



2015 Kansas Environmental Conference

Proactive Approach to Sustainability Issues

Ron Sturgeon

Quality System Manager
Environmental Coordinator

- ▶ Been with Osborne for 20 years
 - ▶ Quality Department - 13
 - ▶ RIM Production Manager - 7
 - ▶ Environmental Coordinator – 8
- ▶ Responsibilities include
 - ▶ Manage and maintain Osborne's ISO 9001:2000 Quality Management System
 - ▶ Hazardous Waste management and disposal
 - ▶ State and Federal Reporting

Our Company

Located in Osborne, Kansas

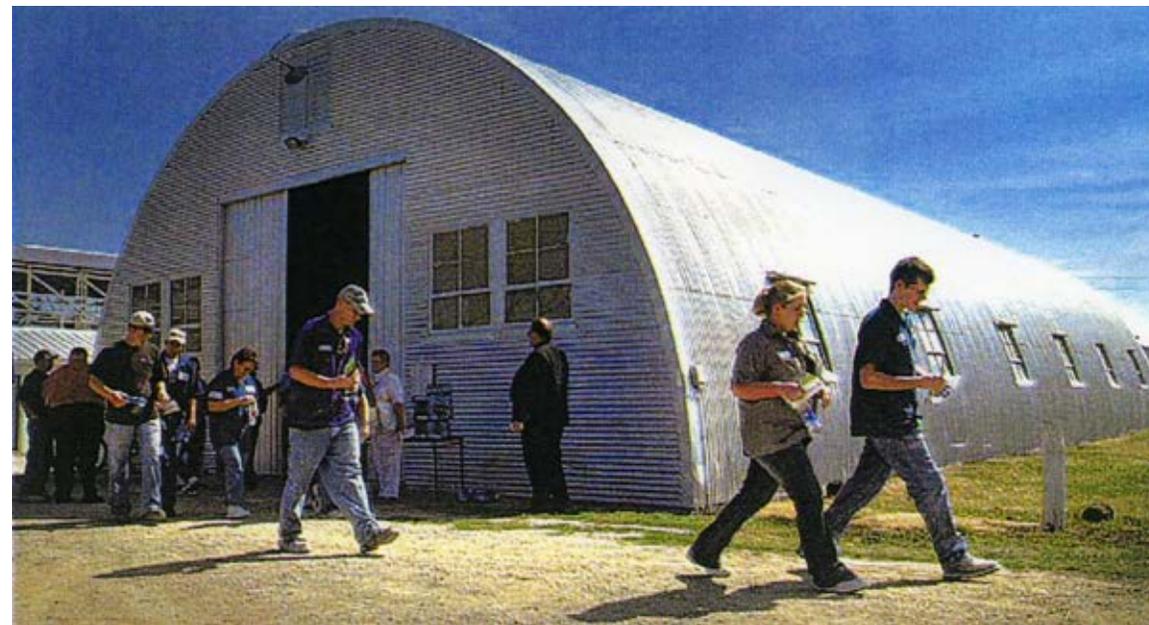
Employee between 90 – 100 people





Our headquarters includes 242,000 sq. feet of manufacturing, warehouse and office space sitting on 10.5 acres in the Osborne Industrial park.

We are 100 % Employee-Owned.



Livestock Management Equipment

The Osborne-branded line of livestock equipment is marketed and distributed all over the world. Equipment includes:

- Big Wheel® Feeders
- Stanfield® Heat Pads
- ACCU-ARM® Scales

Osborne is a leader in radio frequency identification (RFID) of individual animals with products such as:

- FIRE®
- TEAM®
- Weight Watcher™



Custom Molded Thermoset Plastics

Osborne molds a wide array of custom molded thermoset plastics for more than 30 leading OEMs (original equipment manufacturers) in the U.S.A.

Processes include:

- Engineered RTM FRP composites
- RIM Elastomers
- Structural Foams



Resin Transfer Molding (RTM)

- ▶ Styrene based resins
- ▶ Resins kept in closed environment as much as possible
- ▶ Low emissions spray equipment
- ▶ Closed mold system
- ▶ On-site bulk storage tanks

Reaction Injection Molding (RIM)

- ▶ Urethane & pDCPD materials
- ▶ Material arrives in 55 gallon drums
- ▶ Closed mold system
- ▶ Limited liquid exposure
- ▶ Air sensitive materials
- ▶ Drum drainage volume

Rules affecting Osborne Industries

- ▶ MACT WWWW
- ▶ KDHE Class 1 Emissions
- ▶ EPA TRI
- ▶ TIER II
- ▶ Right-to-Know
- ▶ DOT
- ▶ Hazardous Waste

Training

- ▶ RCRA Hazardous Waste
- ▶ DOT
- ▶ Employee
- ▶ Webinars as available
- ▶ Kansas State PPI (Pollution Prevention Institute)
- ▶ Self

Items affecting Osborne

- ▶ Styrene emission from Gel Coating operations
- ▶ Drum drainage from RIM operations
- ▶ Material usage
- ▶ Solvent contaminated wipes
- ▶ Data acquisition, reporting and records
- ▶ Resources needed to meet requirements

Key items

1. Styrene Emissions (MACT)
2. Material recovery
3. Data acquisition and monitoring

1. Styrene Emissions (RTM)

Annual Usage (lbs)

