

Toxics Use Reduction Planning

“The First Few Steps”

Tighe&Bond
Consulting Engineers
Environmental Specialists

Jeffrey P. Bibeau, REM
Associate
413.572.3243
jpbibeau@tighebond.com

Overview

- **Toxics Use Reduction (TUR) Team**
- **TUR Management Policy Statement**
- **TUR Employee Notification**
- **TUR Options Identification & Brainstorming**
- **Brainstorming Exercise**



Toxic Use Reduction

■ TUR Planning Team

- Broadly represented (managers & workers)
- Production, R&D, financial, sales, EH&S, and purchasing types
- Creative, insightful, interested, enthusiastic
- No correct size (2-10)



Toxics Use Reduction

■ Good TUR Team

- Plant Manager
- Environmental Compliance Staff
- Research & Development Engineer
- Purchasing Account Leader
- Sales Manager
- Inventory Controller
- Linesman



■ Bad TUR Team

- Attorney
- Executive Board Member #1
- Executive Board Member #2
- Executive Board Member #3
- Executive Board Member #4
- Executive Board Member #5
- Executive Board Member #6
- Executive Board Member #7



Toxics Use Reduction

■ **Management Policy [310 CMR 50.43(1)]**

- Include a statement of the facility's management policy regarding Toxics Use Reduction
- Broad statement that reflects the philosophy or vision of the company with respect to toxics prevention
- It must include:
 - » Description of the ways the company encourages TUR
 - » Description of any policy applicable to the company that encourages TUR



Toxics Use Reduction

Employee Participation [310 CMR 50.42(5)]

- Subject facilities are required to prepare an employee notification and notify employees less than 6 months before the plan is due
- Notify all employees of Plan requirements
- Identify toxic chemicals and production units included in the plan
- Make available TUR regulations/requirements and plan criteria
- Solicit comments & suggestions



Fake Global, Inc.

2010 Toxics Use Reduction Plan

IMPORTANT NOTICE

To All Employees

Pursuant to MGL 211, the Massachusetts Toxic Use Reduction Act (TURA), Fake Global, Inc. will be preparing a Toxic Use Reduction (TUR) Plan. The State of Massachusetts has passed TURA in its initiation to reduce and/or eliminate the use of toxic materials and wastes in our environment. The development of a TUR plan enables individual companies to institute a program to evaluate the usage of toxic materials within a facility, and to set a goal for reduction of those materials. The purpose of the plan is to determine methods for the efficient use of the chemicals that we report on, thereby reducing our toxins per unit of product and their releases to the environment.

Fake Global, Inc. uses methyl ethyl ketone (MEK) in the inks used on presses two and three, and to clean the presses between runs.

The Toxics Use Reduction Plan will include:

- ◆ A statement of management policy on toxics use reduction
- ◆ A process flow diagram for the use of MEK in each press, including the quantity of MEK used and the amount that becomes waste MEK
- ◆ Options for reducing the quantity of MEK used in production or wasted during production, including input substitution, process modernization, process change, product changes, improved housekeeping integral recycling, reuse of the waste
- ◆ An evaluation of the options above based on technical and economic feasibility
- ◆ A decision about which options, if any, the company will implement and an implementation schedule for each option.

The TUR Plan update must be completed by **July 1, 2010**, and be approved by a Massachusetts Certified Toxic Use Reduction Planner. The plan update will remain on site, and a summary must be submitted to the Massachusetts Department of Environmental Protection. We are seeking employee input on ways in which the company could reduce the quantity of MEK used or wasted in production. Please offer any ideas you may have to either your foreman or myself. You may do so verbally, or preferably, in writing. There will be a box in the employee cafeteria for suggestions.

