Hazardous Waste: the usual suspects and how to manage them

PRESENTED BY:

ROLAND J. FORNOFF
SOUTHERN NEVADA SUSTAINABILITY MANAGER

Business Environmental Program
College of Business
University of Nevada, Reno
Hazardous waste you say?
However...
Businesses Generating Haz. Waste

- Hotels
- Casinos
- Automotive shops
- Golf courses
- Manufacturers
- Printers
- Dry cleaners

- Painters & construction contractors
- Retail centers
- Laboratories
- Hospitals
- Furniture repair
- Cabinet makers
Recognize These?
RCRA Hazardous Waste
WHAT IS RCRA?

- **Resource Conservation and Recovery Act**
- Passed by Congress in 1976.
- Federal regulation that establishes “Cradle to Grave” management requirements for hazardous waste.
- RCRA waste = federally identified hazardous waste
Pre-regulation (<1976) Haz. Waste Disposal
Pre-regulation (<1976) Haz. Waste Disposal
With “Cradle to Grave” Management
Elements of Haz. Waste Management

- Waste Determination
- Generator Status
- On-Site Management
- Spill Response
- Record Keeping
Haz. Material or Haz. Waste?
What is Hazardous Waste?

- A **hazardous waste** is a material destined for **treatment, disposal or recycling** with properties that make it dangerous or potentially harmful to human health or the environment.

- Hazardous wastes can be **liquids, solids, compressed gases, or sludges**. They can be the by-products of manufacturing processes, off-spec commercial products, or other discarded articles or wastes.
MAKING A WASTE DETERMINATION

- CFR 40, Sections 261.20 - 261.24
  - Characteristics Of Hazardous Waste
- CFR 40, Sections 261.30 - 261.33
  - Listed Hazardous Waste
- At The Point of Generation
- You are LEGALLY RESPONSIBLE for ALL hazardous wastes generated!!!
Tools for Making a Waste Determination

- Material Safety Data Sheets (MSDS)
- Product Manufacturer
- Process Knowledge
- Environmental Laboratories
- Your state or local environmental business assistance program
Is It A Hazardous Waste?

- Four Questions to ask:
  - Is it a solid waste?
  - Is it exempt or excluded?
  - Is it listed?
  - Is it characteristic?

- Asking these questions should keep mistakes in identifying hazardous waste to a minimum. (40 CFR 262.11).
Identify if the Waste is a Solid Waste

- A Solid Waste may be a Solid, Liquid, or Gas.
- A material is a solid waste if it is “Discarded”:
  - Abandoned;
  - Disposed of;
  - Recycled;
  - Burned or incinerated.
- A material must be a Solid Waste before it can be a Hazardous Waste.
If you answer NO to question #1

Stop!! You do not have a hazardous waste!
Exclusions/Exempt

- Domestic sewage
- Industrial wastewaters covered under the clean water act
- Irrigation return flows
- Household hazardous waste
- See 40 CFR 261.4 for complete list
Waste Determination

• Now determine if the waste is:
  • Listed?
  • Characteristic?
  • Both Listed & Characteristic?

• Keep All Determinations on File
  • Even if the waste is non-hazardous
Is it Listed?

- **F LIST** - wastes from non-specific sources such as solvents, still bottoms, and plating wastes

- **K LIST** – specific wastes from the chemical manufacturing industry

- **P, U LISTS** – discarded and/or, off-spec chemical products, container residues and spill residues
  - P - ACUTE HAZARDOUS WASTE
  - U - TOXIC HAZARDOUS WASTE
A hazardous waste can be defined by one or more of the following:

- **Ignitability** = D001
- **Corrosivity** = D002
- **Reactivity** = D003
- **Toxicity** = D004 – D043
The flashpoint is $< 140^\circ$ F ($60^\circ$ C).

- **Common wastes include:**
  - Paint thinner
  - Gasoline
  - Alcohol
  - Solvents
  - Flammable compressed gas
Corrosivity - D002

- It is an aqueous solution with a pH of \( \leq 2 \) or \( \geq 12.5 \).
  Hydrochloric acid, Sodium hydroxide

- It corrodes steel at 6.35 mm/year at 55\( ^\circ \) C.

