NASEO State Industrial Working Group Forum:
Partnerships and Collaborations--
P2 in the Pacific Northwest

February 21, 2024
The National Pollution Prevention Roundtable (NPPR) is a national forum that promotes the development, implementation, and evaluation of efforts to avoid, eliminate, or reduce waste generated to air, land, and water.
**Goals**

**Goal 1: Information Exchange** – Advance pollution prevention by maintaining and improving opportunities for exchanging ideas and facilitating coordination of efforts.

**Goal 2: Public Policy** – Advance pollution prevention by influencing the development and implementation of policies, legislation and regulations.

**Goal 3: Education** – Promote education and awareness of pollution prevention concepts, programs, methods, accomplishments, and benefits.

**Goal 4: External Partnerships** – Foster constructive, mutually beneficial relationships with other organizations which have related missions.

**Goal 5: Funding** – Provide leadership and coordination that supports sustainable funding opportunities for pollution prevention.
WORKGROUPS

- Food and Beverage Manufacturing and Processing
- Leadership & Voluntary Programs
- Metal Finishing
- P2 Intern Collaborative
- Private Sector P2 Professionals
- Regulatory Improvement & Integration

Would you like to recommend a new workgroup?
SERVICES

- P2U – Series of quarterly webinars to support networking and professional development for P2 practitioners
- Newsletter – Information on events, programs, and projects throughout the nation related to P2
- MVP2 Award – National awards given to those who are recognized as the very best in pollution prevention

Coming Soon!
National Pollution Prevention Roundtable Conference
## Annual Membership Fees

<table>
<thead>
<tr>
<th>Category</th>
<th>Individual</th>
<th>3 members</th>
<th>5 members</th>
<th>25 members</th>
</tr>
</thead>
<tbody>
<tr>
<td>Industry/Consultant (Individual)</td>
<td>$295.00</td>
<td>$595.00</td>
<td>$895.00</td>
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<tr>
<td>Non-Profit/Govt. Agency/Academic</td>
<td>$195.00</td>
<td>$495.00</td>
<td>$2,495.00</td>
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</table>
NPPR Contacts

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Pollution Prevention Program Manager
Bureau of Sustainability
New Jersey Department of Environmental Protection
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**Ed Gonzalez – Vice Chair**
Executive Director
Pacific Northwest Pollution Prevention Resource Center (PPRC)
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E-mail: egonzalez@pprc.org
Established in 1991

VISION STATEMENT
The Pollution Prevention Resource Center (PPRC) aims to reduce or prevent the generation of pollution at its source through the dissemination of reliable, impartial, high-quality technical information, training, and services.
MISSION STATEMENT

Through strategic partnerships and collaborations, PPRC provides direct education and technical assistance to businesses, governments (local, state, and tribal), and P2 technical assistance providers (TAPs).
PARTNERSHIPS
(Since its Founding)

- WA Department of Ecology
- Idaho Department of Environmental Quality
- Oregon Department of Environmental Quality
- AK Forum
- MEPs and SBDCs
- 100s of local wastewater jurisdictions
- Consultants
- Tribes
- USDA
- EPA
- Dozens of municipalities, counties, and air districts
Projects

Current Staff - 19

- Spray Efficiency Trainings
- FOG and PFAS Abatement Trainings
- EcoBiz Certification Program
- EPA Safer Choice Programs
- Roundtables
- Auto Repair Safer Alternatives
- Aerospace Safer Alternatives
- Zerowaste/Pollution Prevention Trainings
- P2 Site Assessments
- Rapid Response Research
Project Examples

Ken Grimm
Industry Outreach Manager
Pacific Northwest Pollution Prevention Resource Center (PPRC)

Practical solutions for environmental and economic vitality

- Founded in 1990
- Work locally regionally and nationally
Energy Workshops

Greater Seattle Area – School Districts
Seattle U. Engineering

Greater Portland Area – Hospitals
PGE EA Center
Cash Flow Opportunity Calculator

The calculator provides a comparison between two options:

**Option A (Fast Track Financing):**
- Initial savings: $540,000
- Annual savings: $18,100
- Cumulative savings over 10 years: $187,728

