

## Appendix F - Checklists

### On-Site Team Assessment Worksheet: Pollution Prevention & Waste Minimization

Firm:	Date:	Assessor:
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**Assessment Team Member:** Answer the following questions yourself, based on your observations during the plant tour and the one-on-one interview(s). Fill in the appropriate circle on the scale of  $\hat{\text{T}}$  to  $\hat{\text{O}}$  to indicate the extent to which you agree with the statements. Fill in  $\hat{\text{O}}$  if the question does not apply. Add extra observations on the back if necessary.

<b>1) Environmental &amp; Business Management Integration</b>		<b>Disagree Strongly</b>				<b>Agree Strongly</b>
1.1	Is there a designated individual responsible for knowing environmental regulations?  If so, environmental compliance appears to be a priority, and the individual appears to be up-to-date.	" YES	" No			
		$\hat{\text{T}}$	$\hat{\text{I}}$	$\hat{\text{D}}$	$\hat{\text{N}}$	$\hat{\text{O}}$
Comments:						
1.2	Top management plays an active role in promoting and supporting environmental improvement with the facility?					
		$\hat{\text{T}}$	$\hat{\text{I}}$	$\hat{\text{D}}$	$\hat{\text{N}}$	$\hat{\text{O}}$
Comments:						
1.3	Your facility has a written environmental policy that commits you to continuous improvement and pollution prevention/waste reduction?					
		$\hat{\text{T}}$	$\hat{\text{I}}$	$\hat{\text{D}}$	$\hat{\text{N}}$	$\hat{\text{O}}$
Comments:						
1.4	Does your facility have specific waste reduction and/or pollution prevention goals?  If so, factors such as future liability and employee exposure to hazardous materials were considered when developing these goals.  If so, prioritized targets for pollution prevention/waste reduction have been established.	" YES	" No			
		$\hat{\text{T}}$	$\hat{\text{I}}$	$\hat{\text{D}}$	$\hat{\text{N}}$	$\hat{\text{O}}$
		$\hat{\text{T}}$	$\hat{\text{I}}$	$\hat{\text{D}}$	$\hat{\text{N}}$	$\hat{\text{O}}$
Comments:						
1.5	Are employees/departments/managers evaluated on their environmental performance?	" YES	" No			

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If so, how is the evaluation used by the facility?					
1.6	Does your facility track all waste streams and emissions generated at this facility?	“ YES	“ No		
	If so, cost data are available?	“ YES	“ No		
	If so, cost data can be broken down by individual waste stream/production process.	Î	Ï	Ð	Ñ
Comments:					
1.7	Have you sought advice from customer OEMs, suppliers or vendors on ways to minimize waste and prevent pollution in you processes?	“ YES	“ No		
	If so, the advice has been successfully implemented.	Î	Ï	Ð	Ñ
Comments:					
1.8	Your suppliers or vendors have been asked about their environmental standards in manufacturing parts or materials that you purchase from them?	Î	Ï	Ð	Ñ
Comments:					

<b>2) Design Process</b>					
		<b>Disagree Strongly</b>			<b>Agree Strongly</b>
2.1	Product/process design changes been considered to reduce hazardous materials/scrap generated from your manufacturing process?	Î	Ï	Ð	Ñ
Comments:					
2.2	Your products, whenever possible, are designed for durability, long life and/or repair ability?	Î	Ï	Ð	Ñ

Comments:					
2.3 Your products are designed for disassembly to facilitate remanufacture or reuse of parts?	Î	Ï	Ð	Ñ	Ò
Comments:					
2.4 Your products are designed for easy recycling, for instance by intentionally minimizing the use of incompatible materials?	Î	Ï	Ð	Ñ	Ò
Comments:					
2.5 Have you substituted recycled materials in place of virgin raw materials in your manufacturing process?				" YES	" No
If so, what materials?					
Has the substitution been successful?					
			" YES	" No	