- Common examples include:
  - Waste from rust remover
  - Alkaline cleaning fluid
  - Battery acid
Reactivity - Do03

- Normally unstable, explosive, reacts violently with water or forms toxic gasses
- Cyanide or sulfide bearing waste when exposed to pH conditions between 2 and 12.5 can generate toxic gasses
- Capable of explosion or detonation
- Examples include: waste from cyanide plating, bleach
Regulatory levels are based on ability to leach to groundwater.

Laboratory Analysis assesses concentration in sample (TCLP Test)
TCLP Testing

- Measures the potential to seep or "leach" into groundwater if a waste is landfill disposed
- 40 parameters, specific regulatory limit for each
- Must be done by a certified lab

Examples from the 40 CFR 261.24 Table 1

<table>
<thead>
<tr>
<th>EPA HW Code</th>
<th>Contaminant</th>
<th>Regulatory Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>D018</td>
<td>Benzene</td>
<td>0.5 mg/L</td>
</tr>
<tr>
<td>D008</td>
<td>Lead</td>
<td>5.0 mg/L</td>
</tr>
<tr>
<td>D009</td>
<td>Mercury</td>
<td>0.2 mg/L</td>
</tr>
<tr>
<td>D035</td>
<td>Methyl Ethyl Ketone (MEK)</td>
<td>200 mg/L</td>
</tr>
<tr>
<td>D039</td>
<td>Tetrachloroethylene</td>
<td>0.5 mg/L</td>
</tr>
<tr>
<td>D043</td>
<td>Vinyl Chloride</td>
<td>0.2 mg/L</td>
</tr>
</tbody>
</table>
Wastes Typically Needing TCLP

- Paint Booth Exhaust Filters
- Sand/Oil Separator Sludge
- Solvents
- Paints
- High-Flash Or Aqueous Cleaning & Degreasing Solutions
# Common Hazardous Wastes

<table>
<thead>
<tr>
<th>Description of Waste</th>
<th>EPA Waste Code(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spent cleaning or degreasing solvents (e.g., xylene, acetone, MEK, toluene, benzene, methanol) Still bottoms, solvent wipers</td>
<td>F003, F004, F005, D001, D018, D035</td>
</tr>
<tr>
<td>Spent halogenated cleaning or degreasing solvents (e.g., methylene chloride, 1,1,1-trichloroethane, carbon tetrachloride, trichloroethylene) Still bottoms, solvent wipers</td>
<td>F001, F002, D019, D039, D040</td>
</tr>
<tr>
<td>Old paint, paint booth filters</td>
<td>D001, D035, D006, D007, D008</td>
</tr>
<tr>
<td>Mineral spirits or stoddard solvent, solvent wipers</td>
<td>D001</td>
</tr>
<tr>
<td>Spent acids or caustics</td>
<td>D002</td>
</tr>
<tr>
<td>Dry cleaning waste and filters</td>
<td>F001, F002, D019</td>
</tr>
<tr>
<td>Printing wastes</td>
<td>D001, D002, D011</td>
</tr>
<tr>
<td>Lab chemicals</td>
<td>D, F, P, U codes possible</td>
</tr>
<tr>
<td>Metal plating wastes</td>
<td>F007, F008, F009, F010, F011, F012, F019, D007, D008</td>
</tr>
</tbody>
</table>
Failure to make a waste determination

- Business doesn’t determine if waste is hazardous or non-hazardous
- No supporting documentation
Special Waste Streams

- E-Waste
- Universal Waste
- Wipers and Rags
- Used Anti-Freeze
- Used Oil
E-Waste
Electronic Waste

• AKA E-waste:
  • Electronic equipment and products that are broken, obsolete, discarded or have reached the end of their useful life.

• Computer and Video Monitor glass typically contains enough lead to be classified as hazardous waste.

• Printed wiring boards contain plastic and copper, plus chromium, lead solder, nickel, and zinc.
E- Waste Management

- Most electronics - computers, keyboards, stereos, etc. are exempt if recycled for scrap metal.

