Hazardous Waste Reduction Planning
Tips for Successfully Developing Your Plan

May 2017
Hazardous Waste Reduction Plan (HWRP)

- Established under Article 27, Section 0908 of the Environmental Conservation Law (ECL 27-0908)
- Applicable to generators ≥25 TPY or TSDFs
- Intent of program:
  - To prevent pollution through hazardous waste reduction planning
  - Promote waste management hierarchy
## Program Requirements

- Develop, implement and submit a written HWRP by July 1
- Submit Annual Status Report (ASR) one year following submittal of HWRP, by July 1
- Submit Biennial Update (BU) July 1 in year after ASR

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5…</th>
</tr>
</thead>
<tbody>
<tr>
<td>HWRP</td>
<td>ASR</td>
<td>BU</td>
<td>ASR</td>
<td>BU…</td>
</tr>
</tbody>
</table>
Common Issues

Mistakes, Misconceptions & Omissions
Which waste streams to include

- 90% of HW generated – *this includes hazardous wastewaters*
- Waste streams 5 TPY or greater
- All acute waste streams

These waste streams go into Table 1
Table 1

<table>
<thead>
<tr>
<th>WASTE STREAM ID NUMBER</th>
<th>NAME OF WASTE</th>
<th>EPA HAZARDOUS WASTE CODE(s)*</th>
<th>SOURCE OF GENERATION</th>
<th>DISPOSAL MANAGEMENT METHOD CODE**</th>
<th>QUANTITY OF WASTE GENERATED (TONS)</th>
<th>PRODUCTIVITY INDEX BASE INDEX = 1 (YEAR SWMP FIRST SUBMITTED)</th>
</tr>
</thead>
</table>

- Be sure to include EPA Waste Codes, Source Codes and Disposal Mgmt. Method Codes
Calculating the Production/Activity Index

- Example: Index = Parts Produced 2016 / Parts Produced 2015
- Example: Index = Labor Hours 2016 / Labor Hours 2015
- If using sales revenue ($) – adjust for inflation
- If first submission (no previous data), index = 1

\[ \text{Index} = \frac{A_{2016}}{A_{2015}} \]
Estimating Waste Management Costs

If figures are available, please estimate using the following:

• Transport/disposal costs
• Treatment costs (chemicals, electrical, etc.)
• Storage costs (drums, warehouse space, etc.)
• Regulatory fees
• Labor costs
Waste Reduction Alternatives Evaluation

- Substitution of non-toxic/less toxic inputs
- Reformulation or re-design of end products (i.e., product re-design)
- Modification or re-design of production processes or equipment (e.g., increased efficiency)
- Changes in usage, storage, and handling (e.g., inventory control)
- Closed-loop reclaimation, re-use, and recycling (i.e., recycle waste back into process)
- On-site/off-site recycling to reduce amount to be treated/disposed (e.g., off-site reclaim)

<table>
<thead>
<tr>
<th>Waste Stream</th>
<th>Material Substitution</th>
<th>Product Re-design</th>
<th>Process Modification</th>
<th>Storage and Handling</th>
<th>Closed-loop reclaim</th>
<th>On-site/Off-site Recycle</th>
</tr>
</thead>
<tbody>
<tr>
<td>WS-1</td>
<td>Feasible</td>
<td>Won’t meet spec</td>
<td>Feasible</td>
<td>Feasible</td>
<td>Attempted (Ineffective)</td>
<td>Not Available</td>
</tr>
<tr>
<td>WS-2</td>
<td>ROI &gt; 5 years</td>
<td>Won’t meet spec</td>
<td>Feasible</td>
<td>ROI &gt; 5 Years</td>
<td>Feasible</td>
<td>Feasible</td>
</tr>
</tbody>
</table>
Waste Reduction Alternatives Evaluation

Any waste reduction alternatives that are selected (feasible/practicable) need to be put into Table 2, along with:

- Estimated waste reduction (in tons);
- Schedule for implementation;
  - If multi-step implementation – give schedule for next step
- Return on Investment (ROI);
  - Various methods – Payback period, annualized costs, increased rate of return
Table 2

<table>
<thead>
<tr>
<th>WASTE STREAM ID NUMBER</th>
<th>NAME OF WASTE</th>
<th>WASTE STREAM AFFECTED</th>
<th>REDUCTION PLANS/PROJECTS</th>
<th>ESTIMATED WASTE REDUCTION (TONS)</th>
<th>METHOD USED TO CALCULATE *ROI</th>
<th>*ROI (EST)</th>
<th>GOAL DATE</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Fill in all columns
Waste Reduction Policy & Training

