑ develop new technologies and methods to improve chemical distribution safety.

The code will also promote improvements in:

- ❑ employee preparedness and awareness in preventing distribution emergencies;
- ❑ the safety performance of carriers and other providers of distribution services;
- ❑ the public's preparedness in responding to chemical distribution emergencies;

DSW 108400

- the public's understanding of, and confidence in, industry efforts to improve chemical distribution safety.

The Distribution Code of Management Practices applies to all modes of transportation (highway, rail, marine, air and pipeline) and to the shipment of all chemicals, including chemical waste. The code also applies to distribution activities (storage, handling, transfer and repackaging) while chemicals are in transit between member companies and their suppliers and customers. The implementation of a number of practices of the code will vary according to the characteristics of the chemical being distributed, the mode of transportation and the type of distribution activity involved.

Relationship to Responsible Care Guiding Principles

This code helps achieve several Responsible Care Guiding Principles:

- to recognize and respond to community concerns about chemicals and our operations;
- to make health, safety and environmental considerations a priority in our planning for all existing and new products and processes;
- to counsel customers on the safe use, transportation, and disposal of chemicals;
- to operate our plants and facilities in a manner that protects the environment and the health and safety of our employees and the public;
- to participate with government and others in creating responsible laws, regulations and standards to safeguard the community, workplace and environment; and
- to promote the principles and practices of Responsible Care by sharing experiences and offering assistance to others who produce, handle, use, transport or dispose of chemicals.

Management Practices

Each member company shall have an ongoing chemical distribution safety program that includes senior management commitment through policy, communications and resources to improvements in chemical distribution safety. The program should include the following elements:

1. Risk Management

   1.1 Regular evaluations of chemical distribution risks which consider the hazards of the material, the likelihood of accidents/incidents and the potential for human and environmental exposure from release of the material over the route of transport.

   1.2 Implementation of chemical distribution risk reduction measures that are appropriate to the risk level.

1.3 Internal reporting and investigation of chemical distribution accidents/incidents, and implementation of preventive measures.

2. Compliance Review and Training

2.1 A process for monitoring changes and interpretations of new and existing regulations and industry standards for their applicability to the company's chemical distribution activities, and for implementing those regulations and standards.

2.2 Training for all affected company employees in the proper implementation of applicable regulations and company requirements.

2.3 A program for providing guidance and information to carriers, distributors and contractors who perform distribution activities for the company on the company's training and compliance requirements for the activities.

2.4 Regular reviews of company employee, carrier, distributor and contractor compliance with applicable regulations and company requirements.

3. Carrier Safety

3.1 A process for qualifying carriers of all modes and types (common, contract, private and customer controlled) that transport chemicals to and from company facilities that emphasizes carrier safety fitness and regulatory compliance, and includes regular reviews of their performance and compliance.

3.2 Feedback to carriers on their safety performance and suggestions for improvement.

4. Handling and Storage

4.1 Documented procedures for the selection and use of containers that are appropriate for the chemical being shipped, in compliance with testing and certification requirements, and free of leaks and visible defects.

4.2 Documented procedures for loading chemicals at company facilities that will reduce emissions to the environment, protect personnel and provide securement of the lading during transit.

4.3 Documented procedures for unloading chemicals at the company's facilities that will reduce emissions to the environment, protect personnel, and provide for safe unloading into proper storage facilities.

4.4 Defined criteria for the cleaning and return of tank cars, tank trucks, marine vessels, and returnable/refillable bulk and semi-bulk containers, and for the proper disposal of cleaning residues.

4.5 A program for providing guidance and information to customers, distributors, and other receivers on proper procedures for unloading and storing the company's chemicals.

4.6 A process for selecting distributors and other facilities that store or handle the company's chemicals in transit that emphasizes safety fitness and regulatory compliance and includes regular reviews of their performance and compliance.

4.7 Feedback to distributors and operators of other facilities that store or handle chemicals in transit on their safety performance and suggestions for improvement.

5. Emergency Preparedness

5.1 A process for responding to chemical distribution accident/incidents involving the company's chemicals.

5.2 Documented procedures for making information about the company's chemicals in distribution available to response agencies.

5.3 A program for making facilities and/or training materials available to emergency response agencies.

5.4 Dialogue with state and local emergency planning organizations on the distribution and hazards of the company's chemicals to improve community preparedness to respond to chemical distribution emergencies.

5.5 Dialogue with the public on their concerns about chemical distribution safety, actions taken by the industry and the company to improve the safety of chemical distribution, and the effectiveness of emergency preparedness and emergency response assistance.

Member Self Evaluation

Member companies shall report annually the stage of implementation of each management practice in this code to an agent designated by the Chemical Manufacturers Association.

Relationship to Other Codes of Management Practice

This Code complements, and should be implemented in conjunction with, current and future Codes of Management Practices.

DSW 108403

STLCOPCB4023078

SAMPLE



Responsible Care:®
A Public Commitment

CHEMICAL MANUFACTURERS ASSOCIATION

MEMBER SELF-EVALUATION FORM

DISTRIBUTION CODE OF MANAGEMENT PRACTICES

Member Company

Name: _____

Responsible Care Coordinator

Name: _____

Address: _____

_____

_____

Telephone ( ) _____

DSW 108404

STLCOPCB4023079

SAMPLE

Member Self-Evaluation
Distribution Code of Management Practices

1. Under the Responsible Care initiative, each member company must submit a Self-Evaluation Form annually to CMA or its designated representative. The annual self-reporting has three purposes:

   - to establish an industry baseline from which to demonstrate continual progress in implementation of the Code.
   - to assist individual member companies in establishing a base line from which to set priorities for future development; and
   - to assist the industry (CMA) in designing programs to assist the member companies in achieving the goals of the Responsible Care initiative.

2. **TO ESTABLISH THE INDUSTRY BASELINE, EACH MEMBER COMPANY SHOULD COMPLETE THIS SELF-EVALUATION FORM AND SEND IT BY C.O.B., MAY 23, 1991**

3. The Distribution Code is unique in the sense that it deals with both products and facilities, but more importantly it deals with a broad range of third party providers of services and many external organizations and communities. This is considerably different than the CAER, WARR and Process Safety Codes, which deal primarily with fixed facilities and, as a result, have a more common base for self-evaluation. In contrast, different self-evaluation bases for each element of the Distribution Code will likely be more helpful and appropriate.

4. Self-evaluations for the Distribution Code should be expressed as percentages since the different bases for Code elements may not always be countable units. Therefore, the evaluation of each of the 21 separate elements of the Distribution Code of Management Practices should show what percentage of the company's distribution process is at each of the six implementation stages. For example, for a specific Code element, a company could report that 10% of their distribution process is at stage I, 50% at stage II, 30% at stage III, 10% at stage IV and 0% at stages V and VI. Judgment will be required on how to develop these percentages, both in terms of what base to use for the calculation, and how to reflect centralized and/or decentralized distribution activities. Most importantly, each company will need to establish a methodology that will remain constant over the years in order to measure annual progress. The suggestions under Item 4 below are meant to assist you in developing your self-evaluation methodology.

5. The following bases for evaluation can be applied to a number of specific code elements:

   - Corporate programs, such as a corporate emergency response process, may be viewed as applying across the company for purposes of completing the Self-Evaluation Form. The percentage implementation would result from judgment of

STLCOPCB4023081

SAMPLE

the existence and implementation of that process, or progress upon your own implementation action plan.

- ❑ Alternatively, decentralized programs, such as site or division specific emergency response processes, should be judged as separate processes. A large multi-division company may have multiple emergency response processes to consider in establishing a percentage of implementation.

- ❑ Risk management activities are often undertaken on a product specific basis. Each company deals with a very large number of products which are hazardous or non-hazardous, and must select a basis from which to evaluate and report future progress in implementing the Code. Judgment is required to make sure that a large number of non-hazardous products which the company produces or distributes do not distort the evaluation. They should also not decrease the validity of the base for future evaluations.

- ❑ Carrier safety reviews should be based on the number of carriers that fall under the code. Judgment must also be used where data is not readily available on all carriers. The time spent on determining this basis will provide good information for progressing toward full implementation.

- ❑ The number of third party providers of services to your company can serve as the basis for determining percentages of implementation in each stage.

- ❑ Customer related elements should be evaluated on the basis of the number of customers, the hazardous nature of the products, and/or by the company divisional or business unit programs.

- ❑ There are some elements, such as loading and unloading procedures, that are site specific and should be evaluated on that basis.

6. It is recognized that self-evaluation methodologies will vary from company to company. Because of this, flexibility has been built into the evaluation process. The basis for evaluating a company's distribution process should be established, documented and applied consistently for each annual self-evaluation exercise.

7. The six implementation stages are:

Stage I - No action
Stage II - Evaluating company practices against Code practices
Stage III - Developing action plan to implement Code practice
Stage IV - Implementing action plan
Stage V - Code management practice in place
Stage VI - Implementation reviewed and reaffirmed this year

DSW 108408

STLCOPCB4023083

Risk Management Practices	I	II	III	IV	V	VI
1.1 Regular evaluations of chemical distribution risks which consider the hazards of the material, the likelihood of accidents/incidents and the potential for human and environmental exposure from release of the material over the route of transport.						
1.2 Implementation of chemical distribution risk reduction measures that are appropriate to the risk level.						
1.3 Internal reporting and investigation of chemical distribution accidents/incidents, and implementation of preventive measures.						
Compliance Review and Training 2.1 A process for monitoring changes and interpretations of new and existing regulations and industry standards for their applicability to the company's chemical distribution activities, and for implementing those regulations and standards.						
2.2 Training for all affected company employees in the proper implementation of applicable regulations and company requirements.						
2.3 A program for providing guidance and information to carriers, distributors and contractors who perform distribution activities for the company on the company's training and compliance requirements for the activities.						
2.4 Regular reviews of company employee, carrier, distributor and contractor compliance with applicable regulations and company requirements.						

SAMPLE

Carrier Safety	I		III	IV	V	VI
3.1 A process for qualifying carriers of all modes and types (common, contract, private and customer controlled) that transport chemicals to and from company facilities that emphasizes carrier safety fitness and regulatory compliance, and includes regular reviews of their performance and compliance.						
3.2 Feedback to carriers on their safety performance and suggestions for improvement.						
Handling and Storage						
4.1 Documented procedures for the selection and use of containers that are appropriate for the chemical being shipped, in compliance with testing and certification requirements, and free of leaks and visible defects.						
4.2 Documented procedures for loading chemicals at company facilities that will reduce emissions to the environment, protect personnel and provide securement of the lading during transit.						
4.3 Documented procedures for unloading chemicals at company facilities that will reduce emissions to the environment, protect personnel, and provide for safe unloading into proper storage facilities.						
4.4 Defined criteria for the cleaning and return of tank cars, tank trucks, marine vessels, and returnable/refillable bulk and semi-bulk containers, and for the proper disposal of cleaning residues.						
4.5 A program for providing guidance and information to customers, distributors, and other receivers on proper						

SAMPLE

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SAMPLE

Handling and Storage	I	II	III	IV	V	VI
procedures for unloading and storing the company's chemicals.						
4.6 A process for selecting distributors and other facilities that store or handle the company's chemicals in transit that emphasizes safety fitness and regulatory compliance, and includes regular reviews of their performance and compliance.						
4.7 Feedback to distributors and operators of other facilities that store or handle chemicals in transit on their safety performance and suggestions for improvement.						
Emergency Preparedness						
5.1 A process for responding to chemical distribution accidents/incidents involving the company's chemicals.						
5.2 Documented procedures for making information about the company's chemicals in distribution available to response agencies.						
5.3 A program for making facilities and/or training materials available to emergency response agencies.						
5.4 Dialogue with state and local emergency planning organizations on the distribution and hazards of the company's chemicals to improve community preparedness to respond to chemical distribution emergencies.						
5.5 Dialogue with the public on their concerns about chemical distribution safety, actions taken by the industry and the company to improve the safety of chemical distribution, and the effectiveness of emergency preparedness and emergency response assistance.						

