

Agenda

1. Introduction
2. Quick review of TURA reporting requirements
3. Creating your TUR plan
4. Assistance with your plans available

Materials provided for this training include:

- Handouts of slides
- Guidance Document for Dry Cleaners' Toxics Use Reduction Plans
- Dry Cleaners Toxics Use Reduction Opportunities Matrix (Appendix C of Guidance)
- Sample Toxics Use Reduction Plan for Dry Cleaners
- Executive summary of Alternatives to Perc in Dry Cleaning report

Reporting Requirements for Dry Cleaners Under TURA *A Review*

Toxics Use Reduction Act Reporting Requirements

Annual toxics use reports for use > 1000 lbs

Toxics use fee based on:

- # of toxics used
- # employees

TUR Plan every even-numbered year

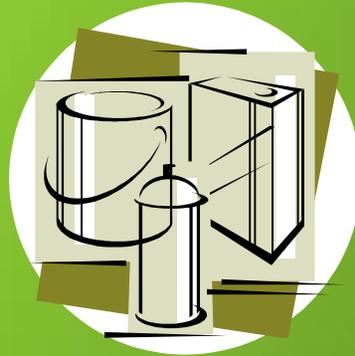
First reports were due: July 1, 2010 for use during 2009

First plan summary due: July 1, 2012

Which Companies Have to Comply?



Minimum 10 full-time
equivalent employees
(FTEs)



Manufactures,
processes or otherwise
uses a TURA-regulated
chemical in excess of a
reporting threshold



3. Conducts business
activities in a listed SIC
or NAICs code – *dry
cleaning is listed
(821320)*



Perc Designation

- Designated a **Higher Hazard Substance (HHS)** in 2008
- Reporting threshold = **1,000 pounds** \approx **74 gallons**
- Perc is ***Otherwise Used*** in Dry Cleaning



What is in a Toxics Use Report?

- Form S Cover Sheet
- Form S (for each chemical)
- State-only Form R/A (for each chemical)
- Fee Worksheet



Massachusetts Department of Environmental Protection
Bureau of Waste Prevention – Toxics Use Report

Form S Cover Sheet

Section 1: General Information



Massachusetts Department of Environmental Protection
Bureau of Waste Prevention – Toxics Use Report

Form S

Chemical Use Facility-Wide and by Production Units



Massachusetts Department of Environmental Protection
Bureau of Waste Prevention - Toxics Use Report

State Only Form R/Form A

To be completed for State only reportable chemicals and State only required N/A/C/S tiers. This form contains a portion of the fields used in the US EPA Form R and Form A. When filling out this form, please refer to instructions in US EPA's Toxic Chemical Release Inventory Reporting Forms and Instructions



Massachusetts Department of Environmental Protection
Bureau of Waste Prevention – Toxics Use Reduction

Toxics Use Fee Worksheet

What do You Have to do for TURA Reporting?

1. Count up how much Perc you use, in lbs
2. Count byproduct from that use in lbs (or make best estimate possible)
 - total perc in waste
 - air emissions of perc
 - Perc in water discharges
3. Describe a Production Unit and Unit of Product
4. Measure your production
5. **Submit Toxics Use Report to MassDEP every July 1st**

Dry Cleaner Guidance for Calculating Amounts for Toxics Use Report

<http://www.mass.gov/dep/toxics/laws/turadc.pdf>

Counting Up Perc Usage

$$\begin{array}{r} \text{Jan 1 inventory} \\ + \text{ Total amount} \\ \quad \text{purchased during} \\ \quad \text{the year} \\ - \text{ Dec 31 inventory} \\ \hline \end{array}$$

Usage for the Year

- Count perc each time it goes into the Production Unit
- Use best estimates
- Question:
 - Do you load your perc directly into machine at delivery?
 - ***same as tracking purchases***

Calculating perc shipped offsite as hazardous waste sludge

Refer to Guidance:
Appendix B

Machine Type	% of Perc Use Shipped as Hazardous Waste Sludge
Converted	19.5%
Primary (Spin Disk Only)	53.0%
Primary (Cartridge Only)	30.2%
Primary (Combo)	44.4%
Secondary (Spin Disk Only)	63.7%
Secondary (Cartridge Only)	51.4%
Secondary (Combo)	66.3%

Example: Secondary, combo machine used, 100 gallons of perc used annually.

$$100 \text{ gal} \times (13.5 \text{ lb perc/gal}) \times 0.663 = 895 \text{ lb perc in waste sludge}$$

Calculating perc shipped offsite in spent filters

Option 1: Count number of filters used per year multiply by 11 lb perc = lb perc in spent filters per year

Option 2: If no information on filters available, use table to estimate amount of perc in spent filters

Machine Type	# filters used per 100,000 lbs clothes	Gallons of Perc used per 100,000 lbs clothes
Converted	47	230
Primary (Cartridge Only)	39	210
Primary (Combo)	30	170
Secondary (Cartridge Only)	21	130
Secondary (Combo)	13	130

Filters Option 2 Example

Your facility uses 100 gal perc annually in secondary (Gen IV) combo (cartridge and spin disk filtration) machine ...

