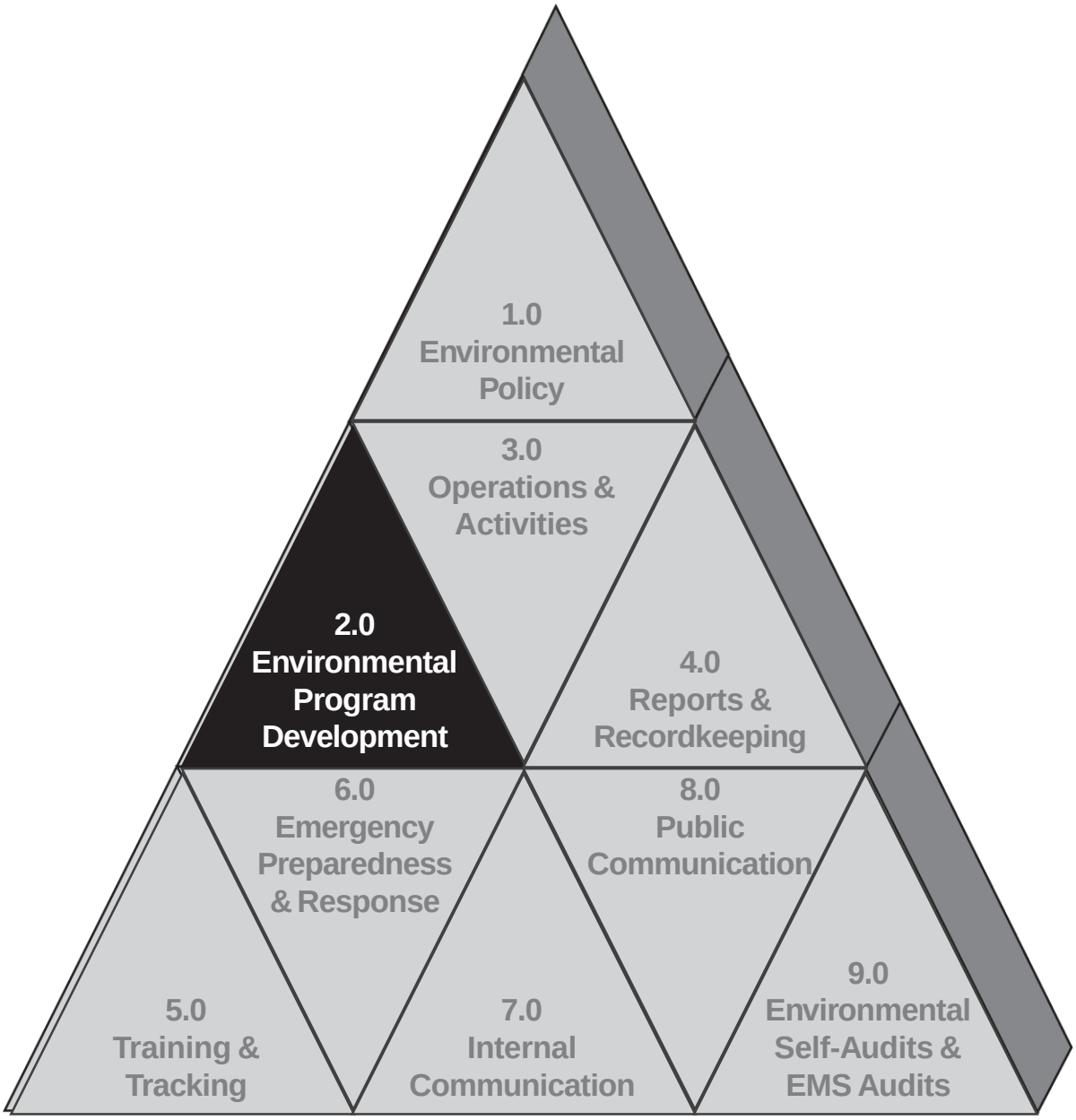

1.0
Environmental
Policy
3.0
Operations &
Activities
2.0
Environmental
Program
Development
4.0
Reports &
Recordkeeping
6.0
Emergency
Preparedness
& Response
8.0
Public
Communication
5.0
Training &
Tracking
7.0
Internal
Communication
9.0
Environmental
Self-Audits &
EMS Audits

2.0 Environmental Program Development

2.1 Environmental Program Development

Keys

Establish and maintain an environmental program and procedures that identify the environmental aspects of activities, products and services, and determine the significant impacts. Develop environmental objectives and targets. [R 324.1505(2)(b)(ii)]

An EMS allows you to manage those activities, products or services that interface, interact, influence, or impact in a positive or negative way, the environment. But first you have to identify those activities, products or services, and determine how they interact with and impact the environment. You then develop goals for improved environmental performance and compliance based on your identified environmental impacts. The establishment of procedures to identify environmental impacts and set goals is the Environmental Program.

Your Environmental Program should establish procedures to:

1. Identify *aspects* and potential *impacts* of your activities, products, or services,
2. Determine which *aspects* have significant *impacts*, and
3. Develop *objectives* and *targets* to manage those significant *impacts*.

The Environmental Program helps you set environmental management goals/targets for your EMS. Your goals/targets should support the Environmental Policy that you have developed for your organization. These goals should also include the P2 goals you have set as part of your P2 program (if you have one). At a minimum, you should review your Environmental Program and set new goals each year.

The Environmental Program is the backbone of an EMS. It is the planning element of your EMS that helps you determine what you are going to control and monitor at your facility to reduce your impact on the environment.

2.2 Definitions

Keys

Developing aspects and impacts works best if your whole project team is involved in the process.

Objectives and targets should be set by people directly connected to the area of impact.

What Exactly are Environmental Aspects, Impacts, Objectives, and Targets?

Environmental Aspects - elements of your activities, products, processes/equipment, services, by-products, wastes, or anything you do at your facility that can interact with the environment (e.g., air emissions, spills, consumption of fuel). An activity, product or service does not have to be regulated by an agency to be considered an aspect.

Environmental Impacts - any change to the environment due to your activities, products or services (e.g., degradation of air quality, depletion of natural resources, contamination of water). These changes can be positive or negative. The significance of an impact is determined by you. As criteria you can use regulatory requirements, legal liability, public risk, hazard/ damage potential, costs, frequency, and your ability to control the impact.

Objective - an environmental goal that a facility sets to reduce significant impacts leading to improved environmental performance (e.g., develop a recycling/reuse program). P2 Program goals are objectives that should be included.

Target - a quantified goal that is scheduled and assigned, or a detailed performance requirement to meet an objective (e.g., reduce fuel consumption by 10% in 12 months).

2.3 Environmental, Legal and Other Requirements

A good first step in identifying aspects and impacts is knowing what the legal and business requirements of the Environmental Program are for your facility. These include, but are not limited to:

- all federal requirements,
- all state requirements,
- all local requirements,
- all environmental permits,
- all compliance monitoring and reporting requirements,
- a listing of facility emergency response, spill, and abatement plans.

