Arizona Department of Environmental Quality
Pollution Prevention (P2) Program

March 6, 2015
Presentation Outline

Part 1
• Arizona P2 Policy
• P2 program thresholds
• Review of P2 Plan sections
• P2 Plan maintenance

Break
• Question and answer session

Part 2
• P2 program facility successful goals examples
  – Hazardous waste reduction
  – Toxic substance use reduction
  – Solid waste diversion
  – Natural resources conservation

P2 promotion and benefits
Question and answer session
Why P2?

- Since the early 1970’s, environmental protection programs in the U.S. have been directed primarily at controlling not preventing pollution.
- Pollution control programs, in general have consisted of end-of-pipe approaches including treatment, discharge and disposal.
- Overall, these techniques have been effective, but environmental protection challenges still remain.
What is P2?

1990 Federal P2 Act
  – Pollution should be prevented or reduced at the source whenever feasible

P2 is reducing or eliminating waste at the source by:
  • modifying production process
  • promoting the use of non-toxic or less toxic substances
  • implementing conservation techniques
  • Re-using materials instead of putting them in the waste stream

- EPA’s definition
In 1991, Arizona initiated one of the broadest P2 programs in the nation and adopted a P2 policy:

**Arizona Revised Statutes (A.R.S.) §§ 49-961 to 49-969**

- Toxic substance use reduction
- Hazardous waste generation reduction
What is P2 in Arizona?

**P2 in Arizona**

Activities that avoid, eliminate or reduce the generation of hazardous waste, the use of toxic substances, or the release of a pollutant or contaminant at the source.
• Preventing pollution offers important economic benefits
  ✓ *Pollution never created* avoids the need for expensive investments in waste management or cleanup.

• EPA does not include recycling efforts in P2 but Arizona does

• Educating industry and the general public on P2 is necessary to change from a culture that tolerates pollution to a sustainable one which increasingly eliminates pollution at the source.
1. Filed a Toxic Release Inventory Form (form R or A)
A.R.S. §49-962(A)(1)
If the owner or operator of a facility was required to file an annual Toxic Release Inventory (TRI) form (Form A or Form R) to EPA during the preceding calendar year, the facility must prepare and implement a P2 Plan.

2. Hazardous Waste Generators
A.R.S. §§49-962 (A)(2) and 49-963(C)
A facility that generated or shipped off-site an average of 2,200 pounds (1,000 kg) per month of hazardous waste or an average 2.2 pounds (1 kg) per month of acute hazardous waste during the preceding calendar year, must prepare and implement a P2 Plan.

3. Toxic Substance Users
A.R.S. §49-963(D)
If the facility used in excess of 10,000 pounds of a TRI listed chemical during the previous calendar year, the facility must prepare and implement a P2 Plan.
What is a P2 Plan

- Stand alone management document that provides facility specific information
- Analyzes work practices, processes and operations
- Outlines potential for P2 opportunities and goals
- Required to maintain as long as facility meets P2 Plan filing thresholds
- Required minimum of two years
Where to find plan forms and manual

http://www.azdeq.gov/environ/waste/p2/programs.html

Scroll to bottom of the page:

P2 Plan Guidance Manual and Forms

- Pollution Prevention Analysis and Plan Guidance Manual
- Pollution Prevention Analysis and Plan Forms
- Pollution Prevention Goal Forms
- Annual Progress Report Instructions
- Determination of P2 Plan Filing Status Form

Back to the top of the page
ADEQ developed template based on A.R.S. §49-963(J) requirements consisting of:

1. Facility contact information and management certification
2. Facility general information
3. Pollution prevention policy
4. Management and corporate support
5. Scope and objectives
6. Analysis and opportunity development
7. Performance goals
8. Management practices and procedures
9. Employee awareness and training programs
10. Existing P2 activities
New Plan/Amendment forms

- Facility Name
- P2 ID # not the same as EPA ID
- Assigned by P2 Staff
- If submitting original Plan, contact P2 staff for a P2 ID number
- First time filer, mark ‘Original Plan’
- Any Plans following original Plans are amendments
- Plan time frame must:
  - Span a minimum of two years
  - Correspond to Section 5
- The Plan end date should be consistent with longest spanning goal in Section 7
- Ideally, Plan should be scanned and email

Pollution Prevention (P2) Analysis and Plan for

ABC Incorporated
(Company Name)
ADEC P2 ID Number: 200999

This document is an:
☐ Original Plan
☐ Amendment to the Original Plan

The Plan Time Frame (Section 5) is:
From: 07/01/2015 (beginning date)
To: 07/01/2017 (the last goal completion date)

Mail completed P2 Plan to:
Arizona Department of Environmental Quality
Sustainability Programs Unit
Pollution Prevention Program
1110 W. Washington St.
Phoenix, Arizona 85007
Include as much relevant information to help ADEQ staff understand the facility business and processes. Summary descriptions from facility websites may be useful.

