Appendix A: Workshop Training for Module 3

EMS Guide Meat Processing

Identifying Environmental Aspects and Impacts
What Are We Doing Today?

- Aspects and Impacts.
- Approach.
- Legal and Other Requirements.
- Homework.
Remember The Context

Plan

Act

Check

Do
Relationship Among Environmental Management System Elements

- Organizational Goals
- Environmental Policy
  - Environmental Aspects
  - Objectives & Targets
  - Legal & Other Requirements
- Management Programs
  - Operational Controls
  - Monitoring & Measurement
  - Management Review
- Correlative & Preventive Action
- EMS Auditing
- Documentation
  - Training
When Identifying Aspects

- Create a list of activities, products, and services - everything that the operating level of the organization does.
- Look outside the box!
- Consider normal and emergency situations.
Aspects and Impacts

- Apply an 80 / 20 rule on the first cut.
- Be sure to keep clear the distinction between aspects and impacts.
- One firm started with an initial list of 1500 aspects!
- Shoot for a final list closer to 20.
- Detail vs simplicity and the how the culture of the company works.
Legal and Other Requirements

- For every aspect or its associated impacts understand regulatory and other commitments in a practical sense.
- Important to understand the law and what it means to different workers.
- Who needs to know what level of detail?
- How to keep this up-to-date?
The Triangle

Aspects

Legal and Other Requirements

Significance
EMS: Aspects in the EMS

- Policy
- Aspects
- Objectives and Targets
- Management Programs
- Operational Controls
Environmental Aspects

- Procedure to identify aspects.
- Activities, products, or services.
- Controllable.
- Within scope of EMS.
Definitions

Environmental aspect - An element of an organization's activities, products, or services that can interact with the environment. Could be beneficial or harmful.

For example: Refrigerant use, wash water discharge, it could involve a discharge, an emission, or consumption or reuse of a material.
Definitions

Environmental impact - Any change to the environment, whether adverse or beneficial, wholly or partly resulting from an organization's activities, products, or services.

For example: Ozone depletion, surface water quality degradation, impacts might include contamination of air or water, depletion of a natural resource or harm to human health.
Definitions

An aspect is a cause of one or more impacts (actual or potential).

Aspect = cause

Impact = effect
Meat Processing Process Steps

MAJOR PROCESS STEPS

RECEIVE FROZEN JOINTS OF MEAT

THAWING

CUTTING, DEBONING

GRINDING

MASSAGING

MIXING, CURING, SEASONING

BONES, DISCARDS TO RENDERING

MAJOR ENVIRONMENTAL RESOURCES

(OD) BOD, SUSPENDED SOLIDS IN THAW WATER

ELECTRICAL ENERGY FOR MACHINES, LIGHTING, REFRIGERATION

WATER
Process Flow Diagrams

See Module 3 Figures 3-5 - 3-17 for Example Process Flow Diagrams
You Have Defined Your Scope By:

- Drawing boundaries around the plant and its components.
- Considering practical constraints and timing.
- Try writing down both what is in the scope and what is not to make it clear.
  - The main plant is in, the contracted trucking fleet is out.
- Your definition will evolve as you work on your EMS and as the EMS matures.
1. Activities, Products, and Services

- Categorize them using existing:
  - organizational process flow descriptions;
  - industry sector descriptions; and
  - product categories.

- Categorize activities and services systematically e.g.
  - Pre-production
  - Production
  - Post-production
Environmental Aspects

• List all of the inputs and outputs in order to develop a list of which ones have potential environmental consequences.
• Potential (keyword) i.e. consider ‘what ifs’ as well as known events
  – Normal
  – Emergencies
Environmental Aspects

- To develop a list of impacts. Systematically examine what goes into and results from each activity, product, or service.
1. Activities, Products, and Services

- Categorize them hierarchically (if necessary), e.g.
  - Major processes,
  - Activities within processes, and
  - Tasks within activities.
- Keep the number of major categories to a minimum, possibly (5 - 10).
Process Flows

Process 1
Pre-Production

Activity

Activity

Activity

Process 2
Production

Task
Task
Task
Where to Find Aspects

- Employees.
- HACCP.
- Process flow chart.
- Process hazard analysis.
- Emission inventory/risk assessment.
- Safety and hazard reviews.
- Compliance and P2 audits.
Activity 1

Sources for aspect identification at your plant.
A1 Develop a list

- Develop a list of sources of aspect information for your plant.
- HACCP is a start but remember the limits of the scope of HACCP.
- What are the existing information sources and people?
- How will you organize the information?
A1 Tips

- Organize along the lines of business processes and units that are used for regular operation.
- The way you organize now will effect all other parts of your EMS (from programs to corrective actions).
A1 Tips