This EMS focuses on environmental compliance, but you can also include all Occupational Safety and Health Administration (OSHA) requirements such as Process Safety Management, corporate/association requirements (e.g., CMA's Responsible Care®, EMAS), industrial practices or any other area you want covered under your EMS. Requirements may also include company or facility environmental practices, policies or procedures. Identify who is in charge of maintaining these requirements, and the location of the records for your legal requirements.

This EMS requires self auditing of your facility to identify and correct any violations of applicable environmental regulations or other requirements. So a system to continuously check and update your environmental requirements will be part of the EMS. (Self auditing will be developed later in this manual.)

Use Form 2.1 to list your environmental and legal requirements. Or, if you already have these requirements documented in another location, include that as documentation for your EMS.

FORM 2.1

EMS Environmental, Legal and Other Requirements

Company:
Date:

1. Who is responsible for environmental compliance at your facility?
   Specify:
   A. Names;
   B. Job positions;
   C. Areas of responsibility for each individual.

Name	Job Position	Responsibility

2. List any environmental or engineering consultants used by your facility and their area(s) of specialty.

Environmental or Engineering Consultants	Area of Specialty

3. List any other legal or business requirements under which your facility operates in the table below. These can include the following:
   - Quality systems (QS 9000);
   - Preventative maintenance programs;
   - Pollution prevention;
   - Recycling programs;
   - Process Safety Management or other OSHA/safety programs;
   - Industry specific programs (e.g., CMA's Responsible Care®, EMAS);
   - Corporate policies or operating standards.

Name/Type of Program	**Date Initiated**	**Person Responsible**

4. Does your facility have any air, wastewater, storm water, or other related permits issued by the Michigan Department of Environmental Quality (MDEQ), Environmental Protection Agency (EPA), local governments, etc.?

   Permits are issued according to regulatory requirements in federal, state, and local laws. They contain conditions and requirements that your facility must follow to remain in compliance with environmental laws. Permits generally have:
   - a name or type,
   - a permit number, and
   - issue/expiration dates.

   Some example permits are listed in the following table.

Examples:

Permit Type and No.	**Issuing Authority**	**Issue Date**	**Expiration Date**
National Pollutant Discharge Elimination System (NPDES) permit	MDEQ – Water Bureau (WB)	May 1, 1996	October 1, 2000
NPDES General Permit No. MIR010000, Storm Water from Industrial Activity, (Certificate of Coverage No. MIR80S090)	MDEQ – WB	May 30, 1`996	February 14, 2000
Permit-to-Install No. 483-96	MDEQ – Air Quality Division (AQD)	April 4, 1996	Life of permitted process

Use the blank table on the next page to list the permits for your facility.

ENVIRONMENTAL PERMITS

Permit Type and No.	Issuing Authority	Issue Date	Expiration Date

5. Is your facility under any administrative enforcement orders? These are issued due to noncompliance of permit requirements, spills of polluting and hazardous materials, and violations of environmental laws. Administrative enforcement orders contain four main components:

   - Provide notification of a violation of an environmental law.
   - Provide the requirement by law that was violated.
   - Tell what the facility did to violate the law.
   - Require that the violation be corrected by a specified date or provide a corrective action plan to correct the violation by a specified date.

   Some examples of administrative enforcement orders are in the following table.

Examples:

Type of Action/Order	**Issuing Authority**	**Issue Date**	**Required Action**
Letter of Violation Written Notification of Rule 901 Violation on August 31, 1998	MDEQ – AQD	September 7, 1998	Determine reason for violation and respond with corrective action by September 17, 1998.
Notice of Noncompliance NNC No. NC01-98-01-001F	MDEQ – WB	January 3, 1998	Correct non-payment of storm water fees.
Notice of Violation NOV No. NV-01-98-01-001F	MDEQ – WB	February 23, 1998	Prevent discharge of wastewater to the surface waters of the state.
Consent Order WMD Order No. 111-99	MDEQ – Waste and Hazardous Materials Division (WHMD)	October 29, 1998	Develop work plan and schedule to correct violations of hazardous waste storage, and implement.
Consent Judgment File No. 98-12345-CE	State of Michigan Circuit Court for the 63rd Judicial Circuit	December 5, 1998	Initiate and complete Remedial Action.

Use the blank table on the following page to list any administrative enforcement orders for your facility.

ADMINISTRATIVE ENFORCEMENT ORDERS

Type of Action/Order	Issuing Authority	Issue Date	Required Action

6. What environmental reports/documents is your facility required to maintain or submit? Environmental laws can contain conditions requiring spill plans, contingency plans, monitoring of discharges, or remedial activities. These requirements may or may not have to be submitted to the regulating agency but the records must be kept at the facility. Some examples of these reports/documents are listed below and in the following example table.

   - Reports and recordkeeping required by law or permit (e.g., pretreatment monitoring results, Tier I/II, Form R data, Michigan Air Emissions Reporting [MAERS], waste manifests).
   - Monitoring data (stack tests for air emission, etc.).
   - Spill Plans (e.g., Pollution Incident Prevention Plan [PIPP], Spill Prevention Control and Countermeasures [SPCC] Plan), Emergency Response Plans, Risk Management Plans (RMP).
   - Transaction due diligence information, Baseline Environmental Assessments.
   - Environmental communications and reports (correspondence to the MDEQ, remedial activities and investigations, etc.).

Examples:

Type of Report	**Requirement/Agency Requiring It**	**Reporting Cycle/ Renewal Period**	**Location of Information**
MAERS	Air emission reporting/MDEQ – AQD	Annual	Environmental Files
Form R	Chemical Release Reporting/EPA	Annual	Environmental Files
Waste manifests	Disposal of used oil/ MDEQ – WHMD	Per shipment	Environmental Files
Pollution Incident Prevention Plan (PIPP)	Storage of oil and chemicals/ MDEQ – WHMD	Evaluate every three years/Update upon changes in the facility	Environmental Files

Use the blank table on the following page to list any environmental reports and documents that are maintained for your facility.

ENVIRONMENTAL REPORTING / DOCUMENTATION

Type of Report	Requirement/ Agency Requiring It	Reporting Cycle/ Renewal Period	Location of Information

7. List the regulatory agencies (local, state, and federal) that your facility contacts or would contact with questions. (Include the name and telephone number for future reference.)

For example: Air permits would be handled by the Michigan Department of Environmental Quality (MDEQ) – Air Quality Division of the district in which a facility is located. Drinking water could be regulated by a local health department and the MDEQ – Water Bureau.