An umbrella plan can cover more than one facility. Section 3 information should be completed for each facility.

The person signing the form should be a senior official with management responsibility and a signature should be included (no electronic signatures).
This is the 6 digit North American Industry Classification System (NAICS) number. Visit the Census Bureau for more information. [link]

Any environmental permits that apply to the facility

Include descriptions of:

- The specific wastes and waste codes if available (e.g. Chromium-D007)
- Toxic substances filed for TRI
- Toxic Substances used

Plan Requirement Threshold(s) Met

- Generated or shipped offsite for purposes other than recycling an average of one thousand kilograms per month of hazardous waste in calendar year 20___. The cumulative amount and streams of hazardous waste generated at the facility includes all of the following waste streams.

- Generated or shipped offsite for purposes other than recycling an average of one kilogram per month of acutely hazardous waste in calendar year 20___. The cumulative amount and streams of acutely hazardous waste generated at the facility includes all of the following waste streams.

- Met the thresholds required to file a Toxic Release Inventory (TRI) form (Form R or A) for the calendar year 2014. The TRI identification number assigned to this facility is D58930CLG7211N. The TRI chemicals that met the thresholds are: Styrene.

- Used in excess of 10,000 pounds of a toxic substance in calendar year 2014. The toxic substances used above the 10,000-pound threshold are: Styrene.

- Facility wants to file a voluntary P2 plan although it does not meet the P2 plan filing thresholds.
Check applicable box
- Box 1 – used ADEQ P2 Policy
  - Or -
- Box 2 – used facility P2 Environmental Policy

Check applicable box
- Box 3 – Display of policy
- Box 4 – Other languages policy will be available in

Section 4. Management and Corporate Support (A.R.S. §49-663 J.5 and J.9)
Requirement: Provide a written policy setting forth management and corporate support for the pollution prevention plan and a commitment to implement the Plan to achieve the plan goals. The Plan shall include employee awareness and training programs to involve employees in pollution prevention planning and implementation to the maximum extent feasible.

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**P2 POLICY**

Check box 1 or 2 below.

1. ☒ The senior official with management responsibility at the facility has signed, and we have posted in our facility, a copy of the P2 Policy contained in the ADEQ P2 guidance manual. A copy of the signed policy is provided on the next page of this Plan.

   OR

2. ☐ The senior official with management responsibility at the facility, has signed, and we have posted in our facility, a copy of our own P2 Policy setting forth management and corporate support for the P2 Plan and a commitment to implement the Plan to achieve the Plan goals. A copy of the signed policy is provided on the next page of this Plan.

Check each box that applies and complete information below that applies.

3. ☐ The policy will be displayed in view of all employees and introduced to new employees

   The policy is posted at the following location(s): Employee Break Area

4. ☒ The policy will be available in languages other than English, as appropriate, and to the public and customers (as appropriate). Spanish
Pollution Prevention (P2) Policy

Name: ABC Incorporated

Our company is committed to protecting the health and safety of the public, our employees and protecting the environment.

To the best of our ability we will:

- Develop a P2 Plan and implement the Plan to achieve the Plan goals.
- Provide employee awareness and training programs to involve employees in P2 planning and implementation to the maximum extent feasible.
- Incorporate the P2 Plan into management practices and procedures.
- Use P2 to reduce or eliminate the toxicity and the amount of toxic substances and hazardous wastes and minimize their undesirable effects on air, water and land resources, and to conserve resources, including energy and water.
- Comply with the relevant laws and regulations and implement programs and procedures to assure environmental compliance.

Our management and employees are committed to continual improvement and will continuously seek opportunities to improve the effectiveness of our environmental program.

[Signature] [President & CEO] 06/05/2015

Signature Title Date
The Plan timeframe date should match the date specified in the cover page. The Plan end date should be concurrent with the *scheduled completion date* of the longest running goal in Section 7.

List all the processing areas that will be analyzed in the Plan. These should match each area analyzed in Section 6.

Check all the environmental objectives that apply.
Process areas should match Process areas in Section 5.