<b>3) Solid Waste/Source Reduction and Recycling Practices</b>					
	<b>Disagree Strongly</b>		<b>Agree Strongly</b>		
3.1 Do you know the solid waste materials that are banned from landfills in Wisconsin?	" YES		" No		
If so, conveniently located containers are provided for recycling these materials.	Î	Ï	Ð	Ñ	Ò
Comments:					
3.2 Your facility has encouraged practices that reduce or eliminate wastepaper, such as using electronic communications in place of paper transactions?	Î	Ï	Ð	Ñ	Ò

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Comments:					
3.3 Your facility is using reusable shipping containers or transport packaging?	Î	Ï	Ð	Ñ	Ò
Comments:					
3.4 Your company has reviewed purchasing practices to ensure container sizes are properly selected to reduce packaging waste and minimize out of date material?	Î	Ï	Ð	Ñ	Ò
Comments:					
3.5 Your facility uses materials exchange programs to reduce waste and disposal costs by finding customers for your by-products, obsolete goods, damaged materials, etc.?	Î	Ï	Ð	Ñ	Ò
Comments:					
3.6 Your company has conducted a solid waste assessment or audit?					" YES " No
Comments:					
3.7 Which of the following materials are found at your facility; and which ones are recycled?					
A. OFFICE WASTE					
Copier Paper?	" YES	" No	Recycle?	" YES	" No
Laser Printed Paper?	" YES	" No	Recycle?	" YES	" No
Toner Cartridges?	" YES	" No	Recycle?	" YES	" No
Aluminum Cans?	" YES	" No	Recycle?	" YES	" No
Other (Please describe)?	" YES	" No	Recycle?	" YES	" No
Comments:					

<b>B. PACKAGING WASTE</b>					
Pallets?	" YES	" No	Recycle?	" YES	" No
Plastic Film?	" YES	" No	Recycle?	" YES	" No
Plastic Packaging (Peanuts, bubble wrap)?	" YES	" No	Recycle?	" YES	" No
Corrugated?	" YES	" No	Recycle?	" YES	" No
Plastic Banding?	" YES	" No	Recycle?	" YES	" No
Metal Banding?	" YES	" No	Recycle?	" YES	" No
Plastic Drums or Pails?	" YES	" No	Recycle?	" YES	" No
Steel Drums or Pails?	" YES	" No	Recycle?	" YES	" No
Storage Totes?	" YES	" No	Recycle?	" YES	" No
Comments:					
<b>C. PROCESS WASTE</b>					
1. Do you have setup waste from your manufacturing processes?	" YES	" No	Recycle?	" YES	" No
How is the Recycling Done?					
Reworked in Plant?				" YES	" No
Recycled in Plant?				" YES	" No
Recycled Off Site?				" YES	" No
2. Do you have out-of-specification production waste?	" YES	" No	Recycle?	" YES	" No
How is the Recycling Done?					
Reworked in Plant?				" YES	" No
Recycled in Plant?				" YES	" No
Recycled Off Site?				" YES	" No
3. Do you have any of the following types of process wastes?					
" Wood scrap	" Coal ash and sludge	" Glass			

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<p>“ Foundry sand and slag</p> <p>“ Pulp and paper sludge</p> <p>“ Textiles</p> <p>“ Solvents other than petroleum products</p>	<p>“ Construction and demolition debris</p> <p>“ Plastic scrap</p> <p>“ Machine fluids</p>	<p>“ Light bulbs</p> <p>“ Metal Scrap</p> <p>“ Waste petroleum products</p>
<p>4. Are there other materials you would like to recycle?</p>		
<p>Comments:</p>		

