

Greenville, SC **DODGE**® Gear Plant

Mike Trench, Maintenance Manager

Roy Patterson, Maintenance Engineer



Mission Statement

Business Unit Motors and Generators – United States



**Our mission is to be the best
(as determined by our customers)
marketers, designers, manufacturers and service providers
of industrial electric motors, generators and
mechanical power transmission products**

$$V_p = \frac{Q_p \times S_p}{C \times T}$$

V = Value Q = Quality S = Service
C = Cost T = Time P = Perceived

Taking care of our customers safely

People make the difference

The best want to work in a first-class environment

ABB is one of the world's most global companies

ABB attracts top performers due to its inclusive culture

ABB strives for excellence in integrity and social responsibility

ABB aims for a culture of leadership at every level



Sustainability is embedded in our business

Economic success, environmental stewardship, social progress



Safety

“Don’t look the other way”
8% improvement to employee TRIFR¹ in 2017



56%

of revenues related to energy efficiency, renewable energy and eco-efficiency



680

community projects and charities supported in 2017



11%

reduction in emissions of Volatile Organic Compounds (VOC) in 2017



4.6%

reduction in GHG emissions (Scope 1 & 2) in 2017



240+

in-depth supplier sustainability assessments in 2017

Creating sustainable value for all stakeholders

Brief history of **DODGE** early years

June 1878

- Wallace Dodge (29 yrs old) open factory on banks of St. Joseph river in Mishawaka Indiana. USA
- Manufacture of wood specialties
 - Saw bucks, chopping bowls, curtain poles and the famous “Magic Wagon Jack” – over 500,000 sold

June 1881

- Lightning strike burned factory to the ground
- Tradition has it that when he went to rebuild and buy iron pulleys for his new factory he was unable to obtain prompt delivery and he and his woodworkers developed the “Independence” wood split pulley and receive a patent on July 4th 1882

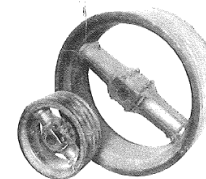
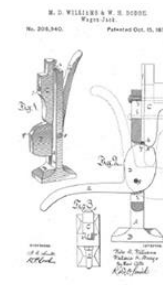
1884 W.B. Hosford – engineer, joined the company

1887 Mr. Hosford granted a patent on a split friction clutch

1890's Dodge has a complete line of power transmitting equipment

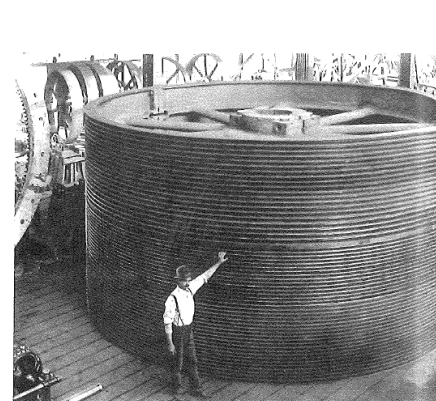
- Babbitted bearings, split friction clutch, shaft couplings, collars, wood pulleys, rope drives (patented “American system” vs. English system) & cast iron gears

Wallace H. Dodge, founder and first president 1878–1894.



Wallace Dodge's first wood split pulleys removed from their shafts after 27 years of service for exhibition purposes.

An early rope sheave, 20 grooves for one size rope, 36 grooves for another size.





Where did the name come from

ASEA Brown Boveri

The beginning

ASEA (Allmänna Svenska Elektriska Aktiebolaget) is formed by the merger of Elektriska Aktiebolaget with Wenströms & Granströms Elektriska in Sweden.

Growth of the electric industry and birth of many companies and technologies still in use today.



The ABB logo is revealed at the first combined management meeting in Cannes, France. The design divides each letter into quarters that represent the company's four main business areas: power plants, power transmission, power distribution and industrial equipment.

ABB buys Baldor Electric

1890



Charles E. L. Brown and Walter Boveri establish Brown, Boveri & Cie (BBC) in Baden, Switzerland. Shortly afterward, Brown Boveri is the first company to transmit high-voltage power.

1891

1988

ASEA and BBC merge to form the new company, with headquarters in Zurich, Switzerland. The new group, which started operations on Jan. 5, 1988, had revenues of \$17 billion and employed 160,000 people around the world.

