Sponsored by ADEQ's Pollution Prevention (P2) Program and the Western Sustainability Pollution Prevention Network

ADEQ
Arizona Department of Environmental Quality

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Brought to you by:

- The Western Sustainability Pollution Prevention Network
- The Arizona Department of Environmental Quality

Western Sustainability Pollution Prevention Network

- Cooperative alliance of P2 programs in Region 9
- P2 information research, consolidation, dissemination
- Pollution Prevention Resource Exchange (P2Rx)
- Preventing or reducing pollution before it is released has a greater positive impact on the environment, economy and health

(ADEQ's)
Pollution Prevention (P2) Program

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Pollution Prevention Week

September 21-27, 2015

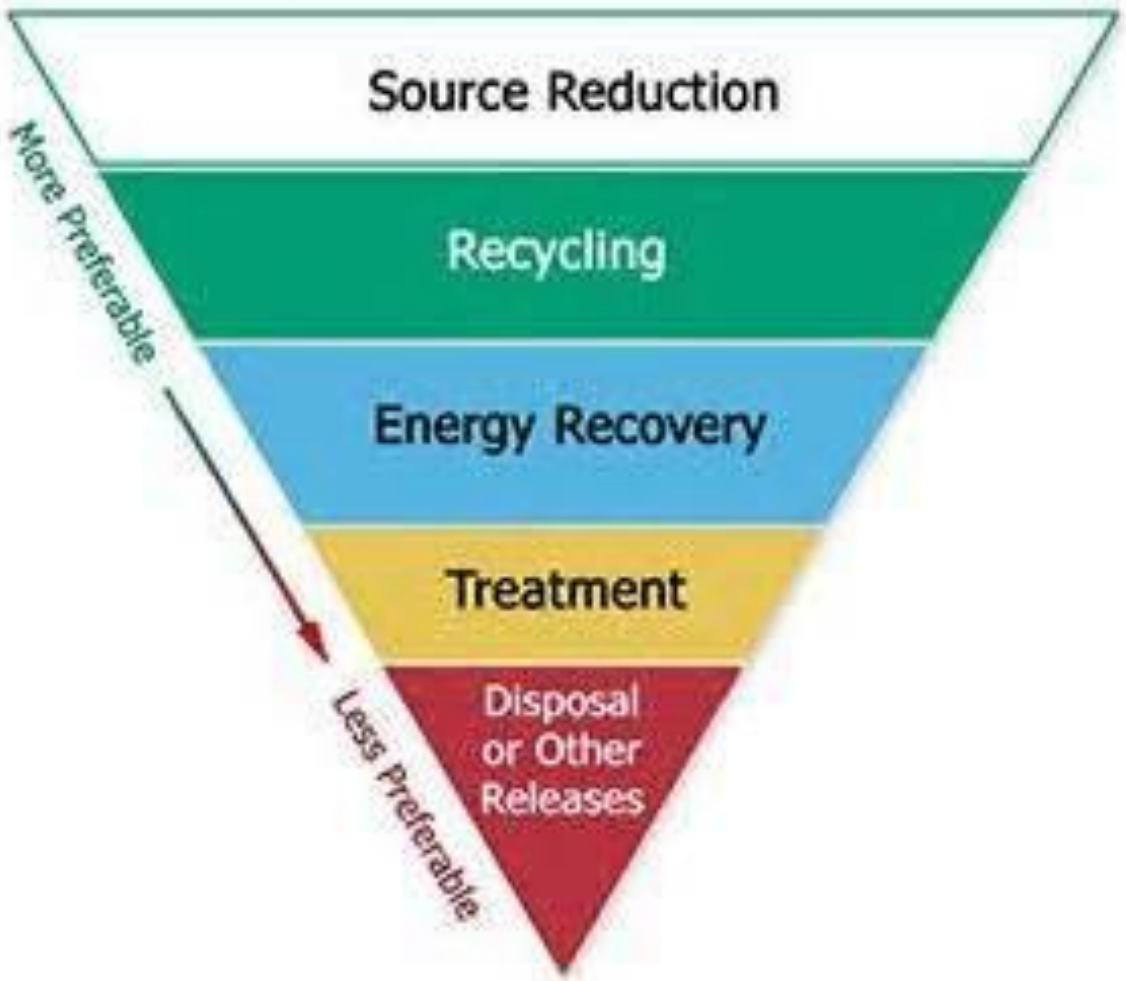
Arizona Department of Environmental Quality

Pollution Prevention Program

September 23, 2015

ADEQ Arizona Department of Environmental Quality

What is P2?


Source Reduction
Recycling
Energy Recovery
Treatment
Disposal or Other Releases
More Preferable
Less Preferable

Arizona State P2

In 1991, Arizona initiated one of the broadest P2 programs in the nation and adopted a P2 policy to include:

Arizona Revised Statutes (A.R.S.) §§ 49-961 to 49-969

- Toxic substance use reduction
- Hazardous waste generation reduction

What is P2 in Arizona?

P2 in Arizona

Operational procedures and processes and improvements in housekeeping or management techniques that reduce potential or actual releases of pollutants to the overall environment including all air, water and land resources affected by those pollutants.

A.R.S. §49-961(7)

Arizona P2 Program Plan Filing Thresholds

1. Filed a Toxic Release Inventory Form (form R or A)

A.R.S. §49-962(A)(1)

If the owner or operator of a facility was required to file an annual Toxic Release Inventory (TRI) form (Form A or Form R) to EPA during the preceding calendar year, the facility must prepare and implement a P2 Plan.

2. Hazardous Waste Generators

A.R.S. §§49-962 (A)(2) and 49-963(C)

A facility that generated or shipped off-site an average of 2,200 pounds (1,000 kg) per month of hazardous waste or an average 2.2 pounds (1 kg) per month of acute hazardous waste during the preceding calendar year, must prepare and implement a P2 Plan.

3. Toxic Substance Users

A.R.S. §49-963(D)

If the facility used in excess of 10,000 pounds of a TRI listed chemical during the previous calendar year, the facility must prepare and implement a P2 Plan.