**Option B (Waiting for Cash):**
- Initial savings: $841,000
- Annual savings: $0
- Cumulative savings over 10 years: $0

**Net Present Values:**
- Option A: $1,403,314
- Option B: $881,218

**Net Present Value Comparison:**
- Option A generates $522,097 or 60% more cash than Option B.

For purposes of this calculation, all cash flows are being discounted at the interest rate indicated in cell B7 - financing paid monthly in arrears.
## Byproduct Synergy Northwest

<table>
<thead>
<tr>
<th>Source Company</th>
<th>Receiving Company</th>
<th>Synergy</th>
<th>Status</th>
<th>Amount of Material Diverted Annually</th>
<th>Annual $ Value of Synergy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Genie</td>
<td>Nucor</td>
<td>Steel shot</td>
<td>Complete</td>
<td>192 tons used rather than treated as waste</td>
<td>$16,800 from avoided disposal</td>
</tr>
<tr>
<td>Genie</td>
<td>(n/a)</td>
<td>Pallet recycle</td>
<td>Complete</td>
<td>8.9 tons recycled rather than land-filled</td>
<td>$9,500 from avoided disposal</td>
</tr>
<tr>
<td>Canyon Creek</td>
<td>(n/a)</td>
<td>Acetone distillation</td>
<td>Already in place</td>
<td>19,910 gallons (65.7 tons) not purchased or disposed of</td>
<td>$180,000</td>
</tr>
<tr>
<td>Canyon Creek</td>
<td>Coning and Sons</td>
<td>Wood scrap used as kiln fuel</td>
<td>Already in place</td>
<td>2275 tons</td>
<td>$180,000 (avoided disposal)</td>
</tr>
<tr>
<td>Canyon Creek</td>
<td>Pacific Topsoil</td>
<td>Sander dust used in soil products</td>
<td>Already in place</td>
<td>1121 tons</td>
<td>$0 (dust would be burned in kiln)</td>
</tr>
</tbody>
</table>
Seven Wastes (Muda)

- Overproduction
- Transportation
- Waiting
- Inventory
- Motion
- Over Processing
- Defects
- Underutilized employees

Lean and Green

©Washington Manufacturing Services   www.wamfg.org
Lean Eliminates Production “Wastes” But Not Always Environmental Wastes

Lean’s “Deadly Wastes”

1. Defects
2. Overproduction
3. Waiting
4. Non-value added (over-) processing
5. Transportation
6. Inventory
7. Motion

Where are the environmental wastes?

- Excess material use
- Toxic / hazardous material use
- Scrap & non-product output
- Hazardous wastes
- Pollution (emissions/effluents)
- Energy and water consumption
Louver Paint Line Improvements

- Reduced overproduction of custom color paints by 48 gallons/year.

- Increased paint transfer efficiency for lacquer from 15.9% to 19.7% and for primer from 39.6% to 42.4%.
# Lean and Green - Woodfold

<table>
<thead>
<tr>
<th>Reductions</th>
<th>Source of Savings</th>
<th>Annual Cost Saving</th>
<th>Type of Saving</th>
</tr>
</thead>
<tbody>
<tr>
<td>Labor / Inc. capacity</td>
<td>New filter system</td>
<td>$3,800</td>
<td>&gt; 160 hrs</td>
</tr>
<tr>
<td>Material</td>
<td>New paint container design</td>
<td>$1,440</td>
<td>48 gal/yr</td>
</tr>
<tr>
<td></td>
<td>Transfer Efficiency</td>
<td>$34,530</td>
<td>102 gal primer /980 gal lacquer</td>
</tr>
<tr>
<td>Emissions</td>
<td>Transfer Efficiency</td>
<td>Not quantified</td>
<td>968 lb VOC/ 82 lb HAPS</td>
</tr>
<tr>
<td>Disposal</td>
<td>PVC scrap to recycler</td>
<td>$670</td>
<td>6 tons PVC</td>
</tr>
<tr>
<td></td>
<td>Filters</td>
<td>$953</td>
<td>50% reduction</td>
</tr>
<tr>
<td>Water</td>
<td>New flush/purge</td>
<td>$40</td>
<td>2600 gal</td>
</tr>
<tr>
<td>Energy</td>
<td>Less evaporation</td>
<td>$3,300</td>
<td>120,000 kwh</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>$45,000</strong></td>
<td></td>
</tr>
</tbody>
</table>
3 new crosscut saws