	Name	**Agency**	**Phone**
Air: Federal State Local			
Water: Federal State Local			
Solid/Hazardous Waste: Federal State Local			
Recycling Programs: Federal State Local			
Others:			

2.4 Identification of Activities, Products and Services

Keys

Sources of Information:

- **Employees, past and present,**
- **Facility process and engineering drawings, both current and historic,**
- **Phase I's, Phase II's or Baseline Environmental Assessments,**
- **Local government offices such as tax assessors, building department, etc. for facility information,**
- **MDEQ, Freedom of Information Act (FOIA) request to the local district to review past and current permits, and all records of reports.**

Once you have identified your environmental and legal requirements, you need to look at the activities, products or services that make up your business in order to develop aspects and impacts for your Environmental Program. This is an exercise that is best done by your whole project team.

What Do You Know About Your Facility?

The most important source of information is your current operating facility and its employees. Take a walk around your facility. What is there now? What processes are actually active? What processes are inactive? Where are your storage areas for incoming materials, and outgoing products and by-products?

What facility process drawings, engineering design drawings, and facility operations documents do you have? Are they current?

Diagram your business process so that it can be analyzed at different levels of detail. Use the following guidance and examples to help you identify processes at your facility. Start with an overview of your entire operation and break it down into activities, products and services. Think in terms of raw material inputs, energy used and auxiliary support systems, waste streams, and end products.

PROCESS INFORMATION:

1. Review your manufacturing/production process(es), products and services. You need to understand your facility in order to determine the environmental aspects that may apply. If you have process diagrams or as-built drawings, review them and determine if they are current for your facility. If no process diagrams exist, create simple flow diagrams using the following guidance to help define your process(es).

   Overview of Process

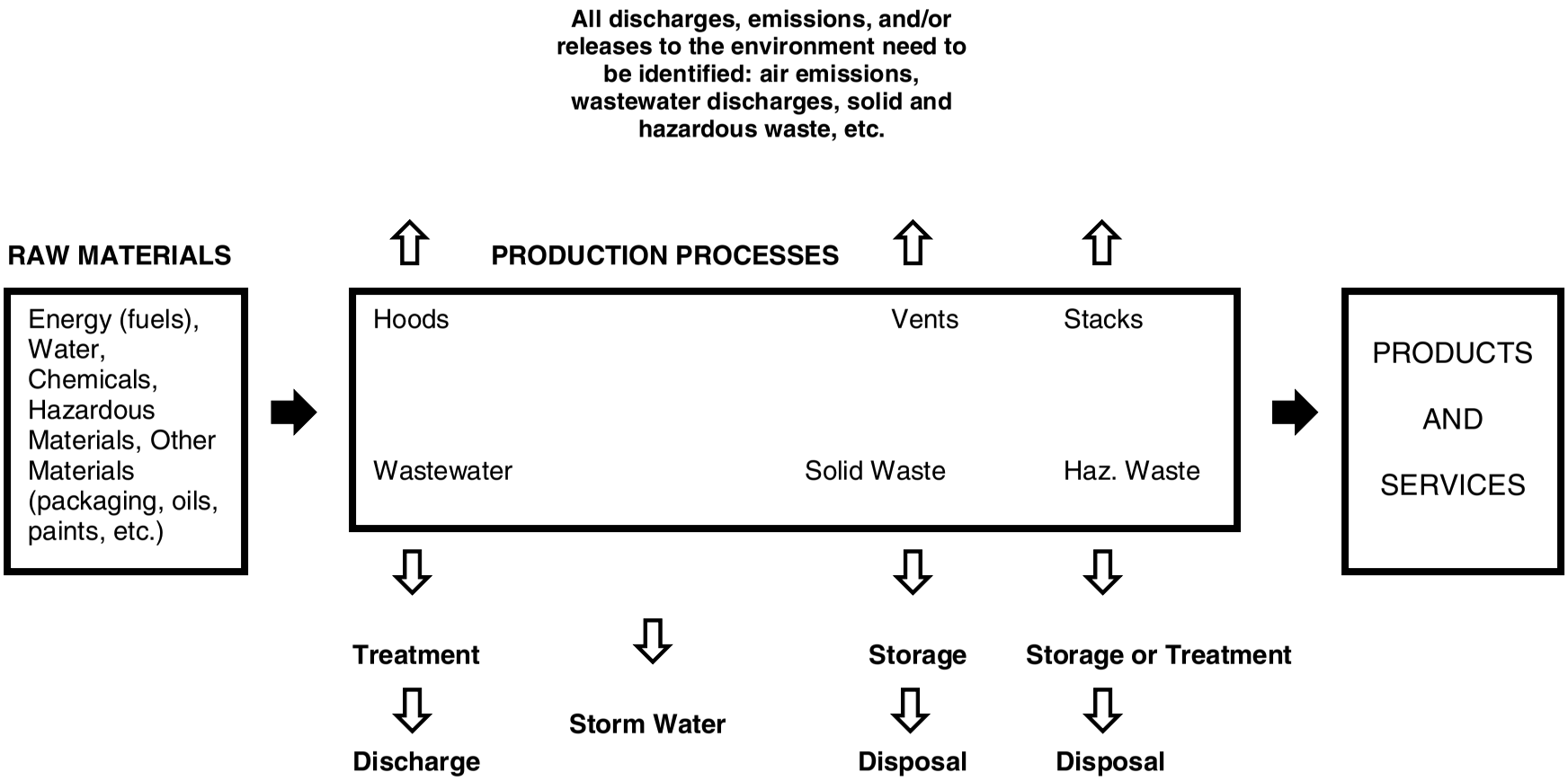
   a. Draw a simple flow chart for the whole facility from the introduction of raw materials at the point of entry to your facility to the shipment of finished products and the waste products generated.
   b. Identify raw, final, and waste products in your process.
   c. Identify the equipment used to manufacture the products and their supporting processes. Look especially for watersprays, hoods, paint booths, sumps, dumpsters, storage areas, tanks, and wastewater treatment systems where contaminant discharges are controlled.

Example 2.1: Process Analysis
To help you in the identification process, attached is a simple example of a flow chart with pointers on processes and equipment that need to be identified.

Example 2.2: Joseph's Forklift and Hauling Company
Attached is a flow diagram for an example facility using the above guidance.

Use Form 2.2 and these pointers to create a flow diagram for your whole facility.

EXAMPLE 2.1: PROCESS ANALYSIS



Identify equipment such as electrical transformers and monitoring equipment that may contain regulated materials (e.g., PCBs, radioactive materials).

Identify auxiliary service equipment such as air compressors, boilers, cooling towers, HVAC, refrigerators, air handling systems, and heat exchangers.