Voluntary Environmental Stewardship Program

ADEQ Arizona Department of Environmental Quality

A.R.S. §49-192

- Identify and reward organizations with a good history of compliance
- Various categories
  - Copper, bronze, silver gold and platinum

Reasons to join

- ADEQ recognition of your organization
- Reduced inspection frequency
- Coordination of multiple onsite inspections
- Advanced notification of inspections and enforcement rulings

Contact:
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idb@azdeq.gov

Voluntary Environmental Stewardship Program

Why Celebrate P2 Week?

Pollution Prevention Week in Arizona highlights the efforts of facilities in our own State P2 program in reducing the use of toxic substances and hazardous waste generation and the conservation of natural resources!

The following companies will be presenting on successful goals implemented at their facilities:

- Frito Lay
- Arizona State University Facilities Management
- Corning Phoenix

What are P2 goals?

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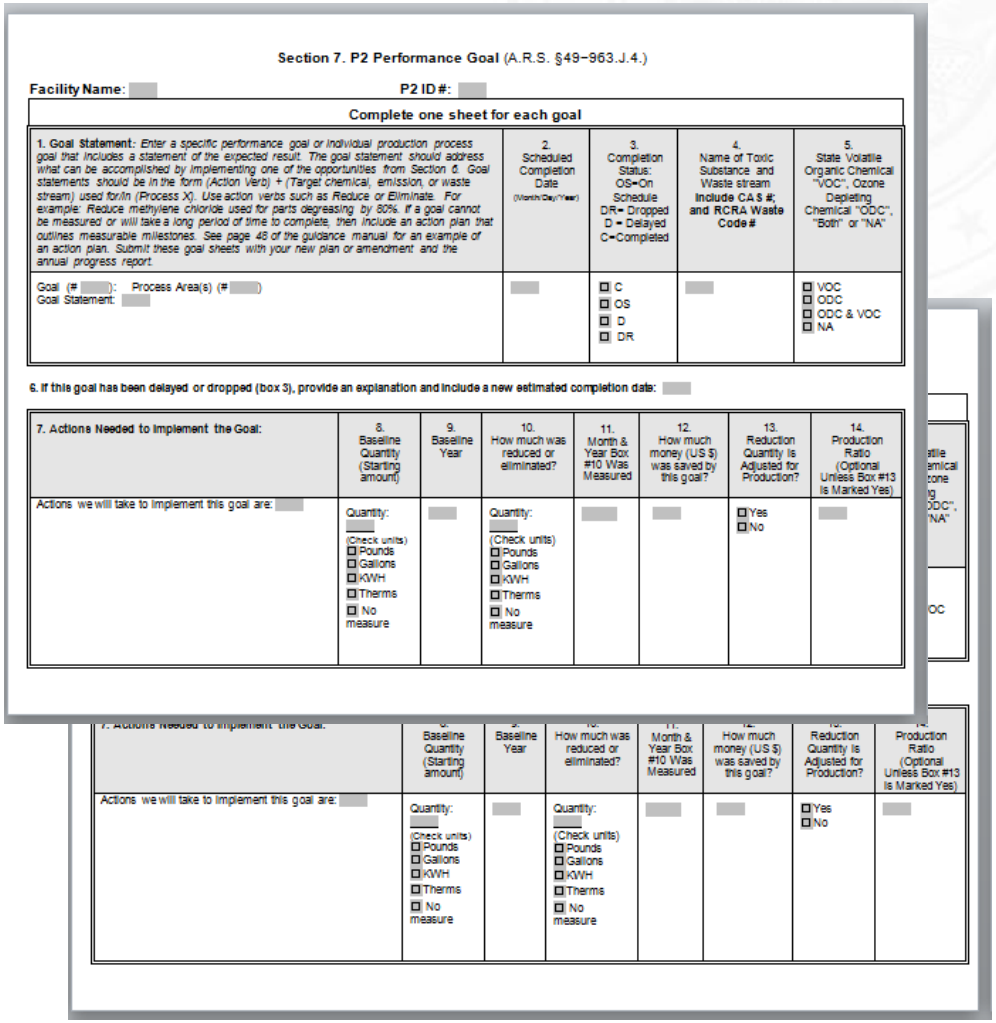
ADEQ P2 Program Goal Forms:

- Identified opportunity for waste reduction
- Facility provides a statement to reduce pollution
- Facility provides actions needed to implement the goal
- Defines a completion date and identifies a baseline quantity and year
- Reductions are reported annually to ADEQ P2 through the goal form



Section 7. P2 Performance Goal (A.R.S. §49-963.J.4.)

Facility Name: **P2 ID #:**

Complete one sheet for each goal

1. Goal Statement: *Enter a specific performance goal or individual production process goal that includes a statement of the expected result. The goal statement should address what can be accomplished by implementing one of the opportunities from Section 6. Goal statements should be in the form (Action Verb) + (Target chemical, emission, or waste stream) used for/in (Process X). Use action verbs such as Reduce or Eliminate. For example: Reduce methylene chloride used for parts degreasing by 80%. If a goal cannot be measured or will take a long period of time to complete, then include an action plan that outlines measurable milestones. See page 48 of the guidance manual for an example of an action plan. Submit these goal sheets with your new plan or amendment and the annual progress report.*	2. Scheduled Completion Date (Month/Day/Year)	3. Completion Status: OS=On Schedule DR= Dropped D = Delayed C=Completed	4. Name of Toxic Substance and Waste stream **Include CAS #; and RCRA Waste Code #**	5. State Volatile Organic Chemical "VOC", Ozone Depleting Chemical "ODC", "Both" or "NA"
Goal (#): Process Area(s) (#) Goal Statement:		☐ C ☐ OS ☐ D ☐ DR		☐ VOC ☐ ODC ☐ ODC & VOC ☐ NA

6. If this goal has been delayed or dropped (box 3), provide an explanation and include a new estimated completion date:

7. Actions Needed to Implement the Goal:	8. Baseline Quantity (Starting amount)	9. Baseline Year	10. How much was reduced or eliminated?	11. Month & Year Box #10 Was Measured	12. How much money (US $) was saved by this goal?	13. Reduction Quantity is Adjusted for Production?	14. Production Ratio (Optional Unless Box #13 is Marked Yes)
Actions we will take to implement this goal are:	Quantity: (Check units) ☐ Pounds ☐ Gallons ☐ kWH ☐ Therms ☐ No measure		Quantity: (Check units) ☐ Pounds ☐ Gallons ☐ kWH ☐ Therms ☐ No measure			☐ Yes ☐ No	

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FRITO LAY

Casa Grande

Speaker : Andre Fuentes

A little bit about our site…

The Casa Grande site started up our first production line which was Doritos in July of 1984. The PC or potato chip line was started not too long after.