- Describe process steps
- Discuss inputs - toxic substances used
- Discuss outputs - waste and emissions
- Discuss root cause of each waste generation, emission or toxic substance
- Discuss why each generation, emission or toxic substance occurs

Section 6. Analysis and Opportunity Development

1. Process Area (No. 1): Spray Booth Operations/Gel Coating Process

2. Process Information
   a. Describe the process steps:
   1) Completely cultured marble pieces (sinks, tubs and shower stalls) are moved on rolling trolleys to a filtered room from spray booth.
   2) Gel coat is mixed inside the spray gun with 2% methyl ethyl ketone peroxide (MEKP) and gel coat resin containing about 49% (weight percent) styrene monomer resin.
   3) Styrene gel coat resin and MEKP is applied in the spray booth with a high volume low pressure (HVLP) spray gun so that a layer of gel coat is applied onto the cultured marble piece.
   4) The cultured marble piece is then placed into one of the two natural gas heated curing tunnels to dry. The curing tunnels have a series of thick plastic strips on one side so employees can reach in and move the sprayed pieces in and out of the tunnels. Exhaust from the tunnels is vented to the outside.

   b. Discuss the toxic substances (inputs) used in the process and why they are used:
   Methyl ethyl ketone peroxide (MEKP) and gel coat resin containing styrene monomer resin is used to provide a protective coating on the pieces. This MEKP catalyst assists in curing the resin coating.

   c. Discuss the wastes and emissions (output) generated by the process. Include wastes and emissions due to spills, cleaning, maintenance, unused or expired raw materials, etc., and include waste codes.

Waste:
Waste includes used sprayer booth and personal respirator filters, used reco, chemical solutes, drums and waste.

Reco are used for general shop cleanup, which is necessary due to gel coat over spray. Used spray booth and respirator filters as well as used reco are placed in the trash at the end of the week, which is handled by the local landfill. Finally, dry 25-gallon drums that were emptied of gel coat and acetone are returned to the supplier for reuse.

Gel coat over spray falls on the floor and polymerizes. The floor has a felt covering. This polymerized material and the floor felt covering, which is periodically removed, is sent to the landfill as solid waste.

Any leftover gel coat resin not used is polymerized on-site, then sent to the landfill as solid waste.

Any atmospheric emissions result from volatilizing acetone as a cleaning solvent and spraying acetone through the spray gun to clean it.
Process maps, flow diagrams, cause and effect diagrams, root cause analysis and the five why's can be included in order to complete the analysis.
Based on the process steps identify if P2 opportunities can be developed.

Check all the boxes that apply.

Identify the opportunity and future goal. The identified goal number should match the goal number in Section 7.

Goals are numbered consecutively.

Section 5 (Continued)

From the P2 opportunities developed by the P2 team’s pollution prevention analysis, continue to answer the following questions in the Section 6 Plan forms. The opportunities listed below are based on Table 1 for the example “Gel Coat Spraying Process.”

Opportunities

1. Are there pollution prevention opportunities?

Can the process “inputs” or method, etc. be eliminated or modified to reduce waste, emission(s) or toxic substance use?

☑ Yes  ☐ No

Can any of the toxic or non-toxic substances be:

☐ Eliminated?  ☐ Replaced with a less toxic substitute?
☐ Used less?  ☐ Recycled or reused?
☐ Reformulated to reduce toxicity?  ☐ None of these
☐ Other _____

2. Are there pollution prevention opportunities to eliminate at the source, reduce at the source, reduce toxicity, reduce the volume, reuse or recycle each waste emission or use of a toxic substance.

Opportunity (A): Train operators in the best available spraying techniques and spray equipment set up techniques to reduce overspray and styrene emissions.

Will this opportunity be developed into a goal?

☑ YES, fill out a goal sheet in Section 7, Goal number ___.

☐ NO, give the reason here.

Opportunity (B): Replace current gel coat with a low styrene gel coat. This will reduce styrene emissions.

Will this opportunity be developed into a goal?

☐ YES, fill out a goal sheet in Section 7, Goal number ___.

☐ NO, give the reason here.

Explanation: Opportunity (B) will not be implemented at this time because low styrene gel coat is too expensive. We will continue to search for a more affordable product.