Joe Smith, Plant Manager
11/1/2009

2010 TURA employee notification

Toxics Use Reduction

Encourage Employee Participation

- Make pollution prevention a part of new employee orientation
- Encourage two-way communication between employees and management
- Solicit employee ideas about pollution prevention opportunities and other environmental health/safety issues
- Reward personnel for their good ideas, active participation, and for achieving goals
- Post information about pollution prevention goals, achievements and the need for employee participation to “make it work”

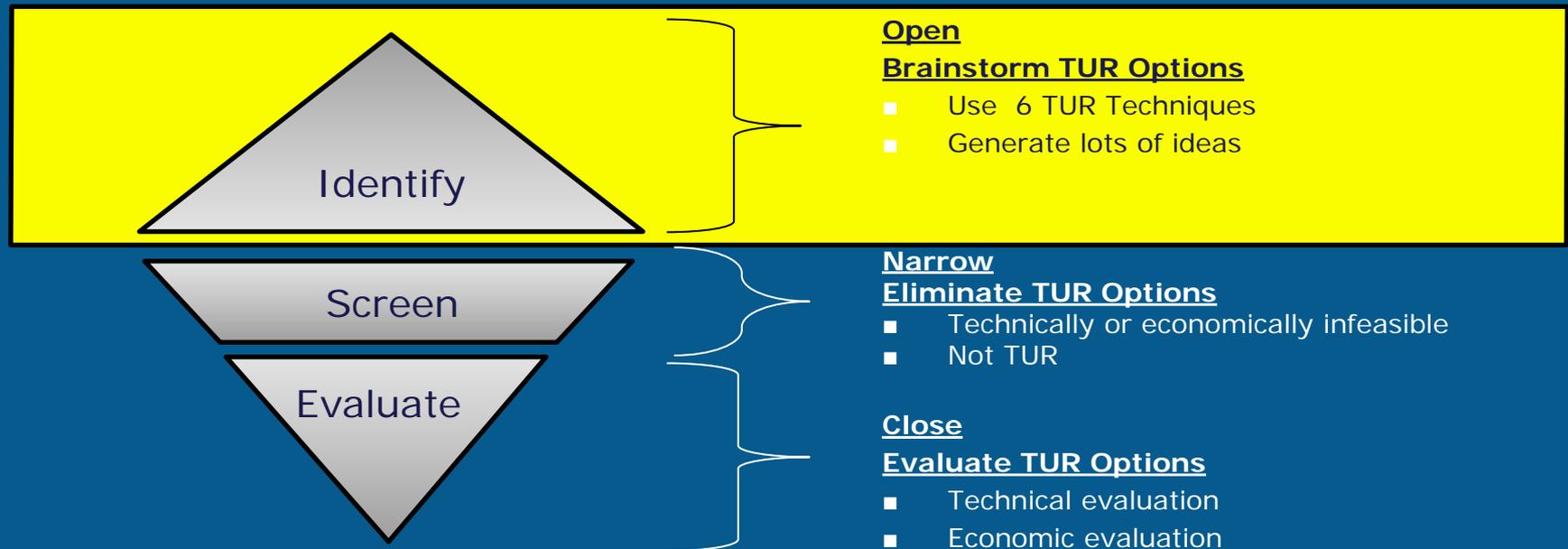


Toxics Use Reduction

TUR Options Identification/Brainstorming

■ Three Stages of TUR Options ID & Evaluation

- 1) Generate TUR Options
- 2) Screen Options
- 3) Technical & Economic Evaluation



Toxics Use Reduction

TUR Options Identification/Brainstorming

- TUR Brainstorming is open & creative
- Harnessing collective creativity to generate ideas
- Brainstorming guidelines:
 - » No judgment, No evaluation
 - » Be creative (outside the box)
 - » Stay focused (6 TUR Techniques, not controls & treatment)
 - Prevention is the key!