2011

Greenville, SC Facility

Quick facts



Greenville Products

Torque-Arm®

- TXT
 - 14 sizes
 - 1-4 ratios/size



- TAIL
 - 12 sizes
 - 5 ratios/size



- Motorized Torque-Arm - MTA
 - 7 sizes
 - 12-14 ratios/size



- Accessories
 - Bushing kits
 - Screw conveyor adaptors
 - Anti-rotation backstops
 - Belt guards
 - Drive shafts



Maxum-XTR

- 9 sizes 50-130
- 24 ratios/size



- Belton Plant

- Helical gears and pinions



- Belton Plant

- Heat treat large worms shafts
- Hubs
- Housing – Size 17
- Raito multiplier housings



MagnaGear

- 9 sizes
- 40+ ratios/size
- Parallel and Right angle



Controlled Start Transmission (CST)

- Gearing
- Ring gears
- Splined shafts



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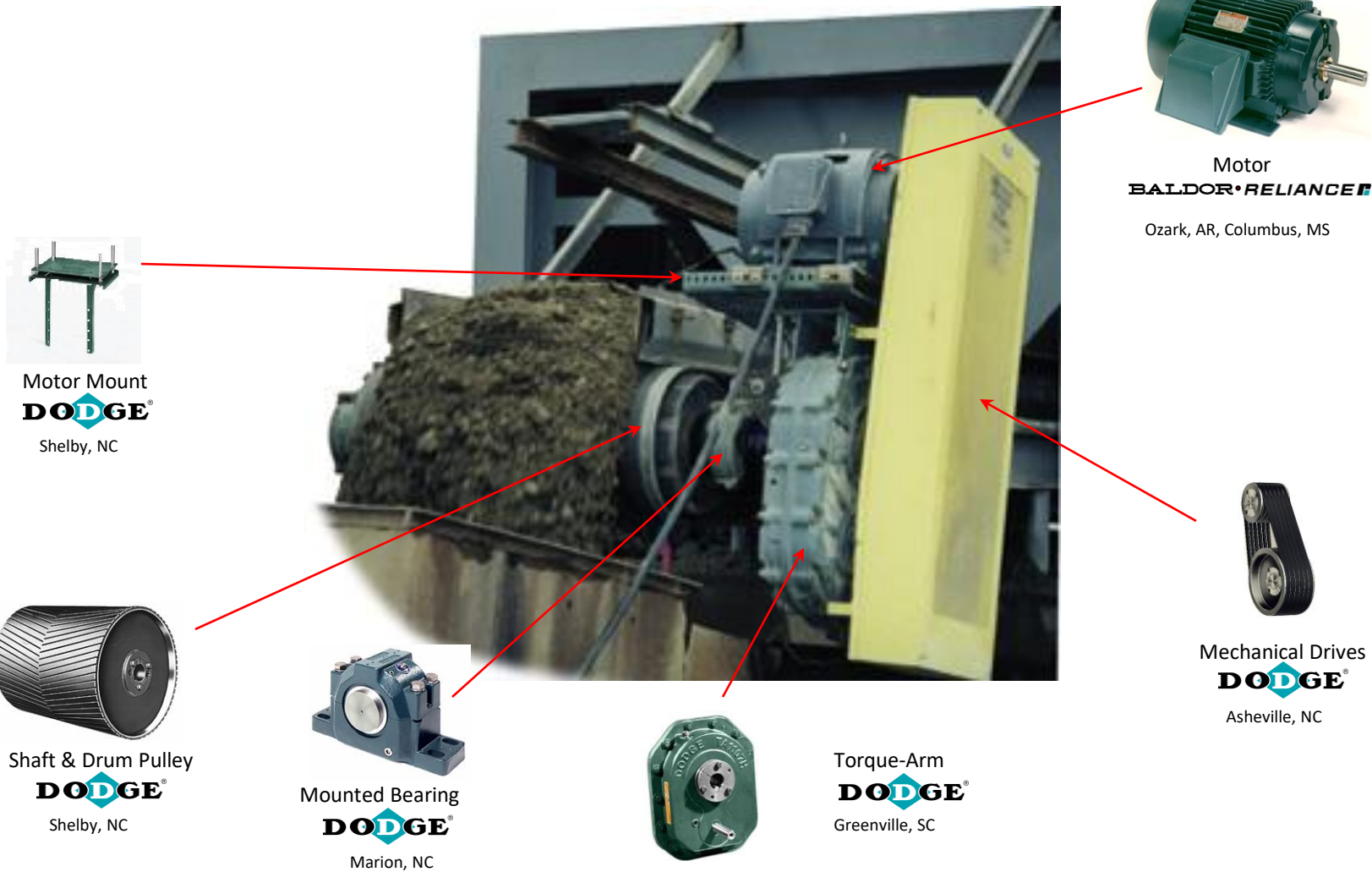


