Donaldson

CASE SUMMARY 6

DONALDSON COMPANY, INC.

Cresco, Iowa
Howard County

Intern: Ryan C. Burnley
Major: Mechanical Engineering
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The Company

Donaldson Company, Inc., headquartered in Bloomington, Minn., has more than 9,000 employees at more than 30 manufacturing locations worldwide, including 14 plants in the United States. The Cresco plant manufactures industrial air filtration products for companies such as Caterpillar, FMC, Ford, General Dynamics, John Deere and CNH. Donaldson is also a supplier to the United States government of filtration systems for the Blackhawk helicopter and humvee, and of Pulse Jet Air Cleaner (PJAC) filters for the M1 Abrams Battle Tank, Armored Personnel Carrier (APC) and Bradley Fighting Vehicle.

Project Background

Currently, Donaldson sends 420 tons of metal scrap annually to a steel mill in Chicago for recycling, as well as 285 tons of Old Corrugated Cardboard (OCC) annually to a recycler in town. The plant is ISO 9002 and QS9000 certified. The plant is currently waiting for TS 16949 certification and will be applying for ISO 14001 certification in the future.

Incentives to Change

Donaldson Company, Inc. is environmentally conscious. The plant in Cresco evaluated reusing scrap material several years ago, but was unsuccessful in finding an outlet for the large quantities of media paper disposed of annually. Since the addition of the new PowerCore™ filtration line one year ago, scrap tonnage has increased. The company desires to reduce the amount of landfilled media, through both diversion and source reduction, and to comply with QS9000 continuous improvement requirements, giving Donaldson reason to undertake a pollution prevention project.

Results

Five opportunities for potential annual savings were researched and are summarized below:

Media Landfill Diversion
Raw media makes up on average 70 percent of annual landfill tonnage. BFC Gas & Electric Companies in Cedar Rapids collects raw material and incinerates it to power an industrial steam turbine that generates electricity. Sending the scrap media to BFC will result in annual savings of $30,200.

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Costs associated with the project include the purchase of a horizontal baler and Air Product Separator to bale the media for transportation to the plant.

Media Source Reduction
The splicers on the main assembly lines account for an estimated $82,800 worth of wasted media sent to the landfill annually. The cause of this loss is the lack of a secondary spray counter on the splicer. The counter tells the operator the current run's progress; the only counters currently installed are located on the pleater, about 25 feet from where the splice is made. As a result, the operator must guess when to splice in a new roll. Adding a second counter to the splicer itself will divert an estimated $82,800 worth of media from the landfill to production annually.

Selling OCC Scrap
Currently, Donaldson recycles OCC (Old Corrugated Cardboard) containers with a local recycling company, spending $9,130 annually on transportation costs. City Carton Recycling, the company supplying Donaldson with the horizontal baler system, has offered to pay one-half of Official Board Market (OBM) value for handling the OCC, which would create revenue of $9,980. Switching recycling companies will result in a net annual savings of $19,110.

Plastic Recycling
Various types of plastics are used in manufacturing processes as well as in finished products. Due to process contamination on the plastic parts, normal recyclers and environmental burning plants cannot use the plastics. Donaldson's plant in Frankfort, Ind., located a recycler that will accept Cresco's plastic parts as well as Frankfort's. The scrap plastic is now shipped to the Frankfort plant weekly by Donaldson trucks already making the run, resulting in no additional shipping costs and an annual savings of $2,700.

Element Dismantling
Finished filter elements that do not meet company specifications comprise 20 percent of the annual landfill tonnage. Research is underway to design a machine to cut the end-caps from the elements, so that the middle section can be reused or sent to BFC. This would reduce annual tonnage by roughly 18 percent. Approximately one to two percent of the elements are scrapped per day; an automated machine should be able to dismantle this number of elements in a short period of time. Initial capital costs will be about $15,000, and comparing labor costs to landfill savings results in a net annual savings of approximately $10,500.

Project Summary Table

P2/Waste Reduction Opportunity	Waste Reduced	Raw Materials Saved	% of Landfill Waste Reduced	Cost Savings	Status
Landfill diversion to BFC	525 ton/year	—	70%	$30,200/year	Implementation in progress
Selling OCC scrap	—	—	—	$19,100/year	Implementation in progress
Additional spray counter on splicers	25 ton/year	25 ton/year	—	$82,800/year	Implementation in progress
Scrap element dismantling	141 ton/year	—	18%	$10,500/year	Recommended
Polypropylene mold recycling	23 ton/year	—	3%	$2,700/year	Implemented
TOTALS	714 ton/year	25 ton/year	91%	$145,300/year	

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