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STLCOPCB4023086

Distribution Code of Practices

Questions and Answers

SAMPLE

1. What is the distinction between a distribution emergency and a distribution accident/ incident?

Answer:

An accident/incident is a definite and distinct occurrence of an undesirable event. It may involve an accident (traffic, derailment, collision, mishandling) or near miss, or be a result of a non-accidental container or operational failure. The undesirable effect can range from a small release of product (but major media coverage) to a major release with subsequent loss of property or personal injury.

An emergency is simply an accident/incident that requires immediate action.

In the context of the code, we distinguish between the two because we have direct control or influence over the causes of accidents and incidents. Many circumstances that dictate the emergency nature of the situation are most often outside of our sphere of control and influence.

2. The words process, program, documented procedures and defined criteria are used throughout the code. What do they mean?

Answer:

A program is meant to mean an organized list of processes and procedures. In developing a comprehensive distribution safety program the management practices of Responsible Care should be included in the list of processes and procedures. In a hierarchy of terms, a program lies below a policy (a general statement of commitment or philosophy) and somewhere above a process or procedure. A program must address management needs, as expressed by policy, and contain feedback and measurement steps to determine if the needs are being met.

A process is a series of related activities or actions that will lead to the desired end result. In the context of the code we have used process when it is clear the process can take many different forms, yet still provide the desired results.

Documented procedures are specific instructions or steps required to complete a task successfully. They may be written procedures or videotaped procedures, for example, that are to be explicitly followed and are not left open to interpretation. They are the most detailed step in the heirarchy, below policies, programs and processes.

Defined criteria are the ground rules around which a process or a procedure must be developed. In the code, the term is used to provide criteria to a third party that would enable that party to develop a process or procedure to lead to the desired end.

3. Reference is made in the code to adherence to industry standards. What is meant by this?

Answer:

The term industry standards, means those agreements, developed and complied with voluntarily, by a wide range of co-producers, interindustry groups and trade associations. Many of these agreements, in time, result in regulations or rulemaking procedures. It may also apply to a company's own internal standards of operation or practice.

4. The term, regular reviews, is used when referring to carrier safety performance, contractor and distributor performance and regulatory compliance. What is meant by the term, regular review?

Answer:

Regular reviews is a term used to measure or test whether our expectations are being met. They are crucial for managing the whole distribution safety process. By regular, we allow room for periodic or random reviews and allow the company to determine its own frequency of review for each element of the code, where it is appropriate. Reviews can take many forms, ranging from on-site and detailed audits, to presentations of progress with charts and graphs. This also allows incorporation of many of the safety performance reviews into quality and service review initiatives.

5. The code refers to cleaning and return of returnable/refillable containers. What is meant by returnable/refillable?

Answer:

Returnable containers are those containers specifically designed for return to the company for reuse without reconditioning or reworking the container. Generally, this typically only applies to containers of 55 gallons and above. The EPA is developing regulations regarding refillable containers that would drop below 55 gallons. Tank trucks, tank cars and marine vessels may or may not normally return to the company. Often, they are cleaned and placed back in general service.

All of the containers listed above are examples of returnable/refillable containers. For the purpose of the Distribution Code we must define criteria aimed at developing proper cleaning and residue disposal of these containers. Non-refillable, non-returnable containers are not covered under this code.

6. What is meant by regular evaluations of chemical distribution risks?

Answer:

How often distribution risk studies should be conducted will depend significantly on the chemical involved and the dynamics of the distribution. Evaluations should be regular in the sense they become a normal and routine part of distribution activities and are conducted often enough to respond to technology changes and operating experience.

DSW 108413

STLCOPCB4023088

7. The code requires dialogue with state and local planning organizations and the general public. What do we mean by dialogue?

Answer:

Dialogue is simply two-way conversation. It implies that both parties listen and respond to each other in a constructive way. With state and local planning organizations, the dialogue will naturally focus on the more technical and factual aspects of chemical distribution. Dialogue with the public will involve more educational types of interchange for both parties.

April 6, 1990
Amended September 6, 1991

Responsible Care:®
A Public Commitment

POLLUTION PREVENTION
CODE OF MANAGEMENT PRACTICES

Purpose.

This Code is designed to achieve ongoing reductions in the amount of all contaminants and pollutants released to the air, water, and land from member company facilities. These reductions are intended to respond to public concerns with the existence of such releases, and to further increase the margin of safety for public health and the environment.

The Code is also designed to achieve ongoing reductions in the amount of wastes generated at facilities. These reductions are intended to help relieve the burden on industry and society of managing such wastes in future years.

In implementing the Code, each company should strive for annual reductions, recognizing that production rates, new operations, and other factors may result in increases. Despite these fluctuations, however, the goal is to establish a long-term, substantial downward trend in the amount of wastes generated and contaminants and pollutants released. Quantitative reduction goals will be established for giving priority to those pollutants, contaminants and wastes of highest health and environmental concern.

This code also includes practices that address the broader waste management issues beyond source reduction and other waste and release reduction efforts. Each member company must manage remaining wastes and releases in a manner that protects the environment and the health and safety of employees and the public.

This Code complements, and should be implemented in conjunction with current and future Codes of Management Practices. Key terms are defined in the Glossary, which should be consulted for assistance in interpreting the provisions of this Code.

DSW 108416

STLCOPCB4023090

Relationship to Guiding Principles

Implementation of this Code helps achieve the following Guiding Principles:

- To recognize and respond to community concerns about chemicals and our operations;
- To develop and produce chemicals that can be manufactured, transported, used and disposed of safely.
- To make health, safety, and environmental considerations a priority in our planning for all existing and new products and processes;
- To report promptly to officials, employees, customers and the public, information on chemical-related health or environmental hazards and to recommend protective measures.
- To operate our plants and facilities in a manner that protects the environment and the health and safety of our employees and the public;
- To extend knowledge by conducting or supporting research on the health, safety, and environmental effects of our products, processes, and waste materials.
- To promote the principles and practices of Responsible Care by sharing experiences and offering assistance to others who produce, handle, use, transport, or dispose of chemicals.
- To work with others to resolve problems created by past handling and disposal of hazardous substances.
- To participate with government and others in creating responsible laws, regulations and standards to safeguard the community, workplace and environment.
- To promote the principles and practices of Responsible Care by sharing experiences and offering assistance to others who produce, handle, use, transport or dispose of chemicals.

Management Practices.

Each member company shall have a pollution prevention program which shall include:

1. A clear commitment by senior management through policy, communications, and resources, to ongoing reductions at each of the company's facilities, in releases to the air, water, and land and in the generation of wastes.

2. A quantitative inventory at each facility of wastes generated and releases to the air, water, and land, measured or estimated at the point of generation or release.

3. Evaluation, sufficient to assist in establishing reduction priorities, of the potential impact of releases on the environment and the health and safety of employees and the public.

4. Education of, and dialogue with, employees and members of the public about the inventory, impact evaluation, and risks to the community.

5. Establishment of priorities, goals and plans for waste and release reduction, taking into account both community concerns and the potential health, safety, and environmental impacts as determined under Practices 3 and 4.

6. Ongoing reduction of wastes and releases, giving preference first to source reduction, second to recycle/reuse, and third to treatment. These techniques may be used separately or in combination with one another.

7. Measurement of progress at each facility in reducing the generation of wastes and in reducing releases to the air, water, and land, by updating the quantitative inventory at least annually.

8. Ongoing dialogue with employees and members of the public regarding waste and release information, progress in achieving reductions, and future plans. This dialogue should be at a personal, face-to-face level, where possible, and should emphasize listening to others and discussing their concerns and ideas.

9. Inclusion of waste and release prevention objectives in research and in design of new or modified facilities, processes, and products.

10. An ongoing program for promotion and support of waste and release reduction by others, which may, for example, include:

    a. Sharing of technical information and experience with customers and suppliers;

    b. Support of efforts to develop improved waste and release reduction techniques;

    c. Assisting in establishment of regional air monitoring networks;

    d. Participation in efforts to develop consensus approaches to the evaluation of environmental, health, and safety impacts of releases;

    e. Providing educational workshops and training materials;

    f. Assisting local governments and others in establishment of waste reduction programs benefitting the general public.

11. Periodic evaluation of waste management practices associated with operations and equipment at each member company facility, taking into account community concerns and health, safety, and environmental impacts and implementation of ongoing improvements.

12. Implementation of a process for selecting, retaining, and reviewing contractors and toll manufacturers taking into account sound waste management practices that protect the environment and the health and safety of employees and the public.

13. Implementation of engineering and operating controls at each member company facility to improve prevention of and early detection of releases that may contaminate groundwater.

14. Implementation of an ongoing program for addressing past operating and waste management practices and for working with others to resolve identified problems at each active or inactive facility owned by a member company taking into account community concerns and health, safety, and environmental impacts.

Industry Trend Data

To develop and maintain statistical industry trends, CMA will collect currently available data. Each company shall report annually to CMA, or its designated agent, for each facility:

- Releases of substances as reported under SARA Section 313; and
- Wastes generated, as defined and reported in CMA's annual waste survey.

Member Self-Evaluation.

Each member company shall report annually to CMA, or its designated agent, the stage of implementation of each management practice in this Code. The reports shall be on the member self-evaluation form attached as Attachment A.

Glossary of Terms

As used in this Code, key terms are defined as set forth below. Note that these definitions may be broader than regulatory definitions, and that adherence to this Code does not relieve a company of the obligation to meet Federal, state and local regulatory requirements.

Facility - A site used for chemical manufacturing, processing, refining, packaging, R&D, distribution or related commercial activity.

Recycle - A practice which regenerates or processes a material from a process to recover a useable product or material for reuse.

Release - Any emission, effluent, spill, discharge or disposal to the air, land, or water, of any pollutant or contaminant, whether routine or accidental, at or from a facility. The term does not include shipment or distribution of chemical product, nor release to the environment as part of normal and intended use of a product by the consumer.

Reuse - A practice that reemploys a material from a process either as an ingredient in a process to make a product, or as an effective substitute for a commercial product in a particular function or application.

Source Reduction - A practice that reduces the amount of any release or waste generated at the source, including closed loop recycle and reuse before exit from a process. The term includes, among other practices, equipment and technology modifications, process and procedures modifications, reformulation and redesign of products, substitution of raw materials, and improvements in housekeeping, maintenance, training and inventory control.

Treatment - A practice, other than recycle or reuse, that alters the physical, chemical, or biological characteristics or the volume of a waste through a process or activity separate from the production of a commercial product or the provision of a service.

Waste - Any gas, liquid, or solid residual material at a facility, whether hazardous or non hazardous, that is not used further in the production of a commercial product or provision of a service and which itself is not a commercial product.

DSW 108421

STLCOPCB4023095

POLLUTION PREVENTION CODE

REPORT 1: MEMBER SELF-EVALUATION FORM FOR THE 1991 REPORTING YEAR

SAMPLE

Instructions for the Company Responsible Care® Coordinator:

1. This form is to be submitted annually to CMA by each member company. This year the due date is XXX 31, 1992. Please submit directly to:

2. Indicate on page 1 the number of your member company's facilities that are subject to the Code. Each company's Responsible Care® Coordinator must report the implementation stage for all facilities subject to the Pollution Prevention Code on this form.

3. The Self Evaluation form for the 1991 reporting year covers fourteen management practices. **DO NOT COMPLETE THIS FORM.** [CMA will send the Self Evaluation Form for the 1991 reporting year in April/May 1992.]

4. For Management Practices 1-11 and 13 on the following pages, indicate the number of facilities that have attained each implementation category. Identify the current implementation category for each of your facilities at the time you complete the form. For managementpractices 12 & 14, indicate the company-wide reporting using a percentage (following instructions on page 5).