- Intact CRT monitors may be shipped to a recycling facility
  - If the monitor is broken (i.e. vacuum released), it MUST be managed as hazardous waste.
Universal Waste

- Streamlines collection and management standards for certain hazardous waste streams:
  - Used fluorescent, neon, mercury vapor, sodium, and HID lamps.
  - Batteries;
  - Recalled/suspended pesticides;
  - Mercury-containing equipment.
Universal Waste

- Intent is to encourage recycling.
- Does not count toward generator status.
- Shows attempt to reduce the volume and toxicity of hazardous waste.
Universal Waste Requirements

**Small Quantity Handlers of Universal Waste:**

- Accumulates less than 5,000 kg (11,000 lbs.) at any time;
- No EPA ID Number Required;
- Compatible closed container;
- Proper labeling: start date and “UNIVERSAL WASTE-BATTERIES, - LAMPS,” etc.;
- 1 year storage limit from start date;
- No manifesting or paperwork retention requirements;
- Employee training.
Improper Universal Waste Storage
Improper Universal Waste Storage
Improper Universal Waste Storage

- **BROKEN** fluorescent bulbs, batteries, mercury-devices need to be managed as **Hazardous Waste** - NOT Universal Waste
Proper Universal Waste Storage
Mercury Containing Equipment
Storing Mercury Containing Equipment
Batteries
Batteries

- If picked up for recycling, not considered hazardous waste.
- Keep receipts on file to document recycling.
- If cracked, prepare a waste determination prior to disposal (D002, D008).
- Tape terminals if possible to prevent contact.
- Remember to store in a cool, dry, and safe place!
Improper Battery Storage
Proper Battery Storage
Other/Exempt Wastes Streams

Specific types of waste are not regulated as hazardous waste provided that they are managed properly. Examples include:

- Wipers and Rags.
- Used Antifreeze;
- Used Oil;
- Oil Filters;
Wipers and Rags

- If disposed, you must determine if they are hazardous waste:
  - Listed solvents;
  - Toxic characteristics.
Wipers and Rags professionally laundered for reuse at a permitted facility are considered non-hazardous if:

- No Free Liquids;
- Managed in Closed Containers;
- Labeled.
Used Antifreeze

• If recycled, no waste determination needed.
• Does not count toward generator status.
• Keep receipts for at least 3 years.
• High volume users- consider recycling yourself.
Used Oil

- Label as “Used Oil”.
- Do not mix with hazardous waste.
- If recycled, it does not count toward generator status.
Used Oil Filters

- Exempt from hazardous waste regulation if the filters have been gravity hot-drained by any of the following methods:
  - Puncturing the filter anti-drain back valve or filter dome and hot-draining;
  - Hot-draining and crushing;
  - Dismantling and hot-draining; or
  - Any other equivalent hot-draining method.
Don’t Forget these Waste Streams

- May be hazardous and require waste determination:
  - Aerosol Cans;
  - Filters;
  - Machine Oils.
Generator Status

- Conditionally Exempt Small Quantity Generators (CESQG): less than 100 kg (220 lbs.) per month

- Small Quantity Generators (SQG): 100 kg or (220 lbs.) but less than 1,000 kg (2,200 lbs.) per month.

- Large Quantity Generators (LQG): more 1,000 kg (2,200 lbs.) per month.
Generator Status

- Cumulative of all hazardous wastes generated per calendar month and accumulated on site at any one time.
- Cannot “Average” generation over the year.
- Waste that is stored prior to recycling is counted toward generator status.
- Change in status, facility must be managed as such.
## Disposal Matrix