Write each feasible opportunity onto a goal sheet found in Section 7. Use one goal sheet for each feasible opportunity.
### Plan Forms – Section 7

**Performance Goal**

**Section 7. P2 Performance Goal** (A.R.S. §49-963.J.4.)

<table>
<thead>
<tr>
<th>Facility Name:</th>
<th>ABC Incorporated</th>
</tr>
</thead>
<tbody>
<tr>
<td>P2 ID #:</td>
<td>200999</td>
</tr>
</tbody>
</table>

**Complete one sheet for each goal**

1. **Goal Statement**: Enter a specific performance goal or individual production process goal that includes a statement of the expected result. The goal statement should address what can be accomplished by implementing one of the opportunities from Section 6. Goal statements should be in the form (Action Verb) + (Target chemical, emission, or waste stream) used for/in (Process X). Use action verbs such as Reduce or Eliminate. For example: Reduce methylene chloride used for parts degreasing by 50%. If a goal cannot be measured or will take a long period of time to complete, then include an action plan that outlines measurable milestones. See page 48 of the guidance manual for an example of an action plan. Submit these goal sheets with your new plan or amendment and the annual progress report.

**Goal (# 1):** Process Area(s) (# 3)

**Goal Statement:** Reduce styrene emissions from gel coat spraying by 35%

<table>
<thead>
<tr>
<th>Completion Status:</th>
<th>OS=On Schedule</th>
<th>DR=Dropped</th>
<th>D=Delayed</th>
<th>C=Completed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scheduled Completion Date:</td>
<td>07/01/2017</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Name of Toxic Substance and Waste stream Include CAS #: and RCRA Waste Code #:**

- **Styrene CAS**: 100-42-5
- **VOC**: Yes
- **ODC**: No
- **ODC & VOC**: No
- **NA**: Yes

6. If this goal has been delayed or dropped (box 3), provide an explanation and include a new estimated completion date: 

7. **Actions Needed to Implement the Goal**:

<table>
<thead>
<tr>
<th>Baseline Quantity (Starting amount)</th>
<th>Baseline Year</th>
<th>How much was reduced or eliminated?</th>
<th>Month &amp; Year Box #10 Was Measured</th>
<th>How much money (US $) was saved by this goal?</th>
<th>Reduction Quantity is Adjusted for Production?</th>
<th>Production Ratio (Optional Unless Box #13 is Marked Yes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quantity: 2500</td>
<td>2014</td>
<td>□ No measure</td>
<td>□ Yes</td>
<td>□ No</td>
<td>□ Yes</td>
<td>□ NA</td>
</tr>
</tbody>
</table>

- Actions we will take to implement this goal are: Train operators in the best available spraying techniques and spray equipment set up technologies to reduce overspray and styrene emissions.
Plan Forms – Section 7- Goal form (top section)

- Facility name and P2 ID#
- Goal Statement in correct form
- Provide a scheduled completion date (should not be in the past)
- Goal status:
  - OS (On schedule)
  - DR (Dropped)
  - D (Delayed)
  - C (Completed)
- Name of toxic substance
- VOC, ODC or NA

• Goal statements should be in this form:
  (Action Verb) + (Target Chemical, emission or waste stream) used for/in (Process X) by X%.

• An explanation for delayed goals should be described in Section 6 and include a new estimated completion date.
7. Actions Needed to Implement the Goal:

Actions we will take to implement this goal are:
Train operators in the best available spraying techniques and spray equipment set up technologies to reduce overspray and styrene emissions.

<table>
<thead>
<tr>
<th>8. Baseline Quantity (Starting amount)</th>
<th>9. Baseline Year</th>
<th>10. How much was reduced or eliminated?</th>
<th>11. Month &amp; Year Box #10 Was Measured</th>
<th>12. How much money (US $) was saved by this goal?</th>
<th>13. Reduction Quantity is Adjusted for Production?</th>
<th>14. Production Ratio (Optional Unless Box #13 is Marked Yes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quantity: 2500 (Check units) ☑ Pounds ☐ Gallons ☐ KWH ☐ Therms ☐ No measure</td>
<td>2014</td>
<td>☐ Quantity: ☐ (Check units) ☐ Pounds ☐ Gallons ☐ KWH ☐ Therms ☐ No measure</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

- Baseline quantity = Starting amount
- Baseline year = Year prior to measuring any reductions
- Ideally reductions reported annually
  - If results cannot be reported in pounds, gallons, KWH or Therms, select the “No measure” box
- Cost savings tracked for measuring purposes
- Production increase adjustments
Plan Forms – Section 8
Management Practices and Procedures

Check all that apply

Examples

• If facility posted P2 policy
• If facility revised programs, procedures and/or policies to include Plan goals
• If facilities made procedural changes that include P2 goals and informed employees
• If P2 is included in employee and manager evaluations
• If employees are recognized or rewarded for suggesting successful P2 opportunities
Check applicable box

- Box 1 – facility has completed and enclosed training documents including a sign-in sheet
  - Or -
- Box 2 – Facility has not completed training
  - And -
- Box 3 – If you want a copy of the P2 training documents