5. For the Industry Trend Data, show the total number of facilities in each appropriate box. The total number of facilities for each type of Trend Data should equal the total number of facilities subject to the Code.

6. Only subject facilities owned or operated as of the reporting date should be included.

7. The implementation categories are:

   Category NA - No action. If no action taken because the management practice is not applicable, please explain.
   Category EV - Evaluating existing company practices against the Management Practice.
   Category DP - Developing plan to implement Management Practice.
   Category IA - Implementing action plan
   Category PP - Management Practice in place.
   Category RI - Reassessing Management Practice implementation.

8. If any facilities are shown in Category NA, please add any pertinent remarks to the space marked "comments."

DSW 108422

STLCOPCB4023096

POLLUTION PREVENTION CODE OF MANAGEMENT PRACTICES

REPORT 1: MEMBER SELF-EVALUATION FORM FOR THE 1991 REPORTING YEAR

SAMPLE

Member Company

Name:_____

Responsible Care® Coordinator

Name:_____

Address:_____

_____

_____

_____

Telephone: (___) _____

Number of facilities subject to the Pollution Prevention Code_____

DSW 108423

STLCOPCB4023097

POLLUTION PREVENTION CODE

SAMPLE

Industry Trend Data

Report annually to CMA or its designated agent, the number of facilities for which annual report to CMA has or has not been submitted:

Member Company Name:_____

	Annual Report Submitted*		Annual Report Not Submitted*	Total Facilities
T-1. Release of substances as reported under SARA Section 313; and	Form R	Form NR		
T-2 Wastes generated, as defined and reported in CMA's annual waste survey.				

*Enter the number of facilities.

NOTES:

1. CMA expects to receive release data only from those facilities that are required to complete the Form R following the requirements in the Superfund Amendment and Reauthorization Act (SARA) Section 313 and EPA's clarifying regulations and instructions.

2. Instruction: Under Form R, enter the number of facilities that are submitting TRI data to CMA.

Line T-1:

- These facilities should submit the same data as EPA requires. The 313 Form R release data are due to EPA on July 1, 1992 and to CMA on July 31, 1992.

- Under Form NR, enter the number of facilities that are not subject to the EPA reporting requirements. These facilities should complete Form NR. Companies, not required to report 313 release data to EPA, may volunteer to send release data to CMA. These facilities are not required to submit TRI release data to CMA as an obligation of membership.

Line T-2:

- The 1991 Reporting year is the first year that facilities must complete CMA's annual Waste Survey as an obligation of membership under the Pollution Prevention Code.

DSW 108424

STLCOPCB4023098

POLLUTION PREVENTION CODE OF

MANAGEMENT PRACTICES

SAMPLE

Management Practices	Categories					
	NA	EV	DP	IA	PP	RE
1. A clear commitment by senior management through policy, communications, and resources, to ongoing reductions, at each of the company's facilities, in releases to the air, water, and land and in the generation of wastes. Comments on Category NA:_____						
2. A quantitative inventory at each facility of wastes generated and releases to the air, water and land, measured or estimated at the point of generation or release. Comments on Category NA:_____						
3. Evaluation, sufficient to assist in establishing reduction priorities, of the potential impact of releases on the environment and the health and safety of employees and the public. Comments on Category NA:_____						
4. Education of, and dialogue with, employees and members of the public about the inventory, impact evaluation, risks to the community. Comments on Category NA:_____						

Category NA - No action. If no action taken because the management practice is not applicable, please explain.
Category EV - Evaluating existing company practices against the Management Practices.
Category DP - Developing plan to implement Management Practices.
Category IA - Implementing action plan
Category PP - Management Practice in place.
Category RI - Reassessing Management Practice implementation.

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SAMPLE

	Categories					
	NA	EV	DP	IA	FP	RI
5. Establishment of priorities, goals and plans for waste and release reduction, taking into account both community concerns and the potential health, safety, and environmental impacts as determined under Practices 3 and 4. Comments on Category NA:_____ _____ _____						
6. Ongoing reduction of wastes and releases, giving preference first to source reduction, second to recycle/reuse, and third to treatment. These techniques may be used separately or in combination with one another. Comments on Category NA:_____ _____ _____						
7. Measurement of progress at each facility in reducing the generation of wastes and in reducing releases to the air, water, and land, by updating the quantitative inventory at least annually. Comments on Category NA:_____ _____ _____						
8. Ongoing dialogue with employees and members of the public regarding waste and release information, progress in achieving reductions and future plans. This dialogue should be at a personal, face-to-face level where possible, and should emphasize listening to others and discussing their concerns and ideas. Comments on Category NA:_____ _____ _____						

Category NA - **No action. If no action taken because the management practice is not applicable, please explain.**
Category EV - **Evaluating existing company practices against the Management Practice.**
Category DP - **Developing plan to implement Management Practice.**
Category IA - **Implementing action plan**
Category FP - **Management Practice in place.**
Category RI - **Reassessing Management Practice implementation.**

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	Categories					
	NA	EV	DP	IA	PP	RI
9. Inclusion of waste and release prevention objectives in research, and in design of new or modified facilities, processes, and products. Comments on Category NA:_____ _____ _____						
10. An ongoing program for promotion and support of waste and release reduction by others, which may, for example, include: a. Sharing of technical information and experience with customers and suppliers; b. Support of efforts to develop improved waste and release reduction techniques; c. Assisting in establishment of regional air monitoring networks. d. Participation in efforts to develop consensus approaches to the evaluation for environmental, health, and safety impacts of releases; e. Providing educational workshops and training materials; f. Assisting local governments and others in establishment of waste reduction programs benefitting the general public. Comments on Category NA:_____ _____ _____						
11. Periodic evaluation of waste management practices associated with operations and equipment at each member company facility, taking into account community concerns and health, safety, and environmental impacts and implementation of ongoing improvements. Comments on Category NA:_____ _____ _____						

SAMPLE

Category NA - No action. If no action taken because the management practice is not applicable, please explain.
Category EV - Evaluating existing company practices against the Management Practice.
Category DP - Developing plan to implement Management Practice.
Category IA - Implementing action plan
Category PP - Management Practice in place.
Category RI - Reassessing Management Practice implementation.

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	Categories					
	NA	EV	DP	IA	PP	RI
12. See Instructions below.						
13. Implementation of engineering and operating controls at each member company facility to improve prevention and early detection of releases that may contaminate groundwater. Comments on Category NA:_____ _____ _____						

SAMPLE

Instructions for Practices 12. Contractor Review, and 14. Past Sites:

CMA recognizes that companies may implement Practices 12 and 14 on a company-wide or even corporation-wide basis rather than on a facility basis. Therefore, CMA asks companies to complete the Self-Evaluation Form using percentages that represent company-wide implementation for these two practices. In adding up the total percentages across all of the six categories, the number must equal 100%. Also, please use only whole numbers. For these two management practices the number of facilities used to calculate the percentage may exceed the number of facilities shown on page 1.

Companies may use any appropriate method to calculate these percentages. One caution, companies will want to carefully consider how this calculation is performed and use it on a yearly basis so that the data from year to year can be compared meaningfully.

	Categories					
	NA	EV	DP	IA	PP	RI
12. Implementation of a process for selecting, retaining, and reviewing contractors and toll manufacturers taking into account sound waste management practices that protect the environment and the health and safety of employees and the public. Comments on Category NA:_____ _____ _____						
14. Implementation of an ongoing program for addressing past operating and waste management practices and for working with others to resolve identified problems at each active or inactive facility owned by a member company, taking into account community concerns and health, safety, and environmental impacts. Comments on Category NA:_____ _____ _____						

Category NA - No action. If no action taken because the management practice is not applicable, please explain.
Category EV - Evaluating existing company practices against the Management Practice.
Category DP - Developing plan to implement Management Practice.
Category IA - Implementing action plan
Category PP - Management Practice in place.
Category RI - Reassessing Management Practice implementation.

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ATTACHMENT C

WASTE AND RELEASE REDUCTION CODE OF MANAGEMENT PRACTICES QUESTIONS AND ANSWERS

SAMPLE

1. Is this a voluntary or mandatory policy?

   Answer: The Waste and Release Reduction Code of Management Practices has been developed under CMA's Responsible Care program. Adherence to the Responsible Care guiding principles is an obligation of membership in CMA.

2. Must the Management Practices be completed in the specific order listed?

   Answer: The Management Practices are laid out in a logically sequential pattern to complete a reduction project. The sequence should be generally adhered to although slight re-arrangement under specific circumstances may be warranted.

3. Since the scope of this policy covers all hazardous and non-hazardous wastes and releases, doesn't the Code require too much too fast or dilute the focus from hazardous pollutants?

   Answer: The public is not seeing or making a distinction between hazardous and non-hazardous releases and wastes. Public opinion research shows that the public wants releases lowered and performance improved. This research indicates that the public is concerned about both chemicals and trash generated by industry.

   The definition of "hazardous" is not uniform throughout the United States, since many states have their own definitions that are more restrictive than the federal EPA's. Furthermore, these definitions of "hazardous" keep changing over time.

   Each company is starting from differing points. Each company must identify its own reduction opportunities, identify the concerns of its own public, determine the reduction priorities and goals, and develop and implement its own reduction plan. The goal of this Code is continued performance improvement by a long term commitment to the reduction of wastes and releases.

4. Why does this Code appear to endorse reductions for reductions sake? Why should wastes and releases be reduced below health-based standards? Why should wastes and releases be reduced below levels allowed by statute, regulation, or permit?

   Answer: The public does not endorse the concept of "permitted" generation of wastes or releases to the environment. The public desires an increased margin of safety and environmental protection as a goal. If the policy is to address the concerns of the public, it must require sustained reductions.

5. Is this Code a never-ending spiral of reduction?

   Answer: The policy is flexible so that each company can assess the viability of further reductions. Certainly, reductions will be sustained under the Code as long as they are technically and economically viable. To the extent reduction options remain viable, the goal is to establish a long-term, substantial downward trend in wastes generated and releases to the environment.

6. Will this Code cause member to accomplish substantive reduction?

   Answer: To achieve the goal of earning the public's trust through improved performance, real reductions must occur. Therefore, this Code has measurable implementation stages and industry trends data submission requirements.

7. Does this Code apply to both large and small companies and facilities? Is there a threshold below which this Code does not apply?

   Answer: The Code applies to all members of CMA. Even a small company or facility can generate wastes and releases to the environment. There is no threshold for volume of wastes generated, releases to the environment, or size of facility below which this Code does not apply. Each company/facility will establish its own priorities. The Code envisions progress by all of industry in reducing wastes and releases.

8. Does this Code apply to domestic or world-wide operations?

   Answer: The principles behind the Code are universal in concept. The reduction of wastes and releases is good business and good citizenship. However, for purposes of CMA eligibility requirements, the Code applies to that portion of a corporation or company that is used to determine CMA dues.

9. What about multi-divisional companies? Does this Code apply to mining operations? Service stations? Warehouses?

   Answers: Adherence to the Code of Management Practices is a Guiding Principle of the Responsible Care program. The Responsible Care program is a membership requirement for those portions of a company that determine the CMA dues structure. The principle of reducing wastes and releases is responsible corporate behavior and should be encouraged throughout an organization.

   The Waste and Release Reduction Code of Management Practice is designed for flexible implementation by companies and facilities. Each company/facility must determine the reduction opportunities, priorities, baseline, and implement the reduction plan in accordance with these company/facility-derived goals. Inherent in this Code is the need to communicate with the public when determining reduction opportunities and priorities. Therefore, while the scope of this policy is broad, each company must identify the sources that are included in its implementation activities as well as the priority and timing for these reduction activities.

10. If all of the chemical industry is to be affected, how do we ensure fair and equitable reductions? How do we prevent competitive disadvantages among CMA member companies?