The site now has 5 product lines,

- Potato chips (Lays, Ruffles & Wavy Lays)
- Tortilla chip (Doritos , Restaurant style & Santitas)
- Fritos corn chips
- Cheetos crunchy mellow and flaming hot
- Sun chips

Number Employees in 1984:

- 200 Employees
- 35 Management

Number Employees in 2015:

- 325+ Employees
- 20 Management

Within the last 5 years the site has added…

CNG (Compressed Natural Gas) semi trucks
Electric route vans
MBR- Water treatment plant
Bio Mass- Boiler which supplies steam for product lines
Solar panels- Placed over the parking lot, in front of the plant & the field to the west of the plant.

Clean Transportation…

Currently we have 19 CNG (compressed natural gas) semi trucks

Currently we have 2 Electric Route trucks

Recycle / Reuse of water…

Casa Grande's MBR (Microbial Bio Reactor)

The Bio Mass Boiler…

The Bio Mass Boiler produces steam for the product lines allowing the use of natural gas to be used only as a back up.

The fuel used to create the steam is a mixture of shredded white wood pallets and pecan shells which are loaded onto a conveyor and fed into the boiler.

Power from the sun…

Solar panels positioned in front of, over the parking lot & to the west of the plant help us run almost completely off the power they produce during the daytime. What we don't use we sell to APS as credit. At night when we go to APS power, our credit is then applied.

Some of our P2 goals…

- Reduce annual water consumption by 25%.
- Decrease natural gas use by 3%.
- Reduce laboratory chemical waste generation.
- Reduce annual water use by 3%.
- Reduce electrical use by 5%.

Our P2 goals…

Why were these goals selected?

How are we meeting our P2 goals…

- **Reduce annual water consumption by 25%.** - Install a membrane Bio Reactor to recycle manufacturing process water. Reactor was installed and around 25% is discharged yearly of all process water sent to reactor. 75% is drinking quality grade and sent back to facility for use.

- **Decrease natural gas use by 3%** - Ensure Bio Mass boiler is utilized effectively to reduce natural gas boiler runtime. Optimize starch dryer settings to reduce usage.

- **Reduce laboratory chemical waste generation** - Emphasize waste generation reduction with all laboratory technicians and raise awareness of yearly status if we have increased our shipment quantity or decreased our shipment quantity:

  2013 Baseline includes:

  Auto Titration - 16,104 lbs/year

  Peroxide Valve - 125 lbs/year

  Free Fatty Acid - 387 lbs/year

  2014 improvement's:

  Auto Titration - 13,814 lbs/yr

  Peroxide Valve - 125 lbs/yr

  Free Fatty Acids - 43 lbs/yr.

How are we meeting our P2 goals…

- **Reduce annual water use by 3%** - Continue to maintain our MBR by executing preventative maintenance. Increase employee awareness of water usage by continued training on resource conservation practices.

Baseline in 2009	Baseline in 2011 reduced
123,641,146 gal	48,571,459 gal

- **Reduce electrical use by 5%** - Installed solar voltaic system to reduce electricity pulled from the grid. With the addition of 40 acres of solar panels we have decreased consumption while at the same time increasing our plants demand for energy by 200%., with the addition of the reactor, Sun Chips and the Bio Mass boiler.

Baseline in 2009	Baseline in 2010 reduced
13,255,372 kwh	1,376,736.00 kwh

Benefits of having a P2

- Reduced costs of waste treatment and disposal, raw materials purchases, and process operations.
- More efficient use of raw materials, staff resources, equipment, energy and water.
- Meeting or exceeding environmental requirements
- Reduced potential environmental liabilities.
- Protection of employee health and safety and the environment.
- Improved company's relationship with the public, neighbors and customers

ENVIRONMENTAL
COMPLIANCE & ENGINEERING

Do you have any ideas or questions?

Sustainability Projects

Arizona State University Facilities Management Grounds Services/Recycling

Campus Harvest

Deserts made from campus Seville Oranges

Solar Compactors

Chipper run on B99

Organic Fertilizer Project

All organic since 2007

Fertilizer use prior to switch to compost/organics

Types of Fertilizers used	Used on	Bag size	Quantity	Total Pounds
Best 6-20-20	Turf	50 lb.	160	8000
Best 21-0-0	Turf	50 lb.	240	12,000
Urea 46-0-0	Turf/Flowers/Roses	50 lb.	81	4050
20-20-20	Trees	25 lb.	5	125
Nutri-King 21-4-4	Turf	50 lb.	177	8850
Nutri-Culture	Palms	25 lb.	3	75
Water Soluable 21-21-21	Trees/Flowers	50 lb.	2	100
Totals			**668**	**33,200**

Organic Fertilizers Now Using

- Compost
- Organic Gem Liquid Fish Fertilizer
- Compost Tea
- Chicken Manure Pellets
- Nature Safe Organic Fertilizer

Green waste collected ready for transport

Compost Facility

Spreading compost on the turf

Spreading Compost on intermural field

Grounds also uses some organic fertilizers in addition to the compost

Collecting used coffee grounds

Two of the groundskeepers who came up with the idea

Program Background

Began: in 2013

Goal: to collect used espresso and coffee grounds from commercial coffee vendors on campus and put them to use as a natural fertilizer and soil amendment on ASU's main campus

Partners:

ASU Grounds

Campus food vendor-ARAMARK

ASU Recycling

Using a fertilizer spreader to apply the grounds to turf

Student volunteers like to spread the used grounds

Spreading grounds into a flower bed

Grounds used in the flowerbeds

Questions?