1. Look at table for ratio of gal perc used per 100,000 lb clothes for this machine:

$$\mathbf{130 \text{ gal perc}/100,000 \text{ lb clothes} = 0.0013 \text{ gal/lb}}$$

2. Determine approximate amount of clothes used annually from table

$$\mathbf{100 \text{ gal}/0.0013 \text{ gal/lb} = 77,000 \text{ lb clothes/year}}$$

3. Apply filters/lb ratio to estimate number of filters used

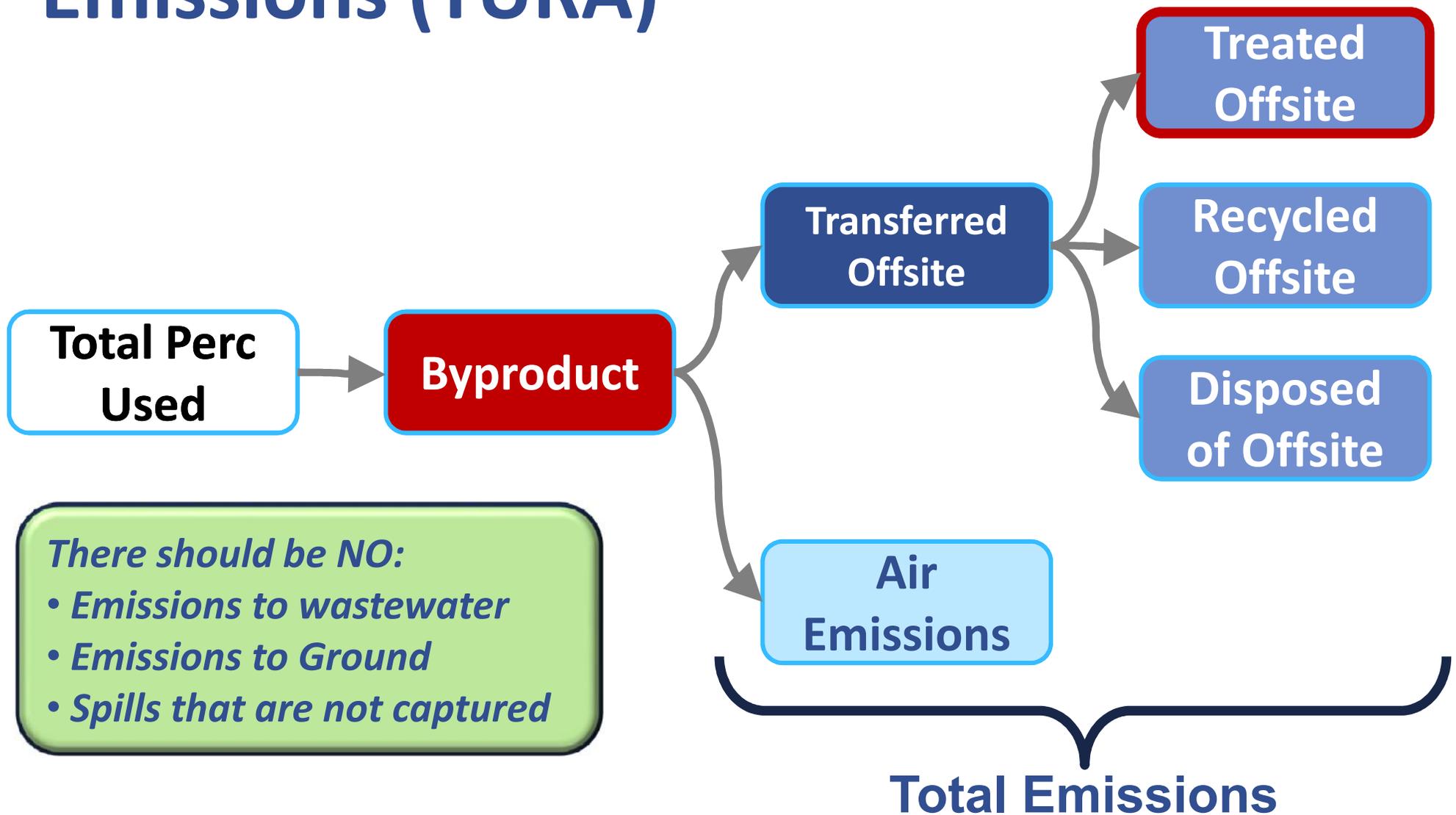
$$\mathbf{(13 \text{ filters}/100,000 \text{ lb}) \times 77,000 \text{ lb} = 10 \text{ filters}}$$