<b>4) Pollution Prevention</b>		<b>Disagree Strongly</b>					<b>Agree Strongly</b>
4.1	Are materials and supplies reviewed for hazardous constituents prior to purchase?	“	“				
		YES	No				
	If purchased, materials and supplies with hazardous substances are correctly marked, stored and reported.	Î	Ï	Ð	Ñ	Ò	
Comments:							
4.2	Your facility has substituted less toxic chemicals/materials to reduce pollution?	Î	Ï	Ð	Ñ	Ò	
Comments:							
4.3	Your facility has reduced air emissions, water discharges and/or hazardous waste generation in the last year?	Î	Ï	Ð	Ñ	Ò	
Comments:							
4.4	Your facility made work practice or maintenance improvements that helped prevent pollution, such as fixing leaking machinery or covering open containers?	Î	Ï	Ð	Ñ	Ò	

Comments:	
4.5 Your facility has conducted a pollution prevention assessment or audit?	<input type="radio"/> <b>1</b> <input type="radio"/> <b>2</b> <input type="radio"/> <b>3</b> <input type="radio"/> <b>4</b> <input type="radio"/> <b>5</b>
Comments:	

<b>5) Energy Efficiency</b>					
	<b>Disagree Strongly</b>			<b>Agree Strongly</b>	
5.1 Your facility's lighting system is energy efficient?	<input type="radio"/> <b>1</b>	<input type="radio"/> <b>2</b>	<input type="radio"/> <b>3</b>	<input type="radio"/> <b>4</b>	<input type="radio"/> <b>5</b>
Comments:					
5.2 Your facility's lighting has been redesigned to improve efficiency (lowered ceilings, improved lighting for worker productivity, etc)?	<input type="radio"/> <b>1</b>	<input type="radio"/> <b>2</b>	<input type="radio"/> <b>3</b>	<input type="radio"/> <b>4</b>	<input type="radio"/> <b>5</b>
Comments:					
5.3 Your facility uses energy efficient motors, compressors and pumps?	<input type="radio"/> <b>1</b>	<input type="radio"/> <b>2</b>	<input type="radio"/> <b>3</b>	<input type="radio"/> <b>4</b>	<input type="radio"/> <b>5</b>
Comments:					
5.4 Your facility has had an energy audit in the last year?	<input type="radio"/> <b>1</b>	<input type="radio"/> <b>2</b>	<input type="radio"/> <b>3</b>	<input type="radio"/> <b>4</b>	<input type="radio"/> <b>5</b>
Comments:					

<b>6) Water Efficiency</b>	
6.1 Has your facility reduced water consumption or sewer loading within the last year?	<input type="checkbox"/> <b>YES</b> <input type="checkbox"/> <b>No</b>

Comments:		
6.2 Do any of your manufacturing process(es) use water?	" YES	" No
Comments:		
6.3 Do you discharge non-contact cooling water?	" YES	" No
Comments:		
6.4 Have you considered any process modifications to reuse non-contact cooling water or process water?	" YES	" No
Comments:		

<b>7) Environmental Compliance</b>		
7.1 What environmental permits does your facility have?		
Air	" YES	" No
Stormwater	" YES	" No
Wastewater	" YES	" No
Other _____		
—		
Comments:		
7.2 Are all manifests available for hazardous waste shipments?	" YES	" No
Comments:		

7.3 What is your generator classification for hazardous waste?	VSQG	" YES	" No		
	SQG	" YES	" No		
	LQG	" YES	" No		
Comments:					
7.4 Have you submitted your annual hazardous waste generation report for the previous calendar year?		" YES	" No		
Comments:					
	Disagree Strongly		Agree Strongly		
7.5 Has your facility had an environmental compliance inspection by a federal or state regulatory agency in the last 2 years?		" YES	" No		
Comments:					
7.6 Your facility has taken initial steps to improve environmental compliance within the past 2 years?	Î	Ï	Ð	Ñ	Ò
Comments:					
7.7 Your facility has an effective spill prevention plan?	Î	Ï	Ð	Ñ	Ò
Comments:					
7.8 Your facility has a current, adequate emergency response plan?	Î	Ï	Ð	Ñ	Ò
Comments:					