CORNING

Corning Phoenix
The Journey to Zero Landfill

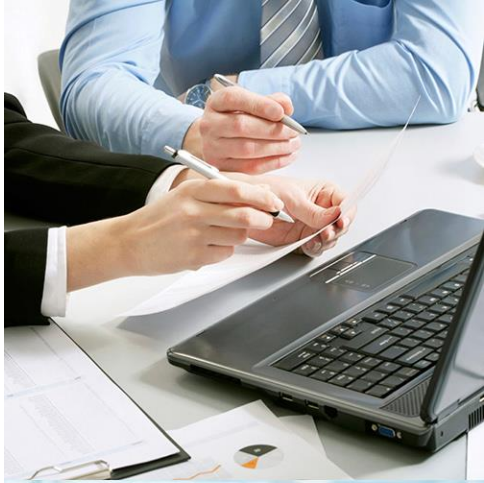
Jamil Brown
Engineering Supervisor

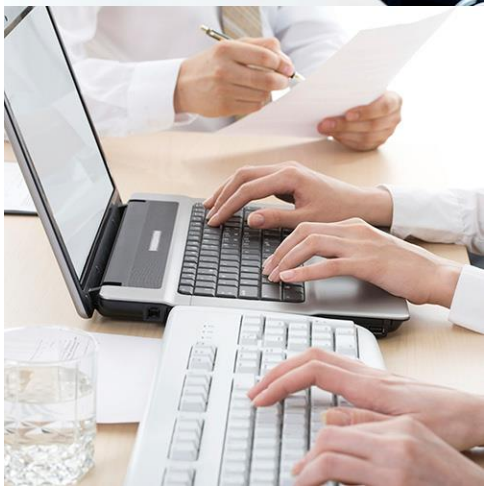
September 2015

CORNING

Information Security

This presentation contains Corning Restricted information and is intended solely for those with a need to know. It may not be distributed, in whole or part, in any form by any means, or by any person or organization without authorization from Corning Incorporated.





Corning Incorporated

Founded:
1851

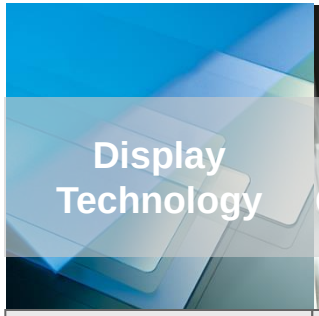
Headquarters:
Corning, New York

2014 Sales:
10 billion

Fortune 500 Rank (2014):
343

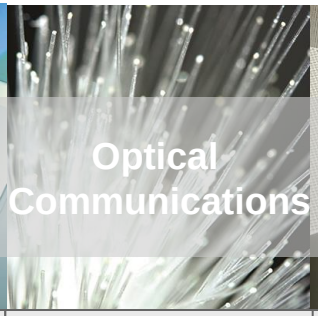
- Corning is one of the world's leading innovators in materials science. For more than160 years, Corning has applied its unparalleled expertise in specialty glass, ceramics, and optical physics to develop products that have created new industries and transformed people's lives.
- Corning succeeds through sustained investment in R&D, a unique combination of material and process innovation, and close collaboration with customers to solve tough technology challenges.

Corning Market Segments and Additional Operations



Display Technology

- LCD Glass Substrates
- Glass Substrates for OLED and high-performance LCD platforms



Optical Communications

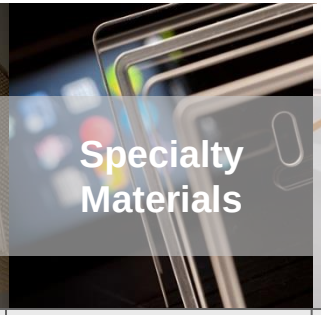
- Optical Fiber and Cable
- Optical Connectivity Solutions
- Wireless Distributed Antenna Systems
- Optical Cables for Consumer Networks
- Copper Connectivity Components

Environmental Technologies

- Emissions Control Products
  - Light-duty gasoline vehicles
  - Light-duty and heavy-duty on-road diesel vehicles
  - Heavy-duty non-road diesel vehicles
  - Stationary

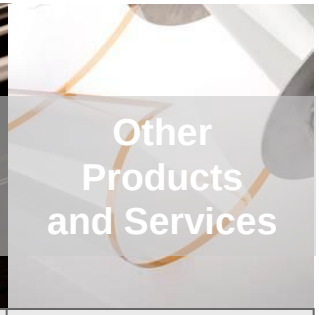
Life Sciences

- Cell Culture and Bioprocess
- Drug Discovery
- ADME/Tox
- Genomics
- Chemistry
- Microbiology
- General Laboratory Products



Specialty Materials

- Corning® Gorilla® Glass
- Display Optics and Components
- Optical Materials
- Optical Systems



Other Products and Services

- Emerging Innovations
- Equity Companies
  - Cormetech, Inc.
  - Dow Corning Corp.
  - Eurokera, S.N.C.
  - Samsung Corning Advanced Glass, LLC (SCG)

Corning Phoenix
Size and Scope

Location / Plant

Broadband
- Hardline, F-Connector
- Components, Assemblies
- CATV, Broadband networks, Commercial

Microwave Connectivity
- GPO, GPPO, G3PO, G4PO
- Blocks, interconnects,
- Aerospace/Defense, test equipment, commercial

Key Statistics

People: 254 Corning (Mfg)
27 Contractor

Space: 160,000 ft^2

Customers: 470 customers in over 100 countries

Connectors /Month: 1M
Assemblies / Month: 750k

Processes:
- MW and BB Machining
  - Precision metal turning
  - Grinding
- Wash/Plating
  - Gold, Nickel
  - Tin, Chromate
- Assembly
  - Micro scale Assembly (MW)
  - Cable Assemblies (PHX/RAM)
- Tooling
  - High precision tool grinding
  - Wire EDM

Role

The Phoenix plant is a machining center of excellence with a focus on high precision metal turning

Primary Mission
To provide high quality RF connectors for broadband, military & aerospace applications

Secondary Mission
To share knowledge and be available as an insourcing option for machined parts

We are ISO 14001 Certified

Corning's Environmental Policy

- **Prevent Pollution**
  - Reduce
  - Use few
  - Generat
  - Conserv
  - Recycle
- **Comply with**
  - RCRA
  - Clean W
  - Clean Ai
- **Continual Im**
  - Create le
  - Recycle
  - Use few

Labeling of Hazardous Waste

During our 2015 ISO 14001 surveillance audit we received a minor non conformance for not having standardized labels, there were 2 types of hazardous waste labels in the plant.