4. Calculate amount of perc shipped off site in filters

$$\mathbf{10 \times 11 = 110 \text{ lb perc in spent filters}}$$

Perc Byproduct and Emissions (TURA)

*Refer to Guidance:
Appendix B*



There should be NO:

- Emissions to wastewater*
- Emissions to Ground*
- Spills that are not captured*

Summing up Perc Shipped as Waste

Hazardous waste sludge

895 lb

A

Hazardous waste in filters

110 lb

B

Perc spilled

0 lb

C

Discharges to ground or water

0 lb

D

**A + B + C + D = TOTAL PERC
TRANSFERRED OFF-SITE**

1,005 lb

Form R, Sec. 6.2A

Calculating Perc Emissions

Total Perc used

$$100 \text{ gal} \times 13.5 \text{ lb/gal} = 1,350 \text{ lb}$$

Form S, Sec. 1 - e

- Total Perc transferred offsite for treatment

$$1,005 \text{ lb}$$

Form R, Sec. 6.2A

= Approximate total air emissions

$$1,350 \text{ lb} - 1,005 \text{ lb} = 345 \text{ lb}$$

Form R, Sec. 5.1

+ Byproduct shipped for offsite treatment

$$1,005 \text{ lb}$$

Form R, Sec. 6.2A

= TOTAL PERC EMISSIONS

$$1,350 \text{ lb}$$

Form S, Sec. 1 - f

Reporting Example

Massachusetts Department of Environmental Protection Bureau of Waste Prevention - Toxics Use Report State Only Form R/Form A

To be completed for State only reportable chemicals and State only required NAICS filers. This form contains a portion of the fields used in the US EPA Form R and Form A. When filling out this form, please refer to instructions in US EPA's Toxic Chemical Release Inventory Reporting Forms and Instructions.

[Obtain from DEP]

Facility ID

Joe's Cleaner

Facility Name

2009

Reporting Year

Perchloroethylene

Chemical Name

Two-Digit Codes From TRI Instruction Package

Range Code	From...	To...
01	0	99
02	100	999
03	1,000	9,999
04	10,000	99,999

Section 5

Quantity of the toxic chemical entering each environmental medium onsite in pounds per year:

5.1-2 Air Emissions: check if not applicable

345

5.1 Fugitive or non-point air emissions

5.2 Stack or point air emissions

6.2 Transfers to Other Off-site Locations: check if not applicable

1005

6.2.A Total Transfers

Emissions to air

345

+ Byproduct shipped for offsite treatment

1005

= Total Emissions/
Byproduct

1350



Massachusetts Department of Environmental Protection Bureau of Waste Prevention - Toxics Use Report

Form S

Chemical Use Facility-Wide and by Production Units

2009

Reporting Year

Joe's Cleaner

Facility Name

[Obtain from DEP]

DEP Facility ID Number

Perchloroethylene

Chemical Name

Section 1: Facility-Wide Use of Listed Chemical

127-18-4

a. MA DEP CAS #

Perchloroethylene

b. Chemical Name (Dioxin should be in grams, decimal points may be used)

Facility-wide use of chemical identified in a. Enter the total amount (in POUNDS, except for dioxin) for each applicable category. **NOTE:** 'Generated as byproduct' (item f.) means all waste containing the listed chemical before the waste is handled, transferred, treated, recycled or released. Please refer to the reporting instructions before completing this section.

c. Manufactured

1,350

e. Otherwise Used

d. Processed

1,350

f. Generated as Byproduct

g. Shipped In Or As Product

h. Production Ratio

Section 2: Materials Balance

Important: When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



Table on pg 7-8 of Guidance can be used to organize reported information for use in planning

Row ID	Byproducts and Emissions	Calculation Elements	Form R and/or Form S Report Location	Value for Reporting Year
A	Total Perc usage for the year	Beginning inventory + Purchased amount – End inventory	Form S, Sec. 1e	
C	Treated off-site	= amount in waste sludge + amount in spent filters + amount spilled + separator wastewater	Form R, Sec. 6.2 Form S, Sec. 8.1c	
E	Total Treated Off-Site	= C + D	Form S, Sec. 8.7	
J	Total Byproduct Released	= E + K	Form S, Sec. 8.7	
K	Emissions released to the environment on-site (= fugitive air emissions)	= A - E	Form R, Sec. 5.1	
M	Total on-site releases	= K	Form R, Sec. 5.1	
N	Total Emissions	= total used (A)	Form S, Sec 1f	

Electronic Submission

Forms and instructions:

- www.mass.gov/dep/toxics/approvals/turforms.htm

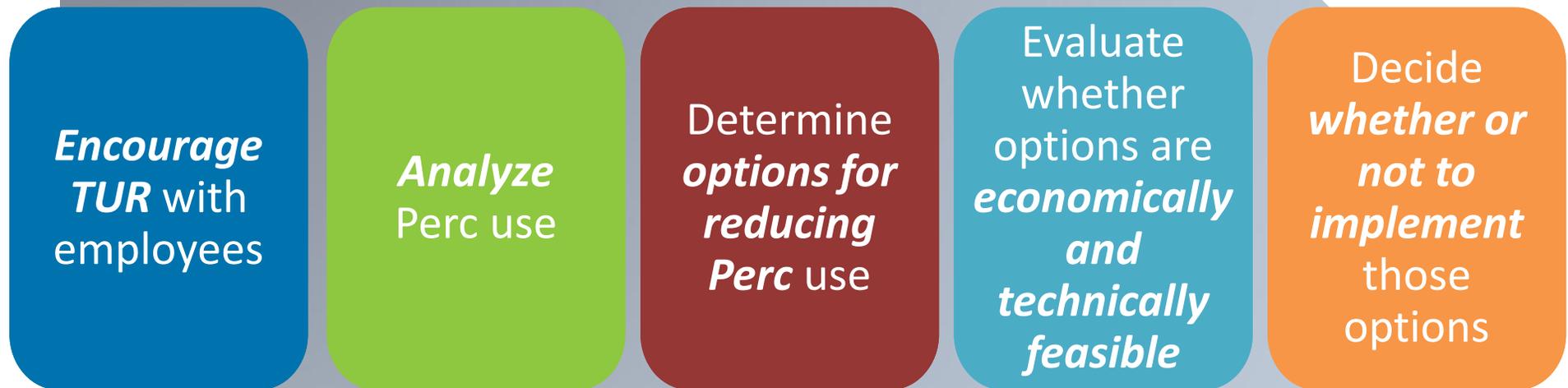
Send in information to get set up in TURA database to:

**Walter Hope
MassDEP
One Winter Street
Boston, MA 02108**

Register at: <https://edep.dep.mass.gov/DEPlogin.aspx>

TUR Planning for Dry Cleaners

Toxics Use Reduction Planning in a nutshell



These activities are to be conducted in good faith.

Things to Remember for Planning



- Perc planning requirements began 2009
- Planning is a two-year cycle – first plan cycle is 2010-2011
- First plan summary due: **July 1, 2012**
- Companies must keep their *Plans* on site

Help is Available



Free, confidential help, including onsite visits

Marina Gayl, 617-626-1077

Rick Reibstein, 617-626-1062



Information on dry cleaning alternatives

Joy Onasch, 978-934-4343

Pam Eliason, 978-934-3142

Mark Myles, 978-934-3298



Clarifications and explanations of TURA regulations

Cynthia Chaves, 617-292-5848

Lynn Cain, 617-292-5711

Industry Resources

The **North East Fabricare Association** has been assisting cleaners in Massachusetts for over 35 years.

Contact	Peter Blake
Telephone	800-442-6848
E-mail	peteblke@aol.com
Cell Phone	617-791-0128

The **Korean Dry Cleaners Association** supports many dry cleaners across Massachusetts.

Contact	Myeong Lowe	Harry Cho
E-Mail	sudbury19@juno.com	HBCHO@aol.com
Cell Phone	(617) 767-5693	

TUR Plans

Simple & brief is fine, format up to you

Written, kept on site but ***Not Submitted***

Summary ***IS*** submitted

Available for inspection

Nothing in the law requires you to stop using perc – only that you have given alternatives and improved efficiency a fair evaluation

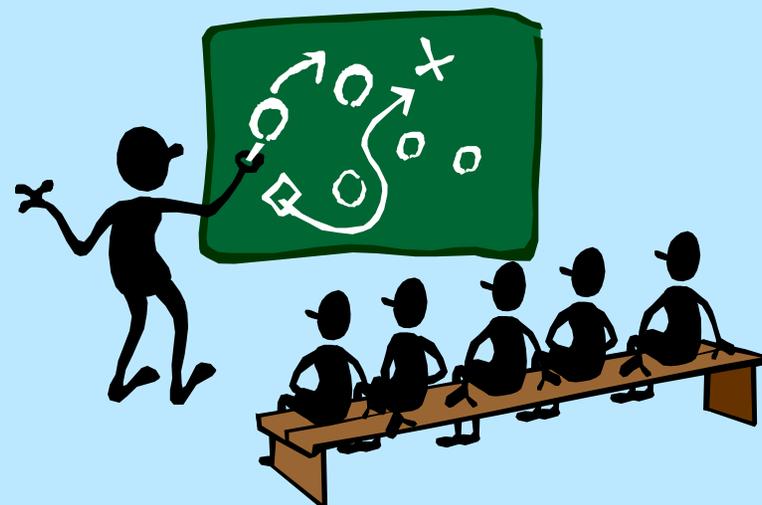
Required Elements of TUR Plans

- Management policy & employee notification
- Process flow diagram
- List of options for reducing perc
- Technical and economic feasibility evaluation
- Explain decisions made about implementing options
- Implementation schedule
- Certification by management and a TUR Planner