- Goals and objectives
- Statement of top-level management commitment
- Method for accomplishing top-level support (reward/recognition program)
- Method for communicating policy to employees
  - Training – Needs to train employees on implementation of HWRP. Plan should discuss:
    - Format
    - Frequency
    - Content
# Waste Reduction Measurement

- Compare HW generation before and after implementation
- Take production levels into account

<table>
<thead>
<tr>
<th>Year</th>
<th>Production (Parts)</th>
<th>Prod. Index</th>
<th>HW Generation (lbs)</th>
<th>% Reduction</th>
<th>Reduction Index</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>1,000,000</td>
<td>1.00</td>
<td>240,000</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>2015</td>
<td>1,200,000</td>
<td>1.20</td>
<td>230,000</td>
<td>4.17%</td>
<td>1.25</td>
</tr>
<tr>
<td>2016</td>
<td>1,000,000</td>
<td>0.83</td>
<td>200,000</td>
<td>13.0%</td>
<td>1.04</td>
</tr>
</tbody>
</table>

\[
\text{% Reduction} = \frac{\text{HW Gen 2015} - \text{HW Gen 2014}}{\text{HW Gen 2014}}
\]

\[
\text{Reduction Index} = \frac{\text{Production 2015} / \text{HW Gen 2015}}{\text{Production 2014} / \text{HW Gen 2014}}
\]
Transference of HW to Other Media

- Does the HW reduction alternative being implemented result in transfer of HW to other environmental media (i.e., air, water, land)?
- If so, is there a benefit to such transference (refer to hierarchy)?
Annual Status Reports (ASRs)
ASRs

- Update Table 1 and Table 2
- Describe progress in achieving time schedule for implementation laid out in HWRP (or BU)
- If not implemented as planned, provide reason
- If reduction alternative is not achieving reductions, another alternative may be selected
Biennial Updates (BUs)
BUs

• Updated Table 1 – be sure to include new acute waste streams, streams over 5 TPY or streams newly included in 90%
  ▪ If new streams, plan should also include:
    ▪ Narrative description of source of generation, method of disposal
    ▪ Productivity index
    ▪ Evaluation of feasibility and practicability of implementing reductions (incorporate this into Table 2)
• Updated waste management cost estimates
• Updated Table 2 – be sure to note any completed plans, re-evaluate existing plans, and provide updated schedules as necessary
• Updates to training program (if any) and updated corporate goals, resources, etc.
Support From NYSP2I

NYSP2I is dedicated to helping NYS residents and businesses find implementable and cost-effective sustainability solutions.

111 Lomb Memorial Drive
Rochester, NY 14623
585-475-2512
nysp2i@rit.edu
nysp2i@rit.edu

NYSP2I can assist with finding waste reduction alternatives, but is not available to assist with writing the HWRP (or subsequent updates).

NYSDEC staff can assist with any questions on the development of the HWRP.

HAZARDOUS WASTE SUPPORT

Hazardous Waste Reduction Plans can be complex and challenging. We help companies find innovative and sustainable solutions to reduce hazardous waste.

EXPERIENCED, PROFESSIONAL, AFFORDABLE HELP!

New York State provides us with funds to help companies reduce hazardous waste. Projects are confidential and typically take two to four months with most companies contributing a modest cost share.

Our knowledgeable staff has over 200 years of technical experience and will help:
- Identify a baseline
- Identify opportunities to reduce the volume or quantity and toxicity of waste
- Identify opportunities to reduce hazardous waste through implementing technically feasible and economically practical waste reduction technologies, process or operational changes, material substitutions, or by other means

TESTIMONIAL

"Cost savings from NYSP2I, we have significantly reduced the amount of hazardous waste generated from our existing equipment and in manufacturing starting after implementation. We have increased our efficiency and profitability, and have included sustainability in our operations."

Paul McKeehan, Quality Control Manager, TECT Power Corporation

TOGETHER WE CAN HELP YOU TO ACHIEVE YOUR SUSTAINABILITY GOALS!

CONTACT US TODAY
585-475-2512
nysp2i@rit.edu
Questions?
Thank You

Pollution Prevention Unit
Division of Materials Management
(518) 402-9469
HW.ReductionPlanning@dec.ny.gov