<table>
<thead>
<tr>
<th>Category</th>
<th>Generation Limit</th>
<th>Storage Time</th>
<th>Storage Quantity</th>
<th>Requirements if Limit(s) are Exceeded</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conditionally-Exempt Small Quantity Generator (CESQG)</td>
<td>&lt; 100 kg/mo (less than 220 lbs) of hazardous waste</td>
<td>None</td>
<td>1,000 kg (2,200 lbs) of hazardous waste</td>
<td>If generator exceeds generation limit, waste is subject to LQG or SQG requirements depending upon amount exceeded. If generator exceeds storage quantity limit, waste is subject to SQG requirements.</td>
</tr>
<tr>
<td></td>
<td>&lt;1kg/mo (2.2 lbs) of acutely hazardous waste</td>
<td>none</td>
<td>1 kg (2.2 lbs) of acutely hazardous waste</td>
<td>If generator exceeds generation limit, waste is subject to LQG requirements.</td>
</tr>
<tr>
<td>Small Quantity Generator (SQG)</td>
<td>100 to 1,000 kg/mo (220-2,200 lbs) of hazardous waste</td>
<td>180 days (or 270 days if waste must be shipped over 200 miles)</td>
<td>6,000 kg (13,200 lbs) of hazardous waste</td>
<td>If generator exceeds generation limit, waste is subject to LQG requirements. If generator exceeds storage time or quantity limits. Facility is subject to storage facility (TSD) requirements</td>
</tr>
<tr>
<td>Large Quantity Generator (LQG)</td>
<td>&gt;1,000 kg/mo (2,200 lbs) of hazardous waste</td>
<td>90 days</td>
<td>None</td>
<td>If generator exceeds time limit. Facility is subject to storage facility (TSD) requirements.</td>
</tr>
<tr>
<td></td>
<td>&gt;1kg/mo of acutely hazardous waste</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

100kg = 220 lbs. or approximately 26 gallons
Federal EPA ID Numbers

NVR123456789:
- All SQG and LQG are required to have an EPA ID Number.
- CESQG Not required, typically.
- CESQG Disposing of hazardous waste in other states may be required to obtain an EPA ID number.
Federal EPA ID Numbers

To apply for the EPA ID #:

• Complete form 8700-12 “Notification of Regulated Waste Activity” and mail to the appropriate office for your state;

Storage Requirements

- Proper Containers.
- Satellite Accumulation.
- Labeling.
- Central Accumulation Area.
- Inspections.
Hazardous Waste Containers Must Be:

- In good condition
- Compatible with the waste
- Always kept closed
- Labeled properly
Good Condition?
Common Violation

- Open Containers
  - Securely Closed unless waste is being added or removed
  - Only open when adding or emptying.
- **Funnels in drums does not mean they are closed!**
Empty?
Empty Containers:

- Good faith effort (all the material that can be removed has been removed);
- Less than 1 inch of residue or 3% or less by weight of total capacity;
- If “P” listed must be triple rinsed. A sewer permit is required for discharge to the sewer.
Containers Must be Labeled Clearly!

- Label must include:
  - The words “Hazardous Waste”;
  - Description of contents;
  - EPA Waste Codes;
  - Beginning Date of Accumulation.
Satellite Accumulation

- CESQGs & SQGs may co-locate Satellite Containers with Central Storage
- LQGs must justify “At or Near the point of generation”, AND “Under the control of the process operator”
- Up to 55 gallons of hazardous waste or 1 quart acutely hazardous waste.
Satellite Accumulation Area

- Mark or label the container with the words "Hazardous Waste", and/or other words that identify the content of the containers.
- Within 3 days of the container becoming full:
  - Date
  - EPA Waste Code
  - Transfer to central storage
Common Violations

- 90 or 180 day storage area vs. satellite area

- Labeling Violations
  - Wording
  - Accumulation start date
Container Staging
Central Accumulation Area

- Containers handled so they will not rupture or leak.
- Access control.
- Containment.
- Waste segregated if incompatible.
- Protect containers from elements.
Accumulation Time Limits

- CESQG - cannot store more than 1,000 kg (2,200 lbs) at any time or more than 1 kg (2.2 lbs) of acutely hazardous waste

- SQG - 180 days or 270 days if waste is shipped greater than 200 miles away

- LQG - 90 days
Container Inspections

- SQG and LQG required to inspect the hazardous waste storage area weekly.

- Inspections must note:
  - Date and Time of Inspection;
  - Name of Inspector (Signature);
  - Observations made;
  - Date and Time of any corrective actions.