2007 – 33720

2008 – 33036

2009 – 19643

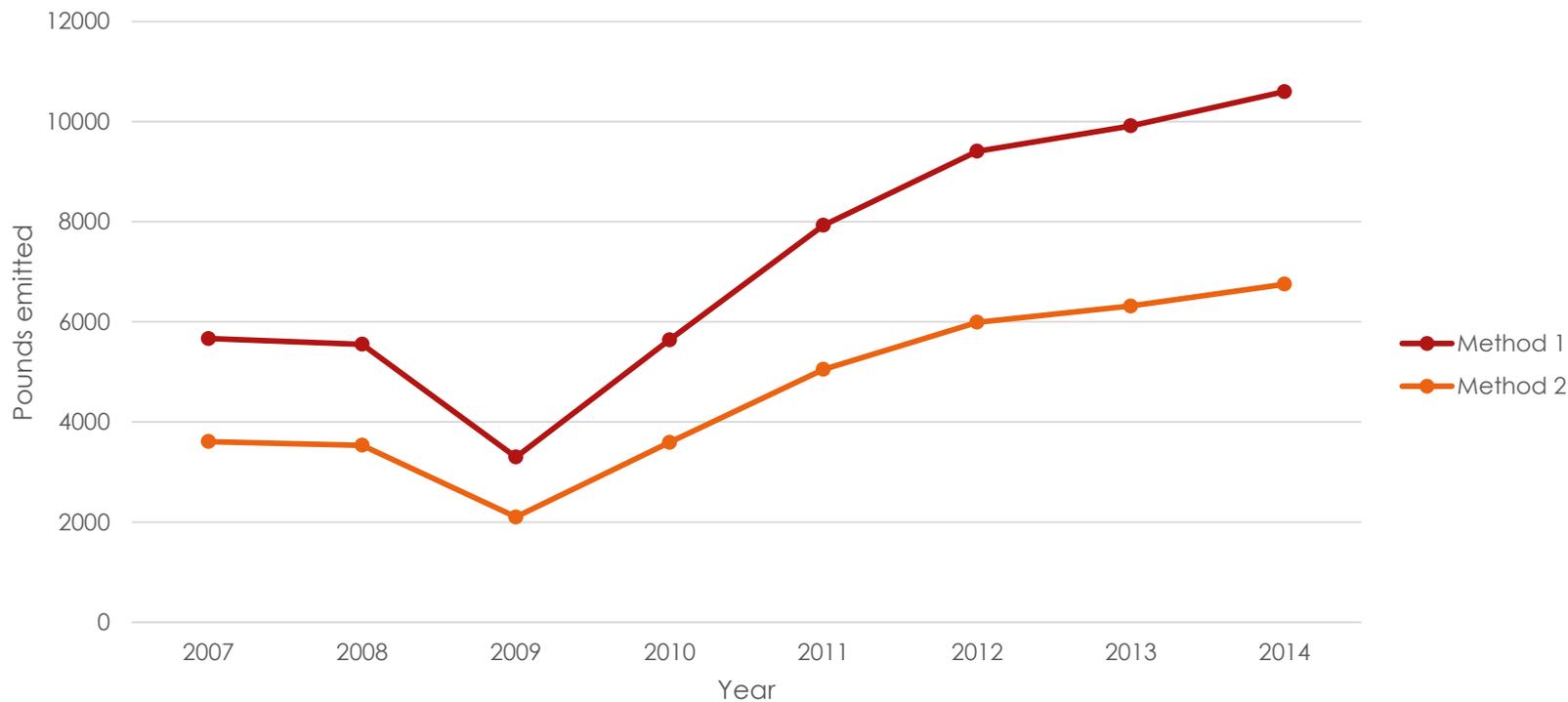
2010 – 33577

2011 – 47192

2012 – 55999

2013 – 59020

2014 – 63091



What we changed

Spray Equipment

Atomized Spray vs Non-Atomized Spray

Since implementation Osborne has:

- ▶ Not been out of compliance.
- ▶ Significantly increased production output of aerial platforms to meet customer needs.
 - ▶ 2010 – Received Outstanding Supplier Award
 - ▶ 2015 – Received Consistency Award
- ▶ Installed new spray equipment in other application areas.
- ▶ Implemented the use of low hap Gel Coats when possible.
- ▶ Implemented several process improvements to increase efficiency.

2. Material recovery (RIM)

- ▶ Material arrives in 55 gallon drums.
- ▶ Pumped into process supply tanks.
- ▶ Exposure to oxygen renders material unusable.
- ▶ Excess pumping can create small bubbles.
- ▶ 2-3 inches of material remains in bottom of drum.
- ▶ Must be disposed of as Hazardous Waste.

The numbers

Previous drainage practices:

Material waste: 5%

- ▶ Total waste material: 14,455 lbs.
- ▶ Waste material costs: \$28,187.74
- ▶ Waste disposal costs: \$4,625.68
- ▶ Total Waste Costs: \$32,813.42
- ▶ Cost of lost production: \$27,290.31

\$60,103.72

Current drainage practices:

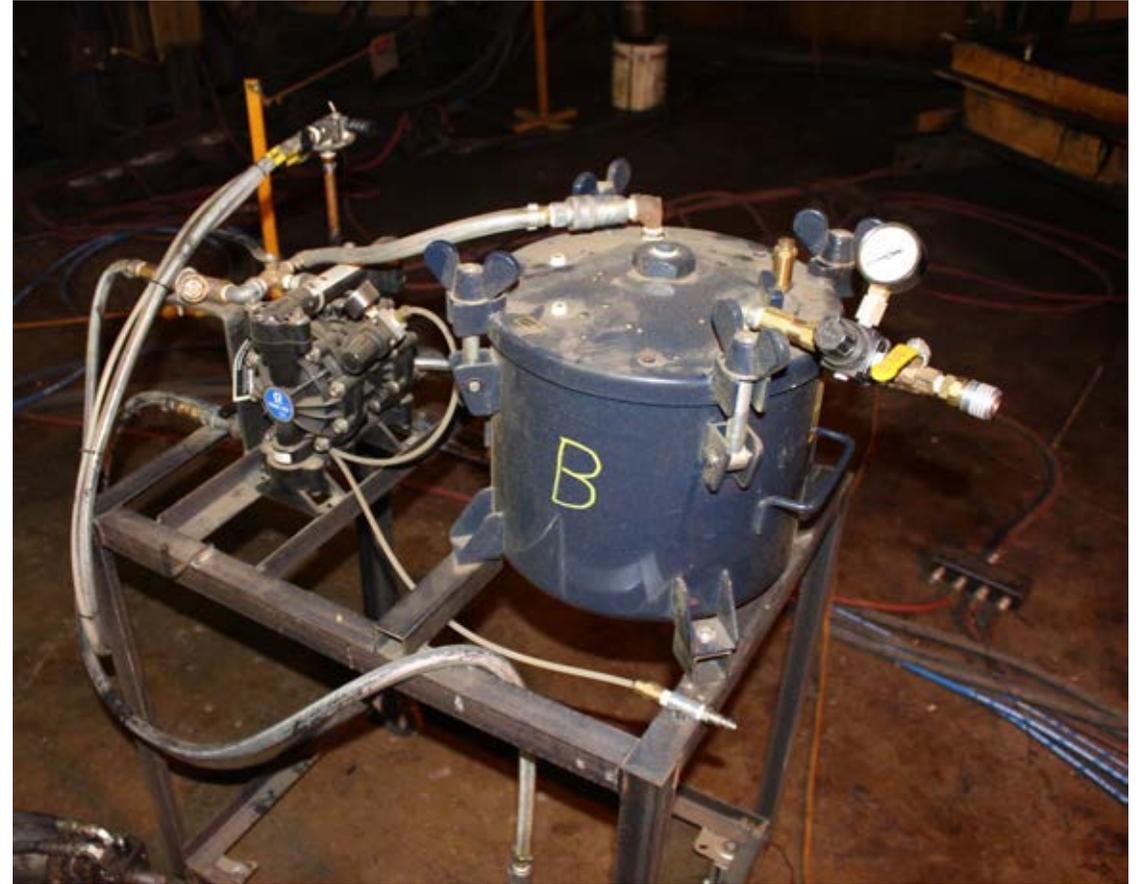
Material waste: 0.5%

- ▶ Total waste material: 1,446 lbs
- ▶ Waste material cost: \$2,818.77
- ▶ Waste disposal cost: \$462.57
- ▶ Total Waste Cost: \$3,281.34
- ▶ Cost of lost production: \$2,729.03

\$6,010.37

How we did it

Osborne designed and built two pumping units that allow left over material to quickly be removed from drums and remain protected from exposure to oxygen. Material is then transferred directly into process supply tanks.