    Answer: The Waste and Release Reduction Code is predicated on making reductions that are economically and technically sound. The Code does not envision enforcing competitive disadvantages on member companies by usurping their decision-making processes. Each company must evaluate its own reduction opportunities and develop its own reduction plan to meet company/facility priorities.

11. If all of the chemical industry is to be affected, how do we ensure fair and equitable reductions? How do we prevent competitive disadvantages with other industry segments?

    Answer: This Code will actually make our industry more competitive than those that do not embrace its concepts. Waste and release reductions will result in less wastes, improved efficiency, and make the industry a superior competitor.

12. Is this a non-growth Code? How can this Code be reconciled with the need for expansions? How are opportunities for emission offsets (needed for air permitting) to be preserved?

    Answer: This Code envisions a long-term, substantial downward trend in total releases to the environment and waste generation. However, the method of achieving reductions is left to the needs and priority determinations of the individual member companies.

The policy is not a no-growth policy; rather, it is a policy of balancing future expansions with future waste and release reductions.

Voluntary waste and release reductions may be eligible to be banked with appropriate governmental agencies. Any plan for waste and release reductions must also plan to accommodate expansions. Public perceptions may ultimately require a waste and release reduction type program just as a condition to be able to construct or expand. Several states already have proposed such regulations.

13. Won't this Code have enormous economic consequences?

Answer: Waste and release reductions may or may not have a huge price tag. Some reduction projects, like fugitive emission abatement, tend to pay for themselves in recovered product(s); other projects may increase the price of doing business. Industry must be willing to invest in plants that will lead to a future with less wastes and fewer releases to the environment. The goal of Responsible Care is that the chemical industry will improve the performance of its operations constantly.

In making reduction progress, each company must look at all the reduction opportunities and set their own priorities. Each company can set the scope of these priorities broadly or narrowly and implement actions at their own pace.

Each company must identify its own reduction priorities and implement a reduction plan to meet company/facility-set goals.

14. Does the hierarchy of reduction methodologies mean that all projects must use source reduction unless it is technically infeasible?

Answer: Each waste and release source must be evaluated for its reduction potential. The hierarchy requires that reduction projects for source reduction be evaluated before recycle/reuse or treatment. However, the project to be implemented will depend on the evaluation.

Technical infeasibility is only one of several facility and/or waste specific criteria that can lead to selection of a reduction project involving recycle/reuse or treatment. When developing their reduction priorities, companies may choose to consider other criteria including risk/benefit mechanisms, public concern, size of the facility, economics, and other factors such as conservation of resources.

15. This Code, as well as other codes under the Responsible Care program, require ongoing dialogues with employees and members of the public. Does each such Management Practices require a separate meeting?

    Answer: No. Meetings with employees or the public can have multiple agenda items. If several Management Practices items are to be covered in a single meeting, all that is required is that the agenda and presentation clearly address each topic, rather than have a general "discussion of topics."

    Under the Responsible Care Program, the process to communicate with the public and employees is established under the Community Awareness and Emergency Response (CAER) Code of Management Practice. Companies are encouraged to use the mechanisms set up under other codes to enhance effective implementation of the Responsible Care Program and to better use and conserve company resources.

16. Is dialogue with the public required for all facilities?

    Answer: Meaningful dialogue is essential to better understanding public concern, improving the public's understanding of our operations, and building trust. Some facilities, due to size and location, may have limited opportunity for such dialogue. Where the opportunity for dialogue exists, even on a limited basis, it should be actively pursued individually or jointly with other neighboring companies/facilities.

17. Should individual companies and/or facilities submit to CMA the rationale behind the annual Industry Trend data submissions?

    Answer: No. The data submitted for the Industry Trend Data reports need not have supporting documentation submitted to CMA. However, when discussing these data with the local public, it is assumed that general methods and assumptions will be discussed as part of the public education and dialogue process.

18. When completing the Self-Evaluation Form, must every facility attempt to progress through all the implementation stages, or can some facilities "mature" their progress in code implementation at less than full implementation?

    Answer: All participating facilities should work to achieve full implementation of each Code and embrace the concepts of this Code in the spirit of the Responsible Care Guiding Principles. Depending on the size of particular facility or the activities carried on by that facility, a company may decide that different implementation methods are appropriate. For example, a large facility may use formal procedures such as written policies and

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manuals and conduct formal employee meetings. Whereas, a smaller facility can accomplish the same implementation using less formal methods.

Attachment B

QUESTION AND ANSWERS FOR PRACTICES 11-14

These questions address issues in the four practices added to the Pollution Prevention Code of Management Practices. As companies implement Practices 1-10, they should examine their implementation actions and modify them to include waste management.

QUESTIONS:

IN PRACTICE 11, WHAT ARE THE WASTE MANAGEMENT PRACTICES ASSOCIATED WITH ALL OPERATIONS AND EQUIPMENT?

The Code envisions companies reviewing all waste management practices at each step of the operation(s) where wastes are generated or released within each facility. This review is within the operating processes not just at the "end of the pipe."

WHAT DO YOU MEAN BY A CONTRACTOR AND TOLL MANUFACTURER?

Contractors are any entity a member company uses to handle its secondary materials and wastes. This includes, for example, waste treatment facilities, disposal facilities, tank cleaners, reclaimers, recyclers, and the like. "Contractors" does not include publicly owned treatment works.

Responsible Care® covers toll manufacturers' operations under two Codes. This code covers the wastes generated by relevant operations of toll manufacturers. For the purpose of this code, toll manufacturers are independent parties who: perform a manufacturing step for a member company in which the member company owns the work in process; use the member company's feed stock; and generate waste from the manufacturing step.

WHAT DOES "IMPLEMENTATION OF A PROCESS. . .." MEAN?

The requirement for the "Implementation of a process. . .." is designed to encourage member companies to do business with those contractors and toll manufacturers that, after reasonable inquiry, are believed to engage in sound waste management practices.

As part of the contracting procedure, member companies should consider including language requiring the contractor to use proper health, safety, and environmental practices and stating that the member company has a right to inspect for that purpose.

HOW DO YOU REVIEW THAT A CONTRACTOR OR TOLL MANUFACTURER USES SOUND WASTE MANAGEMENT PRACTICES?

A process for "reviewing" includes reasonable reviews of the relevant practices of contractors and toll manufacturers. Because of the variety of commercial relationships and circumstances, member companies are to exercise their own judgement as to how to conduct "reviews" and precisely what to do with the information obtained.

CMA members are not expected to control the operations of their contractors and toll manufacturers. CMA member companies should consider performing a site visit and visual inspection of waste management practices by a company representative. The member company may determine that a more rigorous inspection is appropriate based on initial findings.

HOW OFTEN SHOULD YOU REVIEW CONTRACTORS AND TOLL MANUFACTURERS?

A review or evaluation should be done on some repeat basis. Companies should determine the timing by an evaluation of the results of previous reviews, potential impacts, potential liability, etc.

WHAT DO WE MEAN BY "IMPROVE THE PREVENTION OF RELEASES TO GROUNDWATER?"

The goal is to prevent releases to the ground and to protect existing groundwater quality. While it is envisioned that a company will have an SPCC (Spill Prevention Control and Countermeasures) plan for certain materials, companies should review the chemicals at the facility and extend the SPCC concepts to other materials. To improve efforts to prevent releases, member companies should review the chemicals and operations at a facility; develop plans to prevent, detect, and contain releases or potential releases; and implement these plans to protect groundwater from contamination.

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IN PRACTICE 14 WHAT IS MEANT BY IMPLEMENTATION OF AN ONGOING PROGRAM TO RESOLVE IDENTIFIED PROBLEMS?

"Implementation of an ongoing program..." means developing processes for evaluating the health, safety, and environmental impacts of identified problems arising from past operating and waste management practices and for setting priorities for addressing those problems. The Code recognizes that not every identified problem poses adverse impacts. Resolving identified problems should consider factors such as, regulatory, technical, and economic considerations.

WHAT IS MEANT BY "PAST OPERATING AND WASTE MANAGEMENT PRACTICES?"

Past operating practices and waste management practices that companies should consider may include operating practices such as: manufacturing operations, loading and unloading areas, storage, areas of spill containment, and recycling and reuse processes; and waste management practices such as: surface impoundments, waste treatment, land disposal, land treatment and farming, and deepwell injection.

WHAT IS MEANT BY "WORKING WITH OTHERS TO RESOLVE IDENTIFIED PROBLEMS?"

Each member company's program should include a process to cooperate, to the extent appropriate, with governmental agencies, past owners, operators, insurance carriers, the community, and others to resolve the potential health, safety, and environmental impacts, and community concerns associated with identified problems.

WHICH MEMBER COMPANY FACILITIES, ACTIVE OR INACTIVE, ARE INCLUDED IN PRACTICE 14?

This practice applies to facilities currently owned by a member company. This includes properties that are still owned, but no longer have ongoing operations. Inactive sites that are not owned by a member company, but where the company has potential involvement, should be addressed to the extent the member company determines feasible.

WHAT IS MEANT BY "TAKING INTO ACCOUNT COMMUNITY CONCERNS AND HEALTH, SAFETY, AND ENVIRONMENTAL IMPACTS?"

When CMA member companies implement the employee and public outreach of the Code (Practices 4 and 8), companies should present information about their current and past waste management practices with the goal of identifying the community concerns. Companies should consider this input when developing plans and setting priorities for waste management and remediation activities.

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Responsible Care®: A Public Commitment

PROCESS SAFETY CODE OF MANAGEMENT PRACTICES

Purpose

The Process Safety Code is designed to prevent fires, explosions and accidental chemical releases. The Code is comprised of a series of management practices that reflect this goal, with the expectation of continuous performance improvement for each management practice. The practices are based on the principle that facilities will be safe if they are designed according to sound engineering practices, built, operated and maintained properly and periodically reviewed for conformance.

Process safety is an interdisciplinary effort. Consequently, the Code is divided into the following four elements: management leadership, technology, facilities and personnel. Each element is composed of Management Practices. Individually, each Practice describes an activity or approach important to preventing fires, explosions and accidental chemical releases. Collectively, the Practices encompass process safety from the design stage through operation, maintenance and training. The scope of this Code includes manufacturing, processing, handling and on-site storage of chemicals. This Code must be implemented with full recognition of the community's interest, expectations and participation in achieving safe operations.

The process safety management program in each facility is complemented by workplace health and safety programs, as well as waste and release reduction programs which address and minimize releases and waste generation. These three programs, and others, will help assure that CMA member facilities are operated in a manner that protects the environment and the health and safety of personnel and the public.

Relationship to Guiding Principles

The Code helps achieve several of the Responsible Care® Guiding Principles:

- To recognize and respond to community concerns about chemicals and our operations,
- To make health, safety and environmental considerations a priority in our planning for all existing and new plants and processes.
- To operate our plants and processes in a manner that protects the environment and the health and safety of our employees and the public.

Management Practices

Each member company shall have an ongoing process safety program that includes:

Management Leadership

1. Leadership by senior management through policy, participation, communications and resource commitments in achieving continuous improvement of performance.

2. Clear accountability for performance against specific goals for continuous improvement.

3. Measurement of performance, audits for compliance and implementation of corrective actions.

4. Investigation, reporting, appropriate corrective action and follow-up of each incident that results or could have resulted in a fire, explosion or accidental chemical release.

5. Sharing of relevant safety knowledge and lessons learned from such incidents with industry, government and the community.

6. Use of the Community Awareness and Emergency Response (CAER) process to assure public comments and concerns are considered in design and implementation of the facility's process safety systems.

Technology

7. Current, complete documentation of process design and operating parameters and procedures.

8. Current, complete documentation of information relating to the hazards of materials and process technology.

9. Periodic assessment and documentation of process hazards, and implementation of actions to minimize risks associated with chemical operations, including the possibility of human error.

10. Management of changes to chemical operations to maintain or enhance the safety originally designed into the facility.

