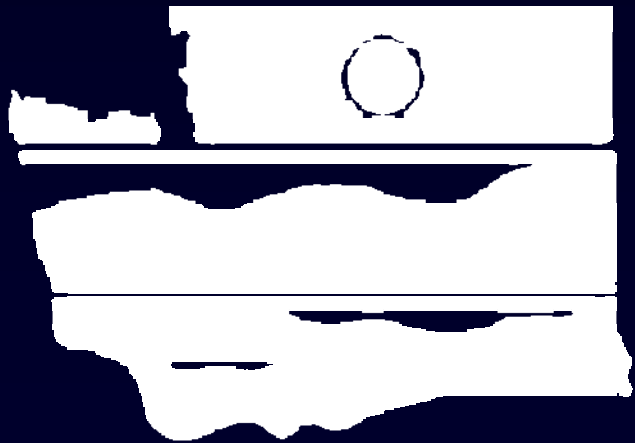


Raising the Bar...

Government Incentives

Cleaner Production Challenge



Washington State Department of Ecology
Hazardous Waste Technical Assistance

Michelle Costenaro

June 1, 2005

Cleaner Production Challenge



Outline

- Background
 - Where it all started
 - The "Wet Process Sector"
 - Ecology evaluated the facilities
 - The "Challenge" to the companies
- Work
 - Project endorsers
 - Helping companies reach their goal
 - Data collection
- Results
- Next Steps
 - Advice to you
 - How to get more information

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Where it all started...

- Ecology's Technical Assistance History
 - One-on-one technical assistance
 - Pollution prevention planning program
 - Multi-media detailed technical assistance
 - TREE Program
 - Sector projects
 - Fiberglass, painting, schools, etc.

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The “Wet Process Sector” ...

- Sector
 - Aerospace manufacturers
 - Metal finishers / electroplaters
 - Printed circuit board manufacturers
- Timeline
 - 2000 – “Wet Process Sector” Project
 - 2001 – “Cleaner Production Challenge”

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The “Wet Process Sector” ...

- Sector size
- Waste generation
- Hazardous waste compliance citations
- Compliance best management practices
- Opportunities
- Water & energy shortage
- Pollution prevention plan updates
- Possible regulation change (MP&M)

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Ecology evaluated the facilities...

	Implemented P2 Practices	Implemented BMPs	Reduced Wastewater / Sludge
Tier 1	Most	Most	Showed historic decline
Tier 2	Some	Some	Showed potential for improvement
Tier 3	Few	Few	Showed potential for large improvement

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The “Challenge” to the companies...

- Sludge and Wastewater Goals
 - Tier 3: 25% Reduction
 - Tier 2: 10% Reduction
 - Tier 1: Mentor other companies
- Four Year Time Line
 - Baseline: 2000
 - Final Data: 2003

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Project endorsers...

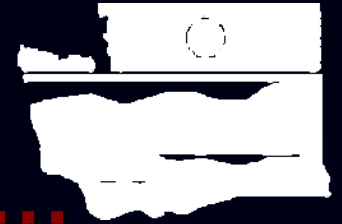
America Electroplaters & Surface Finishers Society
SEATTLE-PUGET SOUND BRANCH



Washington State Association of Metal Finishers
AFFILIATED WITH THE NATIONAL ASSOCIATION OF METAL FINISHERS



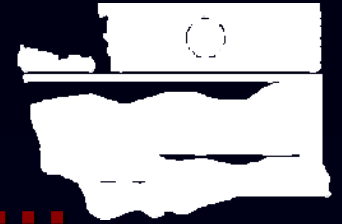
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Helping companies reach their goal...

- Initial Facility Visits
 - Determine
 - “Tier”
 - Tools needed to improve
 - Talk about
 - General P2 options
 - Compliance BMPs
 - Data tracking

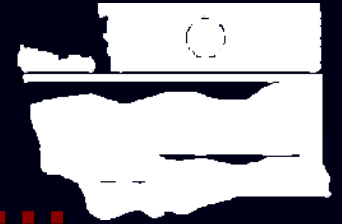
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Helping companies reach their goal...