3. Data acquisition and monitoring

- ▶ In the beginning
 - ▶ Data printed and manually gathered numbers for all materials.
- ▶ Developed report to pull data from our Central Business Program
 - ▶ Monthly material use
 - ▶ Right-to-Know
- ▶ Developed various Excel[®] spreadsheets to process data

Material use records

STYRENE FROM GEL COAT APPLICATION PROCESSES (CAS# 100-42-5)															Total
Item	Description		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	(lbs)
RRP-0100	RESIN POLYESTER STD RTM	LB	54327	54820	62113	59166	54510	76025	71373	0	0	0	0	0	432334
RRP-0250	RESIN POLYESTER F/RETARD 670RT	LB	0	0	0	0	0	0	0	0	0	0	0	0	0
RRP-0400	RESIN POLYESTER TOOLING	LB	0	0	35	0	0	0	4	0	0	0	0	0	39
RRP-2000	GELCOAT CLEAR	LB	0	0	0	0	0	0	0	0	0	0	0	0	0
RRP-2010	GELCOAT TRANSLUCENT	LB	0	0	0	0	0	0	0	0	0	0	0	0	0
RRP-2020	GELCOAT VINYL ESTER TOOLING	LB	0	0	9	0	0	0	0	0	0	0	0	0	9
RRP-2100	GELCOAT WHITE	LB	4649	5060	6373	6420	5649	6846	7154	0	0	0	0	0	42151
RRP-2105	GELCOAT WHITE FIRE RETARD	LB	0	0	0	6	0	0	0	0	0	0	0	0	6
RRP-2110	GELCOAT WHITE (COOKS)	LB	0	0	0	0	0	0	0	0	0	0	0	0	0
RRP-2145	GELCOAT GRAY (COOKS PEWTER)	LB	0	0	0	0	0	0	0	0	0	0	0	0	0
RRP-2150	GELCOAT GRAY SANDABLE PRIMER	LB	6	0	0	0	0	0	102	0	0	0	0	0	108
RRP-2155	GELCOAT GRAY HIGH UV PROTECTION	LB	0	0	0	0	0	0	0	0	0	0	0	0	0
RRP-2160	GELCOAT ISCO GRAY	LB	149	356	352	202	592	349	262	0	0	0	0	0	2262
RRP-2200	GELCOAT ISCO TAN	LB	0	0	0	0	0	0	0	0	0	0	0	0	0
RRP-2210	GELCOAT BEIGE (COOKS PARCHMENT)	LB	0	0	0	0	0	0	0	0	0	0	0	0	0
RRP-2300	GELCOAT, "DESERT SAND" TAN LOW VOC	LB	0	0	0	0	0	0	0	0	0	0	0	0	0
RRP-2400	GELCOAT RED	LB	0	0	0	0	0	0	0	0	0	0	0	0	0
RRP-3000	GELCOAT, INTERNATIONAL ORANGE LOW VOC	LB	0	0	0	0	0	0	0	0	0	0	0	0	0
RRP-5000	GELCOAT TEAL GREEN	LB	0	0	0	0	0	0	0	0	0	0	0	0	0
RRP-5900	GELCOAT BLUE/GREEN	LB	0	0	13	97	0	0	0	0	0	0	0	0	110
RRP-8000	GELCOAT BLACK	LB	339	40	105	326	98	160	241	0	0	0	0	0	1309
RRP-8500	GELCOAT, BLACK LOW VOC CONDUCTIVE PRIMER	LB	0	0	0	0	0	0	0	0	0	0	0	0	0
														Total:	

Monthly Emissions

	RRP-2100	EF	214	RRP-2105	EF	276	RRP-2110	EF	398		Total
	Usage	Usage	Emissions	Usage	Usage	Emissions	Usage	Usage	Emissions	Total	Emissions
Month	lbs	tons	lbs	lbs	tons	lbs	lbs	tons	lbs	lbs	lbs
Jan-15	4649	2.32	498	0	0.00	0	0	0.00	0	4649	498
Feb-15	5060	2.53	542	0	0.00	0	0	0.00	0	5060	542
Mar-15	6373	3.19	683	0	0.00	0	0	0.00	0	6373	683
Apr-15	6420	3.21	688	6	0.00	1	0	0.00	0	6426	689
May-15	5649	2.82	606	0	0.00	0	0	0.00	0	5649	606
Jun-15	6846	3.42	734	0	0.00	0	0	0.00	0	6846	734
Jul-15	7154	3.58	767	0	0.00	0	0	0.00	0	7154	767
Aug-15	0	0.00	0	0	0.00	0	0	0.00	0	0	0
Sep-15	0	0.00	0	0	0.00	0	0	0.00	0	0	0
Oct-15	0	0.00	0	0	0.00	0	0	0.00	0	0	0
Nov-15	0	0.00	0	0	0.00	0	0	0.00	0	0	0
Dec-15	0	0.00	0	0	0.00	0	0	0.00	0	0	0

Final Report

Facility Name: Osborne Industries, Inc.

Facility ID: 141023

Subpart WWWW Reinforced Plastics Composites Production

INPUT DATA

	Quantity Operation Material Used During Month (lbs)					Operation Emissions During Month (lbs)				
	White Gel Coat	Colored Gel Coat	Blank	Blank	Blank	White Gel Coat	Colored Gel Coat	Blank	Blank	Blank
Jan-15	4649	494				498	91			
Feb-15	5060	396				542	47			
Mar-15	6373	470				683	63			
Apr-15	6426	625				689	109			
May-15	5649	690				606	85			
Jun-15	6846	509				734	72			
Jul-15	7154	605				767	95			



2015 ENVIRONMENTAL CONFERENCE

"PROCESSING IS OUR CRAFT. PERFORMANCE IS OUR
COMMITMENT. PROVIDING SOLUTIONS IS OUR CORE."

CHEMICAL PROCESSING, NON-DESTRUCTIVE TESTING, SHOT PEEN, MASK AND PAINTING OF AIRCRAFT PARTS AND COMPONENTS



APPLICABLE RULES AND GUIDELINES

Air Emissions Source Class I Operating Permit

- Subpart GG -Aerospace manufacturing and rework NESHAP
- Subpart N -Chromium electroplating and Chromium Anodize NESHAP
- Subpart T -Halogenated Solvent Cleaning NESHAP
- Subpart DDDDD -Major Source Boiler and Process Heater NESHAP

State Operating Permit Programs

- Air Emission Inventory

Hazardous Chemical Reporting: Community Right-to-Know

- Tier II Report

Toxic Release Reporting: Community Right-to-Know

- Toxic Release Inventory

National Pollutants Discharge Elimination System

- Effluent Guidelines and Standards, Electroplating Point Source Category,
Anodizing Subcategory (Wastewater Discharge to POTW Permit)
- Storm Water Pollution Prevention Plan

Resource Conservation and Recovery Act

- Large Quantity Generator

APPLICABLE RULES AND GUIDELINES

Various Military and OEM Specifications

National Aerospace and Defense Contractors Accreditation Program

Occupational Safety and Health Administration

-Hazard Communication

-Chromium VI

-Dipping and Coating Operations

-Respiratory Protection

-Spray Finishing using Flammable and Combustible Materials

-Powered Vehicles, Vehicle Mounted Work Platforms

-Hearing Conservation



CHALLENGES

How to stay up to date on applicable rules:

-peers

-regulators

-conferences/seminars

-K-State PPI (Pollution Prevention Institute)

-consultants



ENVIRONMENTAL POLICY

3P is committed to preserve and promote a clean, safe and healthy environment where we do business. Employees who work with environmentally sensitive materials must comply with all environmental regulations and laws with respect to handling of those materials. Any employee who believes that there is or has been a violation must report it immediately to a member of management.



MANAGEMENT SUPPORT

Safety Committee

- members represent all departments in plant
- management attends all meetings, including the president of the company
- environmental issues are addressed by the safety committee

GOING BEYOND COMPLIANCE

Recycle solvents from paint operation.

recycled 1600 gallons in 2014

savings in new material and disposal costs - \$5k

Reuse of chemical bath solutions in the treatment of process rinse water.

Inventory management of paints

Reduced scrap paint by 5%

Painter training

trained painters equal greater transfer efficiency – more paint on the parts and less overspray



LONG-TERM SUSTAINABILITY PROJECT

Problem/Opportunity

3P Processing needs to increase pure water capacity by 50% to comply with new customer specifications and to increase production.

Currently use 3.5 million gallons of water per month at a cost of \$20k/month.