Facilities

11. Consideration and mitigation of the potential safety effects of expansions, modifications and new sites on the community, environment, and employees.

12. Facility design, construction and maintenance using sound engineering practices consistent with recognized codes and standards.

13. Safety reviews on all new and modified facilities during design and prior to start-up.

14. Documented maintenance and inspection programs that ensure facility integrity.

15. Sufficient layers of protection through technology, facilities and employees to prevent escalation from a single failure to a catastrophic event.

16. Provision for control of processes and equipment during emergencies resulting from natural events, utility disruptions and other external conditions.

Personnel

17. Identification of the skills and knowledge necessary to perform each job.

18. Establishment of procedures and work practices for safe operating and maintenance activities.

19. Training for all employees to reach and maintain proficiency in safe work practices and the skills and knowledge necessary to perform their job.

20. Demonstrations and documentation of skill proficiency prior to assignment to independent work, and periodically thereafter.

21. Programs designed to assure that employees in safety critical jobs are fit for duty and are not compromised by external influences, including alcohol and drug abuse.

22. Provisions that contractors either have programs for their own employees consistent with applicable sections of this Code or be included in the member company's program, or some combination of the two.

Glossary

This Code uses key terms in a context that may be broader than their associated regulatory definitions. However, adherence to this Code does not relieve a company of the obligation to meet Federal, state and local regulatory requirements.

Process Safety - The application of management and engineering principles to prevent fires, explosions and accidental chemical releases at chemical process facilities.

Sound Engineering Practice - The application of mandatory codes and standards supplemented by the use of voluntary codes, standards and guidelines, tempered by professional judgement.

Safety Critical Jobs - Jobs, activities and tasks, if improperly performed, that have the potential to significantly increase the risk of a fire, explosion or accidental chemical release.

Accidental Chemical Release - Unplanned, sudden releases of chemicals from manufacturing, processing, handling and on-site storage facilities to the air, water or land. It does not include permitted or other releases.

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Responsible Care®:
A Public Commitment

CHEMICAL MANUFACTURERS ASSOCIATION

MEMBER SELF-EVALUATION FORM

PROCESS SAFETY CODE OF MANAGEMENT PRACTICES

Member Company

Name:_____

Responsible Care® Coordinator

Name:_____

Address:_____

_____

_____

Telephone ( )_____

Number of facilities subject to code _____

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SAMPLE

PROCESS SAFETY CODE OF MANAGEMENT PRACTICES

Instructions:

1. Under the Responsible Care® Initiative, each member company will submit a Self-Evaluation form annually to CMA.

2. Indicate on the cover page the number of member company facilities subject to the Code. Each company must report the implementation category for all facilities subject to the Code on this form.

3. For each Management Practice on the following four pages, indicate the number of facilities that have attained each implementation category. Each facility should appear in only one milestone category per Management Practice. The total number of facilities subject to the Code should equal the number of facilities across all six implementation categories for each Management Practice.

4. Only subject facilities owned or operated as of the reporting date should be included.

5. The implementation categories are:

Category NA - No action. If no action taken because the management practice is not applicable, please explain.
Category EV - Evaluating existing company practices against the Management Practice.
Category DP - Developing plan to implement Management Practice.
Category IA - Implementing action plan
Category PP - Management Practice in place.
Category RI - Reassessing Management Practice implementation.

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SAMPLE

Management Practices	Categories					
Management Leadership	**NA**	**EV**	**DP**	**IA**	**PP**	**RI**
1. Leadership by senior management through policy, participation, communications and resource commitments in achieving continuous improvement of performance. Comments on Category NA:_____						
2. Clear accountability for performance against specific goals for continuous improvement. Comments on Category NA:_____						
3. Measurement of performance, audits for compliance and implementation of corrective actions. Comments on Category NA:_____						
4. Investigation, reporting, appropriate corrective action and follow-up of each incident that results or could have resulted in a fire, explosion or accidental chemical release. Comments on Category NA:_____						
5. Sharing of relevant safety knowledge and lessons learned from such incidents with industry, government and the community. Comments on Category NA:_____						

Category NA - **No action. If no action taken because the management practice is not applicable, please explain.**
Category EV - **Evaluating existing company practices against the Management Practice.**
Category DP - **Developing plan to implement Management Practice.**
Category IA - **Implementing action plan**
Category PP - **Management Practice in place.**
Category RI - **Reassessing Management Practice implementation.**

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SAMPLE

	Categories					
	NA	EV	DP	IA	PP	RI
6. Use of the Community Awareness and Emergency Response (CAER) process to assure public comments and concerns are considered in design and implementation of the facility's process safety systems. Comments on Category NA:_____						
Technology 7. Current, complete documentation of process design and operating parameters and procedures. Comments on Category NA:_____						
8. Current, complete documentation of information relating to the hazards of materials and process technology. Comments on Category NA:_____						
9. Periodic assessment and documentation of process hazards, and implementation of actions to minimize risks associated with chemical operations, including the possibility of human error. Comments on Category NA:_____						
10. Management of changes to chemical operations to maintain or enhance the safety originally designed into the facility. Comments on Category NA:_____						

Category NA - **No action. If no action taken because the management practice is not applicable, please explain.**
Category EV - **Evaluating existing company practices against the Management Practices.**
Category DP - **Developing plan to implement Management Practice.**
Category IA - **Implementing action plan**
Category PP - **Management Practice in place.**
Category RI - **Reassessing Management Practice implementation.**

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SAMPLE

Facilities	Categories NA	EV	DP	IA	PP	RI
11. Consideration and mitigation of the potential safety effects of expansions, modifications and new sites on the community, environment, and employees. Comments on Category NA:_____						
12. Facility design, construction and maintenance using sound engineering practices consistent with recognized codes and standards. Comments on Category NA:_____						
13. Safety reviews on all new and modified facilities during design and prior to start-up. Comments on Category NA:_____						
14. Documented maintenance and inspection programs that ensure facility integrity. Comments on Category NA:_____						
15. Sufficient layers of protection through technology, facilities and employees to prevent escalation from a single failure to a catastrophic event. Comments on Category NA:_____						

Category NA - **No action. If no action taken because the management practice is not applicable, please explain.**
Category EV - **Evaluating existing company practices against the Management Practice.**
Category DP - **Developing plan to implement Management Practice.**
Category IA - **Implementing action plan**
Category PP - **Management Practice in place.**
Category RI - **Reassessing Management Practice implementation.**

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SAMPLE

	Categories					
	NA	EV	DP	IA	PP	RI
16. Provision for control of processes and equipment during emergencies resulting from natural events, utility disruptions and other external conditions. Comments on Category NA:_____						
Personnel 17. Identification of the skills and knowledge necessary to perform each job. Comments on Category NA:_____						
18. Establishment of procedures and work practices for safe operating and maintenance activities. Comments on Category NA:_____						
19. Training for all employees to reach and maintain proficiency in safe work practices and the skills and knowledge necessary to perform their job. Comments on Category NA:_____						
20. Demonstrations and documentation of skill proficiency prior to assignment to independent work, and periodically thereafter. Comments on Category NA:_____						

Category NA - **No action. If no action taken because the management practice is not applicable, please explain.**
Category EV - **Evaluating existing company practices against the Management Practice.**
Category DP - **Developing plan to implement Management Practice.**
Category IA - **Implementing action plan**
Category PP - **Management Practice in place.**
Category RI - **Reassessing Management Practice implementation.**

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SAMPLE

	Categories					
	NA	EV	DP	IA	PP	RI
21. Programs designed to assure that employees in safety critical jobs are fit for duty and are not compromised by external influences, including alcohol and drug abuse. Comments on Category NA:_____						
22. Provisions that contractors either have programs for their own employees consistent with applicable sections of this Code or be included in the member company's program, or some combination of the two. Comments on Category NA:_____						

Category NA - **No action. If no action taken because the management practice is not applicable, please explain.**
Category EV - **Evaluating existing company practices against the Management Practice.**
Category DP - **Developing plan to implement Management Practice.**
Category IA - **Implementing action plan**
Category PP - **Management Practice in place.**
Category RI - **Reassessing Management Practice implementation.**

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Process Safety Code of Management Practices

Questions and Answers

Management Leadership

1. Q: How does one define senior management?

   A: Senior management is that level that has the authority to establish policies and authorize expenditures to implement them. As used in this Code, this probably includes plant managers and above.

2. Q: What is meant by participation by senior management?

   A: Participation in this context refers to activities which convey and reinforce commitment and leadership as well as support the implementation of policies and procedures.

3. Q: Is it necessary to have a written process safety policy?

   A: Yes.

4. Q: What parameters can be used to measure process safety performance?

   A: Each company should establish its own methods of measurement. Counts of unwanted incidents, frequency rates, property loss statistics, audit violations, permit violations, risk reviews and completion of training are a few examples.

5. Q: How should one define the type of incident that should be investigated?

   A: There is no single standard which defines the type of incident or near-miss to investigate. Management should establish a formal procedure to investigate those uncontrolled events which have potentially serious consequences.

6. Q: What should be done after each incident or near-miss investigation?

   A: Corrective actions or follow-up should be identified, carried out and communicated as appropriate within the company.

7. Q: What kind of knowledge and lessons should be shared?

   A: Knowledge and lessons which can benefit others because of their general applicability or novelty or unusualness. Member companies may establish procedures to promote sharing consistent with proprietary and legal considerations.

8. Q: How much input do you envision our industry receiving from the public sector?

   A: The CMA fully supports the concepts of working with local communities to listen to their views and concerns and to consider them in plant safety systems. The intent is to discuss major process additions and new grass-roots construction as opposed to minor plant changes. Individual companies are responsible for the safe design and operation of facilities; that responsibility cannot be shared with the public. It is intended that public concerns be considered in design and operations of the facility. The CAER network provides a useful vehicle to accomplish this.

Technology

9. Q: What type of documentation of process design and operating parameters should exist?

   A: Each operating unit should have up-to-date safety related information that contains the design basis and procedures, (e.g., process flowsheets, piping and instrument diagrams or engineering flow diagrams, vessel drawings, electrical area classifications, safety valve capacity information and operating manuals). The documents will serve as the back bone for employee training, hazard evaluation and process modifications.

10. Q: What is meant by operating parameters?

   A: Operating parameters are the ranges of conditions (eg. temperature, pressure and flow composition) within which a unit is designed to operate. Within that range, a unit is expected to operate without any problems. For example, the safe operating parameter for a reacto temperature during exotherm might be 70 degrees minimum to 130 degrees maximum. Operating outside the range could cause instability in the reaction — runaway temperature if above, potential brittle fracture if below.

11. Q: What are some of the types of information needed to define the chemistry?

   A: Each reactant and product should have a material safety data sheet (MSDS). Chemical reaction kinetics and acute toxicity should be known and understood. Reactive chemical performance upon mixing various chemicals in different proportions should be documented. Waste streams should be included as well as reactants and products.

12. Q: What type of procedures should be maintained?

   A: Generally, all routine jobs or tasks with process safety implications should have written step-by-step instructions. These procedures should capture the experience base of the knowledgeable experts. The protective equipment and employee concerns should be incorporated in the procedures. Also, emergency procedures must be clear and unequivocal.

13. Q: What is the difference between documentation covered in practice 7 versus that included in practice 8?

   A: Number 7 refers mainly to design and operating information, while number 8 specifica addresses the hazards associated with the unit being evaluated.

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14. Q: Does the reference in the Code to risk imply that we will be required to perform quantitative risk assessments on all our plants?

    A: No. Qualitative analysis alone should be sufficient to satisfy process safety analysis objectives in most cases. In any case, qualitative analysis should be considered prior to performing numerical frequency or consequence calculations.

15. Q: What does periodic assessment of process hazards mean in the technology element?

    A: Each member company should establish its own review frequency based on inherent hazards, operating experience, rate of technology change and other factors. Typical review frequencies range from three to seven years. Under very special circumstances, review frequency may be as short as one year.