Management Policy and Employee Notification

*Refer to Guidance:
pg 1 for management policy,
pg 2 for employee notification*

- Owner/management philosophy re: TUR
- Communicate ***TUR is important***
- ***Solicit ideas*** from employees
- Your own means of communication
 - Bulletin board
 - Meetings
 - Emails
- Make it **yours**



*Refer to Guidance:
pg 3*

Plan Scope Contents

Production Unit

Unit of Product

Reportable Chemicals Processed

Purpose of Chemical

Process used for determining TUR options

Production Units

Note: Every where that perc is used MUST be within a designated Production Unit

Example #1:

Entire Facility =
Production Unit 1



*Refer to Guidance:
pg 3 and 7*

Unit of Product

- Used to measure / indicate level of production
- Could be:
 - *lbs of garments* cleaned per year
 - *Number of garments* cleaned per year
 - *Number of garments by type* cleaned/year
 - *hours* of machine operation
 - Last resort: \$ per year

Decide, document, and be consistent

Statements of Toxic Chemicals Used and Purpose

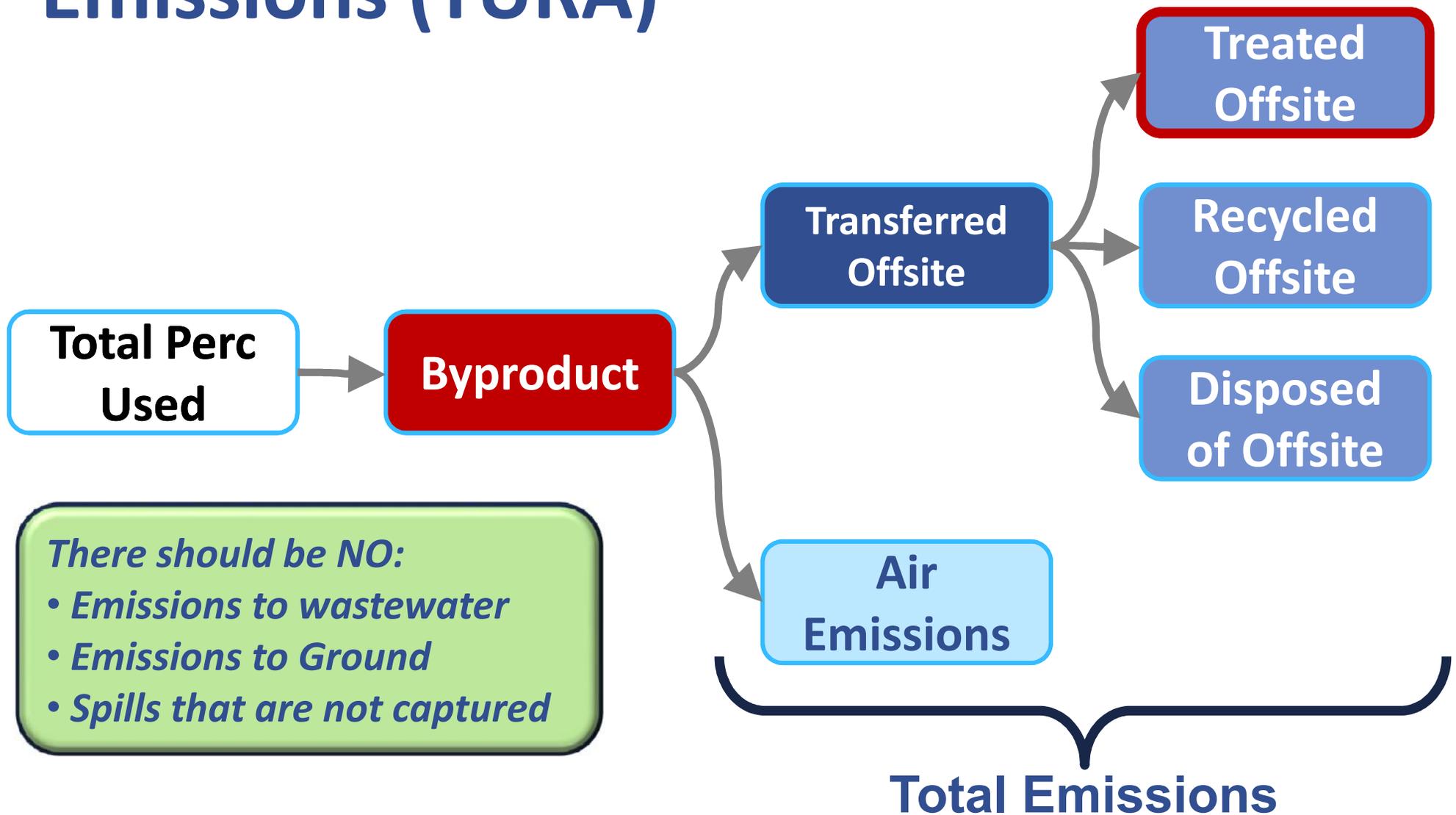
*Refer to Guidance:
pg 3 and 6*

“CAS # 127-18-4; Perchloroethylene, known as Perc or PCE”