- When building a list, accept all input and filter later.
- Remember that no one person can know everything that goes on. Expect to find out things you didn’t even know happened.
- Remember the 90/10 rule.
- This is an iterative process (aspect identification through program development).
Keep In Mind Where We Are Going With The System

<table>
<thead>
<tr>
<th>Aspect</th>
<th>Impact</th>
<th>Legal or Other Requirements</th>
<th>Environmental Significance</th>
<th>Objectives and Targets</th>
<th>Management Program</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>A</td>
<td>B</td>
<td>C</td>
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</tbody>
</table>


2. Related Environmental Aspects

- Classify aspects by type.
- Be careful not to confuse aspects with impacts - remember that aspects are the controllable cause.
- Determine if there are any aspects in a given class for each activity, product, or service.
- Some aspects will appear more than once because they will have more than one source - it is still a single aspect.
## Aspect Types

<table>
<thead>
<tr>
<th>Aspect Type</th>
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</thead>
<tbody>
<tr>
<td>Emissions to Air</td>
</tr>
<tr>
<td>Discharges to Water</td>
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<td>Alterations to Land</td>
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<tr>
<td>Waste</td>
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<tr>
<td>Hazardous Waste</td>
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<tr>
<td>Use of Materials (Raw and Processed)</td>
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<tr>
<td>Use of Energy</td>
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<tr>
<td>Noise, Odour, Aesthetics</td>
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</tbody>
</table>
Common Errors

- The permit requirements are for the major impacts (not always true).
- We have a pollution control device for that so it is no longer an aspect.
- The state has not identified it as an issue.
- Using existing environmental programs to identify aspects.
Grouping

- Group aspects to attain manageable units.
- When grouping do not lose the knowledge gained.
- Consider grouping to align with existing programs.
Aspects

Aspect 1
Floor washing

Aspect 2
Cutting floor equipment cleaning

Aspect 3
Process floor wash down

Grouped Aspect
Water use for cleanup operations
Management Control

- Authority to determine how the environmental policy is implemented.
- Authority to allocate appropriate resources.
- Clearly defined boundaries for inputs to and outputs of the organization’s activities.
- Interfaces with services not completely within the scope of the EMS (e.g. a common effluent treatment plant).
- The scope of environmental licenses, permits, or approvals.
3. Level of Control or Influence

- Determine if it is within the ‘scope’ of your EMS implementation.
- Determine if your organization has ‘management control’ over it.
- If your organization does not have control over it, determine the level of ‘influence’ you have over it.
- Determinations of ‘control’ and ‘influence’ will affect the objectives you set in relation to a given aspect.
Assess Level of Control or Influence

- Suppliers
- Core business
- Customers

Level of influence vs. Relationship

- 0%
- 100%
## Aspect Tracking/Identification

<table>
<thead>
<tr>
<th>Activity, Product, or Service</th>
<th>Input/Output</th>
<th>Environmental Aspect</th>
<th>Grouped Aspect</th>
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<tbody>
<tr>
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</table>

Contact Person: ____________________________ Date Completed: ____________________________
## Aspect, Impact, Legal Identification Form

<table>
<thead>
<tr>
<th>Activities/Products/Services</th>
<th>Environmental Aspects</th>
<th>Environmental Impacts</th>
<th>Legal/Other Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>* Things at your plant that can interact with the environment</td>
<td>* Interaction of these things with the environment—beneficial or adverse</td>
<td>* Any change in the environment—beneficial or adverse</td>
<td>* What rules relate to the environmental aspect</td>
</tr>
<tr>
<td>Boiler operation</td>
<td>Air emissions that result from the burning of fuel to heat the boiler</td>
<td>Air pollution (from the emission of nitrogen oxides (NOx)).</td>
<td>Clear Air Act (CAA)</td>
</tr>
<tr>
<td>Clean-up</td>
<td>Floor washing and clean-up</td>
<td>BOD loading of the POTW</td>
<td>Local POTW sewer ordinance and the POTW’s NPDES discharge criteria.</td>
</tr>
</tbody>
</table>
Aspect Procedure

Purpose

In order to understand and manage its actual and potential environmental impacts, ABC Corporation identifies the environmental aspects of its activities, products, and services as they fall within the scope of the EMS.

Procedure

1. Using processing mapping (or input/output flow charts), the EMS committee identifies the basic manufacturing and supporting operations that fall within the scope of the EMS. These are recorded, with supporting material flow diagrams and tables.

2. The EMS coordinator arranges for the environmental aspects of these operations to be identified by a team of several employees from the operation in question, using the process mapping approach where feasible and under the oversight of the EMS coordinator or a committee member where appropriate.

3. Environmental aspects are grouped where appropriate and their actual or potential impacts (quantified to the extent possible), are listed by operation.