16. Q: What is meant by "management of change"?

    A: "Management of change" means having management systems in place that ensure the original safe design of the unit is maintained and all changes, including minor modifications, are properly reviewed, recorded and communicated.

17. Q: What changes should be covered?

    A: All changes except like for like substitutions. Examples include hardware, procedures, raw materials, operating conditions, throughput, employee, software and control mode.

18. Q: There does not seem to be a clear distinction between Technology and Facilities - shouldn't these two sections be combined?

    A: While it is true that the two sections are closely related and interdependent, Technology (i.e., chemistry and know-how) and Facilities (i.e., equipment and hardware) each deserve an independent focus as related to process safety.

Facilities

19. Q: Should the community be consulted when considering potential effects of a new site or new installation?

    A: Yes, using principles of the CAER process.

20. Q: Does this mean the community has approval or rejection authority over our projects?

    A: No: It means that we should identify and respond to community concerns.

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21.Q: Choosing a new plant site involves many complex considerations. Can we realistically expe to completely satisfy all interests?

A: Possibly not, but the Responsible Care® Guiding Principles require health, safety and the environment to be priority considerations and such issues must be adequately resolved.

22.Q: Does the Code cover concerns about sabotage or terrorism?

A: Such issues are not intended to be within the scope of the Code. However, good practice in site selection and planning will consider such general security issues as buffer zones, fencing, lighting, entrance gates and security surveillance. Also, mitigation and emergency response measures can help minimize consequences of hostile acts.

23. Q: Does "sound engineering practice" extend beyond mandatory codes and regulations?

A: In many cases, yes. While government codes and regulations may establish minimum legal requirements for plant design, operation and maintenance, member companies are expected to use qualified professionals to identify and apply other engineering practices (such as contained in many non-mandatory or consensus standards or codes) as may be necessary to fulfill our safety commitment to employees and the community.

24. Q: Are "Safety Reviews" as prescribed in practice 13 different from "Process Hazard Assessments" as prescribed in practice 9?

A: Yes. "Process Hazard Assessment" is done during the process design stage and periodically thereafter. It focuses on the hazards inherent to the process and measures to control these hazards. "Safety Reviews" use "Process Hazard Assessment" as a starting point and focus on the physical installation to assure that it is in accordance with design and is safe to start-up and operate.

25. Q: Shouldn't Safety Reviews go beyond simple field inspection?

A: Yes. Safety Reviews may include such things as testing equipment, controls, control logic, interlocks, "water runs" etc., prior to operation with hazardous materials. In addition, such reviews should also confirm that process documentation and procedures are in place and that operators have been trained.

26. Q: Doesn't a "Preventive Maintenance Program" meet the requirement of practice 14?

A: To meet the intent of this code practice, the preventive maintenance (PM) program must go beyond operating reliability and economic considerations and address all potential failures which, while possibly extremely unlikely, could impact process safety. A program to "ensure facility integrity" must search out hidden deterioration and flaws that can result in sudden and unexpected failure that can impact process safety.

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27. Q: What are some examples that could be included in a PM program to satisfy practice 14?

    A: Metallurgical examinations for stress corrosion cracking, nondestructive acoustic testing, compressor vibration monitoring, thickness measuring for erosion or corrosion on key parts of pressure vessels and pipelines, verification of bolt and clamp material of construction and quality, reliability of critical instruments and operation of safety valves are examples.

28. Q: Shouldn't a hierarchy be considered in applying "layers of protection"?

    A: Normally technology should be applied first, choosing an inherently safe or less hazardous process whenever possible. Then hardware, safety factors, redundant controls, failure detection systems, etc., should be applied. Finally, emergency procedures and employee training should complement the process and hardware design.

29. Q: How many layers constitute "sufficient layers of protection"?

    A: There is no absolute answer to this question. The number of levels needed depends on the likelihood of an initial failure, the nature of the consequences and whether additional levels of protection will materially improve safety. Layers of protection include more than redundant equipment. They may include process techniques, instrumentation and hardware, operating procedures and operator training.

30. Q: What is meant by "external conditions"?

    A: By external conditions we mean anything that is beyond the direct and immediate control of the process operator. An example might be an evacuation order for your plant caused by a fire or toxic release from a neighboring plant as well as an upset or incident in an adjoining process unit.

Personnel

31. Q: We train our employees thoroughly; why is it necessary to also demonstrate their proficiency?

    A: Even with the best employee training programs, people learn at different rates and comprehension. An actual demonstration is the only way of being sure that each individual has grasped essential concepts or skills. Demonstrations can involve written tests and/or having the trainee show a qualified observer how they would do a job.

32. Q: Do procedures and work practices have to be documented?

    A: Generally, yes. Procedures typically require proper execution of several stages. Documented procedures help assure that a critical action is not overlooked and that the procedure is carried out consistently by everyone.

33. Q: Does the code require that employees be screened for alcohol and drug abuse?

    A: No. The Code requires programs designed to assure fitness for duty.

34. Q: What kinds of jobs are safety-critical?

    A: A position is safety-critical when it involves tasks which, if not performed properly, can significantly increase the likelihood of a fire, explosion, or accidental chemical release.

35. Q: What is meant by "external influence"?

    A: External influences include abuse of alcohol or drugs, but the terms also refers to any factor which might impair judgement, attention or general capacity to perform a job safely. Examples include physical impairment, emotional stress, and stress from too much overtime work.

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STLCOPCB4023131



Responsible Care®:
A Public Commitment

EMPLOYEE HEALTH AND SAFETY CODE OF MANAGEMENT PRACTICES

PURPOSE

The goal of the Employee Health and Safety Code of Management Practices is to protect and promote the health and safety of people working at or visiting member company work sites.

To achieve this goal, the Code provides Management Practices designed to continuously improve work site health and safety. These practices provide a multidisciplinary means to identify and assess hazards, prevent unsafe acts and conditions, maintain and improve employee health, and foster communication on health and safety issues.

Implementation of the Employee Health and Safety Code, together with other Codes of Management Practices, can enable member companies to operate in a manner that further protects and promotes the health and safety of employees, contractors, and the public, and protects the environment.

RELATIONSHIP TO GUIDING PRINCIPLES

Implementation of the Code helps achieve several of the Responsible Care® Guiding Principles:

- To recognize and respond to community concerns about chemicals and our operations.
- To make health, safety, and environmental considerations a priority in our planning for all existing and new products and processes.
- To operate our plants and facilities in a manner that protects the environment and the health and safety of our employees and the public.
- To extend knowledge by conducting or supporting research on the health, safety, and environmental effects of our products, processes, and waste materials.

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MANAGEMENT PRACTICES

Each member company shall have an ongoing occupational health and safety program that includes:

Program Management

1. Commitment by all levels of management to protecting and promoting the health and safety of people working at or visiting member company work sites through published policies; accountability for implementation; and provision of sufficient resources, including qualified health and safety personnel.

2. Opportunities for employees to participate in developing, implementing, and reviewing health and safety programs.

3. Provisions, including selection criteria, to confirm that on-site contractors' programs are consistent with applicable Management Practices of this Code.

4. Written, up-to-date health and safety programs and procedures appropriate to the facility.

5. Means to verify that health and safety programs and procedures are effective and that actual practices are consistent with these programs and procedures.

6. Systems for maintaining records and analyzing data to evaluate health and safety performance, determine trends, and identify areas for improvement.

Identification and Evaluation

7. Methods to identify and evaluate potential health and safety hazards in planned or existing facilities, including facilities to be modified.

8. Exposure assessments and safety analyses to evaluate health and safety hazards to employees from processes; equipment; potentially hazardous chemical, physical, or biological agents; or other work site conditions.

9. Health assessments to determine employee medical fitness for specific job tasks.

10. Employee occupational medical surveillance programs tailored to work site hazards.

Prevention and Control

11. Mechanisms for reviewing the design and modification of facilities and job tasks, taking into account the following hierarchy of controls: inherent safe design, material substitution, engineering controls, administrative controls, and personal protective equipment.

12. Systems to verify that health and safety equipment is properly selected, maintained, and used.

13. Preventive maintenance and housekeeping programs to maintain the safety of facilities, tools, and equipment.

14. Timely investigation of work site illnesses, injuries, and accidents; corrective actions to prevent recurrence; and evaluation of the effectiveness of corrective actions taken.

15. Security procedures and systems to control entry and exit of personnel and materials at the work site and restricted areas.

16. Provisions for emergency medical assistance for people at work sites.

Communications and Training

17. Communication of health and safety information that is relevant to specific job tasks and the work site.

18. Health and safety training programs, including documentation of these programs, and methods to evaluate the effectiveness of both training and communications activities.

INDUSTRY TREND DATA

To identify industry trends, each company shall report to CMA, or its designated agent, occupational injuries and illnesses, as specified in CMA's Occupational Injury and Illness Reporting Program.

RELATIONSHIP TO OTHER CODES OF MANAGEMENT PRACTICES

This Code complements, and should be implemented in conjunction with, current and future Codes of Management Practices, especially those elements of the CAER Code involving emergency response, the Process Safety Code involving training of employees in their job functions, and the Product Stewardship Code involving health, safety, and environmental information, and employee education and product use feedback.

MEMBER SELF-EVALUATION

Each member company shall report annually to CMA, or its designated agent, the implementation category attained for each Management Practice in this Code. The reports should be submitted on the member self-evaluation form provided.

RESOURCE GUIDE

A separate resource guide is available to assist member companies in implementing the Code.

The Responsible Care® Employee Health & Safety Code of Management Practices was approved by CMA's Board of Directors on January 14, 1992

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Responsible Care®:
A Public Commitment

SAMPLE

EMPLOYEE HEALTH AND SAFETY CODE OF MANAGEMENT PRACTICES

MEMBER SELF-EVALUATION FORM

Member Company

Name:_____

Responsible Care® Coordinator

Name:_____

Address:_____

_____

_____

_____

Telephone: (____)_____

Number of facilities subject to
the Employee Health and Safety Code:_____

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EMPLOYEE HEALTH AND SAFETY CODE

MEMBER SELF-EVALUATION FORM

SAMPLE

Instructions for the Company Responsible Care® Coordinator

1. This form is to be submitted annually to CMA by each member company.

2. Indicate on page 1 the number of your member company's facilities that are subject to the Code. Each company must report the implementation stage for all facilities subject to the Employee Health and Safety Code on this form.

3. For each Management Practice on the following pages, indicate the number of facilities that have attained each implementation category. Each facility should appear in only one implementation category per Management Practice. Identify the current implementation category for each of your facilities at the time you complete the form.

4. For the Industry Trend Data, report the previous calendar year's cumulative occupational injuries and illnesses. Occupational injuries and illnesses should be reported on a company wide basis as specified by CMA's Occupational Injury and Illness Reporting (OIIR) Program.

5. Only subject facilities owned or operated as of the reporting date should be included.

6. The implementation categories are:

   Category NA – ***No action. If no action taken because the Management Practice is not applicable, please explain in space marked "comments."***

   Category EV – ***Evaluating existing company practices against the Management Practice.***

   Category DP – ***Developing plan to implement Management Practice.***

   Category IA – ***Implementing action plan.***

   Category PP – ***Management Practice in place.***

   Category RI – ***Reassessing Management Practice implementation.***

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EMPLOYEE HEALTH AND SAFETY CODE OF MANAGEMENT PRACTICES

SAMPLE

Management Practices	Categories					
	NA	EV	DP	IA	PP	RI
1. Commitment by all levels of management to protecting and promoting the health and safety of people working at or visiting member company sites, through: published policies; accountability for implementation; and provision of sufficient resources, including qualified health and safety personnel. Comments on Category NA:_____						
2. Opportunities for employees to participate in developing, implementing, and reviewing health and safety programs. Comments on Category NA:_____						
3. Provisions, including selection criteria, to confirm that on-site contractors' programs are consistent with applicable Management Practices of this Code. Comments on Category NA:_____						
4. Written, up-to-date health and safety programs and procedures appropriate to the facility. Comments on Category NA:_____						

Category NA – No action. If no action taken because the Management Practice is not applicable, please explain.
Category EV – Evaluating existing company practices against the Management Practice.
Category DP – Developing plan to implement Management Practice.
Category IA – Implementing action plan.
Category PP – Management Practice in place.
Category RI – Reassessing Management Practice implementation.

