



# Sappi



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## Company Background

Sappi is an international pulp and paper company, with the Cloquet mill opening in 1898. They produce kraft pulp for their graphic paper products and dissolving pulp which they sell as a raw material for the textile industry.

*“My internship with MnTAP allowed me to use skills that I learned in the classroom and apply them to real life engineering solutions. Sappi has such an amazing team and they were wonderful to work with. Working at Sappi gave me experience working with several different teams, allowing me to experience different aspects of engineering” ~ BS*

## Project Background

This project included two distinct processes, compressed air and solid waste. Sappi currently produces approximately 9,000 CFM of compressed air to run equipment, actuate valves and control processes. A system of this size requires regular assessments for leaks and Sappi conducts these yearly. One goal of this project was to standardize the assessment procedure to ensure the entire compressed air system is adequately addressed.

Sappi segregates many waste streams including industrial waste, recyclables, pallets, and combustible derived fuel (CDF), which is material that is used in on-site boilers to produce steam and electricity for the mill. Sappi had identified opportunities for better waste segregation in their pallet, industrial, and CDF waste streams with the goal of reducing each stream and increasing efficiency of segregation between the streams.

## Incentives To Change

Sappi has seen a reduction in the savings reported by their annual compressed air leak assessment due to turnover in the contractor conducting the assessment and the lack of a standardized monitoring procedure. With an extensive compressed air system, opportunity for energy savings is apparent, but in-depth procedures are needed to realize this opportunity yearly. Sappi also has many waste streams some of which go off site for disposal and some that stay on site for reuse or landfilling. An opportunity exists to divert some of the waste that leaves the site to be internally reused or eliminated entirely which would save in off-site disposal costs.



*“This past summer was the first experience for Sappi to partner with MnTAP’s intern program. Sappi has employed students for a 15-month co-op for many years, but have a long-held belief that the mill is too large and complicated to get significant return from a summer intern. The performance of our intern was beyond expectations and has changed our belief regarding summer interns. The work of our intern will help Sappi reduce energy use and cost - immediately through better air leak identification and long term through operational and capital improvements. Additionally, through a second project that our intern completed, we are already making progress in improving our waste disposal systems. We are already thinking about a project for our next MnTAP intern.”*

*~ Robert Schilling  
Environmental Manager*

# Solutions

## Follow Compressed Air SOP

Map areas and write SOP's for the walking routes the auditors should take to ensure they walk past all the instrument stands, receivers, filters, and areas that are densely filled with air lines. The audit should take place when the equipment is running and on down days when interferences such as steam and vacuum are turned off. By doing this Sappi can reduce their energy consumption by 8,000,000 kWh and save \$280,000 annually.

## Install Master Air Controller

By implementing a master controller, Sappi's air compressors will be able to "communicate" with each other, allowing more efficient operation. This will reduce Sappi's energy consumption by 288,000 kWh and save them \$19,000 annually.

## Update Compressors #2 and #3 Controls

Updating the controls and valves on the compressors can increase the efficiency of the compressors and allow them to operate at lower throttles. The efficiency will increase by roughly 20% which equates to a reduction of 1,000,000 kWh and a savings of \$35,000 annually.

## Implement Yearly Waste Education

Sappi has weekly safety talks which are exercises the entire mill discusses and focus on creating a safer working environment. A waste reduction safety talk was given this summer with impressive results. By continuing education and adding additional signage and lids to certain dumpsters Sappi can reduce waste by 30 tons and save \$5,900 annually.

## Reuse Pallets with Community Pick Up

By moving the pallet pile to a more accessible area, Sappi can implement a spot for people to take pallets. This will divert 20 tons of pallets from the landfill and save \$1,500 annually.

## Reuse Pallets with Supplier Pick Up

Sappi's pallet supplier occasionally sends off-specification pallets that are not usable in Sappi's packaging process. If the supplier were to take these pallets back it would divert 20 tons of pallets from the landfill annually and save Sappi \$1,500.

## Reduce Waste by Core Recycling

Sappi uses paper cores to make rolls of paper. The supplier offers an option to recycle the broken cores and trimmings for the cost of shipping. This would reduce 66 tons of waste and save Sappi \$20,000 annually.



Recommendation	Annual Reduction	Annual Savings	Status
Follow Compressed Air SOP	8,000,000 kWh	\$280,000	Planned
Install Master Air Controller	402,000 kWh	\$19,000	Recommended
Update Compressors #2 and #3 Controls	1,000,000 kWh	\$35,000	Recommended
Implement Yearly Waste Education	30 Tons	\$5,900	Implemented
Reuse Pallets with Supplier Pick Up	20 Tons	\$1,500	Recommended
Recycle Cores	66 Tons	\$20,000	Recommended

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