Making the Most of Your TUR Planning Activities

Updated Tools and Guidance from the TURA Program

November 13, 2019
TURA Continuing Education Conference
Norwood Four Points Conference Center
The TUR Planner acts as the proxy for MassDEP inspectors, assuring that a company’s TUR Plan satisfies the requirements and intent of toxics use reduction planning.
Agenda

- We’ll be using PollEverywhere, a smartphone-enabled participation tool
- Clues from MassDEP on areas to be more diligent about when planning
- Highlights from the planning guidance update
- Updated tools to support your efforts
How to participate in the polls

1. Send texts to 22333 to participate in real time

2. Initially, text the message "pameliason158" (don’t add spaces) to connect to this polling session

3. Then get this message …

4. With each poll, you’ll see prompts on the screen, often letters that correspond with various possible responses

5. Text your response and see the poll updates happen!

Alternatively, you can go to PollEv.com/pameliason158 on your laptop or tablet to participate.
Which region is your facility located within?

Northeast MA  A  Greater Boston area  B  Western MA  C  Central MA  D  Southeast MA  E

- Southeast MA
- Northeast MA
- Central MA
- Greater Boston area
- Western MA
What challenges in TUR Planning (one word) do you encounter at your facility?
What's one word that describes positive aspects of TUR Planning at your facility.
DEP findings from recent Requests for Information

• Major deficiencies noted include:
  – Incomplete economic evaluation or cost of toxics assessment
  – Incomplete or missing process flow diagrams
    • Missing chemical input and output information
    • Missing information on byproduct or emissions
    • Not production unit based
  – Documentation associated with materials balances missing or incomplete
  – No TUR option implementation schedule developed
Other deficiencies noted

• Chemical use per unit of product not determined
• Discrepancies between chemical use identified in the Plan and what is reported (Form S)
• Scope does not include description of production unit
• Cost of toxics not determined per unit of product
• Organizational inefficiencies
  – No table of contents
  – Data or tables not clearly labelled
  – Extraneous documents submitted
# EXHIBIT 1 - CHECKLIST OF ITEMS IN THE PHYSICAL PLAN

Note that this does not include information on the TUR team members (names and titles, assignments) or meeting notes, which are important parts of TUR Plan documentation.

<table>
<thead>
<tr>
<th></th>
<th>An organized compilation of TUR Plan documents/sets of documents (Check off all elements that have been incorporated into your physical TUR Plan)</th>
<th>Regulatory Citation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Written Toxics Use Reduction Management Policy with the following minimum elements:</td>
<td>310 CMR 50.43 (1)</td>
</tr>
<tr>
<td></td>
<td>Date during this planning cycle policy was either revised or reviewed</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Description of how facility encourages TUR</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Description of policies that encourage or discourage TUR</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Written description of the employee notification procedure that includes:</td>
<td>310 CMR 50.42 (5)</td>
</tr>
<tr>
<td></td>
<td>Date employees notified (must be by January 1 of the Planning Year)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Notification method</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Written Description of the Contents of the Notification (or a copy of the notification or the prepared remarks) that includes:</td>
<td>310 CMR 50.42 (5)</td>
</tr>
<tr>
<td></td>
<td>Toxic Substances and Production Units covered by the plan</td>
<td></td>
</tr>
</tbody>
</table>
New planning guidance now available

• Includes the following for each element:
  – Content
  – Purpose
  – Plan Update differences
  – What must be in the physical plan

• Appendices provide useful checklist and tools to support TUR planning activities

https://www.mass.gov/media/914706
Planning is NOT required when ...

• The planning year is the first year in which a Form S will be required for the covered toxic
  – Covered toxics must have been reportable in at least one year prior to the planning year
• Chemical use has been eliminated or reduced below the reporting threshold in the planning year
  – **BUT** – subject to enforcement if reductions not successful
• The facility is scheduled to close
  – **BUT** – subject to enforcement if it does not close
Facility-wide planning elements

- Statement of the management policy regarding TUR
- Statement of the scope of the Plan
- Expected change in the use of each covered toxic and the amount of each covered toxic generated as byproduct
  - Base this on TUR techniques chosen to be implemented
  - Include amount in total pounds of use or byproduct
What must be included in your Plan Scope

For each production unit included in the Plan, provide a description of:

- The number assigned it;
- The process(es) associated with it;
- The product produced by it; and
- The chemical and CAS number of each covered toxic manufactured, processed or otherwise used in it.