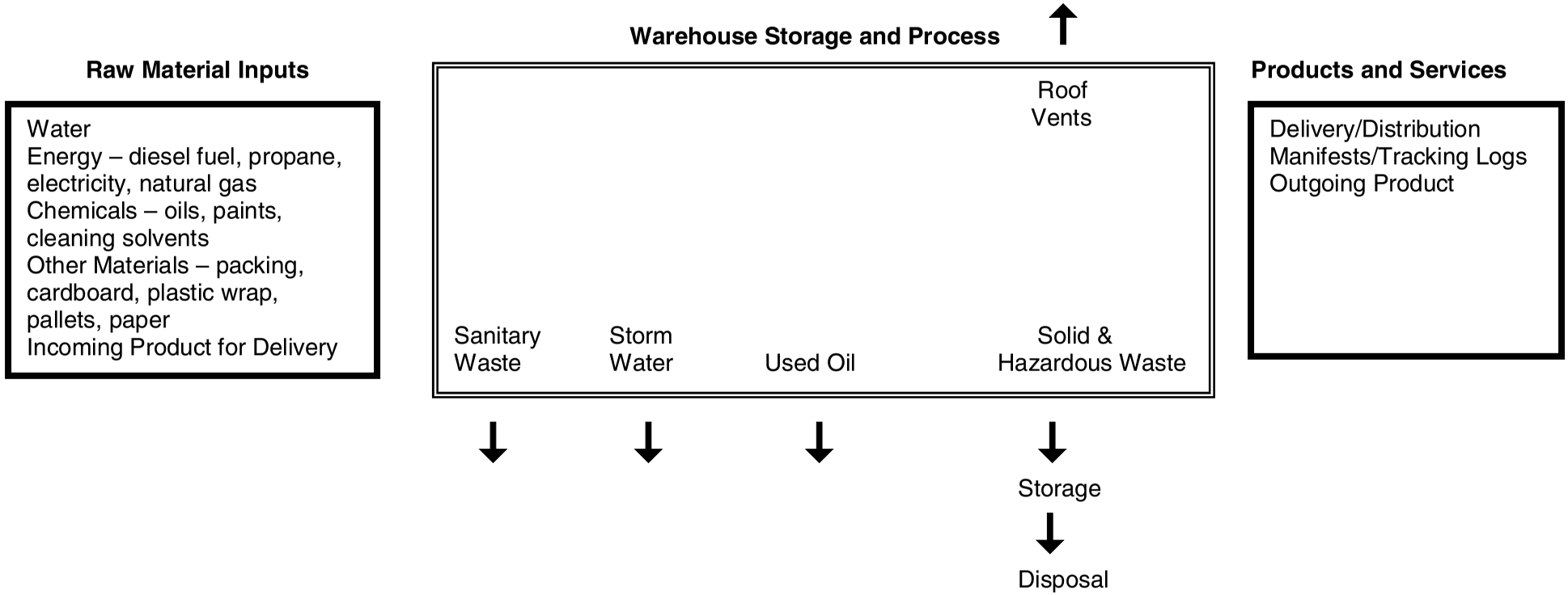
Identify storage tanks (above and below ground), piping systems for chemicals and fuels, and storm water discharge conduits.

Identify quantities of materials stored on-site, and quantities used and disposed of in a year's time.

EXAMPLE 2.2

Joseph's Forklift and Hauling Company

Overview – Activities, Products, and Services



Two transformers are located on-site. They do not contain PCBs.
Two HVAC units with air handling system are located in the warehouse.
One aboveground storage tank located on-site for #2 fuel oil and one underground storage tank is located by maintenance for diesel fuel.
One boiler using #2 fuel oil provides facility heat.

FORM 2.2

EMS Identification of Activities, Products and Services

Company:
Date:

PROCESS INFORMATION: FACILITY OVERVIEW

Process Break Down

2. Look at your process overview. You may need to further break it down into activities, products and services to determine what goes to and what comes from each process. Create a box flow chart for each operational unit (activities, product or service). Include the following criteria on each flow chart:

    a. Draw a simplified production flow diagram from raw materials to finished products for each unit.
    b. List and show the activities, products and services you are charting.
    c. List and show the raw material inputs for each unit.
    d. List and show the wastes from each unit and where the wastes go. (Possible wastes can be containers and packaging, waste streams from production, maintenance activities, and clean-up, etc.).
    e. Check your overview facility flow chart and make sure to separately chart auxiliary systems that are not directly in the production line. These include storage areas for waste disposal, storage tanks, air compressors, boilers, cooling towers, heating, ventilation and air conditioning, refrigerators, air handling systems, heat exchangers, electrical transformers, and drainage systems that include storm water discharges. Do you generate any wastes that are not on the flow diagrams (e.g., light bulbs, batteries, pesticides, used oil)? If so, describe the wastes.

Example 2.3: Joseph's Forklift and Hauling Company

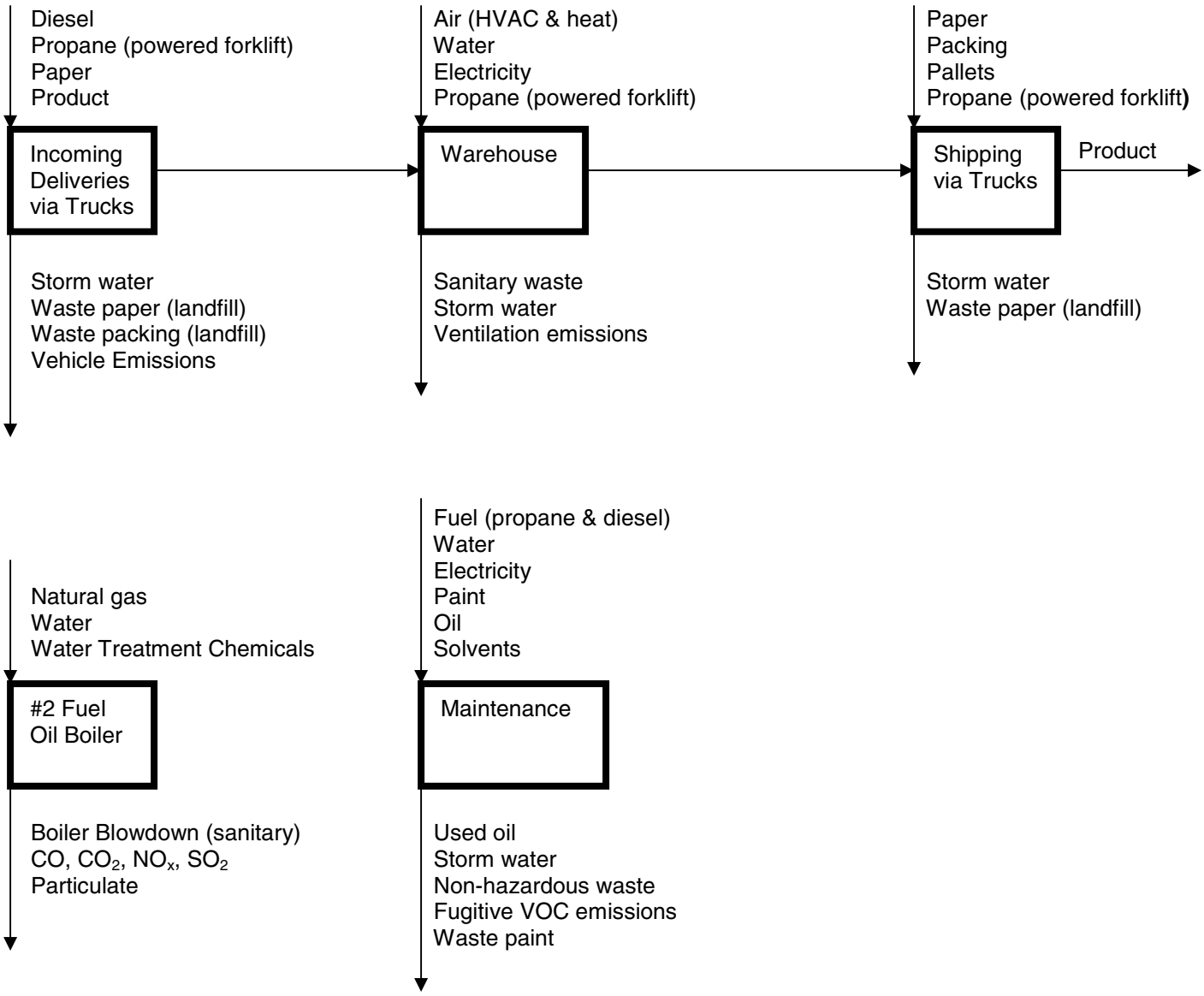
A flow chart for the separate operational units for the example facility is shown.