- Maintain written records of inspections for at least 3 years.
Hazardous Waste Storage Facility
Weekly Inspection Log

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Inspector</th>
<th>No. of Drums</th>
<th>Status</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>4/12/93</td>
<td>8 AM</td>
<td>C. Moore</td>
<td>20</td>
<td>❌</td>
<td></td>
</tr>
<tr>
<td>4/14/93</td>
<td>8 AM</td>
<td>C. Moore</td>
<td>20</td>
<td>❌</td>
<td></td>
</tr>
<tr>
<td>4/16/93</td>
<td>8 AM</td>
<td>C. Moore</td>
<td>20</td>
<td>❌</td>
<td></td>
</tr>
<tr>
<td>5/13/93</td>
<td>8 AM</td>
<td>L. Jones</td>
<td>21</td>
<td>✅</td>
<td>Acid waste drum leaking, pumped into new drum on 5/22</td>
</tr>
<tr>
<td>5/14/93</td>
<td>8 AM</td>
<td>J. Smith</td>
<td>21</td>
<td>✅</td>
<td>Missing bug on drum of spray paint, being replaced on 5/28</td>
</tr>
<tr>
<td>5/15/93</td>
<td>8 AM</td>
<td>J. Smith</td>
<td>29</td>
<td>✅</td>
<td></td>
</tr>
<tr>
<td>6/3</td>
<td>8 AM</td>
<td>L. Jones</td>
<td>29</td>
<td>❌</td>
<td></td>
</tr>
<tr>
<td>6/4</td>
<td>8 AM</td>
<td>D. Jones</td>
<td>29</td>
<td>✅</td>
<td></td>
</tr>
<tr>
<td>6/18</td>
<td>8 AM</td>
<td>D. Jones</td>
<td>29</td>
<td>✅</td>
<td></td>
</tr>
<tr>
<td>6/25</td>
<td>8 AM</td>
<td>Jones</td>
<td>29</td>
<td>✅</td>
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<tr>
<td>7/2</td>
<td>8 AM</td>
<td>J. S.</td>
<td>11</td>
<td>✅</td>
<td></td>
</tr>
<tr>
<td>7/4</td>
<td>8 AM</td>
<td>Smith</td>
<td>11</td>
<td>✅</td>
<td></td>
</tr>
<tr>
<td>7/18</td>
<td>8 AM</td>
<td>Smith</td>
<td>60</td>
<td>❌</td>
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</table>
2012
Hazardous Waste Compliance Calendar

ASSISTING NEVADA BUSINESSES WITH ENVIRONMENTAL MANAGEMENT AND ENERGY EFFICIENCY ISSUES
(800) 882-3233
www.unrbep.org

This calendar was developed by the Business Environmental Program.
### Weekly Container Inspection Record

<table>
<thead>
<tr>
<th>Inspectors Name</th>
<th>Inspection Date /Time</th>
<th>Container Area Inspected</th>
<th>Leaks</th>
<th>Corrosion</th>
<th>If yes: Description of problem/ date and actions taken to correct the problem</th>
</tr>
</thead>
<tbody>
<tr>
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</tbody>
</table>

### Emergency Coordinator Information

Name: __________________________

Title: __________________________

Phone: __________________________

Alt. Phone: ______________________

Police 911 or: ____________________

Fire 911 or: ______________________

Hospital: _________________________

### Previous Month Generator Status

- [ ] Conditionally Exempt Small Quantity Generator (CESQG)
- [ ] Small Quantity Generator (SQG)
- [ ] Large Quantity Generator (LQG)

### Spill Reporting

NDEP Spill Reporting Hotline
1-888-331-NDEP (6337)
Outside of Nevada: 1-775-687-9485
National Response Center
800-424-8802

### HAZARDOUS WASTE

FEDERAL LAW PROHIBITS IMPROPER DISPOSAL
IF FOUND CONTACT THE NEAREST POLICE OR PUBLIC SAFETY AUTHORITY OR THE U.S. ENVIRONMENTAL PROTECTION AGENCY

- NAME __________________________
- ADDRESS ________________________
- PHONE _________________________
- CITY __________________________
- STATE ____________ ZIP __________
- EPA ID NO ______________
- MANIFEST _________________
- ACCUMULATION _______________
- START DATE ________________
- EPA WASTE NO. ____________

DOT PROPER SHIPPING NAME AND UN OR NA NO. WITH PREFIX

HANDLE WITH CARE!
Common Violation

- **Weekly Inspections (SQGs & LQGs)**
  - Must inspect weekly
  - Must maintain log
    - Date & time
    - Inspector name
    - Observations
    - Remedial action taken
Preparedness and Prevention

- Emergency Coordinator.
- Spill Response.
- Preparedness and Prevention Plan (P3)
- Training.
Emergency Coordinator

