

Industrial Waste and Compressed Air Systems at Sappi

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Driven to DiscoverSM

Company Background

- Sappi has 18 mills internationally.
- The Cloquet mill was built in 1898
 - Cloquet is 20 miles southeast of Duluth
- 750 Employees
- Pulp and Paper Mill
 - Dissolving Pulp-Textile Industry
 - Graphic Paper
- Produces 680,000 tons of product a year

sappi



Motivations For Change

Waste

- **Generates 360 tons of industrial waste annually**
 - Reduce this to save money
 - Combustible derived fuel (CDF)
 - Wooden pallets
 - Properly segregate for safety

Compressed Air

- **Opportunity for standard inspection for compressed air system**
 - Missing Leaks
- **Opportunity to increase efficiency on compressors**

Approach

Waste

- **Completed weekly roll-off dumpster audit**
 - Identified areas of the mill that had waste segregation/reduction opportunities.

Compressed Air


- **Mapped compressed air systems**
 - Used these maps to write standard operating procedures
- **Loading/unloading options for air compressors**
 - Master controller
 - Updated compressor controllers

Waste Education

- Safety talk and quiz
 - Proper segregation in the waste streams

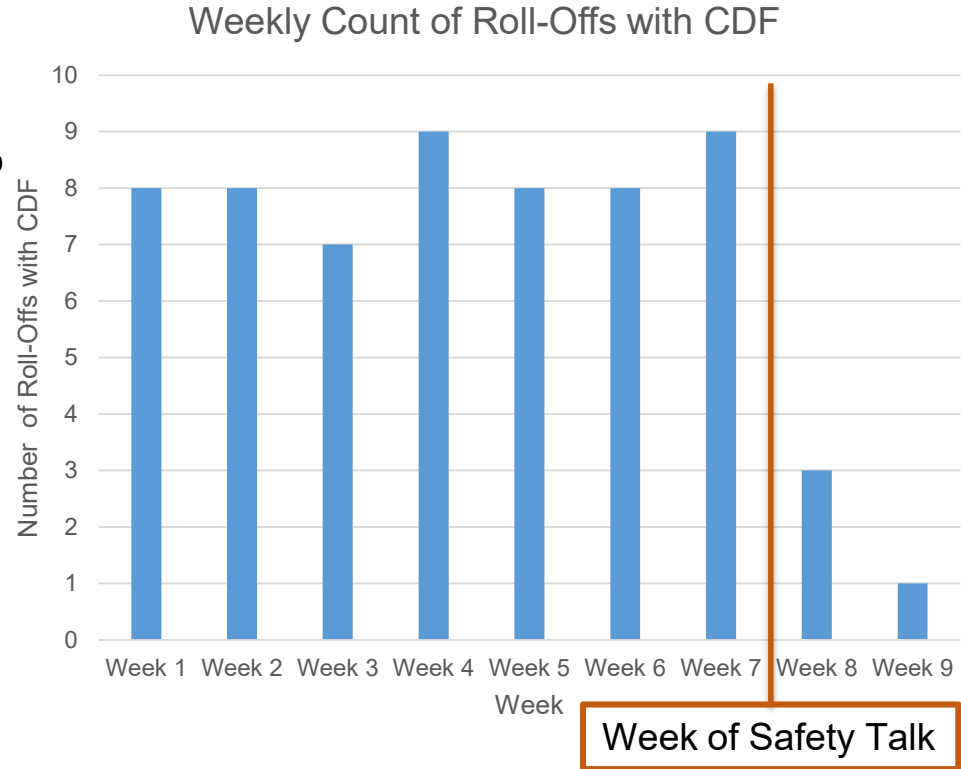
Common Shop Waste

WHERE DOES THE WASTE GO?

Recycling	Used Oil	Universal Waste
<ul style="list-style-type: none">• Glass Products• Plastic Containers• Tin Cans• Aluminum Cans 	<ul style="list-style-type: none">• Never dump to bare ground or sewer• Must be stored indoors• Absorbent pads, powders and rags must be stored in drums labeled "Used Oil Sorbents" <p style="text-align: center;">NEVER put oily rags in trash</p>	<ul style="list-style-type: none">• Fluorescent light bulbs• High Intensity Lamps (HID)• Rechargeable batteries  <p style="text-align: center;">Contact IT for computer/E-Waste removal</p>
CDF	Industrial Waste	Hazardous Waste
<ul style="list-style-type: none">• Clean dry paper• Wood products• Cardboard  <p style="text-align: center;">All CDF – MUST be less than 48"</p>	<ul style="list-style-type: none">• Packaging• Rubber tubing• Insulation• PVC piping <p style="text-align: center;">NO LIQUIDS IN INDUSTRIAL WASTE</p>	<ul style="list-style-type: none">• COD Vials• Flammable Solvents• Lead Paint  <p style="text-align: center;">Aerosol cans go in specially marked, red aerosol bins.</p> <p style="text-align: center;">Contact Misc. Crew for hazardous waste disposal</p>

Waste Education

- **Reduced CDF (combustible derived fuel) in roll-offs by 40%**
 - 30 tons reduction annually
 - \$4,600 savings



Solutions

Recommendation	Annual reduction	Total cost	Annual savings	Payback period	Status
Waste Education	30 Tons	\$0	\$4,600	Immediate	Implemented
Recycle Cores	66 Tons	\$1,100/Load	\$20,000	Needs Further Analysis	Recommended
Reuse Pallets	20 Tons	\$0	\$1,500	Immediate	Recommended
Standardize Air Inspection	5.3 million kWh	\$0	\$184,000	Immediate	Implemented
Master Controller	288,000 kWh	NA	\$18,720	1 Year	Recommended

Anecdote

- **1st Day at Sappi**
- **Banding Falcons**
 - 4 Chicks
 - 14 days old