Option 1:

- buy new equipment to produce 1.75 million gallons more water per month
- cost \$300k

Option 2:

- purchase equipment to recycle 50% of current water usage
- cost \$450k
- save \$10k per month on water purchase



CNHi Wichita Plant Overview



Troy Williams
Wichita EHSE Manager

Wichita, KS

KDHE Environmental Conference August 20, 2015

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Wichita Plant/Product Overview

Plant Facts



Products:

- 32 Models
- 54 Tech Types
- 99 Options
- 5346 Possible Configurations

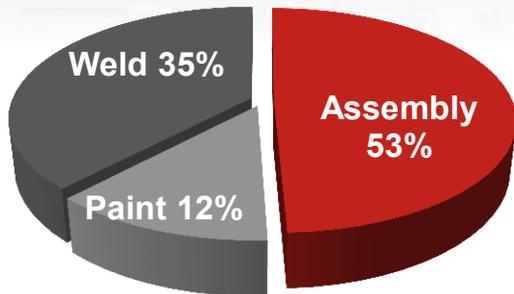
Employees:

- 513 Site Employee
- 374 Mfg. Blue Color
- 55 Mfg. Salary
- 84 Other Salary

Credentials:

- ✓ ISO 9001: 2008 Registered
- ✓ ISO 14001: 2008 Registered
- ✓ OHSAS 18001: 2007 Registered
- ✓ Certified C-TPAT
- ✓ Certified to EC 2001/14/EC
- ✓ Certified to Brazil Sound Regulation
- ✓ ISO 50001: 2013 Registered

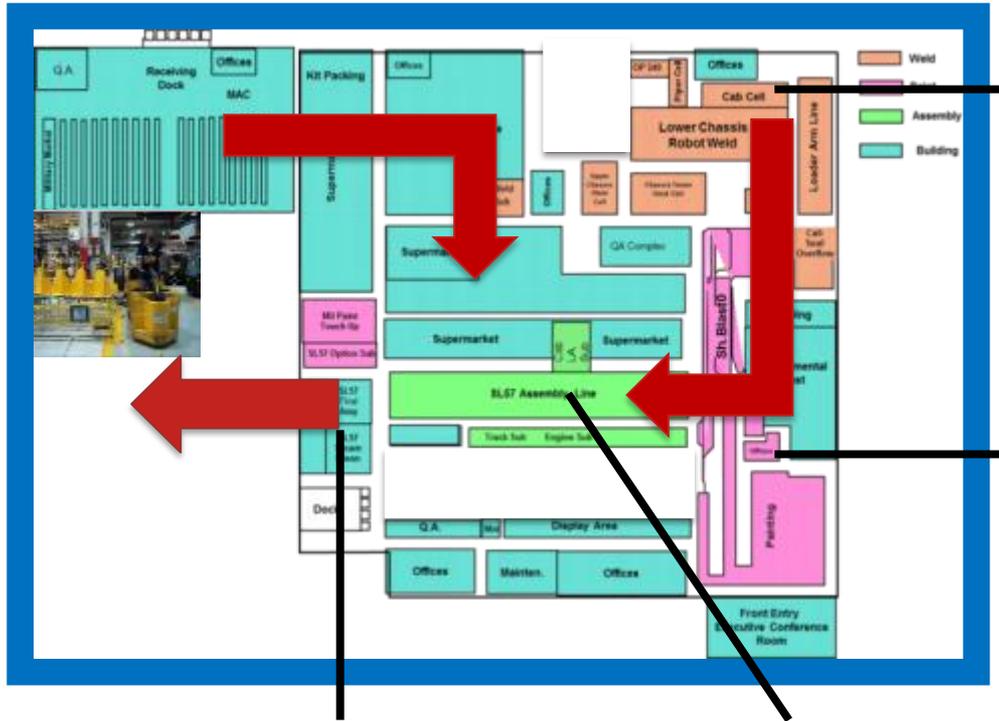
Labor Hours per Unit



Dep't	Hours/Unit
Weld	12.7
Paint	4.4
Assembly	19.1
TOTAL	36.2

Wichita Plant Overview – Site Facts

Skid Steer and Compact Track Loaders



Weld

- 2 Shifts
- 36 Robots
- 4 Major Weldments
- 45 MIG Welders
- Automated M/H
- 2-4 Hour Buffer
- 30 Units/Shift



Paint

- 2 Shifts
- Blast
- 4 Stage Wash
- Thermal Set Acryl
- Three Colors
- <2 Hour Buffer