- Website / CD
 - Opportunity List
 - Vendor List
 - Case Studies
 - Other Resources
 - Spreadsheets for tracking
 - Financial assistance
 - Project background
 - Workshop summaries

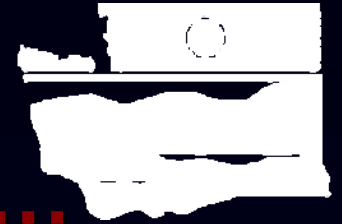
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Helping companies reach their goal...

- Workshop / Vendor Fair
 - Dragout reduction
 - Rinsing techniques
 - Bath maintenance
 - Compliance BMPs

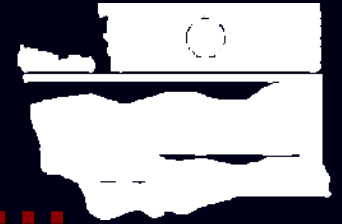
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Helping companies reach their goal...

- Advanced Workshop
 - Electrowinning
 - Filtration
 - Reverse osmosis
 - Ion exchange
 - Case studies presented by companies
 - Trade organization update on regulation changes

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Helping companies reach their goal...

- Follow-up Facility Visits
 - Review
 - Available P2 options
 - Compliance BMPs
 - Data tracking
 - Provide employee training
 - Video of good vs. actual practices
 - Workshop materials

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Data Collection...

- Production
- Resources Used
 - Water
 - Electricity
 - Natural gas
- Waste generated
 - Sludge
 - Wastewater
 - Treatment by generator – TBG
 - Discharge monitoring reports – DMR
 - Dangerous Waste Manifest

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Data Analysis...

- Collected data for 2000 through 2003
 - Sent to Ecology
 - Collected from other sources
- Evaluated the Accuracy
- Normalized for production

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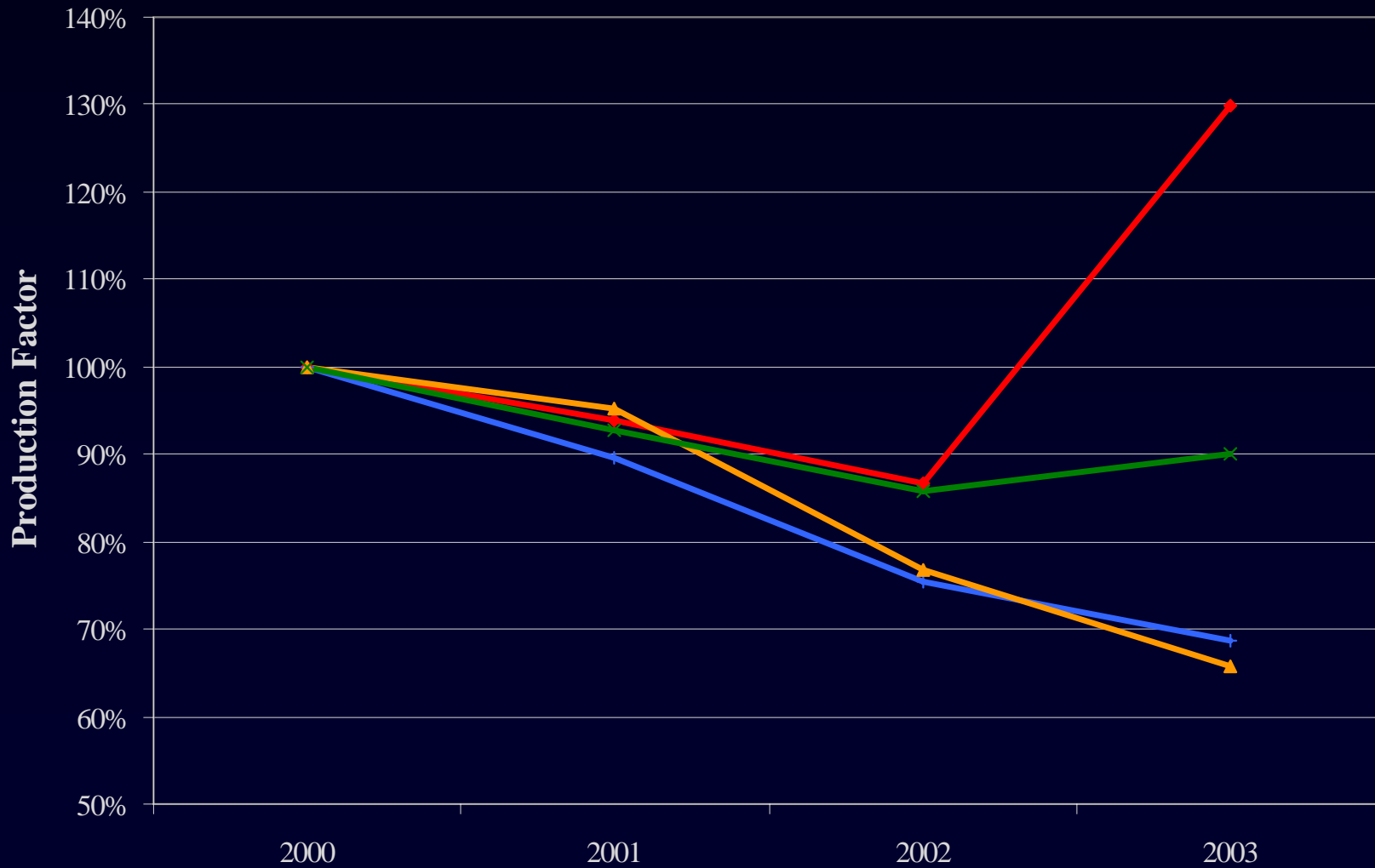
Production Factor...