Check all that apply for

- Purpose
- Objectives
- Scope
- Methods
- Training topics
P2 training documents must include at a minimum:

- A definition of pollution prevention
- A description of the waste management hierarchy
- The benefits of pollution prevention and
- Information on how the employees can become involved in pollution prevention planning and implementation

Sample P2 training available on our website for download in Spanish and English at [http://www.azdeq.gov/environ/waste/p2/tools.html](http://www.azdeq.gov/environ/waste/p2/tools.html)

If you need a PowerPoint version feel free to email the P2 program. You can find contact information at: [http://www.azdeq.gov/function/about/waste.html](http://www.azdeq.gov/function/about/waste.html)

- ADEQ’s boilerplate P2 training goal available in the plan forms
- ADEQ’s boilerplate “Continue P2 Training Goal” available after initial training is completed
# P2 Training Goal

- Initial goal
- Pre-filled goal statement
- Boxes 4 & 5 and 8-14 do not apply
- Box #7 - Enter the number of people trained in P2
Describe or list any P2 activities that have taken place in the past including amounts reduced.

P2 activities can include:

- Hazardous waste reduction
- Toxic substance use reduction
- Solid waste reduction
- Water conservation
- Energy conservation
- Natural resource conservation
- Improving processes
- Incorporating P2 techniques

Section 10. Existing Pollution Prevention Activities (A.R.S. §49-063.1B)
Requirement: Provide an analysis of pollution prevention activities that all are already in place that are consistent with the Pollution Prevention Plan requirements.

Check ONE of the boxes below.

- We have not documented any previous P2 activities at our company.
- OR
- We have documented P2 activities at our company and have described them below or attached addition pages with information about these projects with this Plan.

Describe or list the P2 activities that are already in place including amounts reduced (if available):

1. In 2012 this facility conducted a Green Lights electricity usage review. At that time all fluorescent light ballasts were replaced with electronic ballasts and more efficient light bulbs (Model T-8) have been used since. This has saved the facility about 15% on its electric bill.

___
___
___
___
Ensure all the sections are completed in the Plan and check the boxes.
Submit checklist with the Plan forms.

Example Plan Checklist

Instructions: Please include the completed checklist below with the Plan forms.

☐ Completed and submitted Section 1 for the primary facility.
☐ Completed and submitted Section 2 with official signature.
☐ Completed and submitted Section 3 for each facility included in this Plan.
☐ Completed and submitted Section 4, Pollution Prevention (P2) Policy, provided in the guidance manual, or developed your own policy with the required items: management and corporate support for the P2 Plan, and a commitment to implement the Plan to achieve the Plan goals.
☐ Completed and submitted Section 5 identifying the scope and objectives, with a Plan time frame of at least two years.
☐ Completed and submitted a Section 6 analysis for all process areas, each Toxic Release Inventory (TRI) toxic chemical that met the Plan filing thresholds and all hazardous or acutely hazardous wastes generated if the facility met the cumulative hazardous waste thresholds.
☐ Reviewed all process areas and waste streams described in Section 6 for possible pollution prevention opportunities.
☐ Completed and submitted Section 7 (Plan goals) for each feasible opportunity identified in Section 6.
☐ Completed and submitted Section 8 (Management Practices) describing how management will incorporate pollution prevention into activities and ensure it is institutionalization.
☐ Completed and submitted Section 9 (Employee Training) outlining the pollution prevention program to occur at your facility, and either completed a training goal or submitted a copy of the facility’s pollution prevention training program documents. Note: Pollution prevention training documents must, as a minimum, include a definition of pollution prevention, a description of the waste management hierarchy, the benefits of pollution prevention and information on how the employees can become involved in pollution prevention planning and implementation. Please also include evidence (such as sign-in sheet) of how many employees were trained in P2.
☐ Completed and submitted Section 10 (Existing Pollution Prevention Activities) documenting past pollution prevention activities (Not required for an amendment).
The path to a successful P2 Plan

#1 Management Support

#2 Use of a P2 Champion

#3 Implement P2 team/“green team”

#4 Identify waste streams, emissions and toxic substance use

#5 Why do waste streams, emissions and toxic substance use exist?