Testing

- Manual EFT
- Water Test
- Sound Test
- 30 Units/Shift



Assembly

- 2 Shifts
- 1 Line
- In ground tow
- Supermarkets
- Takt = 14.50 Min

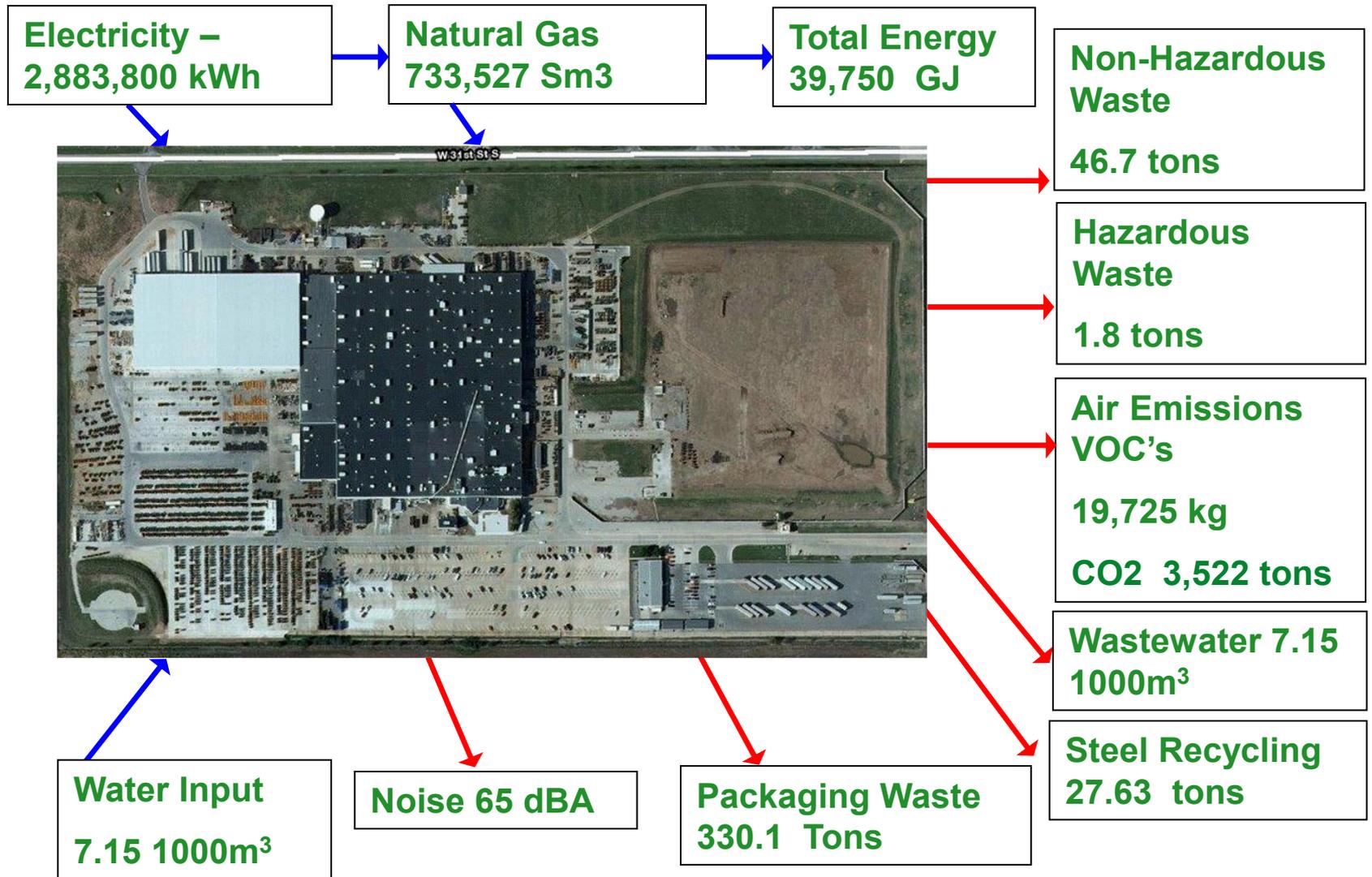
CNH Industrial Local Historical Events

Skid Steer and Compact Track Loaders

- 1959 Davis Mfg. Established in Wichita
- 1968** J.I. Case buys Local Davis Mfg. Business – Operates as Davis
- 1974 Davis Business moves to new building on S. Hoover Road
- 1980 J.I. Case Brand Wichita production begins – trenchers/bores
- 1988** Case Skid Steer Loader Production Begins (from Iowa)
- 1995  ISO 9001 Quality System Certification
- 1999 CNH formed with consolidation of Case and New Holland
- 2001-02** New Holland Skid Steer Loader production begins (from Penn)
- 2002 Wichita Plant becomes sole source for SSL for CNH
- 2005-06 New Holland & Case Compact Track Loaders (CTL) introduced
- 2009 Case Construction Equipment celebrates 40 years of manufacturing SSL
- 2011  ISO 14001 Environmental Certification
- 2011  OHSAS 18001 Safety Certification
- 2011 New Skid Steer Loader Model (SL-57) launches; New automated weld
- 2012** Industry Week – Best Plant of the Year award (Awarded April 2013)
- 2013  ISO 50001 Energy Management Certification
- 2013** First U.S. CNH Industrial Plant to be Awarded WCM Bronze
- 2014 FIAT Industrial Merges CNH, FPT and IVECO to Establish CNH Industrial
- 2015 Wichita Campus 100% ODS free
- 2015 Tier 4B Emissions System launched SSL/CTL (SL-49)



2015 Inputs & Outputs



Wichita's EHSE Policy (combined Safety, Environment and Energy)

As a leader in the agriculture and construction equipment businesses, CNH is committed to the following:

- Collaborate to **Prevent** illnesses, injuries, and pollution, reduce energy use, and improve efficiency;
- **Comply** with legal requirements and other requirements;
- Create objectives and targets and achieve improved health and safety performance, prevent pollution/waste and reduce energy use; and

Continue to **Improve** in Environmental, Health, Safety and Energy Management.

Environmental and Energy Team



2015 Environmental Objectives and Targets



Recycling

- Increase overall facility recycling to more than 91%



Green House Gases

- Reduce overall facility energy Consumption by 5%

2015 Energy Objectives and Targets



Electricity

- Reduce baseline Electricity consumption by 1%



Natural Gas

- Reduce baseline facility Natural Gas consumption by 1%



Significant Energy User

- Reduce electricity consumption on Weld Fume Extractor #2 by 2 %

Wood Refuse

PROBLEM DEFINITION

- What :** Wire harness shipped in on wood pallets.
- When :** Parts receiving.
- Where :** Material Logistics.
- Who :** 3PL
- Which :** Pallets from the vendor.
- How :** Non returnable packaging was used.

P

SOLUTION

Logistics pillar worked with vendor to develop returnable packaging to reduce 179 pallets (6265 lbs) year.

D

Step 3 Rearrange External Logistics

Developed Returnables Vendor

Each Computed Box weight & Vol.	Total Shipment	Per Box	Total Computed Weight lbs.	Total Pallets Estimated	Notes
0.5	2794	1897	5293.5	94	08/2013 - Aug 2013
0.5	2754	1207	4261.5	87	Aug 2013 - Nov 2013
				181	

The Major Change is Delivered to the Line in the Same Tone the Vendor Ships it

Agenda:
 Vision/Needs/
 Objectives
 Prior Audit
 Prior Route Map
 KPI's & KPI's
 LUT / Prior Team
 2014 Skills
 Development Plan
 Plant Overview
 Master Process
 Prior Master Plan
 7 Steps/Process
 Step 1
 Step 2
 Step 3
 Step 4
 Step 5
 Step 6
 KPI's and KPI's
 3 Year Logistics CO
 Next Steps

April 2014 Logistics & Customer Service - Wichita Plant 41

ROOT CAUSE

Vendor did not have returnable packaging in place.



HORIZONTAL EXPANSION

Working with Logistics to identified other returnable packaging opportunities.

A

VERIFICATION

The wire harnesses are no longer coming in on the wood pallets.

C

Energy conservation

PROBLEM DEFINITION

What: Thermostat set points
When: On all shifts
Where: All conditioned areas
Who: All employees
Which: Energy waste due to over heating or cooling
How: Thermostat was set out of needed range in the area

P

SOLUTION

The area was reviewed and worked with operators to find appropriate temperature setting for area.

D



ROOT CAUSE

Manual set thermostats allowed for miss adjustment



HORIZONTAL EXPANSION

Applied a plant wide standard for temperature control for both Heat and AC.

A

VERIFICATION

Thermostat verified to hold setting and area temperature verified to remain appropriate.

C



HVAC Thermostat Set Points

EHS&E-S-2

The thermostats are to be set at **70°F** for heating and **73°F** for cooling, **+/- 3°F**. As the facilities are upgraded more automated controls will be added.

Air Quality

	WICHITA ENVIRONMENTAL, HEALTH, SAFETY AND ENERGY STANDARD	Number EHS&E-S-4
Issuing Dept.: Wichita Plant EHS&E	Title: No Engine Idle Policy	Page: 1/1

Applicability: This policy applies to the operation of vehicles with internal combustion engines on the Wichita CNH Ind. Property.

Rationale:

- Engine Idling consumes up to one gallon of fuel per hour and wastes more fuel than turning off and on a vehicle engine. Unnesesary idling for just 5 minutes at day can waste 1-2 tanks of gas per year.
- Mechanics and car companies agree that excessive idling is hard on a vehicle’s engine because it is not working at peak operating temperatures.
- Unnesesary idling adds polution such as Carbon Dioxide to the attmosphere.

Purpose: Eliminate all unnecessary vehicle idling on CNH Ind property such that idling time is minimized in all aspects of operations.

Actions:

Step 1: Turn off the engine if the vehicle is going to be parked for more than 60 seconds (except in traffic.)

Step 2: Drive the vehicle to warm it up, rather than idling the engine (usually no more than one minute of idling is needed.)

Step 3: Spread the word to your family and friends. Telling your family and friends about the benefits of reduced idling will help them save money and help protect the environment too.



Identify Significant Energy Users

SEU
Weld Fume Extractors

- Inventoried all energy consuming components of Weld Fume Extractor
- Understand usage of those components



- Standard Operation**
- Dirty air enters chambers.
 - Air is pulled through filter media.
 - Clean air exits.
- Pulse Cleaning**
- Pulsed air shoots directly into filter media.
 - Dust particles are shot directly into the hopper.