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7.9	Have personnel been trained for hazardous waste or hazardous material handling?	" YES	" No
Comments:			
7.10	Does your facility have to report under SARA Title III?	" YES	" No
Comments:			
7.11	Has your facility ever obtained assistance from SHWEC in dealing with environmental issues?	" YES	" No
Comments:			
7.12	The facility would like assistance from SHWEC in dealing with pollution prevention, hazardous waste, or solid waste issues	" YES	" No
If so, contact the following person:			

**Assessment Team Member:** For each paragraph below, decide if you would like it included in the Observations and Recommendations Report to be issued to the company. If you want the recommendation included (either as is or modified), check the box to the left of the paragraph. If you believe it should be modified, please make the necessary changes. These recommendations are grouped according to NIST/MEP Reporting Guidelines (Version 2.1, February 1, 1996).

**Pollution Prevention** - if the activity is likely to cause an outright reduction in any environmental pollutants. Environmental pollutants can include solid waste as well as hazardous/toxic solid or liquid wastes and wastewater. Pollution Prevention projects usually reduce the quantity of hazardous process materials used as well as the wastes generated.

- " We suggest setting up a cross-functional team, including top management, to evaluate the facility's efforts in pollution prevention. Pollution prevention issues should include:
  - " reviewing regulated substances and their use in this plant
  - " evaluating opportunities to reduce or eliminate the generation of hazardous wastes at their source
  - " handling, labeling, and disposal of hazardous substances
  - " preventing spills or dumping which could cause soil and groundwater contamination
  - " evaluating opportunities to reduce or eliminate air/water pollution emissions at their source
  - " improving operator training and developing SOPs
  - " examining new technologies for improved cleaning, painting, etc.
  - " developing a strategy for making environmental quality part of the facility's core business plan and continuous improvement initiatives. This could include the following:
    - " ensuring direct, regular involvement of top management in resolving and monitoring environmental management needs and concerns
    - " developing and clearly communicating a facility-wide environmental policy that spells out top management's commitment and the importance of all workers in achieving environmental quality
    - " developing waste reduction and pollution prevention goals and prioritizing targets for

- improvement efforts
- “ tracking waste streams and emissions to determine the true costs (i.e., including raw materials, labor, equipment, storage, liability, disposal, etc.)
- “ finding opportunities to better integrate quality improvement teams and waste reduction initiatives (e.g., scrap rate reduction)

**Treatment/Control** - if the activity caused the facility to change the way their pollutants are treated and controlled. Treatment and Control projects focus on improving the end-of-pipe, not the process that causes the waste. This is accomplished by adding end-of-pipe treatment technologies, or improving existing treatment systems. These projects do not usually reduce the quantity of process materials used or the mass of pollutants emitted/disposed. These projects may reduce the quantity of treatment chemicals used or the total volume of waste disposed.

“ We suggest that your facility examine the treatment technologies currently being utilized for the following:

- “ air pollution control
- “ solids handling
- “ water pollution control

**Compliance/Regulatory Issue Assistance** - if the activity assisted the facility in complying with environmental regulations or in obtaining an environmental permit.

- “ We suggest that your facility undertake the following activities to assist with environmental compliance:
- “ conducting an environmental audit of your facility
  - “ training pertaining to reporting requirements of your facility, based on existing permits and waste generation
  - “ training relating to hazardous waste generation, which is based on the quantity of hazardous waste generated at this facility

**Recycling/Resource Recovery** - if the activity caused the facility to recycle or recover raw materials or other resources.

- “ We suggest setting up a cross-functional team, including top management, to evaluate the facility's efforts in waste reduction and pollution prevention. Waste minimization issues should include:
- “ improving yield from raw materials (efficient cuts, nesting, etc.)
  - “ measuring and reducing scrap from production processes
  - “ using reusable shipping containers or transport packaging
  - “ evaluating on-site recycling of petroleum waste products
  - “ investigating the use of recycled materials as a feedstock for your manufacturing process
  - “ investigating the recyclability of your products and recommending options for your customers

**Energy Conservation** - if the activity caused the facility to reduce the amount of energy it uses to perform its operations.