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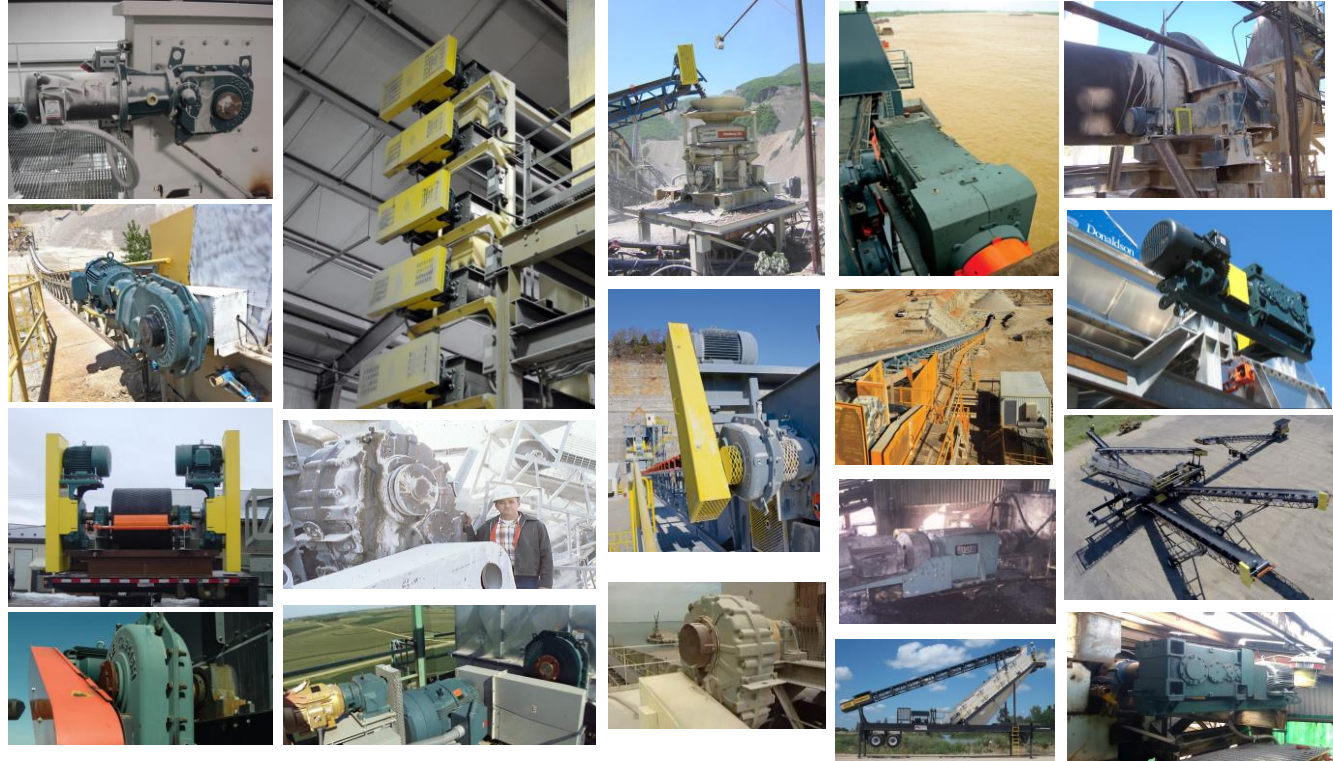
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Typical Belt Conveyor Drive



Applications



Sustainability 2018

Continued Zero Landfill Status

- Increased Recycling Efforts
- Partnering with VLS Recovery Systems
- Began R22 Elimination