Frequency

This procedure is repeated annually to ensure that any new environmental aspects are identified.
Activity 2

Aspects at your plant.
A2 Common Aspects

- What are the non HACCP aspects all pilot plants will have?
- To do this think of the overall business and where money is spent.
- Look for what it takes to operate a plant (beyond the core manufacturing work).
A2 Process Related Aspects

- Look at core processes and sub-processes.
- Process descriptions and flow diagrams in the EMS guide.
4. Environmental Impacts

- Identify the impacts associated with the identified aspects.
- Used to help determine significance and prioritize.
- Information on environmental impacts can be obtained from:
  - Interested parties (stakeholders) - including employees;
  - Product and process literature, studies, and scientific information;
  - Existing impact studies, reviews, and audits;
  - Historical reviews, inspections, and observations; and
  - MSDS'.

4. Environmental Impacts

- There can be more than one impact associated with a single aspect.
- More than one aspect can contribute to the same impact.
- These relationships should be clear.
• Several independent activities can all result in the same overall air emission type

• One aspect may have several impacts
### Environmental Aspects

<table>
<thead>
<tr>
<th>Environmental Aspects</th>
<th>Potential IMPACTS of Each Aspect</th>
</tr>
</thead>
<tbody>
<tr>
<td>BOD and Salt discharged to POTW</td>
<td>Contamination of aquatic habitat and drinking water supply</td>
</tr>
<tr>
<td>VOC emissions</td>
<td>Contribution to smog; worker or community exposure to volatile organic compounds (VOCs)</td>
</tr>
<tr>
<td>Waste generation</td>
<td>Degradation of land, habitat, water supply</td>
</tr>
<tr>
<td>Solid waste generation</td>
<td>Habitat destruction, drinking water contamination from landfills, wasted land resources</td>
</tr>
<tr>
<td>Fresh water use</td>
<td>Depletion of natural resources</td>
</tr>
<tr>
<td>Electricity use</td>
<td>Contribution of global warming; degradation of air quality by electric generation plants.</td>
</tr>
<tr>
<td>Exposure to chemicals during business activities</td>
<td>Harm to health of workers, neighbors, wildlife, or plant life</td>
</tr>
</tbody>
</table>
Activity 3

Impacts
A3 Common Impacts

• For the common aspects from Activity 2:
  – What are the impacts?
  – Are there common impacts that may assist in grouping?
  – Does listing impacts bring any other possible aspects to mind?
Legal Requirements

- Procedure/process to identify legal requirements.
- USEPA.
- US Small Business Administration.
- State Agencies.
- Trade/Industry Associations.
- Internet.
Resources

- Corporate headquarters.
- Commercial services (with updates offered on-line, on CD-ROM or in paper form).
- Regulatory agencies (federal, state, and local).
- Trade groups/associations (www.meatami.com/).
- The Internet (see USEPA web site at www.epa.gov).
Resources

- Public libraries.
- Seminars and courses.
- Newsletters/magazines.
- Consultants and attorneys.
- Customers, vendors, and other companies.
Legal and Other Requirements

- The organization:
  - must have identified all relevant legislation, regulations, and other requirements;
  - this includes the laws of the jurisdiction in which the organization operates and where the product or service is sold; and
  - must have a system in place to manage compliance with these requirements.
Legal and Other Requirements

- Examples of regulations:
  - Municipal
  - State
  - Regional
  - Federal
  - International
Legal and Other Requirements

- Regulations exist in several forms:
  - those specific to the activity (operating permits);
  - those specific to the product and service;
  - those specific to industry;
  - general environmental laws; and
  - authorizations, licenses, and permits.
Legal and Other Requirements

• Examples of other requirements:
  – internal standards;
  – industry codes of practice;
  – contractual obligations;
  – agreements with public authorities;
  – participation in voluntary programs; and
  – non-regulatory guidelines.
Legal and Other Requirements

- Legislation-Related Documentation
  - Procedure to identify relevant legislation, regulation, and other requirements.
  - A register or data source of all applicable legislation, regulations, and other requirements.
Legal and Other Requirements

- Legislation-Related Documentation
  - A register includes licenses, permits, approvals, agreements with authorities, and correspondence with licensing authorities.
  - Evidence that this information is available to and has been communicated to relevant people in the organization.
Tips

- Identify legal and other for your aspects. Do not use legal and other as first cut at identification of aspects.
- The impact may be regulated and not the aspect.
- Aspects subject to other requirements may be the ones where the greatest opportunities are for big gains in environmental performance.
Tips

• Building the processes to ensure the right people have access to up-to-date, in plain language(s) legal requirements is a key building block.
  – What are your sources?
  – How will you “distill” into what various staff need to understand?
  – How will you be sure they keep up to date?
Homework

- Determine aspects and impacts.
  - Build list
  - Organize list
  - Understand management and control issues

- Determine legal and other requirements for all aspects.