- One or more employees designated to coordinate emergency response measures
- Must post next to telephone:
  - Name and phone numbers of coordinators;
  - Location of fire extinguishers, spill control equipment;
  - Location of alarm system (if present);
  - Phone number of Fire Department.
Spill Response

- HAVE A SPILL KIT STOCKED AND READY!
- Employees familiar with waste handling and emergency procedures.
- Make sure employees are able to respond in the event of an emergency.
Preparedness and Prevention Plan (P3)

**Required for SQG and LQG:**

- Maintenance and operation of facility;
- Required equipment;
- Testing and maintenance of equipment;
- Access to communications and alarm systems;
- Required aisle space;
- Arrangements with local authorities.
Required Equipment

- All facilities are required to have:
  - Internal communications or alarm system (voice or signal); (i.e. a telephone or two way radio),
  - Portable fire extinguishers;
  - Spill control equipment;
  - Decontamination equipment (if required); and
  - Water in adequate volume and pressure.
Testing and Maintenance

- All facility communications, fire protection equipment, spill response equipment (if required) must be tested and maintained as necessary to assure proper operation.
Whenever hazardous waste is being handled, persons involved must have immediate access to:

- An internal alarm; or
- Emergency communication device.

If there is just one employee on the premises while the facility is operating he/she must have a cellular phone or two-way radio to summon help.
Adequate aisle space is required to allow unobstructed movement of personnel, fire protection equipment or decontamination equipment (if required) to any area of the facility in the event of an emergency.

40 CFR 265.35
Arrangements with Authorities

- Familiarize police, fire department, and emergency response teams with:
  - The layout of the facility;
  - Properties of the hazardous waste and associated hazards;
  - Places where employees work;
  - Possible evacuation routed;
  - Have proof of notification to local authorities.
Arrangements with Authorities

- Familiarize local hospitals with:
  - Waste types handled at the facility;
  - Types of injuries and illness that could result from handling or exposure to the waste either through handling or fire or explosion;
  - If either State or Local authorities decline to enter into such arrangements the refusal must be documented into the facility operating record.
Employee Training

- SQG facilities must ensure all employees are familiar with:
  - Proper waste handling procedures; and
  - Emergency procedures.
    - Spill response
    - Evacuation plan
    - Fire extinguisher location
    - Decontamination procedures (if necessary)
Common Violation

- **Training**
  - Inadequate employee training
  - Not documenting employee training
<table>
<thead>
<tr>
<th>Form Description</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Generator's Name and mailing address</td>
<td>A. Name and address of generator</td>
</tr>
<tr>
<td>Transporter's Name</td>
<td>B. Name and address of transporter</td>
</tr>
<tr>
<td>Company Name</td>
<td>C. Company name of transporter</td>
</tr>
<tr>
<td>Transporter's phone</td>
<td>D. Phone number of transporter</td>
</tr>
<tr>
<td>Company phone</td>
<td>E. Phone number of company</td>
</tr>
<tr>
<td>Shipping address</td>
<td>F. Shipping address of company</td>
</tr>
<tr>
<td>US DOT Number</td>
<td>G. US DOT number of transporter</td>
</tr>
<tr>
<td>Total quantity</td>
<td>H. Total quantity of hazardous waste</td>
</tr>
<tr>
<td>Hazard class and number</td>
<td>I. Hazard class and number of hazardous waste</td>
</tr>
<tr>
<td>Additional description for materials listed above</td>
<td>J. Additional description for materials listed above</td>
</tr>
<tr>
<td>Handling code for materials listed above</td>
<td>K. Handling code for materials listed above</td>
</tr>
<tr>
<td>Special handling instructions and additional information</td>
<td>L. Special handling instructions and additional information</td>
</tr>
<tr>
<td>Generator's certification</td>
<td>M. Generator's certification</td>
</tr>
<tr>
<td>Transporter's acknowledgment of receipt of materials</td>
<td>N. Transporter's acknowledgment of receipt of materials</td>
</tr>
<tr>
<td>Acknowledgment of receipt of materials</td>
<td>O. Acknowledgment of receipt of materials</td>
</tr>
</tbody>
</table>