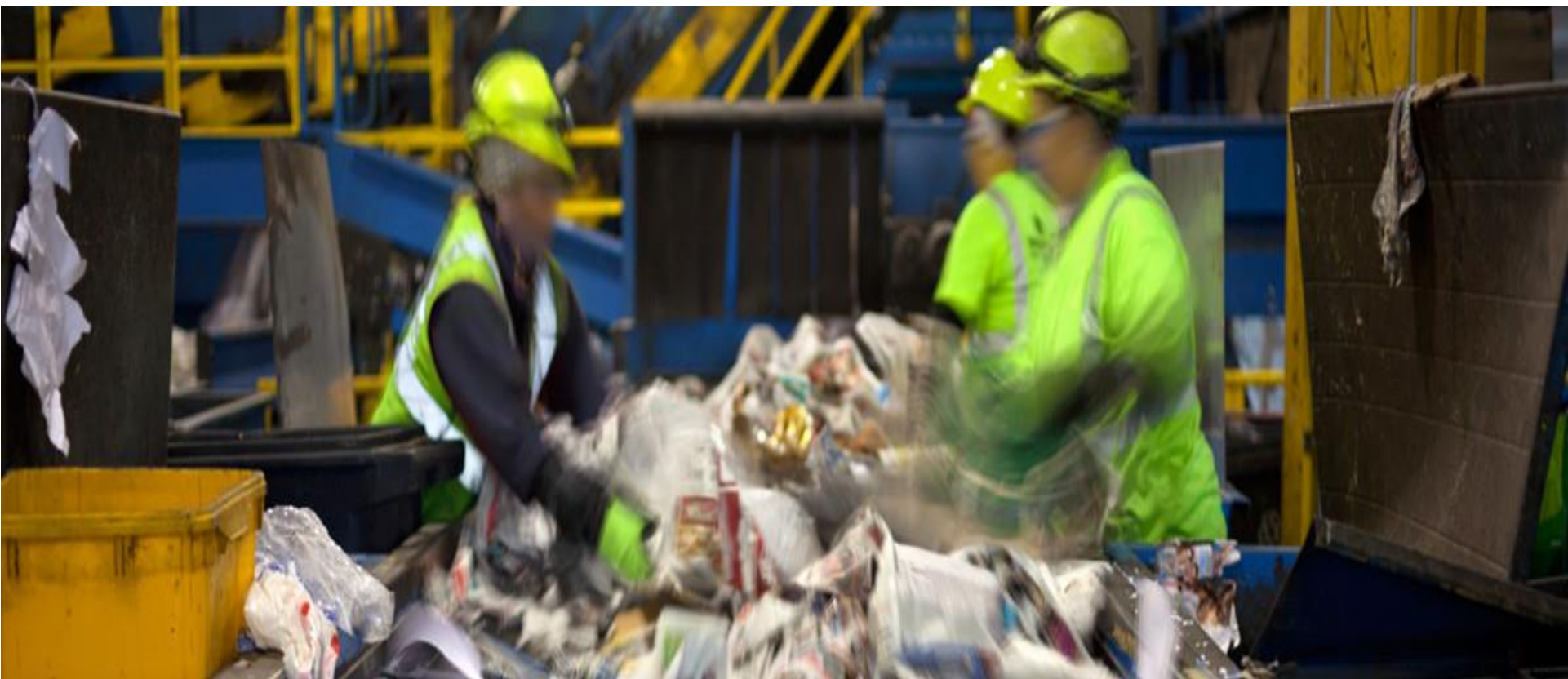
Materials Recycled

- 4,462,000 lbs of Scrap Metal
- 911,000 lbs of Wood
- 96,000 lbs of Cardboard
- 15,000 lbs of Paper
- 5,800 lbs of Electronic Scrap
- 142,000 lbs of Landfill Waste To Energy
- 27,140 lbs of Concrete Dust

Recycling Vendors

1. CMC Metals, Scrap Metal
2. Pallet Solutions, Used Wood
3. Republic Services, Cardboard
4. Iron Mountain, Paper
5. Veolia, Electronic Scrap, Lamps, Batteries
6. Rineco, Haz and Non Haz Waste
7. Waupaca Foundry, Returnable Packaging
8. Motion Industries, Grinding Wheels
9. VLS Recovery, Trash, Used Oil