A summary of the TUR options identification process used

A brief description of the technologies, procedures or training programs identified
Only facility-wide planning required when covered toxics are used in:

- **Waste treatment operations**
  - If also used in other operations, like cleaning, production unit level planning required for those uses

- **Pilot plants**
  - Pre-commercial production systems designed to determine appropriateness of new process or technology

- **Startup production units**
  - Only true until full production reached, or 2 years from initial operation, whichever is shorter

- **Laboratories**
  - This does not apply to specialty chemical production
Production unit information required in each Plan

- Process flow diagram
- Amounts of use, byproduct and emissions
  - Total and per unit of product
  - Include onsite and off site byproduct and releases, by environmental media
  - Describe estimation methods used
- Unit of product
- Explanation of the purpose of the covered toxic
- Cost of use of each covered toxic
Manufacture, Process, Otherwise Use

**Manufacture**

Create a toxic substance:
- *Intentionally* – to incorporate into the product (e.g. causing a reaction to produce a chemical product)
- *Unintentionally* – either as part of the product, or as byproduct (e.g., nitrate compounds)
- *Import* the substance

**Process**

Prepare a toxic substance after its manufacture.
Toxic chemical is *intentionally incorporated* into the product (e.g. incorporate into a coating formulation).

**Otherwise Use**

Use a toxic substance *in* a way that it is not *intentionally incorporated* into the product (e.g. degreasing a part before subsequent process steps take place).

---

© Toxics Use Reduction Institute University of Massachusetts Lowell
## Optional Table for Required Covered Toxic Use Byproduct and On and Offsite Emissions/Releases Calculation for Prior Calendar Year

Complies with 310 CMR 50.44 (2), (5) & (6)

**Complete one per production unit, include all covered toxics**

**Append calculations and statement of estimation methods and location of supporting documentation**

<table>
<thead>
<tr>
<th>Date Prepared:</th>
<th>Production Unit #:</th>
<th>Unit of Product:</th>
</tr>
</thead>
</table>

**Location of Supporting Documentation:**

<table>
<thead>
<tr>
<th>Covered Toxic</th>
<th>Covered Toxic</th>
<th>Covered Toxic</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Chemical Name</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>CAS #</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Purpose of Chemical</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Pounds</th>
<th>Pounds</th>
<th>Pounds</th>
</tr>
</thead>
</table>

### 1. USE

- a. Manufactured
- b. Processed
- c. Otherwise Used
- d. TOTAL (sum of a-c)
- e. Byproduct
- f. Released as or disposed of as "Emissions"*
  Byproduct disposed of or released onsite or transferred offsite

### 2. EMISSIONS MANAGEMENT (BYPRODUCT FATE)

<table>
<thead>
<tr>
<th>Total Pounds</th>
<th>Total Pounds</th>
<th>Total Pounds</th>
</tr>
</thead>
</table>

© Toxics Use
Cost of toxics

This is the basis for the economic evaluation

Quantitative if one or more technically feasible option identified

- Affirmatively state which of the cost elements called out in 310 CMR 50.46A are/are not relevant
- Calculate total annual cost and cost per unit of product
- Identify costs that cannot be quantified

Qualitative only if no technically feasible options identified

- Identify relevant costs – those that would change in a meaningful way if use or byproduct increased or decreased.

Base your analysis on costs associated with calendar year prior to planning year

Clearly articulate any assumptions made when allocating costs to a production unit
### EXHIBIT 4 - OPTIONAL COST OF TOXICS FORM

**OPTIONAL FORM FOR DOCUMENTING COST OF TOXICS EVALUATION [310 CMR 50.46A(7)]**

Create a separate form for each production unit for which there are no technically feasible options. **NOTE:** Economic evaluation of technically feasible options must be quantitative.

<table>
<thead>
<tr>
<th>Production Unit #:</th>
<th>Date Prepared/ Reviewed/ Updated:</th>
<th># of Products per Year:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Location of Supporting Documentation:**

**Covered Toxic Name(s) and CAS No.:**

## QUALITATIVE EVALUATION

### COST ELEMENT

(from 310 CMR 50.46a (1) (a-g) and (2))

<table>
<thead>
<tr>
<th>COST ELEMENT</th>
<th>Is the Cost Element Relevant to the Production Unit?</th>
<th>Comments</th>
<th>IF THERE IS A TECHNICALLY FEASIBLE OPTION:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NOT RELEVANT</td>
<td>INCREASE</td>
<td>DECREASE</td>
</tr>
<tr>
<td>Manufacturing Costs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(a) direct labor</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(a) indirect labor</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(a) materials</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(b) purchase of covered toxic or its precursors</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(c) equipment (including cost of capital if relevant)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Materials and Waste Management Costs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Raw Material Storage Costs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(a) direct labor</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(a) indirect labor</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

21
Options identification

• Must consider each of the 6 TUR techniques
• Must describe
  – Personnel involved in TUR options identification process
  – Information sources consulted
  – Techniques used for gathering information
• Must list technologies, procedures or training programs identified
Which TUR Technique have you had the best TUR results with?

