



**Department of
Environmental
Conservation**

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

Year 1	Year 2	Year 3	Year 4	Year 5...
HWRP	ASR	BU	ASR	BU...



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

COMPANY NAME	EPA ID. NUMBER
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TABLE 1

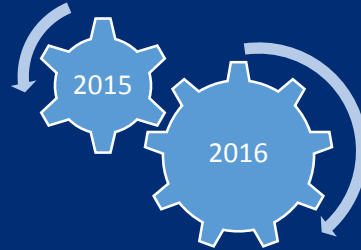
WASTE STREAM ID NUMBER	NAME OF WASTE	EPA HAZARDOUS WASTE CODE(S)*	SOURCE OF GENERATION	DISPOSAL MANAGEMENT METHOD CODE**	QUANTITY OF WASTE GENERATED (TONS)				PRODUCTIVITY INDEX BASE INDEX = 1 (YEAR HWRP FIRST SUBMITTED)				
					2012	2013	2014	2015	2012	2013	2014	2015	

- 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

$$Index = \frac{A_{2016}}{A_{2015}}$$



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 reclamation, 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)

Waste Stream	Material Substitution	Product Re-design	Process Modification	Storage and Handling	Closed-loop reclaim	On-site/Off-site Recycle
WS-1	Feasible	Won't meet spec	Feasible	Feasible	Attempted (Ineffective)	Not Available
WS-2	ROI > 5 years	Won't meet spec	Feasible	ROI > 5 Years	Feasible	Feasible

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

COMPANY NAME	EPA I.D. NUMBER
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TABLE 2

WASTE STREAM ID NUMBER	NAME OF WASTE	WASTE STREAM AFFECTED	REDUCTION PLANS/PROJECTS	ESTIMATED WASTE REDUCTION (TONS)	METHOD USED TO CALCULATE *ROI	*ROI (EST)	GOAL DATE	REMARKS

- Fill in all columns

Waste Reduction Policy & Training

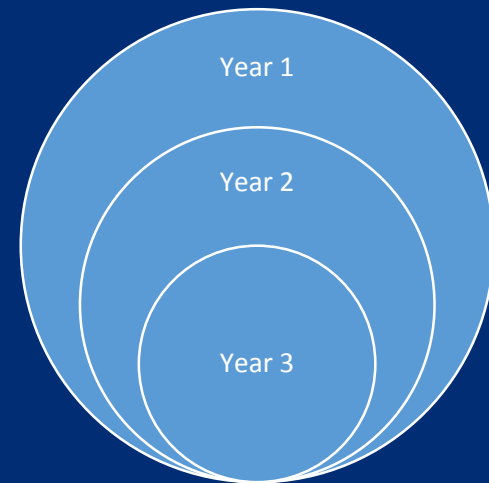
- Goals and objectives
- Statement of top-level management commitment
- Method for accomplishing top-level support (reward/recognition program)
- Method for communicating policy to employees
- Training – Needs to train employees on implementation of HWRP. Plan should discuss:
 - Format
 - Frequency
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



Waste Reduction Measurement

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

Year	Production (Parts)	Prod. Index	HW Generation (lbs)	% Reduction	Reduction Index
2014	1,000,000	1.00	240,000	NA	NA
2015	1,200,000	1.20	230,000	4.17%	1.25
2016	1,000,000	0.83	200,000	13.0%	1.04

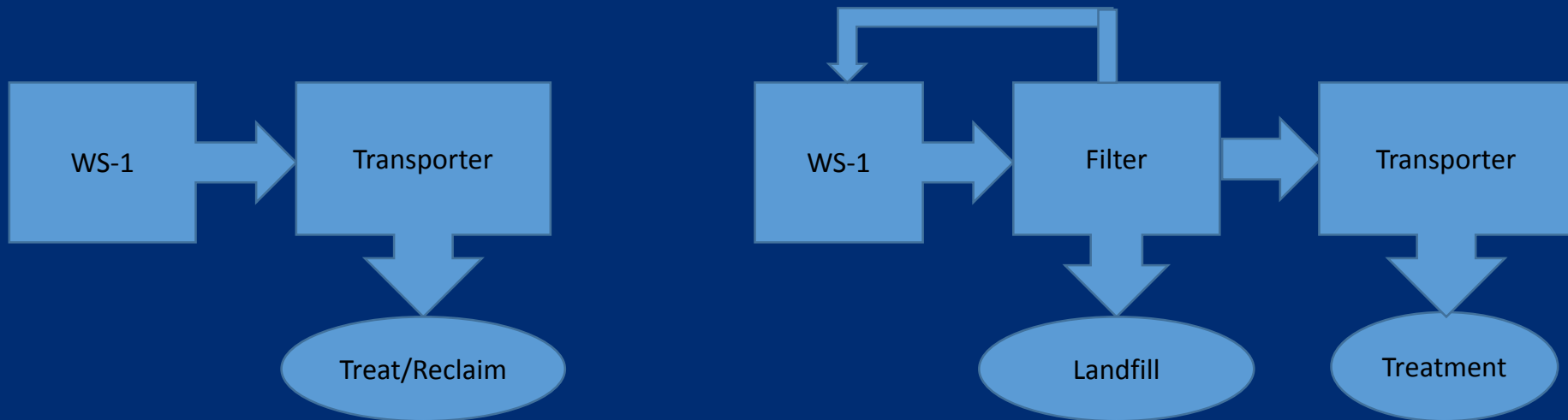


$$\% \text{ Reduction} = \frac{\text{HW Gen 2015} - \text{HW Gen 2014}}{\text{HW Gen 2014}}$$

$$\text{Reduction Index} = \frac{\text{Production 2015} / \text{HW Gen 2015}}{\text{Production 2014} / \text{HW Gen 2014}}$$

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)?

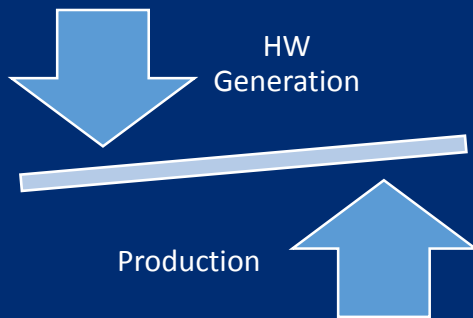


Annual Status Reports (ASRs)



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.

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Partners



10 Regional Technology Development Centers

Funding provided by the New York State
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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 230 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:

"With assistance from NYSP2I, we have significantly reduced the amount of hazardous waste generated from acid etching operations used to manufacture titanium alloy turbine blades. We have increased our efficiency and profitability, and have increased consistency in operations."

Paul McAndrew,

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

- 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.



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Questions?



Thank You

Pollution Prevention Unit

Division of Materials Management

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