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Management Practices	Categories					
	NA	EV	DP	IA	PP	RI
5. Means to verify that health and safety programs and procedures are effective and that actual practices are consistent with these programs and procedures. Comments on Category NA:_____						
6. Systems for maintaining records and analyzing data to evaluate health and safety performance, determine trends, and identify areas for improvement. Comments on Category NA:_____						
7. Methods to identify and evaluate potential health and safety hazards in planned or existing facilities, including facilities to be modified. Comments on Category NA:_____						
8. Exposure assessments and safety analyses to evaluate health and safety hazards to employees from processes; equipment; potentially hazardous chemical, physical, or biological agents; or other work site conditions. Comments on Category NA:_____						
9. Health assessments to determine employee medical fitness for specific job tasks. Comments on Category NA:_____						

SAMPLE

Category NA – No action. If no action taken because the Management Practice is not applicable, please explain.
Category EV – Evaluating existing company practices against the Management Practice.
Category DP – Developing plan to implement Management Practice.
Category IA – Implementing action plan.
Category PP – Management Practice in place.
Category RI – Reassessing Management Practice implementation.

Management Practices	Categories					
	NA	EV	DP	IA	PP	RI
10. Employee occupational medical surveillance programs tailored to work site hazards. Comments on Category NA:_____						
11. Mechanisms for reviewing the design and modification of facilities and job tasks, taking into account the following hierarchy of controls: inherent safe design, material substitution, engineering controls, administrative controls, and personal protective equipment. Comments on Category NA:_____						
12. Systems to verify that health and safety equipment is properly selected, maintained, and used. Comments on Category NA:_____						
13. Preventive maintenance and housekeeping programs to maintain the safety of facilities, tools, and equipment. Comments on Category NA:_____						
14. Timely investigation of work site illnesses, injuries, and incidents; corrective actions to prevent recurrence; and evaluation of the effectiveness of corrective actions taken. Comments on Category NA:_____						

SAMPLE

Category NA - No action. If no action taken because the Management Practice is not applicable, please explain.
Category EV - Evaluating existing company practices against the Management Practice.
Category DP - Developing plan to implement Management Practice.
Category IA - Implementing action plan.
Category PP - Management Practice in place.
Category RI - Reassessing Management Practice implementation.

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Management Practices	Categories					
	NA	EV	DP	IA	PP	RI
15. Security procedures and systems to control entry and exit of personnel and materials at the work site and restricted areas. Comments on Category NA:_____						
16. Provisions for emergency medical assistance for people at work sites. Comments on Category NA:_____						
17. Communication of health and safety information that is relevant to specific job tasks and the work site. Comments on Category NA:_____						
18. Health and safety training programs, including documentation of these programs, and methods to evaluate the effectiveness of both training and communications activities. Comments on Category NA:_____						

SAMPLE

INDUSTRY TREND DATA

Occupational injuries and illnesses for the previous calendar year were reported as specified in CMA's Occupational Injury and Illness Reporting Program.

Yes____ No____

If no, please explain:_____

Category NA – No action. If no action taken because the Management Practice is not applicable, please explain.
Category EV – Evaluating existing company practices against the Management Practice.
Category DP – Developing plan to implement Management Practice.
Category IA – Implementing action plan.
Category PP – Management Practice in place.
Category RI – Reassessing Management Practice implementation.

QUESTIONS AND ANSWERS

EMPLOYEE HEALTH AND SAFETY CODE OF MANAGEMENT PRACTICES

Throughout its development, the Employee Health and Safety (EHS) Code was reviewed regularly by CMA's Health and Safety Committee, Engineering and Operations Committee, and Responsible Care® Coordinating Group. An early draft of the EHS Code was reviewed by member companies through written comments and an open meeting, and member companies conducted a second review of the draft EHS Code with their employees. In addition, the draft EHS Code was reviewed periodically by the Responsible Care® Public Advisory Panel

During these reviews, the following questions were frequently asked about the EHS Code of Management Practices:

1. **Does the EHS Code cover all aspects of an employee's health and safety?**

   Answer: The EHS Code is restricted to those aspects of an employee's health and safety that are affected by his or her employment in the chemical industry. The EHS Code addresses occupational health and safety and does not address employee wellness or off-the-job safety.

2. **Does the EHS Code include visitors and all contractor operations?**

   Answer: The EHS Code covers all visitors and contractor employees who enter a member company's work site. Visitors should be protected from hazards they may encounter while on the work site. All contractors should have health and safety programs for their employees that are appropriate for the hazards encountered in their contracted job tasks and that are consistent with applicable management practices of the EHS Code. Contract manufacturers, or tollers, are addressed in the Product Stewardship Code.

3. **Does the EHS Code require employee participation at work sites at which employees are represented by a union?**

   Answer: The objective of the EHS Code is to encourage member companies to fully involve employees in safety and health activities. However, at facilities at which employees are represented by a union, negotiations concerning such employee participation may be required. In the contract negotiation process, member companies should make a good-faith effort to address opportunities for employee participation.

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4. **What is CMA's Occupational Injury and Illness Reporting (OIIR) Program?**

Answer: CMA's OIIR Program serves as a basis for awarding the annual Lammot Du Pont Safety Awards recognizing sustained achievement by CMA member companies in reducing workplace injury and illness rates. Each participating company submits its injury and illness data, as reported on the OSHA Form 200, based on guidelines issued by the U.S. Bureau of Labor Statistics (BLS).

5. **Are contractor employees included in the OIIR Program?**

Answer: At this time, contractor employees are not included in the CMA OIIR Program, unless the company directly supervises their day-to-day activities. Current BLS guidelines require reporting of occupational injuries and illnesses by individual employers based on Standard Industrial Classification (SIC) codes. Both CMA and OSHA are considering revisions to the reporting guidelines that would consolidate the reporting of occupational injuries and illnesses for a single work site, without regard to the SIC code of the employer.

6. **Does the EHS Code address substance abuse in the workplace as part of assessing medical fitness for specific job tasks?**

Answer: Substance abuse is addressed by the Process Safety Code in Management Practice 21: "Programs designed to assure that employees in safety-critical jobs are fit for duty and are not compromised by external influences, including alcohol and drug abuse."

7. **Does the EHS Code require job tasks to be evaluated for physical requirements?**

Answer: Job tasks should be evaluated to determine the specific physical abilities associated with a task. An employee's abilities should be evaluated using medical criteria before being assigned to a job task with specific physical requirements. For example, employees should be medically evaluated to determine their ability to wear a respirator before being assigned to job tasks requiring the use of a respirator.

8. **Does the EHS Code require member companies to provide annual medical examinations to all employees as part of an occupational medical surveillance program?**

Answer: No. Occupational medical surveillance programs should provide appropriate, targeted medical assessments to those employees exposed to specific hazards. For example, regular spirometry examinations to assess lung function should be offered to employees exposed to an agent known to affect lung function.

9. **Does the EHS Code require member companies to assess the effect of exposures to chronic hazards on the health of employees?**

Answer: As a part of maintaining records and analyzing data for trends, member companies should assess the long-term health experience of their employees in relationship to exposures to chronic hazards. Chronic hazards include, for example, long-term exposures to carcinogens.

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Product Stewardship Booklet for the Code of Management Practices

The code's management practices are grouped into three categories, described as follows:

Management Leadership and Commitment contains Management Practices 1-3. These practices serve to give direction, provide resources, set priorities, and establish responsibilities within your company that provide an appropriate atmosphere and foundation for successfully implementing product stewardship.

Information and Characterization includes Management Practices 4 and 5. These address the need to continually increase the body of knowledge surrounding chemical products in order to improve hazard identification and risk characterization at every stage in a product's life.

As the cornerstone of product stewardship, Management Practices 6-12 are categorized as **Risk Management** practices, which work together to manage risks at every stage of a product's life. Some of these management practices are the most challenging in the Code because they extend the risk management process beyond traditional boundaries to consider risks beyond the point of sale.

Management practices in the first two categories provide the foundation for conducting the risk management practices in the third category. The ability to implement each management practice, therefore, relies upon the successful implementation of previous practices, with the successful development and implementation of product stewardship progressing from a planning and resource allocation to an information collection phase, and finally to action-oriented, risk management activities.

Purpose and Scope

The purpose of the Product Stewardship Code of Management Practices is to make health, safety and environmental protection an integral part of designing, manufacturing, marketing, distributing, using, recycling and disposing of our products. The code provides guidance as well as a means to measure continuous improvement in the practice of product stewardship.

The scope of the code covers all stages of a product's life. Successful implementation is a shared responsibility. Everyone involved with the product has responsibilities to address society's interest in a healthy environment and in products that can be used safely. All employers are responsible for providing a safe workplace, and all who use and handle products must follow safe and environmentally sound practices.

The code recognizes that each company must exercise independent judgment and discretion to successfully apply the code to its products, customers and business.

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Relationship to Responsible Care® and Guiding Principles

Implementation of the code promotes the achievement of several of the Responsible Care® Guiding Principles:

- to make health, safety and environmental considerations a priority in our planning for all existing and new products and processes;
- to develop and produce chemicals that can be manufactured, transported, used and disposed of safely;
- to extend knowledge by conducting or supporting research on the health, safety and environmental effects of our products, processes and waste materials;
- to counsel customers on the safe use, transportation and disposal of chemical products;
- to report promptly to officials, employees, customers and the public, information on chemical-related health or environmental hazards and to recommend protective measures;
- to promote the principles and practices of Responsible Care® by sharing experiences and offering assistance to others who produce, handle, use, transport or dispose of chemicals.

This code complements, and should be implemented in conjunction with, current and future Codes of Management Practices. Chapter 3 discusses the Product Stewardship Code's relationship to the other existing codes.

Management Practices

Management Practice 1

LEADERSHIP: Demonstrates senior management leadership through written policy, active participation and communication.

The objective of this management practice is to set the driving force for the Product Stewardship Code. To this end, senior management must first adopt a policy that reflects the company's vision of product stewardship. This policy should state clearly how senior management expects product stewardship to be managed within the company.

To be effective, the policy should emphasize that product stewardship, like quality and safety, must be woven into the company's culture. It also should be clear that the commitment is an ongoing, long-term part of the company's operations and business.

Finally, if the new policy represents a change in the way of doing business, it should be clear that a change in behavior is expected. In some companies, a separate written product stewardship policy may be effective. In others, a broader health, safety and environmental (H,S&E) policy that incorporates the principles of product stewardship may be more appropriate.

However, a policy alone is not enough. The words of a policy must be reinforced by actions and behaviors that continuously reaffirm the goals senior management has set. Senior management is responsible for conveying throughout the organization its involvement with, and support of, product stewardship--especially to the next level of manage-

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ment and encouraging it to do the same. (Management Practices 2 and 3 focus on some of the visible signals -- for example, goals, performance measurement and resource allocation).

Management Practice 2

ACCOUNTABILITY and PERFORMANCE MEASUREMENT: Establishes goals and responsibilities for implementing product stewardship throughout the organization. Measures performance against these goals.

One of the key ways senior management can convey the importance of product stewardship is by establishing it as a priority in business planning and individual performance planning. The objective is to develop a process that will result in continuous improvement through goals that are well-defined, achievable and measurable. Similarly, individual responsibilities should be clear and consistent.