- Input Substitution
- Product Reformulation
- Production Unit Modernization
- Improved O&M
- Integral Recycling
- Production Unit/Process Redesign/Modification
Which TUR Technique have you achieved the most SAVINGS with?

- Input Substitution
- Product Reformulation
- Production Unit Modernization
- Improved O&M
- Integral Recycling
- Production Unit/Process Redesign/Modification
### EXHIBIT 5 - OPTIONAL NEW TUR OPTIONS IDENTIFICATION AND TECHNICAL FEASIBILITY DOCUMENTATION

<table>
<thead>
<tr>
<th>Production Unit #</th>
<th>Planning Year</th>
<th>Date Identified</th>
</tr>
</thead>
</table>

#### Technique 1 Description

<table>
<thead>
<tr>
<th>TUR Type (Circle)</th>
<th>Input Substitution</th>
<th>Product Reformulation</th>
<th>Production Unit Modification</th>
<th>Production Unit Modernization</th>
<th>Improved Operation and Maintenance</th>
<th>Integral Recycling</th>
<th>Covered Toxic(s) Addressed (List)</th>
<th>Is it Legal?</th>
<th>Does it meet the definition of TUR?</th>
<th>Is it likely to result in the reduction of use or byproduct per unit of product?</th>
<th>Is it Technically Feasible?</th>
<th>Identification Procedure (describe)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Yes/No</td>
<td>Yes/No</td>
<td>Yes/No</td>
<td>Yes/No</td>
<td>Why Infeasible OR Reason feasibility evaluation could not be completed, remaining research steps and schedule</td>
</tr>
</tbody>
</table>

#### Technique 2 Description

<table>
<thead>
<tr>
<th>TUR Type (Circle)</th>
<th>Input Substitution</th>
<th>Product Reformulation</th>
<th>Production Unit Modification</th>
<th>Production Unit Modernization</th>
<th>Improved Operation and Maintenance</th>
<th>Integral Recycling</th>
<th>Covered Toxic(s) Addressed (List)</th>
<th>Is it Legal?</th>
<th>Does it meet the definition of TUR?</th>
<th>Is it likely to result in the reduction of use or byproduct per unit of product?</th>
<th>Is it Technically Feasible?</th>
<th>Identification Procedure (describe)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Yes/No</td>
<td>Yes/No</td>
<td>Yes/No</td>
<td>Yes/No</td>
<td>Why Infeasible OR Reason feasibility evaluation could not be completed, remaining research steps and schedule</td>
</tr>
</tbody>
</table>
Reviewing past TUR opportunity ideas

• Any past TUR opportunity identified but deemed infeasible must be revisited – things change!
  – Economics
  – Technical performance
  – Facility capabilities
  – Customer demands
  – Regulatory or other restrictions

• If clearly infeasible and unlikely to ever be deemed otherwise, document your justification for no longer reassessing the option
  – Use caution here!
Don’t forget these TUR opportunities

- Improved O&M associated with:
  - Spills, leaks, spoilage/scrap, storage, transfer activities
- Implementing closer process monitoring
- Using better production metrics to improve process efficiencies
- Implementing employee training in TUR
- Improving product quality consistency to minimize waste
- Involving R&D and engineering in TUR and long range product/process planning
- Working with vendors to eliminate covered toxics
- Continuing dialog with customers on safer choices
Conduct Technical Evaluation

Determine if Option is TUR

- Is it one of the 6 TUR techniques?
  - no
  - yes

  - Is substitute more toxic?
    - yes
    - no
    - no
    - yes

  - Does it shift the risk?
    - yes
    - no

  - Is it likely to reduce use or byprod*?
    - yes

* Per unit of product

STOP
Explain why not in your TUR Plan
Save your analysis

Determine if Option is Technically Feasible

- Is it legal?
  - no
  - yes

- Is it technically feasible?+
  - yes

+ Will it impact product quality negatively?
+ Can customer and quality specifications be met?
+ Is it reliable and stable?
+ Is there sufficient physical space?
+ Does the technology work at scale?
+ Does the technology exist?
+ Are worker skills adequate?
+ Is required training feasible?
+ Are there other technical issues that could limit feasibility?