Cutting time per day (before)
- 368 sheets/day @ 120 sec/sheets = 12 hours 15 min

Cutting time per day (after)
- 219 cuts @ 21 sec/cut = 1 hour 17 minutes

Reduction in time: 90% = $31,000

Reduction in sheets required: $194,000/year

Reduction in waste removal: 580,000 lbs/year and $58,000/year

Layout improvements saved: Over 650 foot–miles of foot travel per year!
# Lean and Green – Canyon Creek

<table>
<thead>
<tr>
<th>Reductions</th>
<th>Woodchuckers Team</th>
<th>Toxics Team</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Annual Cost Savings</td>
<td>Time, Material, &amp; Environmental Savings</td>
</tr>
<tr>
<td>Raw Material</td>
<td>$110,000</td>
<td>~1,820 wood sheets</td>
</tr>
<tr>
<td>Hazardous Substance and Use</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Air Emissions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hazardous Waste</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Energy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Solid Waste</td>
<td>$58,000</td>
<td>508,000 pounds</td>
</tr>
<tr>
<td>Rejects</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Labor</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cost Savings Sub-Total</td>
<td>$168,000</td>
<td></td>
</tr>
<tr>
<td>Total Cost Savings:</td>
<td>$1,189,550 per year</td>
<td></td>
</tr>
</tbody>
</table>

¹ This is a conservative estimate. The additional labor hours were used to fill open positions.
Facilitated two-year Medicine Return Pilot Project in WA
Multi-agency/stakeholder effort
Resulted in proper disposal of over 15,000 pounds of unused household pharmaceuticals
Unwanted Medicine Return Program

At peak: 130 lbs. of unwanted household medicines fills 1 cage every 3 days (Group Health)
Pollution Prevention / E3

- P2 Assessments & Implementation
  - P2 Checklists
  - Process mapping with inputs / outputs
  - Environmental cost accounting
  - Chemical inventory (safer alternatives screening)
  - Recommendations
  - Implementation assistance

- E3 – Environment, Energy, Economy
  - Use similar methods as above, but partner with state technical assistance, lean practitioners, Industrial Assessment Centers (IAC), and small business development experts
  - Provides added benefits of lean, energy, and economic development
MOST RECENT:

a) Bend - brewery workshop and tour, Sept. 8 & 9 – Worthy Brewing

b) Bellingham workshop and tour, Sept. 28 – Boundary Bay Brewery

OTHER EFFORTS:

• Support of IDEQ E3 Excellence Project—Three breweries in Idaho

• Past brewery assessments: Alaska, Oregon, and Washington (Hopworks, Redhook, Fort George)

• Craft Brew Topic Hub

• Sustainable Craft Brew Listserv
Shipyard Roundtable

- Industry Compliance Issues
- Several Companies Fined
- Largest Proposed an SEP
- Funded PPRC
- Series of Roundtables
- Continuing Service

https://pugetsoundshipbuildersassociation.org/
Spray Efficiency Training

- VR system owned by Oregon DEQ and Ecology, training provided by PPRC.
- Allows painters to try different efficiency techniques, provides immediate feedback on film thickness, transfer efficiency, spray techniques and paint cost.
- Painters learn from their own results and from those of their peers.
- Avoids the use of paints and chemicals, reducing the environmental footprint of painter training.
Spray Efficiency Training
Spray Efficiency Training

- Trainings annually since 2003
- Long-term partners: Idaho SBEAP, IDEQ, ODEQ, WaDOE, USEPA, AK Green Star
- Aerospace, Industrial, Automotive, Shipyard, Wood Product Mfg
- Bilingual (Spanish/English) training now available
- Started hands-on training in booth
- Progressed to 2D Virtual hands-on training in 2010
- Moved to 3D Virtual hands-on training in 2021
- To Date: Savings of $16,195,000 to businesses
- To Date: Reductions of 584,000 lbs. hazardous material and 329,000 lbs VOCs
Questions?

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