Use Form 2.3 and these pointers to create a flow diagram for the activities, products and services at your facility.

EXAMPLE 2.3

Joseph's Forklift and Hauling Company

<u>Operational Units</u> – Activities, Products, and Services



FORM 2.3

EMS Identification of Activities, Products and Services

Company:
Date:

PROCESS INFORMATION: OPERATIONAL UNITS – ACTIVITIES, PRODUCTS, AND SERVICES

BUILDING AND SURROUNDINGS INFORMATION:

3. Take a walk around your facility site and describe the physical setting. Look for environmentally sensitive areas or areas of high population density that your operations and activities could adversely impact. Take into account the following items:

   a. Describe the buildings, parking areas, and approximate age of your facility.
   b. Describe the area immediately bordering your facility (e.g., residential, light industry, agricultural).
   c. Identify distance and direction to the nearest residential populations (closest single residential neighbors and/or closest town or city).
   d. Is there a recreation/conservation area located nearby (e.g., park, wildlife refuge)?
   e. Is your facility located near an intermittent stream, drainage channel or ditch, river, or lake (i.e., surface water body)?

   In addition, look for unknowns that would have potential environmental impacts (make sure these areas are identified on maps), such as:

   - Areas of past materials storage, and areas of stressed vegetation;
   - Unidentified pipes and stacks;
   - Habitat-sensitive areas (e.g., wetlands, Great Lakes protection areas);
   - Mining operations;
   - On-site landfills and incinerators; and
   - Specialty chemicals and/or waste storage (e.g., pesticides, PCBs, biohazardous waste).

   Tool: If you have a map of your facility, update it with this information. A U.S. Geological Survey (USGS) map, county plat map or tax assessment maps showing your facility and the surrounding area can also be used. Otherwise, use Form 2.4 to draw your facility and surrounding areas.

FORM 2.4

EMS Identification of Activities, Products and Services

Company:
Date:

BUILDING AND SURROUNDINGS INFORMATION

2.5 Environmental Aspects and Impacts

Keys

Identify the environmental aspects of activities, products and services over which there is control and determine the significant impacts to the environment. Ensure that the significant impacts are considered in setting environmental objectives. [R 324.1505(2)(b)(ii)(A)]

It is important to have participation from your whole team on this exercise, but if it is not possible to get the whole team together, have everyone develop their own aspect/ impact table and combine the tables into one.

Now that you have quantified the legal requirements at your facility and developed flow charts of your facility processes, you are ready to identify how your facility interacts and impacts the environment, either positively or negatively.

1. Look at the inputs and outputs for each activity, product and service that you have identified on your flow charts.
2. Is there an aspect of these inputs and outputs that interacts or has potential to interact with the environment?
3. What is the impact on the environment of the aspects that you have identified?
4. List each activity, product and service with it's aspects and impacts in a tabular form.

Look for the following Aspects:

- Use of raw materials, natural resources and energy consumption
- Beneficial reuse of some materials
- Types of air emissions
- Water discharges
- Solid and hazardous waste discharges
- Land use and potential for contamination

On the following page is an example of identification of aspects and impacts for a facility. Activities, products and services can have more than one aspect and impact. Review these examples and use Form 2.5 to identify the aspects and impacts of your activities, products and services.

EXAMPLE 2.4

Joseph's Forklift and Hauling Company

Aspect and Impact Analysis

Activity/Product/Service	Aspect	Impact
Deliveries	Consumption of diesel and propane	Depletes natural resources and raw materials
	Air emissions from diesel trucks	Degrades air quality
	Air emissions from forklifts	Degrades air quality
	Potential for spills from unloading and transfer operations	Contamination of storm water
	Generation of waste paper and packing	Depletes natural resources
Warehouse Operations	Electrical use	Depletes natural resources
	Ventilation emissions – CO, particulate due to operations	Degrades air quality
	Potential for spills from transfer operations	Contamination of storm water
	Sanitary waste	No control – assuming no hazardous materials are dumped down facility drains
Shipping	Consumption of paper, packing and pellets	Depletes natural resources and raw materials
	Air emissions from forklifts	Degrades air quality
	Potential for spills from loading and transfer operations	Contamination of storm water
Boiler	Consumption of #2 Fuel Oil	Depletes natural resources and raw materials
	Potential for spills during filling of #2 Fuel Oil AST	Contamination of soil and groundwater/storm water
	Air emissions of CO, CO_2, NO_x, SO_2, particulate	Degrades air quality
	Water discharges	Adds load to City POTW
	Water treatment chemicals – use and potential for spills	Depletes natural resources and raw materials and potential contamination of water discharges
Maintenance (vehicle and facility)	Release of vapors and potential for spills during vehicle refueling	Degradation of air quality and potential contamination of storm water
	Potential for leaks from UST	Contamination of soil and groundwater/ storm water
	Use of paint and solvents	Depletes natural resources and raw materials and VOC emissions contribute to degradation of air quality
	Use of oils and potential for oil spills	Depletes natural resources and raw materials. Contamination of soil and groundwater/storm water

Signature: *Chris Joseph* Date: *8/5/98*

FORM 2.5

EMS Aspects and Impacts

Company:

Date:

Activity/Product/Service	Aspect	Impact

Signature:_____ Date:_____

2.6 Significant Impacts

Keys

Determine the activities, products or services that have or can have significant impacts on the environment. [R 324.1505(2)(b)(ii) A)]

One current C3 designee identified 243 aspects and through the use of criteria narrowed the focus to 12 aspects that were identified as significant.