**Note:** This is a sample of a hazardous waste manifest form. The actual form may vary depending on the regulations and requirements in place.
Manifests

- Must be used by all SQG and LQGs that ship hazardous waste off-site for treatment, storage, disposal, or recycling.
- Provides tracking from your facility to TSDF
  - Generator initiates the manifest
  - TSDF sends signed copy back to generator
  - Staple signed copy to the original; not required, but helps to keep them organized.
- Keep on file for 3 years.
- Used to complete the Biennial Hazardous Waste Report
Biennial Generator Reports (BGR)

- Due March 1, 2014
- Federally required by all LQGs and TSDFs; some states require reports from SQGs and CESQGs.
Recordkeeping

- **Operational Records:**
  - Waste Determination;
  - Training Records;
  - Weekly Inspection Records.

- **Waste Disposal Records:**
  - Manifests;
  - Land Disposal Restrictions;
  - Tolling Agreements.

- **Preparedness and Prevention Records:**
  - Preparedness and Prevention Plan;
  - Contingency Plan;
  - Required Postings.
What are My Basic Responsibilities as a Hazardous Waste Generator?

- Follow procedures for labeling, storing and disposing of hazardous waste.
- Maintain proper records and paperwork.
- Prepare ahead of time for spills or other mishaps.
- Minimize the amount of waste generated.
Pollution Prevention (P2) and Waste Minimization

Primo Levi
1919-1987
Improved worker health and safety

- Minimize exposure to hazardous products
- Improved training leads to safer work practices
Environmental Protection

- Cleaner air and water
- Conserve natural resources
- Reduce pollutants entering the environment
BENEFITS OF P2

Cost Savings

- Savings in material, supply, and tracking costs
- Reduced liability and regulatory burden
- Elimination of expensive clean-up costs
SEVEN P2 TECHNIQUES

- Policy/Procedural Change
- Equipment Modification
- Material Reuse
- Material Substitution
- Process Efficiency Improvements
- Improved Housekeeping
- Inventory Controls
POLICY or PROCEDURAL CHANGE

Technique 1

Put policy in place requiring the purchase of less hazardous products or the use of less wasteful practices.

- Require metal free auto paint
- Low VOC latex paint
- Double-sided printing
Replacing solvent degreasers with aqueous parts washers.
Equipment Modification

Technique 2

Digital Photography/X-Ray
Using a distillation/recovery unit allows you to reuse the product and reduce your waste quantities, saving costs on purchasing and disposal.
Case Study

- Aggregate Industries - Las Vegas, NV
- Purchased ≈ 125 gallons of solvent each month; generated ≈ 125 gallons of hazardous waste solvent per month.
- Product purchase and waste disposal cost: $40,000 per year
- Purchased a solvent recovery unit for $4,500.
- Reduced hazardous waste generation by ≈ 9,500 lbs per year
- Annual savings ≈ $34,000
MATERIAL SUBSTITUTION

Technique 4

Purchase Environmentally Preferable Products
MATERIAL SUBSTITUTION

Technique 4

Replace aerosol solvents with compressed air sprayers and citrus-based cleaners for cleaning and degreasing.
PROCESS EFFICIENCY IMPROVEMENTS

Technique 5

Laser guide for spray gun
IMPROVED HOUSEKEEPING

Technique 6

• Preventative maintenance
  • Proper labels
  • Organization
  • Keep lids closed

• Reduced opportunities for accidents
### Technique 7

The hazardous material barcode color changes every year.

<table>
<thead>
<tr>
<th>Barcode#</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>1A010000</td>
<td>2001</td>
</tr>
<tr>
<td>2A010000</td>
<td>2002</td>
</tr>
<tr>
<td>3A010000</td>
<td>2003</td>
</tr>
</tbody>
</table>

Move hazardous materials with oldest BARCODES to the front.
WASTE MINIMIZATION/P2 WRAP-UP

- Purchase less hazardous material.
- Use it more efficiently.
- Reduce waste management cost.
- Reduce insurance costs.
- Reduce labor, recordkeeping, reporting and regulatory requirements.
- Feel good and make more money.
www.unrbep.org

Roland J. Fornoff
Southern Nevada Sustainability Manager
702.866.5927
fornoff@unr.edu