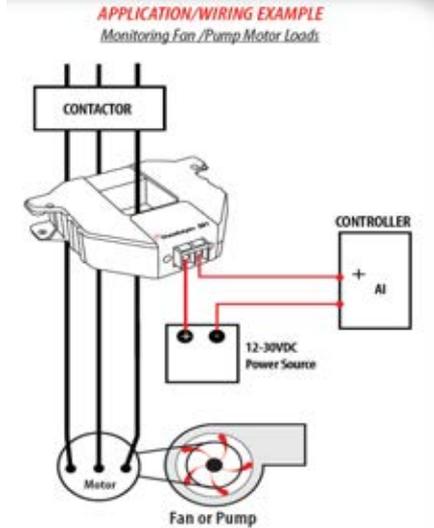
- Energy Sources 480 Volts
- Motor 350hp
- Energy Components (electric):
 - Fan (hp)

Three other smaller 200hp units

Measurement of Significant Energy User

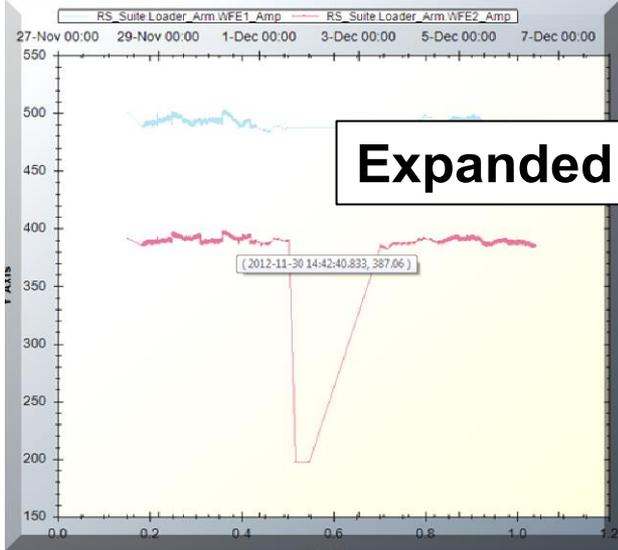


Meter on Fume Extractors

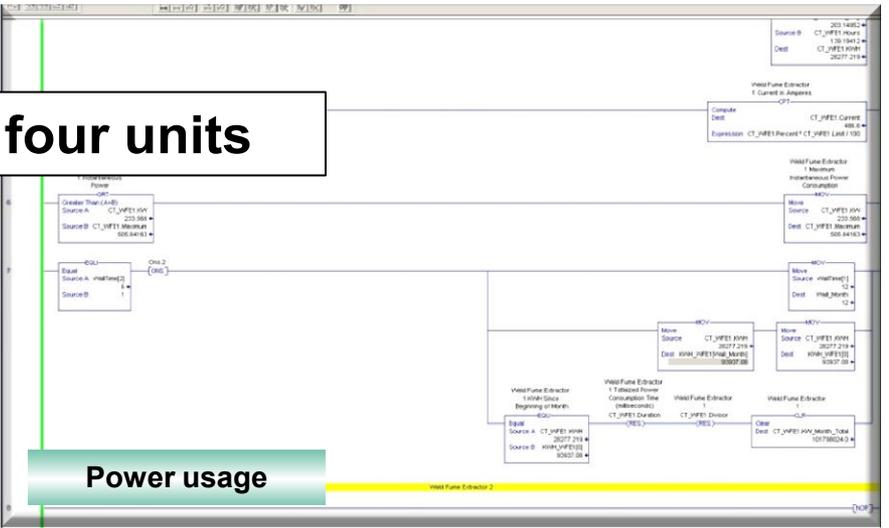


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Expanded to all four units



Power usage

Weld Fume Extractor Automation

PROBLEM DEFINITION

Type 1 Loss on Weld Smoke Fume Extractor System currently runs all the time



ROOT CAUSE

Type 1 loss from lack of controls in place

SOLUTION

Automate startup and shutdown of Weld Fume Extractors in conjunction with an arc being struck in the zone of the fume extractor system.



PLC Software

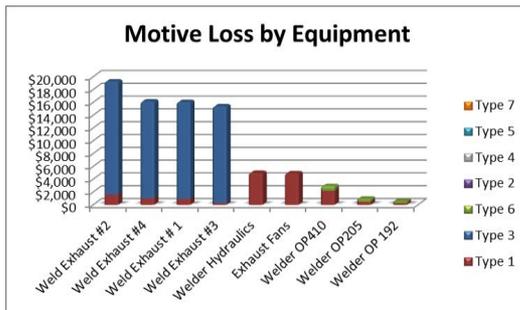
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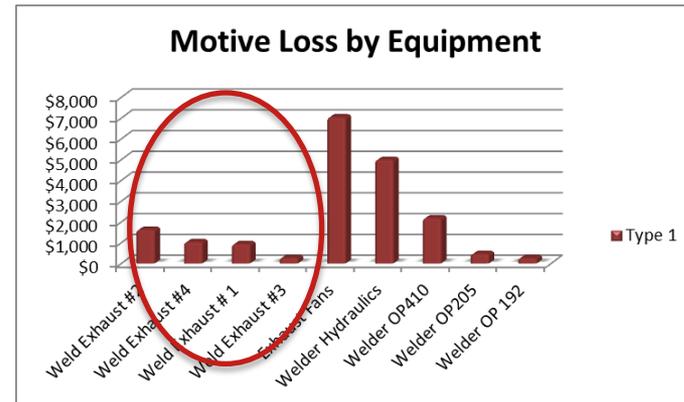
HORIZONTAL EXPANSION

This been expanded to all four fume extraction systems.



VERIFICATION

Type 1 loss was reduced 90%.



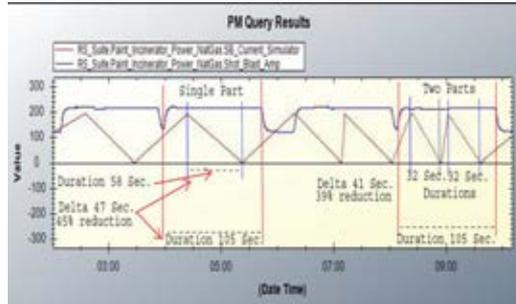
C

A

Shot Blast Automation

PROBLEM DEFINITION

Shot blast operates for more time than needed to clean parts. Increased energy, material and degradation



P

SOLUTION

Retrofit Shot Blaster with a light curtain (LC) to determine necessary shot drop time for parts.

D

Maintenance Prevention Information				Date	Version	Created By	RS Job No./Date
Plant	Machine No.	Job No.	Machine	Machine Operator	Operator	Other Issues	Remarks
Source	Failure	Operation design	Work Stop	Yield	Quality	Production	Comments
PROBLEM		SOLUTION					
<p>Not from equipment alarm, all of the engine and photo cell had the control. Shot blast light curtain is not working and the light curtain is not working.</p>		<p>Using a light curtain, the control system can determine when the profile of the part is in the part manufacturing. When the light curtain is at a fixed distance, the time to delay before stopping shot can be adjusted. Automatically controlling the speed.</p>					
<p>SEE QUESTIONS HERE:</p>							

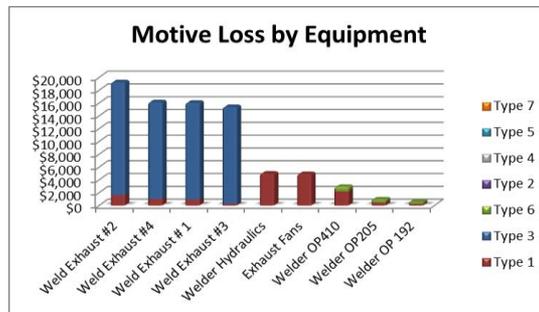
ROOT CAUSE

Type 1 loss for Mechanical controls



HORIZONTAL EXPANSION

Work with PM to evaluate decreased PM activity.