Your EMS functions to address and control the significant impacts or those impacts that present the highest impact to the environment at your facility. The process of determining the significance of an impact needs to be well defined so it can be duplicated from year to year for your EMS.

Determining the significance of an aspect and impact can be done a number of different ways. A facility can take into account considerations from environmental issues to business issues. First, chose the criteria you are going to use to determine significance.

Determination of Significant Impact:

The following is a list of criteria that can be used to determine significant impact. You may have other qualifiers that you feel are important to use for screening, so add them to the list.

1. Use of raw materials and natural resources.
2. Emissions to air.
3. Releases or discharges to water.
4. Subject to environmental regulation or permit.
5. Contamination of land and past environmental problems.
6. Source of public and/or employee complaints and issues.
7. Frequency of occurrence.

Second, on your aspects and impacts table, add the criteria you are going to use to determine significance. Develop a rating system. You can keep it simple and just check the criteria that the impact meets. Those impacts with the most criteria checked are the most significant. Or, you can develop a numerical rating system and assign numbers from the least severe to the most severe impact. The impacts with the highest scores would be the most significant.

On the following pages are examples of some methods to determine significant impacts. Review these examples and use Form 2.6 to identify significant impacts for your activities, products and services.

EXAMPLE 2.5

Joseph's Forklift and Hauling Company

Aspect and Impact Analysis for Significance

Activity/Product/ Service	Aspects	Impacts	Use of Raw Materials and Natural Resources	Emissions to Air	Releases to Water	Subject to Environmental Regulation or Permit	Contamination of Land and Past Environmental Problems	Source of Public and/or Employee Complaints and Issues	Frequent Occurrence	Significant Impact
Deliveries	Consumption of diesel and propane	Depletes natural resources and raw materials	X						X	N
	Air emissions from diesel trucks	Degrades air quality		X					X	N
	Air emissions from forklifts	Degrades air quality		X					X	N
	Potential for spills from unloading and transfer operations	Contamination of storm water			X	X	X			Y
	Generation of waste paper and packing	Depletes natural resources	X						X	N
Warehouse Operations	Electrical use	Depletes natural resources	X						X	N
	Ventilation emissions – CO, particulate due to operations	Degrades air quality		X						N
	Potential for spills from transfer operations	Contamination of storm water			X	X	X			Y
	Sanitary waste	No control – assuming no hazardous materials are dumped down facility drains				X			X	N

Date: *August 9, 1999*

Approved by: *Chris Joseph*

EXAMPLE 2.5

Joseph's Forklift and Hauling Company

Aspect and Impact Analysis for Significance

Activity/Product/ Service	Aspects	Impacts	Use of Raw Materials and Natural Resources	Emissions to Air	Releases to Water	Subject to Environmental Regulation or Permit	Contamination of Land and Past Environmental Problems	Source of Public and/or Employee Complaints and Issues	Frequent Occurrence	Significant Impact
Shipping	Consumption of paper, packing and pellets	Depletes natural resources and raw materials	X						X	N
	Air emissions from forklifts	Degrades air quality		X					X	N
	Potential for spills from loading and transfer operations	Contamination of storm water			X	X	X			Y
Boiler	Consumption of #2 Fuel Oil	Depletes natural resources and raw materials	X						X	N
	Potential for spills during filling of #2 Fuel Oil AST	Contamination of soil and groundwater/storm water			X	X	X			Y
	Air emissions of CO, CO_2, NO_x, SO_2, particulate	Degrades air quality		X		X			X	Y
	Water discharges	Adds load to City POTW			X	X			X	Y
	Water treatment chemicals – use and potential for spills	Depletes natural resources and raw materials and potential contamination of water discharges	X		X	X			X	Y

Date: *August 9, 1999*

Approved by: *Chris Joseph*

EXAMPLE 2.5

Joseph's Forklift and Hauling Company

Aspect and Impact Analysis for Significance

Activity/Product/ Service	Aspects	Impacts	Use of Raw Materials and Natural Resources	Emissions to Air	Releases to Water	Subject to Environmental Regulation or Permit	Contamination of Land and Past Environmental Problems	Source of Public and/or Employee Complaints and Issues	Frequent Occurrence	Significant Impact
Maintenance (vehicle and facility)	Release of vapors and potential for spills during vehicle refueling	Degradation of air quality and potential contamination of storm water		X	X	X	X		X	Y
	Potential for leaks from UST	Contamination of soil and groundwater/storm water			X	X	X			Y
	Use of paint and solvents	Depletes natural resources and raw materials and VOC emissions contribute to degradation of air quality	X	X		X				Y
	Use of oils and potential for oil spills	Depletes natural resources and raw materials and contamination of soil and groundwater/storm water	X		X	X	X		X	Y

Date: *August 9, 1999*

Approved by: *Chris Joseph*

EXAMPLE 2.6

Joseph's Forklift and Hauling Company

Aspect and Impact Analysis for Significance

Activity/Product/ Service	Aspects	Impacts	Use of Raw Materials and Natural Resources	Emissions to Air	Releases to Water	Subject to Environmental Regulation or Permit	Contamination of Land and Past Environmental Problems	Source of Public and/or Employee Complaints and Issues	Frequent Occurrence	Total	Significant Impact
Deliveries	Consumption of diesel and propane	Depletes natural resources and raw materials	3						3	6	Y
	Air emissions from diesel trucks	Degrades air quality		2					2	4	Y
	Air emissions from forklifts	Degrades air quality		2					2	4	Y
	Potential for spills from unloading and transfer operations	Contamination of storm water			2	3	3		0	8	Y
	Generation of waste paper and packing	Depletes natural resources	2						2	4	Y
Warehouse Operations	Electrical use	Depletes natural resources	2						2	4	Y
	Ventilation emissions – CO, particulate due to operations	Degrades air quality		1					0	1	N
	Potential for spills from transfer operations	Contamination of storm water			2	3	3		0	8	Y
	Sanitary waste	No control – assuming no hazardous materials are dumped down facility drains				1			2	3	N

