

Use a Less Expensive Method of Waste Disposal (Arc 3.6192)

(The analysis below was extracted from one of the assessment reports by the Clemson University Industrial Assessment Center (IAC). This is only an example recommendation and hence, not all the background information and sources for numbers are included here.)

<i>Est. Total Cost Savings</i>	<i>= \$143,304/yr</i>
<i>Est. Implementation Cost</i>	<i>= \$600</i>
<i>Simple Payback Period</i>	<i>= 0.05 months</i>

Recommended Action:

It is recommended to move to bulk hazardous waste disposal. The amount of hazardous waste produced annually requires a move from 55-gal drum waste containment to bulk disposal to cut costs and increase efficiency.

Background:

During the assessment, the need to improve hazardous waste disposal was identified. A discussion occurred regarding waste containment needing to move from smaller drums to bulk disposal to cut costs and improve efficiency. It was seen during the visit that various drums were sealed off for final transport without being fully filled. From talking with various employees, our understanding is several waste containers are sealed at time of disposal regardless of how full they are. This is yielding a significant cost unnecessary to the company. For example, if a 55-gal drum is only filled to 40% volume capacity and the drum is worth \$120, there is a loss of \$72 from one underused drum. Assuming each drum is filled at 40% capacity, and assuming the plant used 4,075 drums in 2018 gives a yearly waste figure of 89,650 gallons. It is suggested other measures be taken to completely fill drums before sealing and transporting them off site.

More importantly, it is suggested that waste disposal move away from smaller containers and toward 330 gal IBC (Intermediate Bulk Containers) made of HDPE (high density polyethylene). This allows the boxes to be chemically resistant and washable for reuse. The ULINE website lists the 330-gal IBC Poly box as \$509 in bulk orders. The box has the volume of six 55-gal drums and is \$211 cheaper than buying six drums (\$720 using the estimate of \$120 per drum from company employees). Calculating this difference in respect to the roughly 4,075 drums purchased (from company records), a savings of approximately \$143,304 dollars could be seen annually. In addition, the implementation cost of this recommendation is very low. An estimate of this cost includes only the administrative costs associated with switching from 55-gallon drums to HDPE containers. The calculation for this cost may be viewed below.

Implementation Cost:

Implementation Cost (IC) is calculated using the estimated number of hours required to change, logistically, from purchasing steel drums to HDPE containers. The calculation is shown below:

$$\text{Implementation Cost (IC)} = \text{Hours Required (HR)} \times \text{Hourly Rate of Employee (RE)}$$

$$IC = 20 \text{ hr.} \times 30 \text{ \$/hr.}$$

$$IC = \$600$$

Simple Payback Period:

The *simple payback period*, *SPP*, is the time required to pass before the estimated total cost savings equal the estimated implementation cost, and is calculated by:

$$SPP = \frac{IC}{TCS} \times 12 \text{ months/year}$$

$$SPP = \frac{\$600}{\$143,304} \times 12 \text{ months/year}$$

$$SPP = 0.05 \text{ months or } 1.5 \text{ days}$$