Moving forward **all labels** in the facility for hazardous waste will be like figure 1.

We will **no longer be using labels** that are pictured in figure 2.

Please help support this plant wide change with labeling of our hazardous waste, documents have been changed to support this.

If you see any of the labels in figure 2 please let the EHS team know so we can communicate and change the labels over the new plant standard

Figure 1- Plant Standard

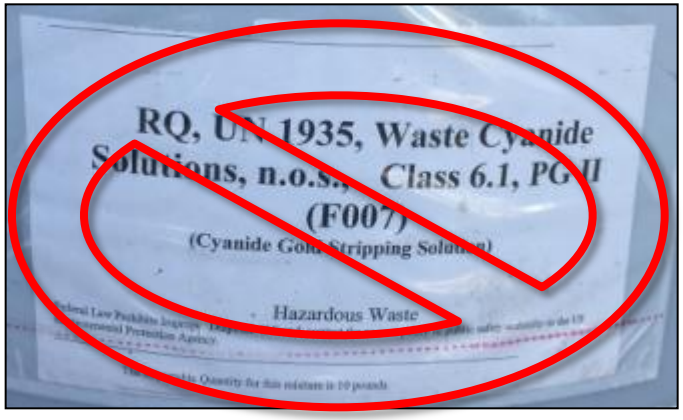


Figure 2 -

Proper Disposal of Light Bulbs From Home

Compact fluorescent light bulbs (CFL's) contain small amounts of mercury- an environmental and health hazard – sealed within the glass tubing.

Recycling keeps mercury out of the environment and allows for reuse of other light bulb materials such as glass and metal

Although some states allow CFL's to be disposed of as normal household trash, its not recommended.

What do I do if I break a CFL?

1. Open a window and leave the room for at least 15 minutes

2. Hardwood / Tile: Using a disposable rubber glove carefully scoop up the fragments with a dust pan, wipe the area clean and place everything in double sealed plastic bags.
   Rug / Carpet: Remove fragments without using a vacuum clean duct tape can be used to pick up small pieces. Vacuum area, remove vacuum bag (or empty wipe canister), and place in a doubled and sealed plastic bag. Be cautious of the sharp edges.

3. Take to a local recycling center

Many retailers (i.e.Home Depot or Lowe's Home Improvement offer in store recycling for CFL's

Take advantage of local recycling options for CFL's, such as hazardous waste collection events

Proper Segregation of Recycling Materials

Think “can this waste be recycled” prior to throwing it out.

Starting to see some cardboard in trash hoppers that can be recycled. Here are a few items that can be recycled….

2015 Initiative

Become a zero free landfill plant.

- We are committed to reducing long term liability as well as environmental impact by applying a zero landfill strategy.

- What % of our waste leaving the plant is recycled?
- How much waste left the plant in 2014?
- What is our biggest opportunity to improve our %?

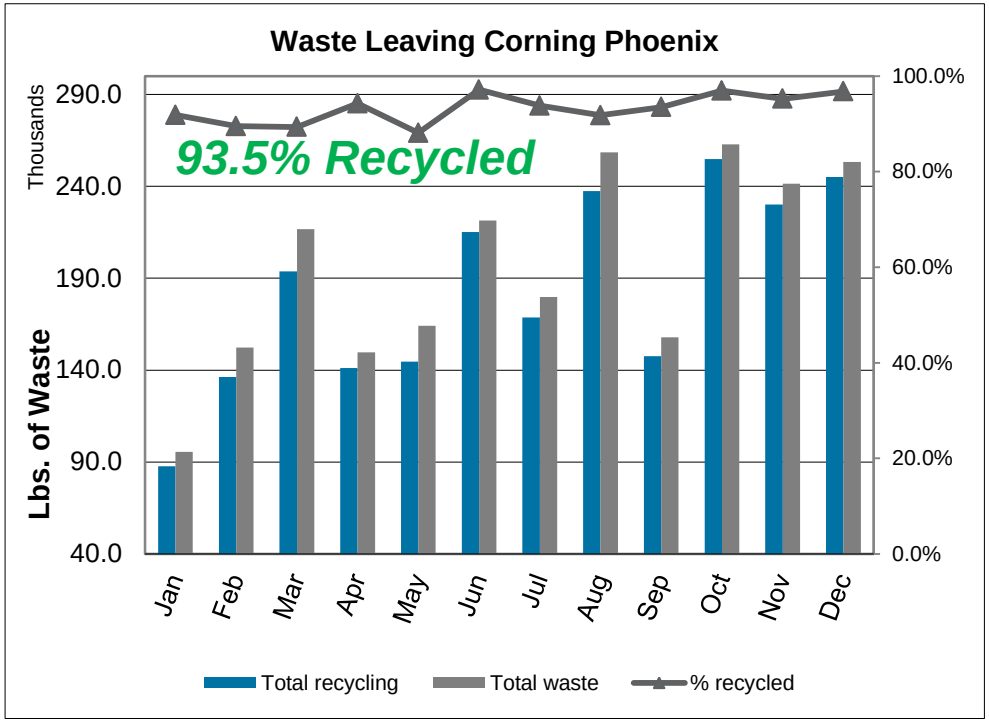
- **93.5%**
- **2.35 million lbs.**
- **Trash**

- **Goal is to improve our % recycling by 3% and get to 98% by 2017**

2014 Data

- In 2014 we removed 2,353,632 lbs. of waste from the Corning Phoenix Plant
- 2,202,443 lbs. was recycled!!
- Where are the opportunities….
  - 126K lbs. of industrial waste left the plant last year
  - We didn't do a very good job of segregating that waste (see slides 5 and 6)