Calculate expected reductions in use and byproduct (total and per unit of product)

Collect information for economic feasibility determination
Draft implementation timeline

Determine Economic Feasibility
## EXHIBIT 6 - OPTIONAL CHART: EVALUATION OF TECHNICALLY FEASIBLE OPTIONS

| Production Unit: | Date Identified
<table>
<thead>
<tr>
<th>Technique Description</th>
<th>Input Substitution</th>
<th>Product Reformulation</th>
<th>Production Unit Modification</th>
<th>Production Unit Modernization</th>
<th>Improved Operations and Maintenance</th>
<th>Integral Recycling</th>
</tr>
</thead>
<tbody>
<tr>
<td>TUR Type</td>
<td>Covered Toxic(s)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Projected Reductions in Use and Byproduct (append calculations with location of supporting documentation)</td>
<td>Projected Reduction (when fully implemented)</td>
<td>Annual</td>
<td>Per Unit of Product</td>
<td>If from Prior Planning Cycle: Date Reevaluated/Outcome</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Use</td>
<td>Byproduct</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Is it Clearly Economically Infeasible**

- **Yes**
- **No**

If Yes, show economic rationale:

Estimated Cost of Implementation:

Maximum Possible Savings from Eliminating Chemical Use (from cost of toxics and projected reductions in use and byproduct):

**Has the company already implemented it or decided to implement it without a full economic analysis?**

- **Yes**
- **No**

Estimated cost of implementation: (attach calculations and supporting documentation if any)

Estimated savings (from the cost of toxics and projected reductions in use and byproduct)

**Is it Economically feasible?**

- **Yes**
- **No**

Attach Economic Evaluation

**Is additional time needed for evaluation**

- **Yes**
- **No**

If Yes, explain why and provide an implementation schedule

**Will it be Implemented?**

- **Yes**
- **No**

If No, explain why not; or If Yes provide and implementation schedule
Which is NOT a good faith reason to reject an option as technically infeasible?

Technology not proven in our industry sector
Another company experienced reduced quality using it
Requires utilities not currently available.
Product manual is in foreign language.
New method shifts emissions from workplace to outside atmosphere.
Bad past experience with vendor.
Special notes on technical evaluations

Evaluation complete when team has enough information to determine that the technique is clearly infeasible, not legal and/or does not = TUR

Should be commensurate with how the facility evaluates other production processes

If can’t complete by due date of Plan/Plan Summary, explain why and ID steps that will be taken, with dates

Remember that TUR options not feasible two years ago may be now
Bench scale/pilot testing options

Identify potential unknown issues
- Quality
- Impact on other processes
- Worker health & safety issues
- Regulatory impacts

Gather appropriate data

Tweak process accordingly

This will help in making the business case for adoption
Economic evaluation

Determine the costs and savings associated with implementing each feasible TUR option

Gather enough information needed to make a good faith and reasonable decision whether to implement

An option may be declared economically feasible even if it doesn’t meet the facility’s current investment criteria

It must be deemed economically feasible if it does meet those criteria

BUT
Conduct Economic Evaluation

- Calculate costs of adopting the option
- Calculate the savings from the associated reductions in use and byproduct
- Consider all of the quantifiable and unquantifiable costs that are relevant to the decision

Determine if option is economically feasible using company’s normal financial decision-making criteria. The analysis only needs to be as detailed as necessary to make a good faith business decision that it is or is not economically feasible.

Is option financially feasible?

no

Explain why not in TUR Plan

Save analyses as documentation

yes

Develop implementation schedule
Estimate change in use and byproduct.

Decide if option will be implemented using company’s normal decision-making criteria

Save analyses as documentation

Will option be implemented?

yes

Explain why not in TUR Plan

Save analyses as documentation

no
What economic metric does your company use most when evaluating new projects?