Six TUR Techniques

- 1) Input Substitution – Replace a toxic or hazardous substance or raw material used in a production unit with a non-toxic or less toxic substance (ex: aqueous cleaner for solvents)
- 2) Product Reformulation – Substituting for an existing end-product to a non-toxic or less toxic end product (ex: decrease solvent % needed to manufacture paint to a high solids formulation)
- 3) Production Unit Redesign or Modification – Developing and using production units of a different design than those currently used (ex: use high-pressure water spray for parts cleaning)



Six TUR Techniques

- 4) Production Unit Modernization – Upgrading or replacing existing production unit equipment or methods with other equipment and methods, based on the same production unit (ex: install automatic thermostats to maintain optimum process temperature)
- 5) Improved Operations and Maintenance – Modifying or adding to existing equipment or methods including, but not limited to, such techniques as improved housekeeping, systems adjustments, process/product inspections, or production unit control equipment or methods (ex: schedule production to reduce equipment cleaning)
- 6) In-process (Integral) Recycling – Recycling, reuse, or extended use of toxics by using equipment or methods which became an integral part of the production unit (ex: distill and reuse solvent strippers)



Participant TUR Option

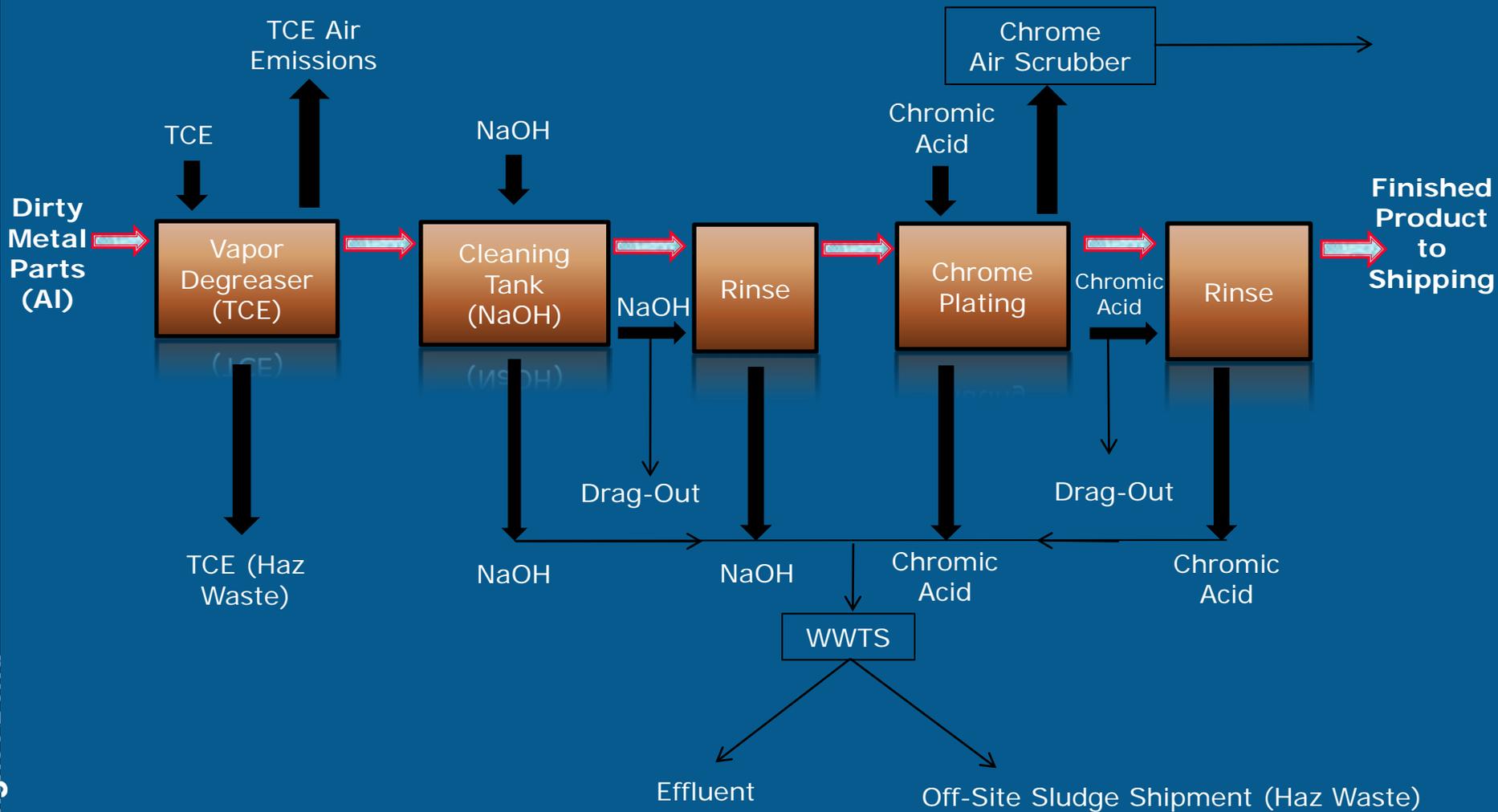
Identification and Brainstorming

The Humpty Dumpty Plating Company operates a chrome plating process. The company cleans and chrome plates metal parts for a particular customer.

The process includes the following:

- 1) The company receives oily/dirty aluminum bicycle handles for their customer
- 2) The parts are cleaned in a trichloroethylene (TCE) vapor degreaser
- 3) Clean parts enter a cleaning tank containing a 50% solution of sodium hydroxide (NaOH)
- 4) Clean parts enter a clean water rinse tanks and are then placed into a chromic acid electroplating tank.
- 5) Finally the plated parts enter a final clean water rinse tank and are dried for packaging

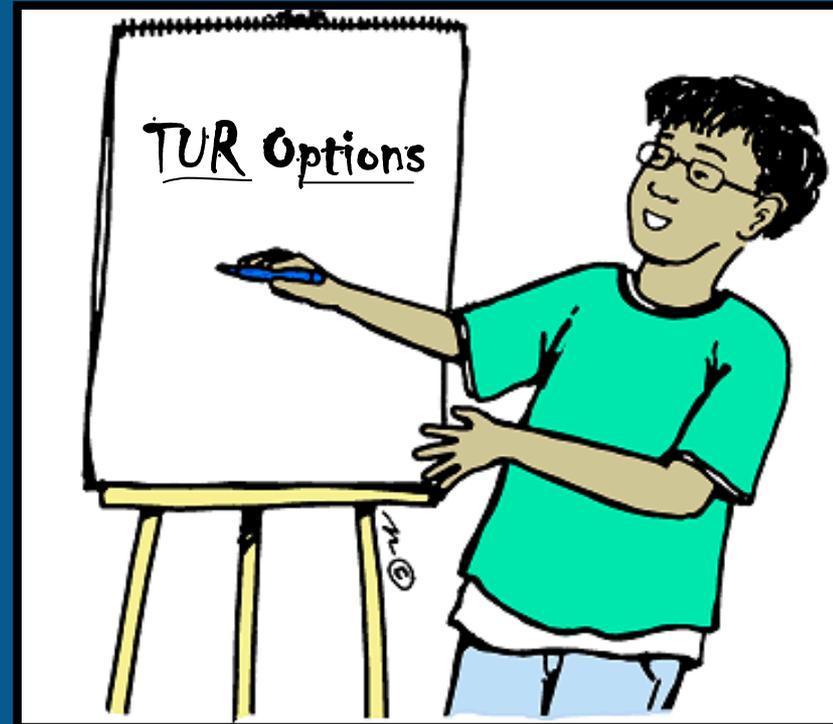
Process Flow Diagram



Brainstorming Exercise

■ Instructions:

- Groups of 3 or 4
- 10 Minute Brainstorm
- Develop TUR Options and the related TUR Technique being utilized
- Present results of Brainstorming to the group in a brief 2-3 minute presentation
- Record options on the flip chart



Thank You - Questions?

Tighe&Bond, Inc.

**Consulting Engineers
Environmental Specialists**

Massachusetts Locations

Westfield, MA

Pocasset, MA

Worcester, MA

For other locations visit:

www.tighebond.com