#6 Select P2 opportunities that are economically and technically feasible

#7 Develop goals and establish completion dates

#8 Implement tracking process for goals

#9 Recognize accomplishments and re-evaluate program

SUCCESS
I’ve completed the P2 Plan. Now what?
Annual Toxic Data Reports (TDR’s) due by July 1\textsuperscript{st} of each year
(Reminders sent out in April/May months by a P2 case manager)

- **Progress report instructions**
- **Progress report cover sheet**
- **Goal forms**
  - Goal status (\textit{on-schedule, completed, delayed, dropped})
  - Reductions achieved including cost savings
- **Amendment** (if necessary)
  - Changes to existing Plan
  - Extend the timeframe of an existing Plan
  - Add new goals or amend existing goals
- **TRI submittal**
  - Electronic submittal through TRI-ME Web
  - Trade secret TRI’s hard copy submitted to State

Note:
Progress Report instructions and blank goal forms can be downloaded from ADEQ’s website at:
http://www.azdeq.gov/environ/waste/p2/programs.html
Mailed with goal sheets in April/May

- Reporting year
- Check for any deficiencies
- Make any changes to the information and submit with progress report
- Must be signed!
Progress Report Goal Sheet Example

- Report status of goal
- Report reduction in box #10
- Report year of reduction
- Report economic savings in relation to goal implementation
- State if reduction quantity was adjusted for production

### Section 7. P2 Performance Goal (A.R.S. §49-963.4)

**Facility Name**: ABC Incorporated  
**P2 ID #**: 209999

<table>
<thead>
<tr>
<th>Goal</th>
<th>Complete one sheet for each goal</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Goal Statement: Enter a specific performance goal or individual production process goal that includes a statement of the expected result. The goal statement should address what can be accomplished by implementing one of the opportunities from Section 6. Goal statements should be in the form (Action Verb) - (Target chemical, emission, or waste stream) used for (Process X). Use action verbs such as Reduce or Eliminate. For example: Reduce methylene chloride used for parts degreasing by 90%, if a goal cannot be measured or will take a long period of time to complete, then include an action plan that outlines measurable milestones. See page 48 of the guidance manual for an example of an action plan. Submit these goal sheets with your new plan or amendment and the annual progress report.</td>
<td></td>
</tr>
<tr>
<td>2. Scheduled Completion Date (Month/Day/Year)</td>
<td>07/01/2017</td>
</tr>
<tr>
<td>3. Completion Status: &lt;br&gt; OS=On Schedule &lt;br&gt; DR=Dropped &lt;br&gt; D=Delayed &lt;br&gt; C=Completed</td>
<td></td>
</tr>
<tr>
<td>4. Name of Toxic Substance and Waste stream &lt;br&gt; Include CAS #, and RCRA Waste Code #</td>
<td></td>
</tr>
<tr>
<td>5. State Volatile Organic Chemical (VOC), Ozone Depleting Chemical (ODC), “Both” or “NA”</td>
<td></td>
</tr>
<tr>
<td>6. If this goal has been delayed or dropped (box 3), provide an explanation and include a new estimated completion date:</td>
<td></td>
</tr>
<tr>
<td>7. Actions Needed to Implement the Goal:</td>
<td>8. Baseline Quantity (Starting Amount)</td>
</tr>
<tr>
<td>Actions we will take to implement this goal are: &lt;br&gt;Train operators in the best available spraying techniques and spray equipment setup technologies to reduce overspray and styrene emissions.</td>
<td>Quantity: 2500 (Check units)</td>
</tr>
<tr>
<td></td>
<td>Pounds</td>
</tr>
<tr>
<td>$2,000</td>
<td>$2,000</td>
</tr>
<tr>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>$2,000</td>
<td>$2,000</td>
</tr>
</tbody>
</table>
## Pollution Prevention Training Goal (A.R.S. 49-963.J.9)

**Facility Name:** ABC Incorporated  
**P2 ID #:** 200999

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### Complete this form and include in Section 7 if no training documents are being sent to ADEQ-P2 at the current time.

<table>
<thead>
<tr>
<th>Goal Statement: (For the training goal, fill in dates and goal number in Box 1. Submit this goal sheet with your plan, or amendment or your annual progress report (until goal is closed). Also, submit the training documents to ADEQ-P2 when completed with your annual progress report.)</th>
<th>2. Scheduled Completion Date (Month/Day/Year)</th>
<th>3. Completion Status: OS-On Schedule DR-Dropped D=Delayed C=Completed</th>
<th>4. Name of Toxic Substance and Waste Stream Include CAS #: and RCRA Waste Code #</th>
<th>5. State Volatile Organic Chemical &quot;VOC&quot;, Ozone Depleting Chemical &quot;ODC&quot;, &quot;Both&quot; or &quot;NA&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Continue to train employees in pollution prevention awareness (ARS 49-963.J.9)</td>
<td>07/01/2016</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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6. If this goal has been delayed or dropped (box 3), provide an explanation and include a new estimated completion date:

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7. Actions Needed to Implement the Goal:

<table>
<thead>
<tr>
<th>8. Baseline Quantity (Starting amount)</th>
<th>9. Baseline Year</th>
<th>10. How much was reduced or eliminated?</th>
<th>11. Month &amp; Year Box #10 Was Measured</th>
<th>12. How much money (US $) was saved by this goal?</th>
<th>13. Reduction Quantity is Adjusted for Production?</th>
<th>14. Production Ratio (Optional Unless Box #13 is Marked Yes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
<td>N/A</td>
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The reduction method is to: By July 1 each year (in the annual progress report), document training for current and new employees, by providing a statement of when the training occurred and how many employees were trained. P2 training includes employee awareness and training programs to involve employees in P2 planning and implementation to the maximum extent feasible.

The number of people trained this year was
Break
Questions?
Pollution Prevention Examples
How can facilities incorporate P2 goals in the area of hazardous waste generation?

*Determine root cause of hazardous waste generation*

**Research**
- Process changes
- Recover materials – *reclamation*
- Reuse
- Recycling
- Spill and leak control
- Inventory control to prevent expired materials
- Identify if waste is characteristic for a hazardous waste

7,802,527 pounds of hazardous waste were avoided in 2013 as a result of successful goals by facilities in the P2 program.
Successful hazardous waste reduction examples by facilities in the P2 Program

A semi-conductor facility eliminated **2,251,351** pounds of hazardous waste by acquiring a wastewater treatment system to reduce the volume of metals-contaminated wastewater and reclaiming metal sludges.

This resulted in a cost savings of **$445,411** in 2013.

Another facility specializing in the production of laminate materials for use in the electronics industry reduced hazardous waste by reusing flushed solvents.

This resulted in **1,500** pounds of hazardous waste recycled in 2013 and a cost savings of **$65,000**.

A facility that supplies chemicals for the various industries was able to reduce the amount of hazardous waste generated by installing a secondary containment under their acid plant, capturing spills and recovering them for reuse.

In 2012 this resulted in a reduction of **4,333** pounds.

Rethink the way you do business and change the company culture.
Cumulative Hazardous Waste Prevented 1992-2013

Pounds

Cumulative Hazardous Waste Prevented by Pollution Prevention

78,756,627 pounds prevented. This amount of hazardous waste would weigh as much as 984 tractor trailers/eighteen wheelers.
Determine TRI chemicals and if there is an opportunity for:
- Source reduction
- Reformulations to include non-toxic substances
- Toxic substance substitution/green chemicals
- Toxic substance use below thresholds
- Quality control / Quality assurance

903,762 pounds of toxic substance use was prevented in 2013 as a result of successful goals by facilities in the P2 program.
A cable manufacturing facility successfully substituted leaded aluminum bar stock (used for machine cable TV connector components) with ones that contained either a reduced lead or are lead free by 80%. In 2013, **309,730** pounds of lead were reduced.

Another facility was able to replace solvents used in cleaning locomotive and railcar parts with non toxic cleaners. This resulted in **35,400** pounds of toxic substance use reduced in 2009.

Reducing the use of toxic substances saves money, energy and improves company image.
Cumulative Toxic Substance Use Prevented 1992-2013

Cumulative Toxic Substance Use Prevented by Pollution Prevention

45,814,047 pounds prevented. This amount of toxic substance would weigh as much as 573 tractor trailers/eighteen wheelers.
Any facility can incorporate solid waste reduction goals including:

- **Source reduction**
  - Inventory control
  - Effective procurement practices – avoid excess supplies

- **Recycling/Reuse**
  - Paper – company double-sided copying/printing policy
  - Metal
  - Plastics
  - Pallets/wood
  - Drums/storage containers

- **Reduce Packaging**
  - Order bulk merchandise
  - Minimize packaging for company products
  - Recycle/return cardboard boxes and foam peanuts for reuse

- **Food waste reduction**
  - Food donation
  - Food composting

- **Company wide recycling program**
  - Aluminum cans/plastics/bags/cardboard
  - Educate employees

- **Conduct a waste assessment**
  - Understand purpose
  - Determine the approach
  - Plan
  - Review records
  - Review waste streams
  - Document waste assessment
  - Take action

41,244,743 pounds were diverted from the landfill in 2013 as a result of successful goals developed by facilities in the P2 program.
A spa manufacturing facility was able to recycle 90% of the High Density Polyethylene (HDPE) plastic waste from their panel cutting operation. This resulted in **6,637** pounds reduced in 2013 and a cost savings of **$1,659**. 