Net present value (NPV)
Simple payback
Return on investment (ROI)
Other
I don't know
If the NPV of a project is greater than zero the expenditure is financially feasible

<table>
<thead>
<tr>
<th>True</th>
<th>False</th>
</tr>
</thead>
</table>

What is the present value of a $10,000 capital inflow 4 years from now if the company discount rate is 4%?
Additional requirements for economic evaluations

1. Must be based on the costs of using the covered toxic in the calendar year prior to the planning year.
   - Allocate this cost to the production unit as accurately as possible

2. If decision to implement is independent of the economic analysis, provide a rough estimate of the net costs of implementation

3. Describe the financial factors used in the analysis (e.g., discount rate, cost of capital, depreciation rate, payback period, etc.)
   - Use the same factors used in other financial decisions at the facility for capital budgeting decisions
   - Criteria may be less stringent, but cannot be more stringent

4. Update this information with each Plan Update
<table>
<thead>
<tr>
<th>Options selection and implementation planning</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Decide if any new options will be implemented</strong></td>
</tr>
<tr>
<td>- Develop an implementation schedule</td>
</tr>
<tr>
<td><strong>Identify which options require additional evaluation</strong></td>
</tr>
<tr>
<td>- Explain why</td>
</tr>
<tr>
<td>- Develop an evaluation schedule</td>
</tr>
<tr>
<td><strong>Explain why any feasible options are not being implemented</strong></td>
</tr>
<tr>
<td><strong>Document rationale for prioritizing options to implement if multiple options identified</strong></td>
</tr>
</tbody>
</table>
EXHIBIT 7 – OPTIONAL FORM FOR REQUIRED ECONOMIC EVALUATION OF TECHNICALLY FEASIBLE OPTIONS (INCLUDES COST OF TOXICS)

Attach Additional Calculations, Assumptions etc.

<table>
<thead>
<tr>
<th>Location of Supporting Documentation:</th>
<th>Option Name:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Production Unit #</td>
<td># of Products per Year</td>
</tr>
<tr>
<td>Allocation of shared costs to Production Unit(Chem):</td>
<td>Expected % Reduction in Use:</td>
</tr>
<tr>
<td>Covered Toxic Name and CAS:</td>
<td>Date</td>
</tr>
<tr>
<td></td>
<td>Prepared/Reviewed/Updated:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>COST ELEMENT</th>
<th>Comments</th>
<th>Is the cost element relevant (and quantifiable)? If No. explain</th>
<th>Annual $</th>
<th>$ / Unit of Product</th>
<th>Is the cost element relevant? If No explain</th>
<th>One Time $</th>
<th>Annual $</th>
<th>$ / Unit of Product</th>
<th>Net Savings or Expense from Option²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturing Costs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(a) direct labor</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(b) indirect labor</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(b) purchase of covered toxic or its precursors</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(a) materials</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(c) equipment (including cost of capital if relevant)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(d) Storage, accumulation, treatment, disposal, and handling costs associated with toxics and byproducts</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Raw Material Storage Costs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(a) direct labor</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(a) indirect labor</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(a) materials</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

² Consider Cost of Implementation and Reduced Chemical Costs
Factors that could limit adoption of safer alternatives – How would you address these scenarios?

<table>
<thead>
<tr>
<th>Lack of worker or management awareness of health impacts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weak regulations/Lack of regulatory drivers for change</td>
</tr>
<tr>
<td>Limited supply chain pressure to “green” your product or process</td>
</tr>
<tr>
<td>Efficiency and quality of currently used processes and materials</td>
</tr>
<tr>
<td>Familiarity with current materials and processes</td>
</tr>
<tr>
<td>Cost of alternatives materials or new equipment</td>
</tr>
<tr>
<td>Inadequate/Uncertain availability of alternatives</td>
</tr>
</tbody>
</table>
What your senior manager must do

- Personally examine the Plan
- Be familiar with the planning process
- Query key TUR planning team members (those with primary responsibility for its development) to assure the Plan is accurate
- Understand the planning regulatory requirements

As the TUR Planner, be sure that the senior manager certifying the Plan knows and does these things
What do you do when updating your TUR Plan?

Create a brand new document

Update the electronic format with revision dates

Mark up the original hardcopy with date and initials

Modify only the Plan elements that require change because of changes in production units

Other
How long are you required to maintain your TUR Plan onsite?

2 years
5 years
7 years
Indefinitely
Your good faith efforts are essential!

• Refer to and use the regulations, tools and guidance
• Network with your peers and consider their best practices
• Reach out to TURA agency resources for assistance

Who to Contact:

MassDEP:
Planning – **Lynn Cain**, 617-292-5711
Reporting – **Walter Hope**, 617-292-5982

**OTA:** Rich Bizzozero, 617-626-1080

**TURI:** Pam Eliason, 978-934-3142