Challenges

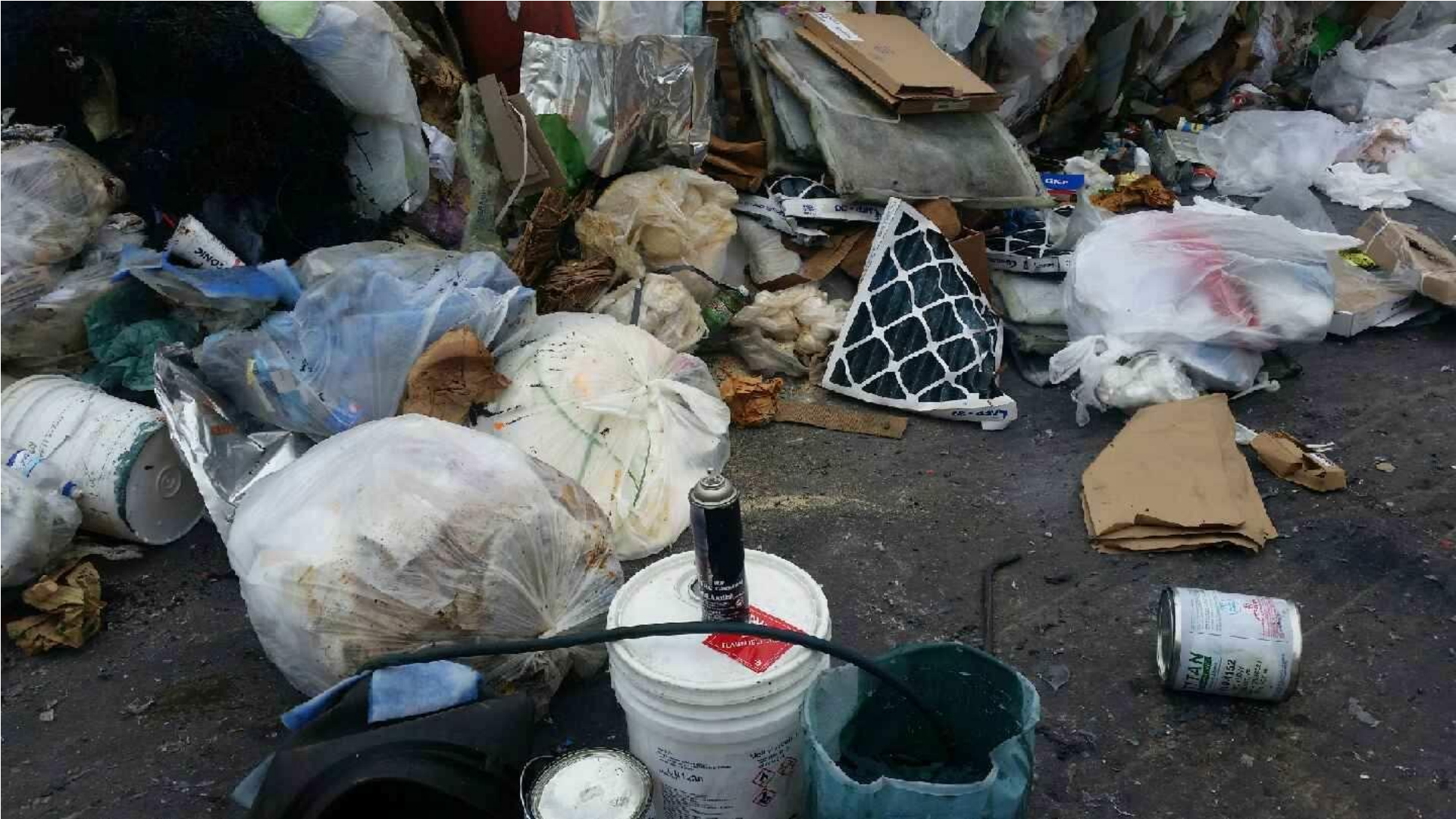
In The Trash

- Metal
- Liquids
- Electronic Scrap
- Grinding Wheels
- Concrete Dust

Employee Training









Training

1. Initial plant wide training
2. New employee orientation
3. Annual office environmental
4. Contractor training
5. Housekeeping
6. Annual employee training

DHEC's Recycling and Green Hospitality Awards

Each year the Smart Business Recycling Program recognizes Outstanding Waste Reduction & Recycling efforts throughout South Carolina. The state has a 40 percent recycling rate goal to reach by 2020, which can only be accomplished if businesses such as the award recipients reduce waste, recycle and report their progress. Read about the accomplishments of the 2018 award winners below.

ABB, Greenville

ABB, a motor and generator manufacturer, developed an impressive recycling program over the past year. Recycling included more than 2,727 tons of scrap metal, wood, used oil, batteries, electronics, lamps, paper, cardboard and plastic. Other non-recyclable waste was turned into energy through their recent Zero Landfill Initiative. The facility worked with their largest supplier to establish a returnable packaging agreement. In 2017, ABB earned more than \$265,000 from the sale of its recyclables. When meals were catered to the facility, excess food was donated to the local fire department. To encourage recycling and zero waste, every employee was trained and these initiatives were incorporated into new employee orientation. ABB also participated in the Upstate Lean Alliance, sharing ideas with and mentoring other businesses.





ABB