Date: *August 9, 1999*

Approved by: *Chris Joseph*

EXAMPLE 2.6

Joseph's Forklift and Hauling Company

Aspect and Impact Analysis for Significance

Activity/Product/ Service	Aspects	Impacts	Use of Raw Materials and Natural Resources	Emissions to Air	Releases to Water	Subject to Environmental Regulation or Permit	Contamination of Land and Past Environmental Problems	Source of Public and/or Employee Complaints and Issues	Frequent Occurrence	Total	Significant Impact
Shipping	Consumption of paper, packing and pellets	Depletes natural resources and raw materials	2						2	4	Y
	Air emissions from forklifts	Degrades air quality		2					2	4	Y
	Potential for spills from loading and transfer operations	Contamination of storm water			2	3	3		0	8	Y
Boiler	Consumption of #2 Fuel Oil	Depletes natural resources and raw materials	2						2	4	Y
	Potential for spills during filling of #2 Fuel Oil AST	Contamination of soil and groundwater/storm water			2	3	3		0	8	Y
	Air emissions of CO, CO_2, NO_x, SO_2, particulate	Degrades air quality		3		3			3	9	Y
	Water discharges	Adds load to City POTW		2	2				2	6	Y
	Water treatment chemicals – use and potential for spills	Depletes natural resources and raw materials and potential contamination of water discharges	2		1	2			2	7	Y

Date: *August 9, 1999*

Approved by: *Chris Joseph*

EXAMPLE 2.6

Joseph's Forklift and Hauling Company

Aspect and Impact Analysis for Significance

Activity/Product/ Service	Aspects	Impacts	Use of Raw Materials and Natural Resources	Emissions to Air	Releases to Water	Subject to Environmental Regulation or Permit	Contamination of Land and Past Environmental Problems	Source of Public and/or Employee Complaints and Issues	Frequent Occurrence	Total	Significant Impact
Maintenance (vehicle and facility)	Release of vapors and potential for spills during vehicle refueling	Degradation of air quality and potential contamination of storm water		1	2	3	3		3	12	Y
	Potential for leaks from UST	Contamination of soil and groundwater/storm water			2	3	3		0	8	Y
	Use of paint and solvents	Depletes natural resources and raw materials and VOC emissions contribute to degradation of air quality	2	2		2			1	7	Y
	Use of oils and potential for oil spills	Depletes natural resources and raw materials and contamination of groundwater/storm water	2		2	2	2		2	10	Y

0 – No Impact 1 – Minor 2 – Moderate 3 – Serious
Scores greater than 4 are considered significant

Date: *August 9, 1999*

Approved by: *Chris Joseph*

FORM 2.6

EMS Aspect and Impact Analysis for Significance

Company:

Date:

Activity/Product/ Service	Aspects	Impacts								Significant Impact

Approved by:_____ Date:_____

2.7 Environmental Objectives and Targets

Keys

Develop and implement environmental objectives and targets. [R 324.1505(2)(b)(ii)(B)]

To promote continuous improvement, some of your goals should be of the improve type.

P2 goals from the P2 Program should be included as part of the Objectives and Targets.

Develop objectives and targets to address your significant impacts or any additional impacts you wish to address. Your objectives and targets should support your Environmental Policy. They need to promote continuous improvement, pollution prevention, and environmental compliance, but also should take into account reality (i.e., technical feasibility, economics, legal, time constraints). A goal that costs too much to implement will never happen, nor will a goal that conflicts with your business development. Objectives and targets are best developed by those people that are directly related to that activity or process.

There are three basic types of objectives and targets:

1. **Control** - defined by regulations, process requirements or to maintain status.
2. **Investigate** - look at new ways of doing the same thing in a better manner.
3. **Improve** - reduction of impact, loading or contribution to the environment by a quantified percent, or substitution of a less hazardous material into a process.

Remember that the objectives define your goal and targets set scheduled, assigned, quantified requirements for your objectives. Assign a responsible person for achieving each target. Make it part of their job to spear head the activities needed to reach a goal. Actual achievement of a target may require commitment and coordination from different departments within an organization such as upper management, accounting, and operations, but one person needs to direct the effort.

On the following pages are examples of objectives and targets for the manual example facility Joseph's Forklift and Hauling Company. Review these examples and use Form 2.7 to develop objectives and targets for you EMS.

EXAMPLE 2.7

Joseph's Forklift and Hauling Company

Objectives and Targets

Activity/Product/ Service	Aspects	Impacts	Significant Impact	Objective	Target	Timing	Responsibility
Deliveries	Consumption of diesel and propane	Depletes natural resources and raw materials	Y	Regularly service all vehicles and forklifts	Set up automated preventative maintenance program	Jun-00	Ella Gray
	Air emissions from diesel trucks	Degrades air quality	Y	Replace older trucks	Replace one truck every two years	Jun-02	Chris Joseph
	Air emissions from forklifts	Degrades air quality	Y	Replace propane powered forklifts with electric forklifts	When rental contract on the current forklifts comes up for renewal, switch to electric forklifts	Jun-01	Vince Roy
	Potential for spills from unloading and transfer operations	Contamination of storm water	Y	Meet all legal requirements	Review and update, if necessary, the facility storm water plan	Ongoing	Jill James
	Generation of waste paper and packing	Depletes natural resources	Y	Start recycling/reuse program for facility	Recycle 100% of office paper and reuse 50% of packing	Jun-01	Jill James
Warehouse Operations	Electrical use	Depletes natural resources	Y	Investigate and reduce energy use	Reduce electricity use by 10%	Jun-00	Vince Roy
	Ventilation emissions – CO, particulate due to operations	Degrades air quality	N				
	Potential for spills from transfer operations	Contamination of storm water	Y	Meet all legal requirements	Review and update, if necessary, the facility storm water plan	Ongoing	Jill James
	Sanitary waste	No control – assuming no hazardous materials are dumped down facility drains	N				

Date: *August 9, 1999*

Approved by: *Chris Joseph*

EXAMPLE 2.7

Joseph's Forklift and Hauling Company

Objectives and Targets

Activity/Product/ Service	Aspects	Impacts	Significant Impact	Objective	Target	Timing	Responsibility
Shipping	Consumption of paper, packing and pellets	Depletes natural resources and raw materials	Y	Start recycling/reuse program for facility	Recycle 100% of office paper and reuse 50% of packing	Jun-01	Jill James
	Air emissions from forklifts	Degrades air quality	Y	Replace propane powered forklifts with electric forklifts	When rental contract on the current forklifts comes up for renewal, switch to electric forklifts	Jun-01	Vince Roy
	Potential for spills from loading and transfer operations	Contamination of storm water	Y	Meet all legal requirements	Review and update, if necessary, the facility storm water plan	Ongoing	Jill James
Boiler	Consumption of #2 Fuel Oil	Depletes natural resources and raw materials	Y	Convert boiler to natural gas	Upgrade and convert old boiler	Jun-03	Chris Joseph
	Potential for spills during filling of #2 Fuel Oil AST	Contamination of soil and groundwater/storm water	Y	Meet all legal requirements	Review and update, if necessary, the facility storm water plan	Ongoing	Jill James
	Air emissions of CO, CO_2, NO_x, SO_2, particulate	Degrades air quality	Y	Convert boiler to natural gas	Upgrade and convert old boiler	Jun-03	Ella Gray
	Water discharges	Adds load to City POTW	Y	Meet all legal requirements	Meet all discharge limits required by the city	Ongoing	Vince Roy
	Water treatment chemicals – use and potential for spills	Depletes natural resources and raw materials and potential contamination of water discharges	Y	Meet all legal requirements	Meet all discharge limits required by the city. Review and update, if necessary, the facility storm water plan	Ongoing	Ella Gray (Jill James)