A machinery manufacturing facility was able to collect and recycle their used oil filters resulting in a reduction of **5,000** pounds of solid waste and a cost savings of **$130**. 

A transportation facility was able to reduce 100% of the pallets sent for incineration. The facility established a mandatory take back program with the vendor and all pallets are recovered. In 2013 the facility returned **43,200** pounds of pallets to the vendor.

**Solid waste reduction is an accessible goal for reducing waste at any facility.**
Cumulative Solid Waste diverted from the landfill 1992-2013

Cumulative Solid Waste Prevented by Pollution Prevention

386,656,046 pounds prevented. This amount of solid waste could fill two Chase Fields.
Natural resource conservation can lead to significant reduction in use in the areas of:

• Energy
• Natural gas
• Water
• Natural resources
Why energy conservation?
Most energy derives from non-renewable sources such as fossil fuels. Energy conservation reduces greenhouse gas emissions, conserves resources and saves money.

Ways to conserve energy at facilities:
- Technology improvements
  - Replacing old machines with efficient ones
- Improved lighting e.g. fluorescent to LED
- Work schedule changes
- Solar and wind energy
- Maintain high energy-driven items
- Energy efficient electronics with energy star label

Ways to conserve natural gas:
- Check blower efficiency
- Make sure condensers are working correctly
- Recover energy from waste exhaust gases

90,491,274.25 KWh and 4,382,039 therms of energy were conserved in 2013 as a result of successful goals developed by facilities in the P2 program.
A food manufacturing facility repaired their condensate pump to increase the condensate return to boiler water feed for more uniform boiler temperature. In 2010, 824,813 therms of energy were reduced. They also installed an air flask system so the compressors ran fully loaded (36 minutes per hour versus 51 minutes per hour) resulting in an annual savings of $9,000.

A weapon manufacturing facility was able to reduce their electrical energy use by replacing older machinery with more energy efficient machinery. They also installed motion sensor lights for specific areas of the factory floor. This resulted in a reduction of 173,844 Kwh in 2013 and a cost savings of $13,907.

Increase the reliance of renewable and clean energy.
Electricity Use Prevented by Pollution Prevention

Cumulative Electricity Use Reductions

Electricity use prevented 1992-2013

705,752,869 Kwh prevented. This amount of electricity could power over 65,000 homes for a year.
Water Conservation

- Analyze water usage
- Identify drips, leaks and unnecessary flows
- Operational changes
- Technology upgrades
- Invest in efficient wastewater treatment units
- Reduce use of fresh water by reusing wastewater when possible
  - Closed-loop systems
  - Condensate from equipment
  - Cooling equipment blowdown
- Incorporate use of nozzles and aerators
- Xeriscape landscaping
- Increase employee awareness
- EPA’s WaterSense for commercial businesses

53,850,234.50 gallons of freshwater AND 17,862,866 gallons of wastewater were conserved in 2013 as a result of success goals developed by facilities in the P2 program.
Successful water reduction examples by facilities in the P2 program

One computer and electronic manufacturing facility was able to design and implement a system to reuse process wastewater as a feed stock to cooling towers. This reduced water usage by 1,000,000 gallons during 2013.

A fabricated metal product manufacturing facility was able to reduce their water usage by adjusting the timer on the sprinkler system to reduce lawn watering time by 5 minutes per sprinkler head and implemented a system to monitor and repair any leaks noted. In 2013, 506,000 gallons saved.

Another transportation equipment manufacturing facility was able to reduce their water usage by using water limiting fixtures and using single flush bioremediation urinals. This resulted in 389,000 gallons saved in 2013 and a cost savings of $3,700.

Use water wisely and become a sustainable company.
Cumulative fresh water use conserved 1992-2013

Water Use Prevented by Pollution Prevention

2,923,838,489.50 gallons prevented. This amount of water could fill 4,430 Olympic sized swimming pools.
Cumulative wastewater prevented 1992-2013

Cumulative Waste Water Prevented by Pollution Prevention

354,857,416 gallons prevented. This amount of water could fill 538 Olympic sized swimming pools.
How can P2 benefit your company?

• Economic incentives
  – Reduction in disposal and treatment costs

• Liability Incentives
  – Worker safety

• Public Benefits
  – Environmentally sound company

• Human Health and Environmental Benefits
Promoting P2

- Management support
- Make sustainability a habit
- Involve workers – excellence recognition
- Minimal consumption of natural resources
- Reliance on clean, renewable energy
- Continuous improvement
- Learn about your industry and current technology
- Believe sustainability is a necessity
- Change the culture of the company
Questions?

Contact us! We are here to help!

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