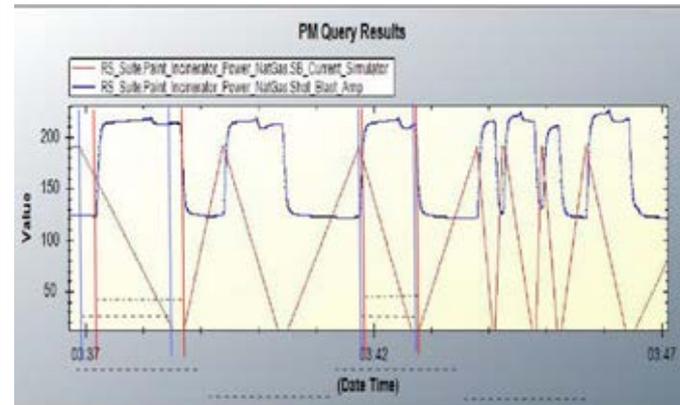


A

VERIFICATION

Monitoring shows reductions of 39% in material and 15% in power.

C



LED Lighting with Controls

PROBLEM DEFINITION

Metal halide light system used an excess of electricity and created heat.

P

SOLUTION

Remove 400W metal halide lights and replace with Digital Lumens 120W LED lights with motion detection and light harvesting. Saving 1,360 BTU residual heat per fixture in an already warm plant.

D

ROOT CAUSE

Type 3 loss from lack of controls in place due to old technology.



HORIZONTAL EXPANSION

Accepted as corporate Best Practice and shared with all NAFTA CNH Env Pillar Leaders.

A

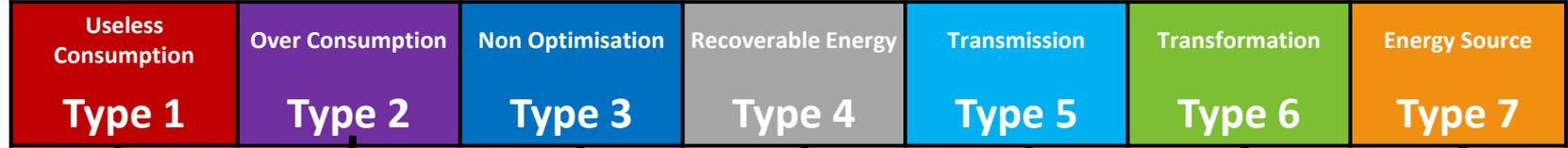
VERIFICATION

Electricity usage is monitored to track and validate savings.

C



Future Expansion



Machine shutdown procedures
 • Applied 4 times

Set point Management For building HVAC
 • Applied 11 times

Optimization/ Burner Efficiency
 • Applied 15 times

Recover Paint heat for building heat
 • Applied 0 times

Compressed air delivery
 • Applied 1 time

Efficient Lighting LED
 • Applied 106 times

Sky Light Vents
 • Applied 72 times

Lighting Controls
 • Applied 419 times

VFD Controls
 • Applied 35 times

HVLS Fans
 • Applied 29 times



Efficient Lighting LED (105)
 • Applied 211 times

Skylights Solar Power(3)
 • Applied 75 times

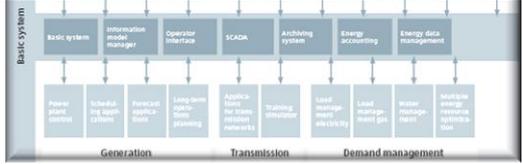
Lighting Controls(118)
 • Applied 537 times

VFD (4) and Set point Controls(27)
 • Applied 66 times

HVLS Fans Applied 6 Additional Times

Lighting & Machine Controls
 13 Additional times

Over Consumption & VFD Controls
 • Applied 6 additional times



Green Logistics

- Area of concern identified with inefficient packaging
- Track frames coming from Mexico



- New returnable racks developed for product coming from Mexico
 - Reduce both inbound and return shipments

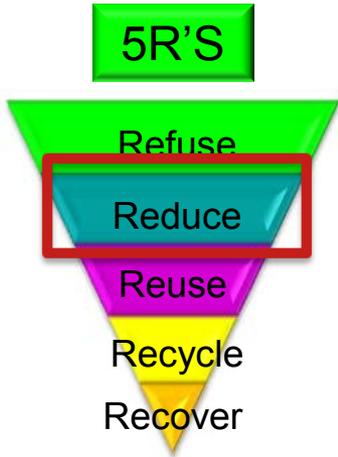


- Currently 10 projects active or scheduled to optimize transportation with suppliers to include in:
 - Milkruns
 - More efficient packaging



- Reduction of truckloads for Mexico product
 - 22 inbound
 - 57 return

Reduction of 1,071,778 lbs. CO₂

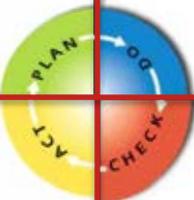


Green Logistics

- Project worked with vendor, purchasing, corporate logistics and plant logistics
Lap bars coming from Taiwan



- Lap bars from Taiwan were shipped 2 to a box, reconfigured the layout of the lap bars in the box and increased to 4 pieces per box

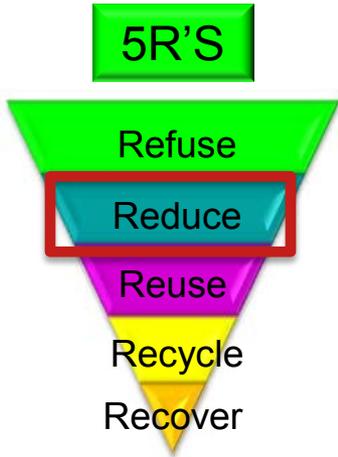


- Reviewing current packaging with all international suppliers to identify additional savings opportunities.



- Reduction of 18 ocean containers on average per year for lap bars

Reduction of 43,128 lbs. CO₂



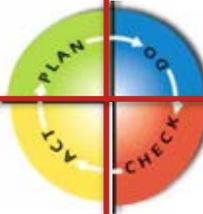
Green Logistics



Full container engine deliveries from overseas. Container is live unloaded and the empty container returns to Kansas City, round trip is a cost of \$900



Previously 8 containers a month were filled with returnable racks and returned to engine supplier with an additional \$900 round trip charge, working with corporate logistics and steamship lines racks are returned on containers that delivered engines



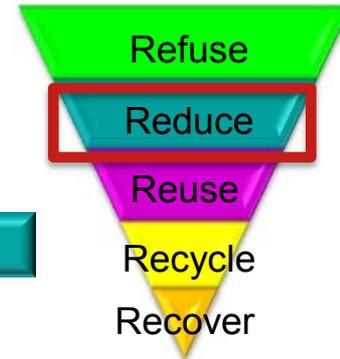
Project will eliminate 96 container charges per year based on current volumes



Projected Savings:
Transportation \$7200
per month

CO2 Reduction: 349,000 lbs. CO2

5R'S



Green Logistics



- New radiators sourced from existing supplier
- All current items from supplier have returnable packaging
- Began working on this before final approval of parts