Management Practice 3

RESOURCES: Commits resources necessary to implement and maintain product stewardship practices.

The commitment of resources, both human and financial, is a critical signal that management can send to show its commitment to product stewardship practices and is a vital component for some implementation activities. Undoubtedly, resources will vary from company to company. However, in all cases, the commitment of resources should be consistent with product stewardship implementation plans and sufficient to support continuous improvement.

Management Practice 4

HEALTH, SAFETY and ENVIRONMENTAL INFORMATION: Establishes and maintains information on health, safety and environmental hazards and reasonably foreseeable exposures from new and existing products.

Just as Management Practice 1 is the driving force for the Product Stewardship Code, Management Practice 4 is the foundation. The objective of Management Practice 4 is to establish a knowledge base of human and environmental hazards and reasonably foreseeable exposures and, once established, to maintain it. Under this practice, companies gather information to support the system that characterizes a product's risk (Management Practice 5) and, ultimately, the system that develops the methods to manage that risk (Management Practice 6).

Initially, some companies may establish their knowledge base by developing information; others may do so by collecting and compiling available information. However, all companies should have a process to continuously gather relevant product information and to review existing information to determine if it is accurate, current and complete.

Sources of information may include published, unpublished and/or internally generated scientific reports on health, safety and environmental effects and exposures. Generally, the types of information could cover animal or human toxicity, ecotoxicity and chemical and physical properties that affect exposure or the environmental impact. In many cases, exposure information is not directly available but may be estimated with product use information.

Information on a product's handling, use and reasonably foreseeable exposures in research, development, manufacturing, transport, storage, packaging and disposal may

be obtained by a number of means. These could include surveys of customers and other product receivers, technical reviews or visits to customers, and/or observations reported by sales and marketing personnel.

Management Practice 5

PRODUCT RISK CHARACTERIZATION: Characterizes new and existing products with respect to their risk using information about health, safety and environmental hazards and reasonably foreseeable exposures. Establishes a system that initiates re-evaluation.

This practice has two objectives. The first is to use the information gathered in Management Practice 4 to develop a thorough understanding of the product's risk. This characterization may be either quantitative or qualitative. The second objective is to establish a system that triggers re-evaluation, whether upon receipt of new information or upon periodic, scheduled review.

A product may be characterized as a single entity or it may be characterized in a group of products based on similar uses, compositions or physical properties. Product risks may vary with different uses or exposures.

The time frame for re-evaluation may vary from product to product. Triggers for such re-evaluations might include significant new hazard or exposure data, significant new use or misuse information as it becomes known or a substantial increase in sales volume, suggesting new uses or markets.

Management Practice 6

RISK-MANAGEMENT SYSTEM: Establishes a system to identify, document and implement health, safety and environmental risk-management actions appropriate to the product risk.

The objective of Management Practice 6 is to establish a system for identifying and implementing risk-management actions. Risks involved in the production and use of chemicals can be managed and controlled if each company takes the basic information on a product's risk (Management Practice 4), characterizes it (Management Practice 5) and then implements a series of risk management actions (Management Practice 7 through 12). These risk management actions are a result of a conscious weighing of technical, ethical, societal and business issues surrounding a product. Actions taken as a result can range from no action, to providing MSDSs and labels, to product reformulation or repackaging, to removal of the product from a market.

The management practices that follow, Management Practices 7 through 12, are specific areas of company operations that warrant discussion and special emphasis.

Management Practice 7

PRODUCT and PROCESS DESIGN and IMPROVEMENT: Establishes and maintains a system that makes health, safety and environmental impacts–including the use of energy and natural resources–key considerations in designing, developing and improving products and processes.

Designing products and processes (or redesigning existing products and processes) with a system to identify health, safety and environmental impacts throughout the product lifecycle is one of the most effective ways of managing the product risks identified in Management Practice #5. One objective of this Practice is attainment of the preferred

environmental hierarchy: source reduction; reuse; recycling; and disposal. Source reduction includes equipment or technology modifications, process or procedure changes, product reformulation or design, substitution of raw materials, and improvements in housekeeping, maintenance, training or inventory control.

This Practice also addresses the need for proper energy and natural resource utilization--important considerations for reducing potential adverse environmental impacts and achieving sustainable development.

The health, safety and environmental attributes of the product throughout its entire life-cycle should be addressed at the beginning, during the concept and design (or redesign) phases. Re-evaluation should occur on a periodic basis or whenever changes to the product or process are contemplated.

Insights and contributions from employees in all functional areas that may affect health, safety and the environment should be incorporated into the review. These functional areas include research and development, manufacturing, distribution, sales and marketing and regulatory personnel.

Management Practice 8

EMPLOYEE EDUCATION and PRODUCT USE FEEDBACK: Educates and trains employees, based on job function, on the proper handling, recycling, use and disposal of products and known product uses. Implements a system that encourages employees to feed back information on new uses, identified misuses or adverse effects for use in product risk characterization.

This practice has two parts. The first is to ensure that all employees who are involved with products have the training and education necessary to understand product (and packaging) hazards, proper use, handling, reuse, recycling and disposal procedures. The second is to help ensure that any new information that may alter the way risk is being managed is factored into the risk characterization process on a timely basis (Management Practice 5).

The training and education of employees should be tailored to specific job functions. For example, marketing and sales personnel are in a unique position to know how customers are using products and must be aware of product hazards, reasonably foreseeable exposures, appropriate uses and proper handling procedures. They should be able to identify product deviations and to recognize adverse health or environmental effects. These personnel should be alert to the customer's and the public's comments or perceptions.

It is essential that there be timely feedback of this safety, health or environmental information or concerns into the risk characterization process (Management Practices 4 and 5). This feedback may change the risk management actions (Management Practice 6).

Management Practice 9

CONTRACT MANUFACTURERS: Selects contract manufacturers who employ appropriate practices for health, safety and environmental protection for the operations under contract, or works with contract manufacturers to help them implement such practices. Provides information and guidance appropriate to the product and process risk to foster proper handling, use, recycling and disposal. Periodically reviews performance of contract manufacturers.

The objective of this Management Practice is to encourage the use of contract manufacturers who have sound health, safety and environmental practices for the specific operations under contract.

Companies are responsible for assessing the capabilities of each contract manufacturer and for supplementing their expertise with enough guidance to foster proper handling (including storage), use and disposal. If contract manufacturers are unwilling to implement appropriate controls, a company may decide to cease doing business with them. While companies are committed to working with contract manufacturers to help them improve performance, improvement to meet appropriate H,S&E standards should occur within a reasonable time frame.

The level of a company product's involvement and review will vary according to the degree of product risk. "Working with" may include providing detailed H,S and E product information, providing technical assistance on product handling techniques and waste minimization and management, and possibly visiting the contract manufacturer's facilities. These actions will vary according to the individual contract manufacturer and operation. Because of the greater degree of company control, much closer interaction will be appropriate with contract manufacturers than compared to distributors and customers. All contract manufacturers should be subject to periodic performance reviews.

Along with Management Practices 10 and 11, this management practice constitutes an important outreach component of the product stewardship code. The long-term result of implementing this practice, like the other outreach management practices, should be better health, safety and environmental performance -- not just for CMA companies but for the entire chemical industry.

Management Practice 10

SUPPLIERS: Requires suppliers to provide appropriate health, safety and environmental information and guidance on their products. Factors adherence to sound health, safety and environmental principles, such as those contained in Responsible Care®, into procurement decisions.

The objective of this management practice is to extend product stewardship practices to suppliers. Where appropriate, health, safety and environmental factors should be an integral part of the procurement process, including product exchange. For some companies, this management practice may mean close cooperation within the purchasing, manufacturing, health and loss prevention functions to determine how the supplier can contribute to a safer environment. Other companies may opt to make these health, safety and environmental considerations part of their supplier quality reviews or to factor them into contractual decisions. Suppliers should describe health, safety and environmental programs and goals.

Along with Management Practices 9 and 11, this management practice constitutes an important outreach component of the product stewardship code. The long-term result of implementing this practice, like the other outreach management practices, should be better health, safety and environmental performance -- not just for CMA companies but for the entire chemical industry.

As with customers, reviews of suppliers will be commensurate with product risk. However, it is appropriate to expect companies to make a continuous effort to extend the principles of product stewardship beyond the CMA membership and Responsible Care® partners.

Management Practice 11

DISTRIBUTORS: Provides health, safety and environmental information to distributors. Commensurate with product risk, selects, works with and periodically reviews distributors to foster proper use, handling, recycling, disposal, and transmittal of appropriate information to downstream users. When a company

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identifies improper practices involving a product, it will work with the distributor to improve those practices. If, in the company's independent judgment, improvement is not evident, then the company should take further measures–up to and including termination of the business relationship. This Management Practice should be implemented in conjunction with the Distribution Code of Management Practices.

The objective of this management practice is to encourage distributors to establish and implement proper health, safety and environmental practices involving our products. It should be implemented in conjunction with Management Practice 4.6 of the Distribution Code, which focuses on the inbound/outbound and storage aspects of distributor operations. The emphasis in the Product Stewardship Code is on working with distributors to help them achieve an appropriate level of performance on other aspects of their operations, such as recycling, handling, storage, use, disposal, waste minimization and management and the transmittal of information to downstream users. As with customers and other direct product receivers, a company may decide to terminate the business relationship with those unwilling to implement corrective actions appropriate for limiting risks and otherwise achieving the health, safety and environmental objectives of product stewardship.

The level of involvement with a distributor will vary according to the product's risk. That risk should also trigger the frequency of the periodic performance reviews mandated in the Distribution Code. These reviews may be used as a forum to share accumulated knowledge that will elevate health, safety and environmental performance – and product stewardship practices.

It is recognized that distributors perform a broad range of functions, from repackaging the original product to reformulating it into a new product with new health, safety and environmental characteristics. The "transmittal of appropriate" information acknowledges that while we expect distributors to pass along H,S&E information, product changes made by the distributor may mean that the information originally supplied with the product no longer applies. In these cases, the distributor needs to issue information that reflects the current H,S&E information.

As with customers and suppliers, reviews of distributors will be commensurate with product risk. It is appropriate to expect companies to make a continuous effort to extend the principles of product stewardship beyond the CMA membership and Responsible Care®partners.

Management Practice 12

CUSTOMERS AND OTHER DIRECT PRODUCT RECEIVERS: Provides health, safety and environmental information to direct product receivers. Commensurate with product risk, works with them to foster proper use, handling, recycling, disposal, and transmittal of appropriate information to downstream users. When a company identifies improper practices involving a product, it will work with the product receiver to improve those practices. If, in the company's independent judgment, improvement is not evident, then the company should take further measures–up to and including termination of product sale.

The objective of this management practice is to encourage customers to establish proper health, safety and environmental practices involving our products. While the emphasis is on providing information to customers, other assistance may be appropriate where the product risk requires it. This management practice recognizes that if those efforts are unsuccessful, a company has a range of actions that it can take. Possible actions include, in the exercise of the company's independent judgement, not selling a given product to the customer. .

The level of involvement will vary according to the product's risk. Activities could include reinforcement of previously provided health, safety and environmental information, additional training, etc. At a minimum, both parties should share any accumulated knowledge that would enhance health, safety and environmental protection.

The "transmittal of appropriate information" acknowledges that while we want customers to pass along H,S&E information, product changes made by the customer may mean that the information originally supplied with the product no longer applies. In these cases, the customer needs to issue information that reflects the current H,S&E information.

Along with Management Practices 9, 10 and 11, this management practice constitutes an important outreach component of the Product Stewardship Code. The long-term result of implementing this practice, like the other outreach management practices, should result in improved health, safety and environmental performance – not just for CMA member companies but the entire chemical industry.

As with distributors and suppliers, reviews of customers will be commensurate with product risk. However, it is appropriate to expect companies to extend the principles of product stewardship beyond the CMA membership and Responsible Care® partners.

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