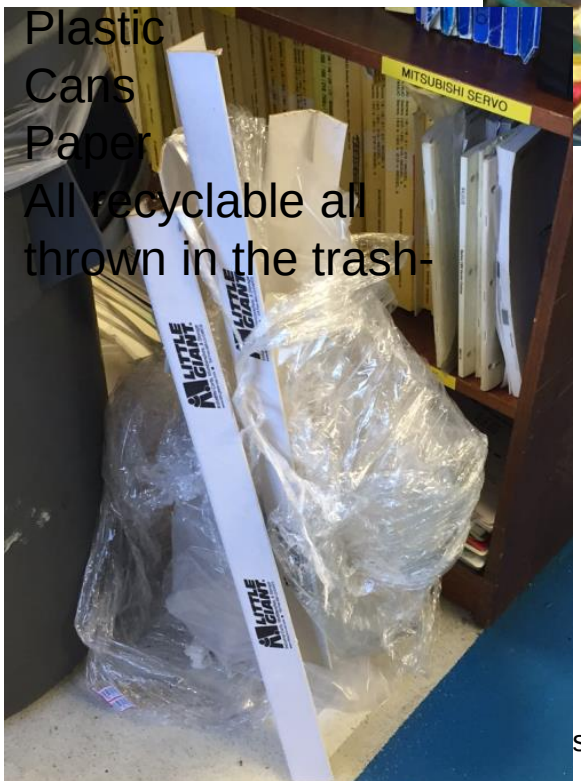
- 2014 recycling data

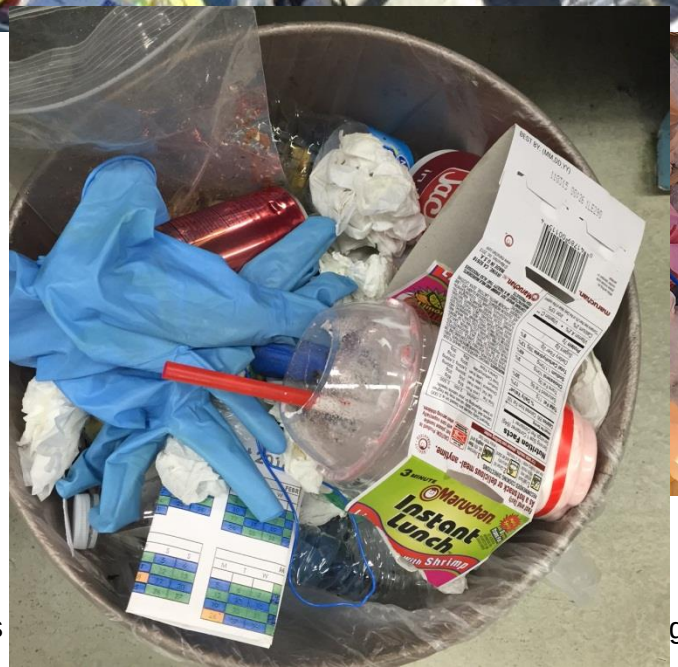


Opportunities

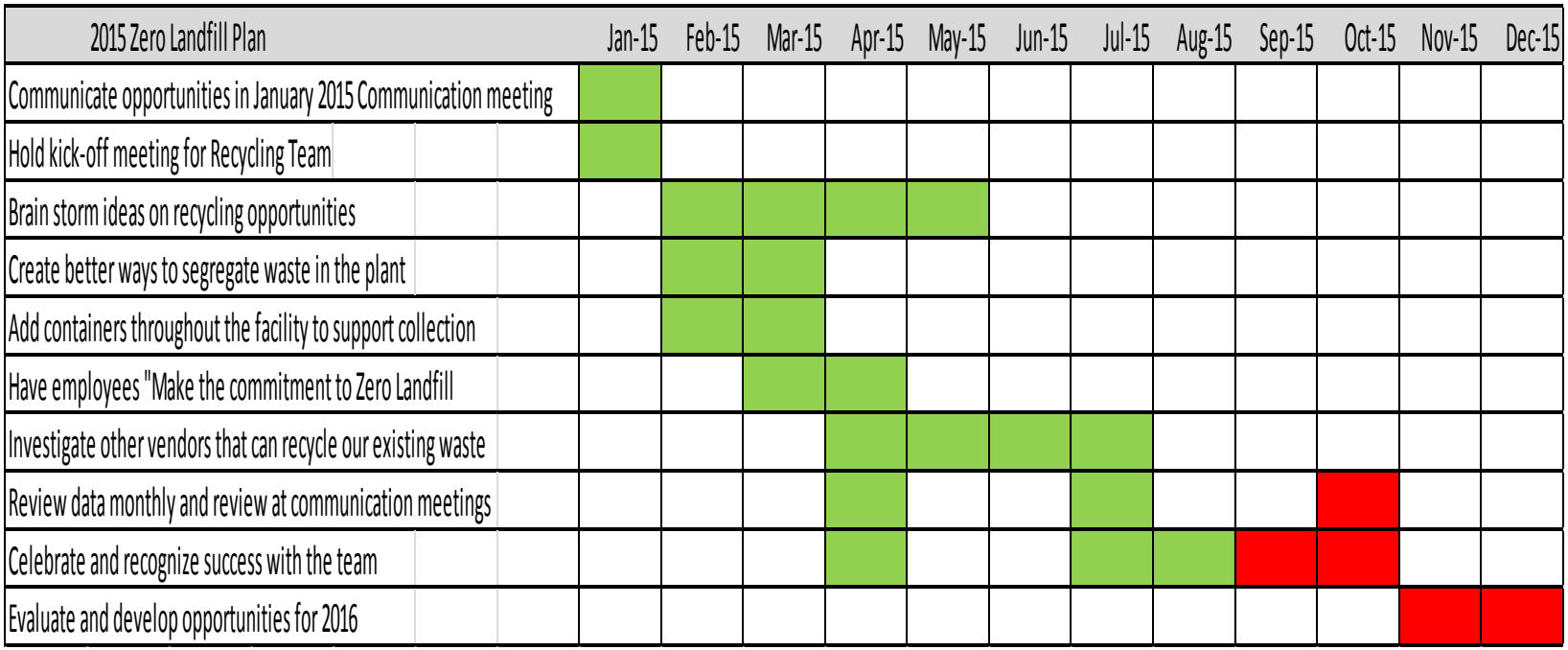
Opportunities

We didn't do a very good job segregating our waste
Cardboard
Wood
Plastic
Cans
Paper
All recyclable all thrown in the trash-