Returnable packaging developed for new radiators Decommissioned racks from military product were retrofitted to handle the new parts



- Current Projects
 - Tier 4B DPFs coming out of Mexico – prototypes validated and returnables in place
 - Tier 4 Coolers coming from Adams Thermal Completed in Q1 2015

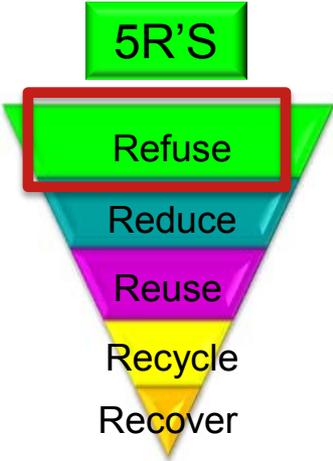
Cost of New Rack	\$650
# of Racks	50
Potential Total Spend	\$32,500

Cost of Reworked Rack	\$125
# of Racks	50
Total Actual Spend	\$6,250

Total Savings \$26,250

Packaging Charge per part from Supplier	\$53.65
Annual # of parts	2,586

Total Cost Avoidance \$138,739



Green Suppliers

OUR PARTNERS ARE ISO 14001 CERTIFIED

Chemistry



Waste



Contractor



IHI Shibaura Machinery Corporation



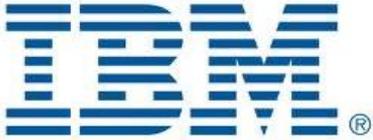
Suppliers



waupaca

Rexroth

Bosch Group



CO₂ Emission Offset

- Wichita purchased 442,473 kwh of Renewable Energy Credits.
- Offsetting 2,475.33 tons of facility CO₂ emissions



Green Procurement

EEM Checklist

Item No.	Checklist Criteria	EEM Standard Section	Responsibility	Phase							Acceptable		
				Phase 1	Phase 2	Phase 3	Phase 4	Phase 5	Phase 6	Phase 7	Yes	No	
				Planning and Approval	Basic Design	Detailed Design	Manufacture Follow-Up	Installation and Trial Run	Start-Up				
1	Does a plan of the investments exist?	0	CNH-Wichita	X									
2	Is it clear the objective of the new equipments introduction?	0	CNH-Wichita	X									
3	Is the investment plan in line with the actual production schedule (AOP, SBP, etc.)?	0	CNH-Wichita	X									
4	Have market needs, demand trends and technical trends been identified?	0	CNH-Wichita	X									
5	Have production methods of competitors been studied?	0	CNH-Wichita	X									
6	Have the major technical issues been clarified?	0	CNH-Wichita	X									
7	Are there any R & D issues not resolved yet?	0	CNH-Wichita	X									
8	Are there any legal or regulatory issues?	0	CNH-Wichita	X									
9	Has a patent search been performed? Are there any infringements?	0	CNH-Wichita	X									
10	Did you collect/organize product design information?	0	CNH-Wichita	X									
11	Are conditions clear to choose between continuous production or production in batches?	0	CNH-Wichita	X									
12	Are the cycle life of the product and volumes well defined?	0	CNH-Wichita	X									
13	Are the costs in line with target costs?	0	CNH-Wichita	X									
14	If volume are not clearly defined, have you analyzed the risks?	0	CNH-Wichita	X									

68.5% of Vendors have verified environmental load reduction systems. Up 2.2% since October 2014.

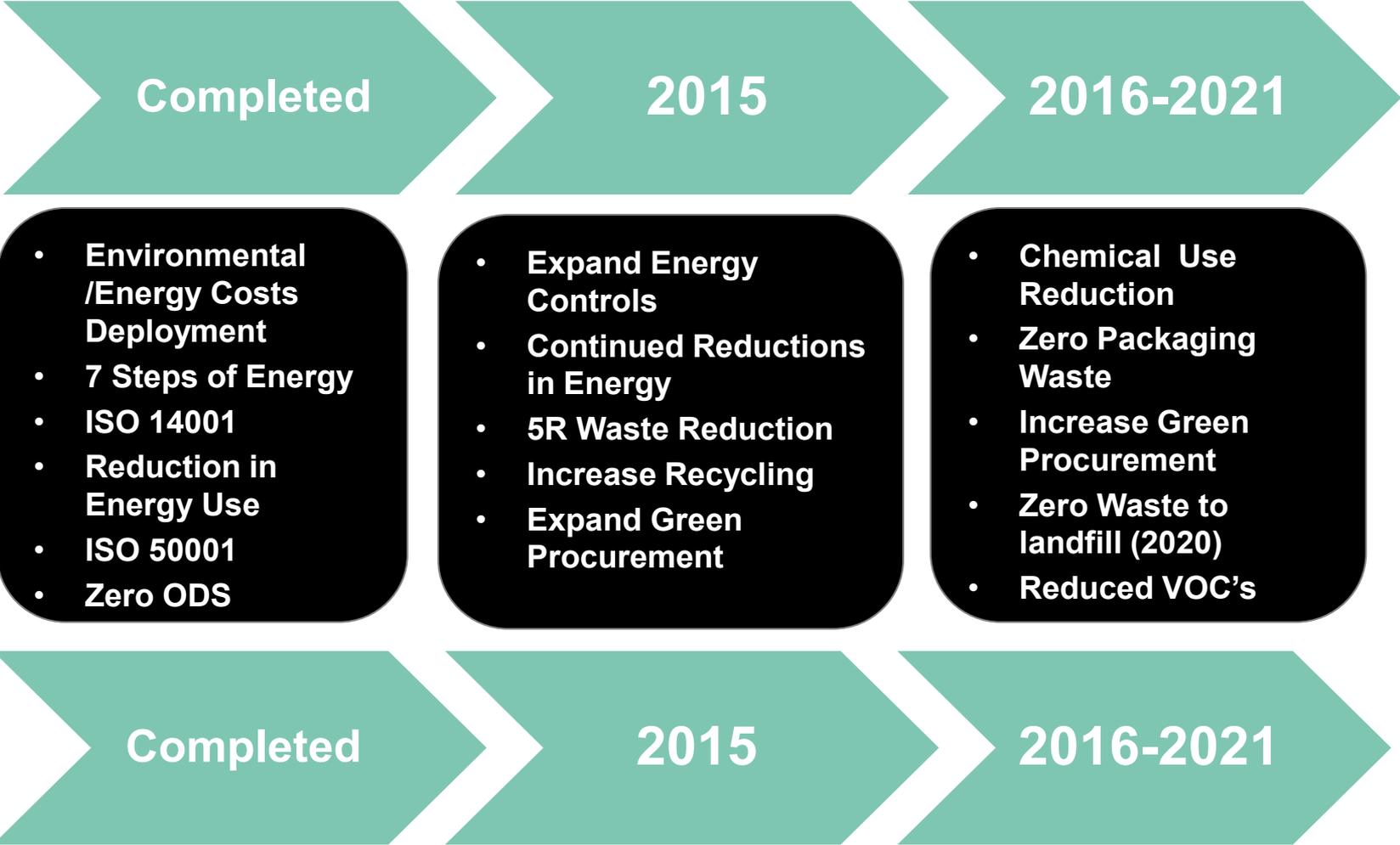
Purchase electricity from Westar Energy which has contracts for about 301 megawatts of electricity from wind farms. Westar also purchases 6 MW's of landfill gas electric generation.



Working with vendors to reduce waste by using returnable racking



Green Vision





Thank
you!