- “ We suggest that your facility undertake the following activities to improve energy conservation:
- “ an energy audit of your facility

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- " investigate the use of energy-efficient lighting and heating for your facility
- " investigate the use of energy-efficient motors, pumps, and other machinery

**Form By: John Katers, PhD and Wayne P. Pferdehirt 10/14/96**

**Environmental Assistance:** The University of Wisconsin-Extension Solid and Hazardous Waste Education

## Checklist: Recordkeeping Requirements

### Finishing operations (Check one compliance method and attach all relevant records)

- Compliant coatings
  - ! Certified product data sheets for each coating and thinner subject to the emission limits presented in the table below; and
  - ! The VHAP content, in lb VHAP/lb solids, as applied, for each coating subject to the emission limits presented in the table below.
  
- Compliant coatings with continuous coaters
  - Option 1
    - ! Same as requirements for compliant coatings. Records must demonstrate that the VHAP content does not exceed the applicable emission limit.
  - Option 2
    - 1. Certified product data sheets for each coating and thinner;
    - 2. Record of all solvent and coating additions to the reservoir; and
    - 3. All viscosity measurements.
  
- Averaging
  - 1. Certified product data sheets for each coating participating in averaging;
  - 2. Records of the amount of coating and thinner used each month;
  - 3. Copies of the averaging calculation.
  
- Add-on control device
  - 1. Certified product data sheets for each coating;
  - 2. Copies of the calculations demonstrating equivalency of using a control system;
  - 3. Records of the daily average value of each continuously monitored parameter; and
    - 1. For facilities using a fluidized bed catalytic incinerator, records of the pressure drop across the catalyst bed.
  
- Compliant coatings and control device or averaging and control device
  - ! Maintain all records required by each individual option.

### Gluing Operations

- Compliant contact adhesives
  - 1. Certified product data sheets for each contact adhesive subject to the emission limits presented in the table below;
  - 2. If adhesives are thinned, data sheets showing contact adhesive and thinner usage and calculation of the as applied VHAP content; and
  - 3. Records documenting the process in which the contact adhesive was used.
  
- Add-on control devices
  - 1. Certified product data sheet for each contact adhesive subject to the emission limits presented in the table below;
  - 2. Copies of calculations demonstrating the equivalency of using a control system;
  - 3. Records of the daily average value of each continuously monitored parameter; and
  - 4. For facilities using a fluidized bed catalytic incinerator, records of the pressure drop across the catalyst bed.

**Work Practice**

- Operator training program
  1. Copy of program, including:
    - ! a list of personnel required to be trained;
    - ! an outline of the subjects to be covered;
    - ! lesson plans for training courses;
  2. Records documenting successful completion of the training program for each individual; and
  3. Records of date each individual was trained.
  
- Inspection and maintenance plan
  1. Copies of checklists documenting visual monthly inspection of equipment; and
  2. Records demonstrating timeframe for making repairs.
  
- Cleaning and washoff solvent accounting system
  1. Record of the quantity and type of organic solvent used each month for washoff and cleaning;
  2. Record of the number of pieces washed off and the reason why; and
  3. Record of the quantity of spent solvent generated each month by operation and whether it is recycled onsite or disposed offsite.
  
- Spray booth cleaning
  - ! Records of VOC content of material used for cleaning spray booths
  
- Application equipment requirements
  - ! Records documenting that conventional air spray guns are only being used as allowed, including:
    - S if used for applying low VOC coatings, records showing that the VOC content is no greater than 1.0 lb VOC/lb solids;
    - S if used for applying small quantities of finishing materials, other than for touchup and repair, records of total finishing materials usage and quantity applied with air spray gun.
  
- Formulation assessment plan for finishing operations
  1. The facility has maintained MSDS for coatings containing VHAP of potential concern; and
  2. The facility has maintained usage records for coatings containing VHAP of potential concern.
  
- Limitation on chemical composition of cleaning/washoff solvents
  - ! The facility has maintained MSDS for all solvents used for cleaning and/or washoff.