2015 Plan


2015 Zero Landfill Plan
Jan-15
Feb-15
Mar-15
Apr-15
May-15
Jun-15
Jul-15
Aug-15
Sep-15
Oct-15
Nov-15
Dec-15
Communicate opportunities in January 2015 Communication meeting
Hold kick-off meeting for Recycling Team
Brain storm ideas on recycling opportunities
Create better ways to segregate waste in the plant
Add containers throughout the facility to support collection
Have employees "Make the commitment to Zero Landfill
Investigate other vendors that can recycle our existing waste
Review data monthly and review at communication meetings
Celebrate and recognize success with the team
Evaluate and develop opportunities for 2016

Earth Day Event

- Provided employees an opportunity to discard e-waste
- Kicked off our single stream recycling

Single Stream Recycling

- Things we can recycle:
  - Metal cans
  - Aluminum soda cans
  - Vegetable, fruit and tuna cans
  - Plastic bottles 1 & 2
  - Brown paper bags, non confidential paper, newspapers, magazines, junk mail
  - Flattened cardboard & paperboard
- Things we cant recycle
  - Food waste, plastic bags with labels on them or food remains, foam cups and containers

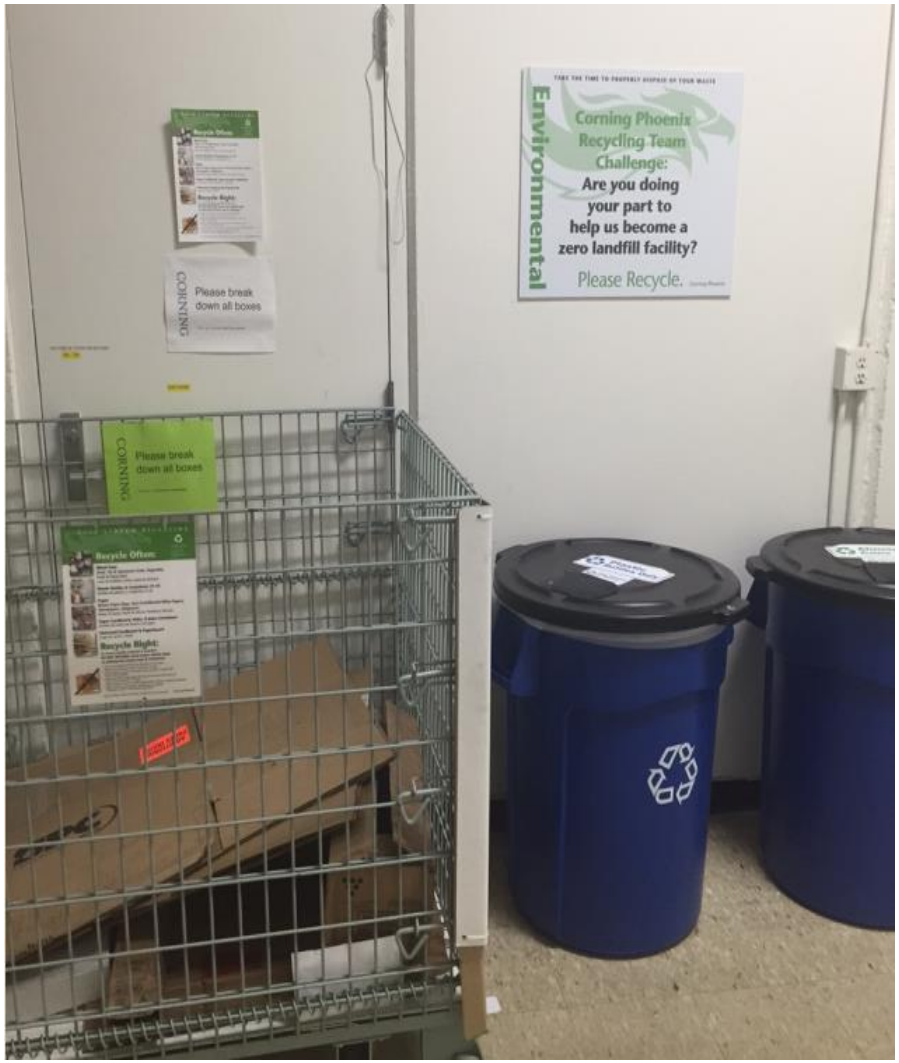
Single stream recycling in the office area….

- We distributed these green recycling cans for office recycling with stickers on them to remind employees what we can and cant recycle

- Cans will be picked up by the cleaners and disposed of in a central area for all recycling products