“Perc is used at the facility to clean garments in dry cleaning equipment. Perc is also used in spotting agents as identified previously for particularly difficult garment stains.”

Perc Byproduct and Emissions (TURA)

*Refer to Guidance:
Appendix B*

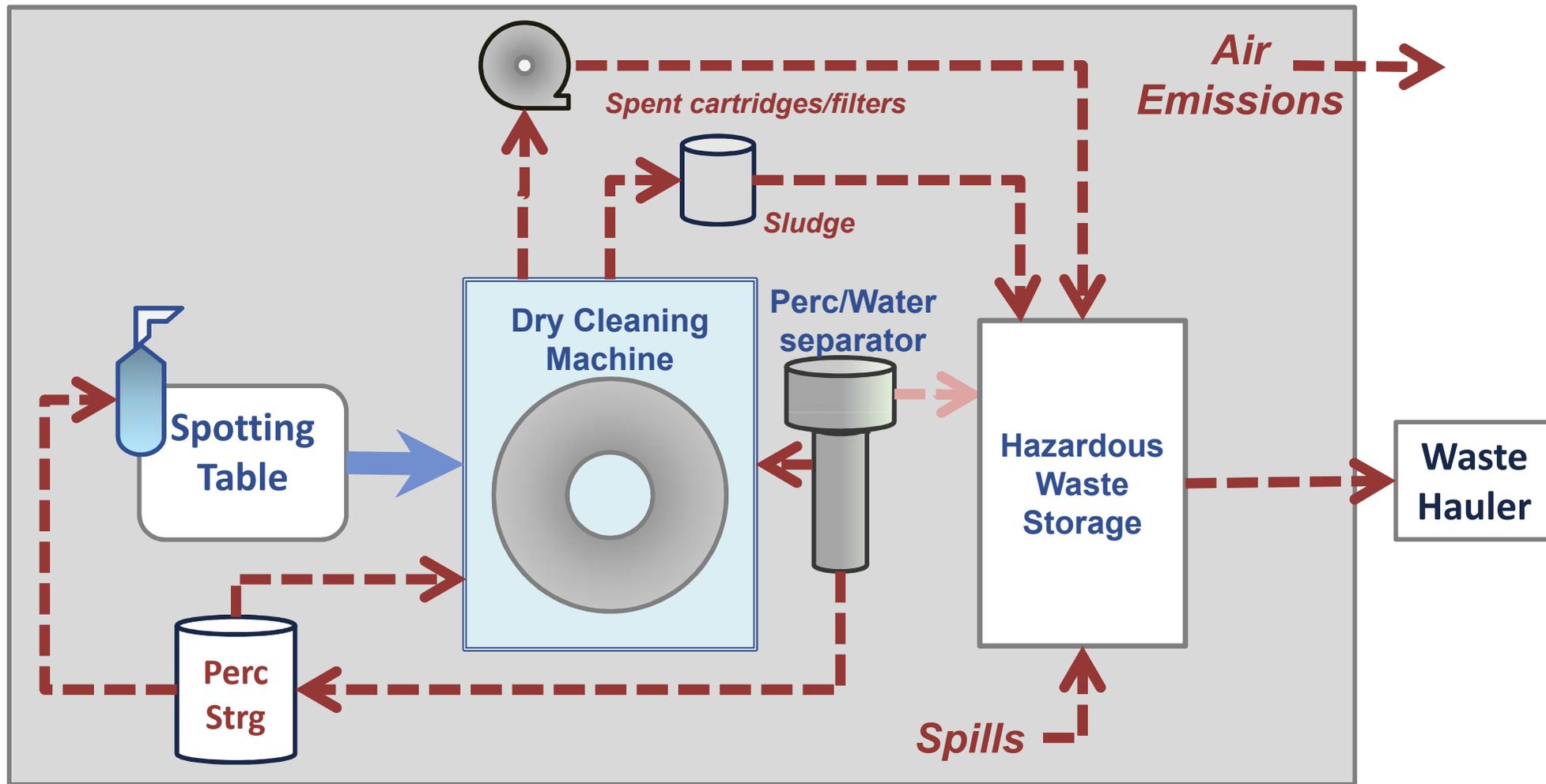


There should be NO:

- Emissions to wastewater*
- Emissions to Ground*
- Spills that are not captured*

Refer to Guidance:
pg 6

Process Flow Diagram



Perc pathway

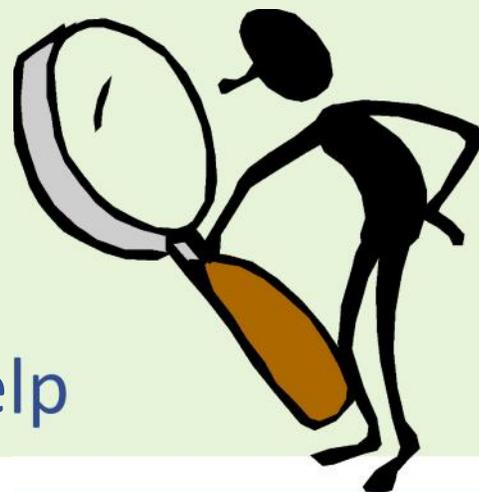
Garments



Identifying TUR Options

*Refer to Guidance:
Appendix C
Refer to Sample
Plan: pg 8-9*

- **Brainstorming with employees**
- **Peers** – e.g., Process demonstrations
- **Vendors and manufacturers**
- **Trade literature and research**, including TURI's *Assessment of Alternatives to Perchloroethylene for the Professional Garment Care Industry, 2011*
- **OTA**



Checklist in TUR Opportunity Matrix (Appendix C of the Guidance) can help

TUR Techniques

- Improved Operations & Maintenance
- In-Process Recycling and Reuse
- Process Modification or Redesign
- Process Modernization
- Input Substitution
- Product Reformulation

Improved Operations & Maintenance

Refer to Guidance:
Appendix C

- *Dry Cleaners Toxics Use Reduction Opportunities Matrix* developed by MassDEP
- In ERP format
- Appendix C of Guidance



Checklist Includes

Good housekeeping

Checking for leaks and making repairs

Preventive maintenance – e.g., replace gaskets, refrigeration maintenance

Training on use of equipment

Filter management

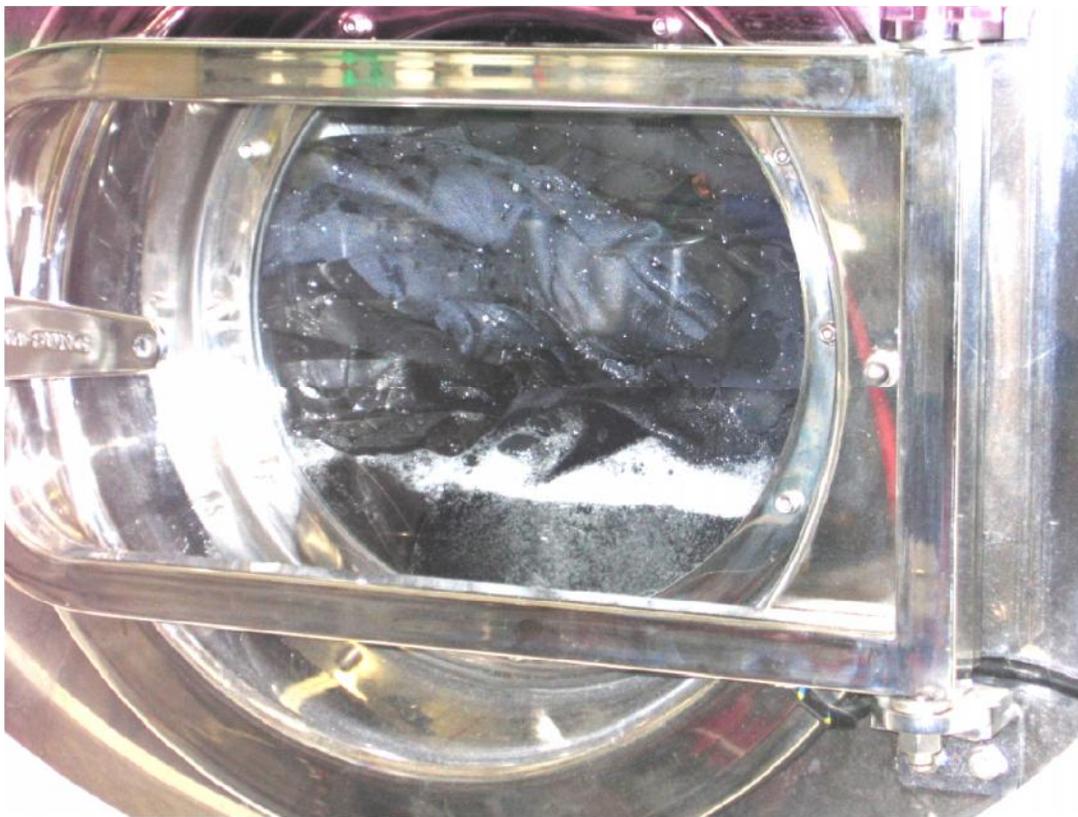
Increasing distillation frequency

Container management for waste

Other



Process Modification



Switch to
alternative
processing method:

Professional
wet cleaning

Carbon
dioxide

Increase % clothes
cleaned with
alternative system

Input Substitution

- Alternative technologies that do not use perc
 - Acetals (Solvon K4)
 - Siloxanes (Green Earth)
 - Hydrocarbons (DF2000, EcoSolv, PureDry, etc)
 - Glycol Ethers (Rynex, GenX, Impress, Solvair)



Key Hazard Criteria for Substitutes

- ***Is the substitute really safer than perc?***
 - Persistent Bioaccumulative & Toxic (PBT)
 - Volatile Organic Chemical (VOC)
 - Acute human toxicity
 - Sensitivity or irritation to eyes, skin, respiratory system
 - Chronic human toxicity
 - Carcinogen, reproductive/developmental toxicant, impact on central nervous system
 - Exposure limits

More TUR Options for Dry Cleaners

In-Process Recycling/Reuse

- Filtration system changes

Process Modernization

- Upgrade to newer generation equipment

Product Reformulation

- *Not applicable!*



Technical Evaluation of Options

Refer to Guidance:
pg 11-12

Technical

- *Use TUR Options Matrix*
- Use your best judgment
- Discuss with peers
- Contact OTA for assistance

Key Performance Criteria for Input Substitution:

- Cycle time
- Load capacity
- Difficult fabrics
- Pre-spotting requirements
- Impact on quality

Financial Evaluation of Options

*Refer to Guidance:
pg 14*

Financial

- Consider all costs that are *relevant* for comparison
- Intangible costs also relate

Key Cost Criteria for Input Substitution

- Total Cost of Ownership
- Equipment costs
- Estimated electricity usage
- Estimated natural gas usage
- Cleaning “mileage” of system

Consider All *Relevant* Costs

Cost Item	Perc	Alternative #1	Alternative #2	Alternative #3
Material Purchase (solvent, detergent, spotting agents, etc.)				
Equipment Purchase				
Filters				
Disposal				
Electricity Use				
Natural Gas Use				
Oil Use				
Water Use				
Machine Maintenance				
Labor				
Regulatory Costs (time and fees)				
Health & Safety Issues				
Insurance Issues				
Other, if relevant for comparison				

Consider *Intangible* Costs & Benefits

- Future compliance costs
- Penalties/fines
- Response to future releases
- Remediation
- Property damage
- Personal injury damage
- Legal expenses
- Natural resource damage
- Economic loss damages

- Improved air quality
- Business image
- Relationship with customers
- Relationship with investors
- Relationship with insurers
- Relationship with workers
- Relationship with suppliers
- Relationship with lenders
- Relationship with community
- Relationship with regulators

Predicted Reductions

- Replacing Perc
- Machine changes
- Process changes



Perc reduction % =
*% clothes moved to
changed equipment or
process*

- Improved
Operations and
Maintenance

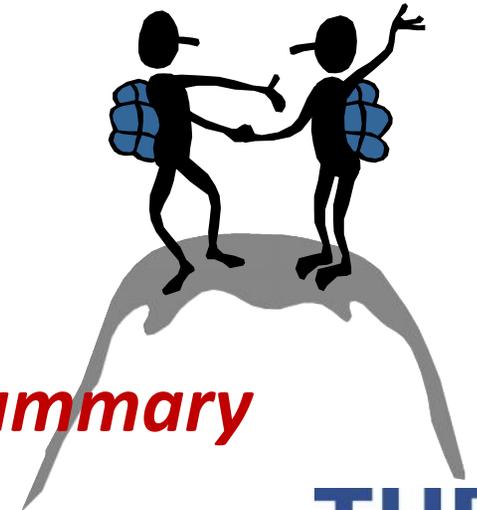


Make best estimate based
on measurement,
purchase records, etc.

Plan Implementation & Certification

*Refer to Guidance:
pg 15 (implementation)
pg 16 (certification)*

- Decide what you will do
- Develop a schedule
- Senior Management official **MUST** certify
- Certified Toxics Use Reduction Planner (TURP)
 - Can assist in plan preparation
 - Plans **MUST** be TURP certified
- ***Your Plan is complete! –
– now you need to submit your Plan Summary***



TUR Plan Summary Contents

- Chemical name and CAS #
- 2 and 5 year projected changes
- Options considered
- Options selected
- Additional information (*optional*)
- Certification statements

310 CMR 50.47

Hands-on Workshop

- Use blank TUR Plan Template Provided
- Start your plan with our help