Plating (29)

Printed Circuit Board (6)

Aerospace (5)

Other (3)



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The results...

			2000	2003
<i>Wastewater gallons</i>	Normalized	Generation	353,136,513	191,463,291
		Reduction	-	46%
	Not- Normalized	Generation	353,136,514	117,810,867
		Reduction	-	67%
<i>Sludge pounds</i>	Normalized	Generation	2,536,169	2,306,844
		Reduction	-	9%
	Not- Normalized	Generation	2,536,169	1,518,692
		Reduction	-	40%

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The results...

		2000	2001	2002	2003	
Wastewater <i>gallons</i>	Normalized	Generation	353,136,513	211,997,764	248,073,777	191,463,291
		Reduction	-	40%	30%	46%
	Not- Normalized	Generation	353,136,514	213,008,682	183,407,736	117,810,867
		Reduction	-	40%	48%	67%
Sludge <i>pounds</i>	Normalized	Generation	2,536,169	2,462,662	2,792,954	2,306,844
		Reduction	-	3%	-10%	9%
	Not- Normalized	Generation	2,536,169	2,340,240	2,069,963	1,518,692
		Reduction	-	8%	18%	40%

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The results...

Accepted the Challenge	yes	yes	no	no
Attended a Workshop	yes	no	yes	no
Reached goal	7	3	5	4
Did not reach goal	1	1	1	0

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Examples...

- Puget Sound Naval Shipyard
 - Tier 2
 - Installed a new ion exchange system
 - Use electrowinning technology to recover the regeneration acid
 - By 2003 they reduced:
 - Wastewater generation by almost 20%
 - *85,000 gallons annually*
 - Sludge generation by 30%
 - *22,000 pounds annually*

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Examples...

- The Boeing Company – Auburn Plant
 - Tier 2
 - Developed a Rinse Water Reduction Calculator
 - model single, double, and triple counter current rinse tanks
 - available to the public: www.boeing.com/special/rrcalc
 - Exceeded their goals by reducing:
 - Wastewater generation by 48%
 - *Over 148,000,000 gallons annually*
 - Sludge generation by 10%
 - *Almost 150,000 pounds*

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Advice to you...

- Formalize participation
- Evaluate companies before and after
- Define data needs vs. wants
- Partner with other organizations
- Keep the momentum going
- Stay flexible

Cleaner Production Challenge



How to get more information...

- CPC Website
www.pprc.org/cpc
- Request a Report
- Contact me
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