Date: *August 9, 1999*

Approved by: *Chris Joseph*

EXAMPLE 2.7

Joseph's Forklift and Hauling Company

Objectives and Targets

Activity/Product/ Service	Aspects	Impacts	Significant Impact	Objective	Target	Timing	Responsibility
Maintenance (vehicle and facility)	Release of vapors and potential for spills during vehicle refueling	Degradation of air quality and potential contamination of storm water	Y	Remove UST for legal reasons	Pursue contract with local gas station for vehicle refueling	Jun-01	Chris Joseph
	Potential for leaks from UST	Contamination of soil and groundwater/storm water	Y	Remove UST for legal reasons	Pursue contract with local gas station for vehicle refueling	Jun-01	Chris Joseph
	Use of paint and solvents	Depletes natural resources and raw materials and VOC emissions contribute to degradation of air quality	Y	Pursue use of less volatile paints and replacement of solvents	Reduce use of high VOC paints by 25%	Jun-01	Ella Gray
	Use of oils and potential for oil spills	Depletes natural resources and raw materials and contamination of soil and groundwater/storm water	Y	Look into oil recycling options and meet all legal requirements	Recycle 50% of oil for reuse on-site. Review and update, if necessary, facility SPCC plan	Jun-01	Joe Crane

Date: *August 9, 1999*

Approved by: *Chris Joseph*

FORM 2.7

EMS Objectives and Targets
Company:
Date:

Activity/Product/ Service	Aspects	Impacts	Significant Impact	Objective	Target	Timing	Responsibility

Approved by: _____ Date: _____

2.8 Environmental Program Procedure

Keys

Environmental Program:

- **Document procedures to identify aspects and impacts.**
- **Document criteria used to determine significant impacts.**
- **Document development of objectives and targets.**
- **Include assignment of responsibility for objectives and targets.**

Now that you have identified your aspects and impacts, and developed objectives and targets, document how you did it. In other words, write down the procedure you used to set up your environmental program. Make sure to list all the criteria used to screen for aspects and significant impacts. You will want to use the same criteria next year when you redefine objectives and targets for your EMS. Or, you may find as you operate your EMS that you want to expand the list of criteria you used.

On the following page is an example procedure for Joseph's Forklift and Hauling Company's Environmental Program Development. Review this example and develop your procedure now according to your facility documentation practices.

EXAMPLE 2.8

Joseph's Forklift and Hauling Company

EMS Procedure No. EMS-1
Environmental Program Development

I. **Purpose**

This procedure is to establish and maintain an environmental program that identifies the environmental aspects of Joseph's Forklift and Hauling Company's activities, products and services that have significant impact, and to develop objectives and targets for the significant impacts.

II. **Scope**

This procedure will be used to analyze activities, products and services for environmental aspects, and to establish parameters for determining significant impacts. Based on the significant impacts, objectives and targets will be developed that support Joseph's Forklift and Hauling Company's Environmental Policy. Objectives and targets will promote continuous improvement, pollution prevention, and environmental compliance.

A multifunctional team will participate in the identification of aspects and impacts. Objectives and targets will be developed by those personnel that are directly related to the activity, product or service that has a significant impact.

III. Definitions

Environmental Aspects – elements of a facility's activities, products, processes/equipment, services, by-products, wastes, etc. that can interact with the environment. An activity, product or service does not have to be regulated by an agency to be considered an aspect.

Environmental Impacts – any change to the environment due to a facility's activities, products or services. These changes can be positive or negative. The significance of an impact is determined by the facility. Criteria for evaluation of significant impacts can be regulatory requirements, legal liability, public risk, hazard/damage potential, costs, frequency, and ability to control the impact.

Objective – an environmental goal that a facility sets to reduce significant impacts leading to improved environmental performance.

Target – a quantified goal that is scheduled or assigned, or a detailed performance requirement to meet an objective.

IV. Procedures

Aspects will be determined by screening activities, products and services for inputs and outputs that interact with the environment. Raw material inputs, energy consumption, auxiliary support systems, waste streams, and end products will be considered. The screening will be done by a multifunctional project team. Activities, products and services will be applied to flow charts for screening purposes.

Some of the aspects that will be looked at include:

- Use of raw materials, natural resources and energy consumption.
- Types of air emissions.
- Water discharges.
- Solid and hazardous waste discharges.
- Land use and potential for contamination.

The aspects and their environmental impact will be tabulated for evaluation.

The following list of criteria will be used to determine the significance of the impacts:

- Use of raw materials and natural resources.
- Emissions to air.
- Releases to water.
- Subject to environmental regulation or permit.
- Contamination of land and past environmental problems.
- Source of public and/or employee complaints and issues.
- Frequency of occurrence.

The criteria used to determine significant impacts will be added to the aspects and impacts table. The following rating system will be used to develop a score for each impact.

0 – no impact
1 – minor
2 – moderate
3 – serious

Those impacts with the highest scores will be considered the most significant. Develop objectives and targets for the significant impacts. Objectives and targets should support the environmental policy and promote continuous improvement, pollution prevention and environmental compliance.

IV. Updates and Reviews

Aspects and impacts will be reviewed and updated annually, or upon the addition/modification of an activity, product or service.

Objectives and targets will be reviewed annually and updated if necessary.

Any changes in the criteria to determine aspects and significant impacts shall be added to this procedure.

Responsibilities

The EMS manager will work in conjunction with the EMS project team and all facility employees in the development of aspects, impacts, objectives, and targets.

Final review and approval of objectives and targets will be made by facility management (e.g., President, Operations/Shipping/Warehouse Manager). Management will sign off on all approved objectives and targets.

V. Related Documentation

A listing of the identified aspects and impacts will be documented and maintained on file by the EMS manager.

A listing of approved objectives and targets will be documented and maintained on file by the EMS manager and made available to employees.

Written by: *Jill James* **Date:** *August 26, 1999*

Approved/Issued by: *Chris Joseph* **Date:** *August 30, 1999*

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2.9 Environmental Program Completion Checklist

Check Box		
❑	1.	Have you identified aspects?
❑	2.	Have you identified impacts?
❑	3.	Have you set objectives and targets for your significant impacts?
❑	4.	Have you included goals from your P2 Program in your objectives and targets?
❑	5.	Do your targets support your Environmental Policy?
❑	6.	Have you documented or written a procedure for the method you used to develop your Environmental Program?