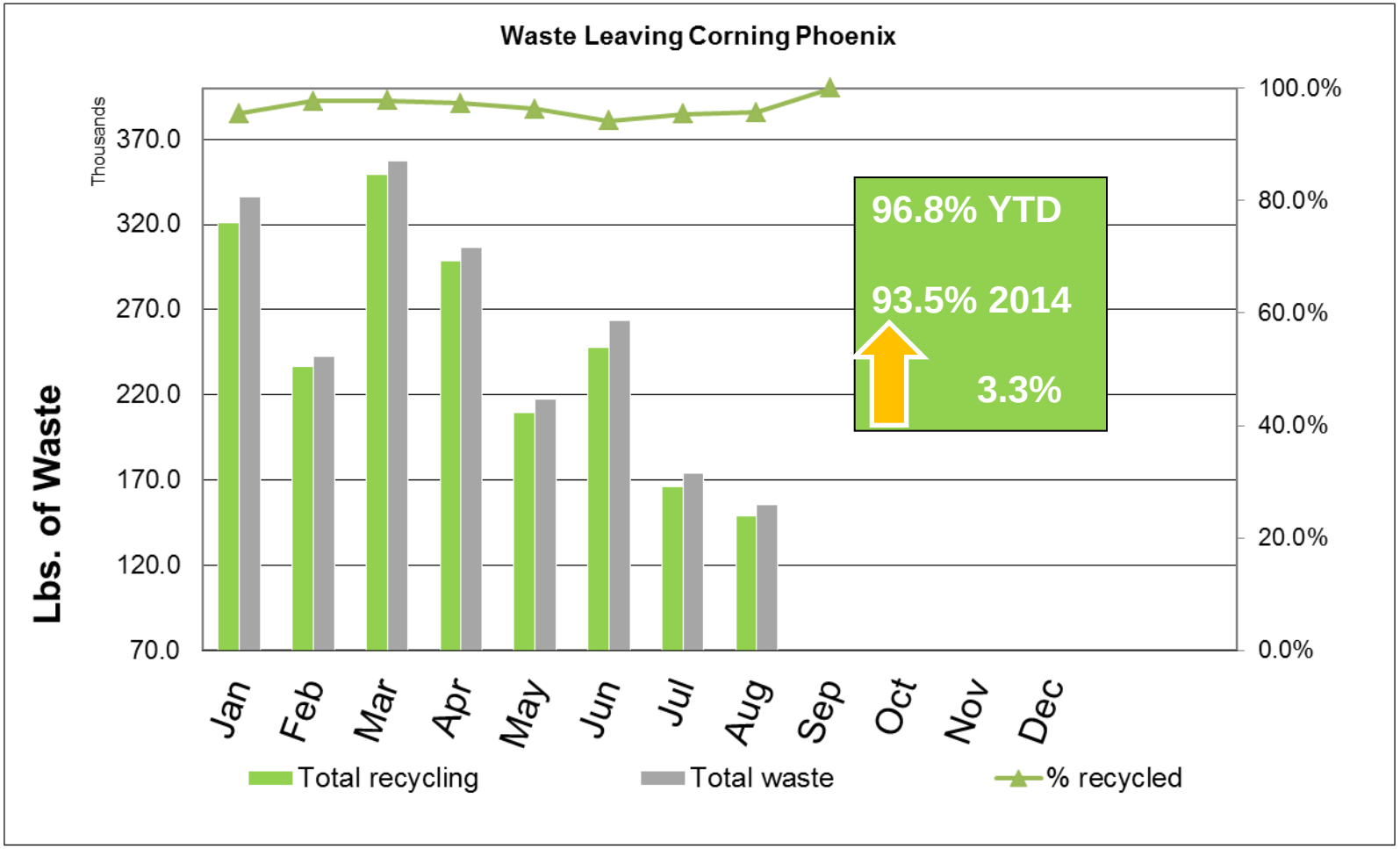
Address segregation opportunities and switch to single stream recycling

Address segregation opportunities

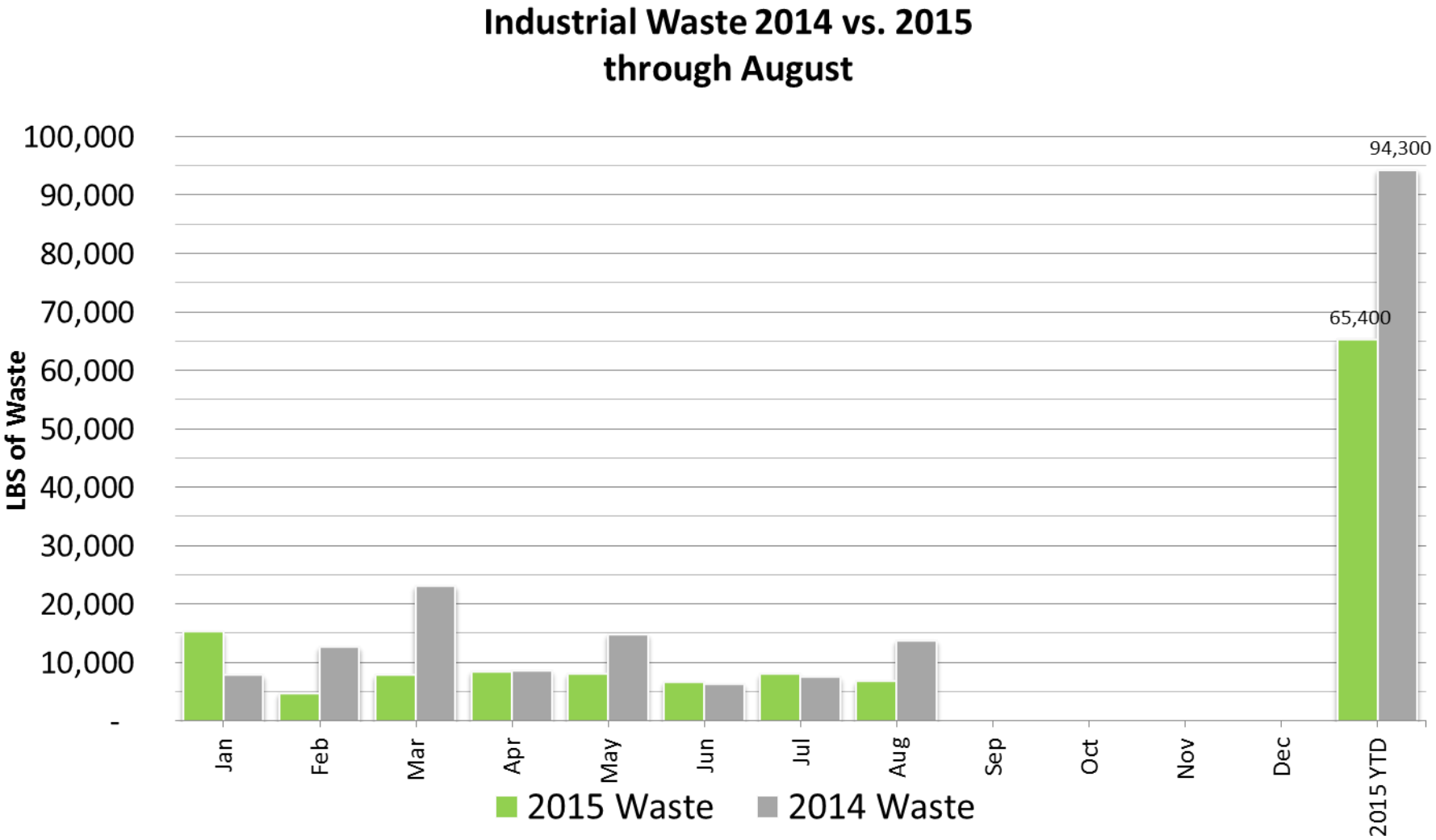


Address segregation opportunities and switch to single stream recycling

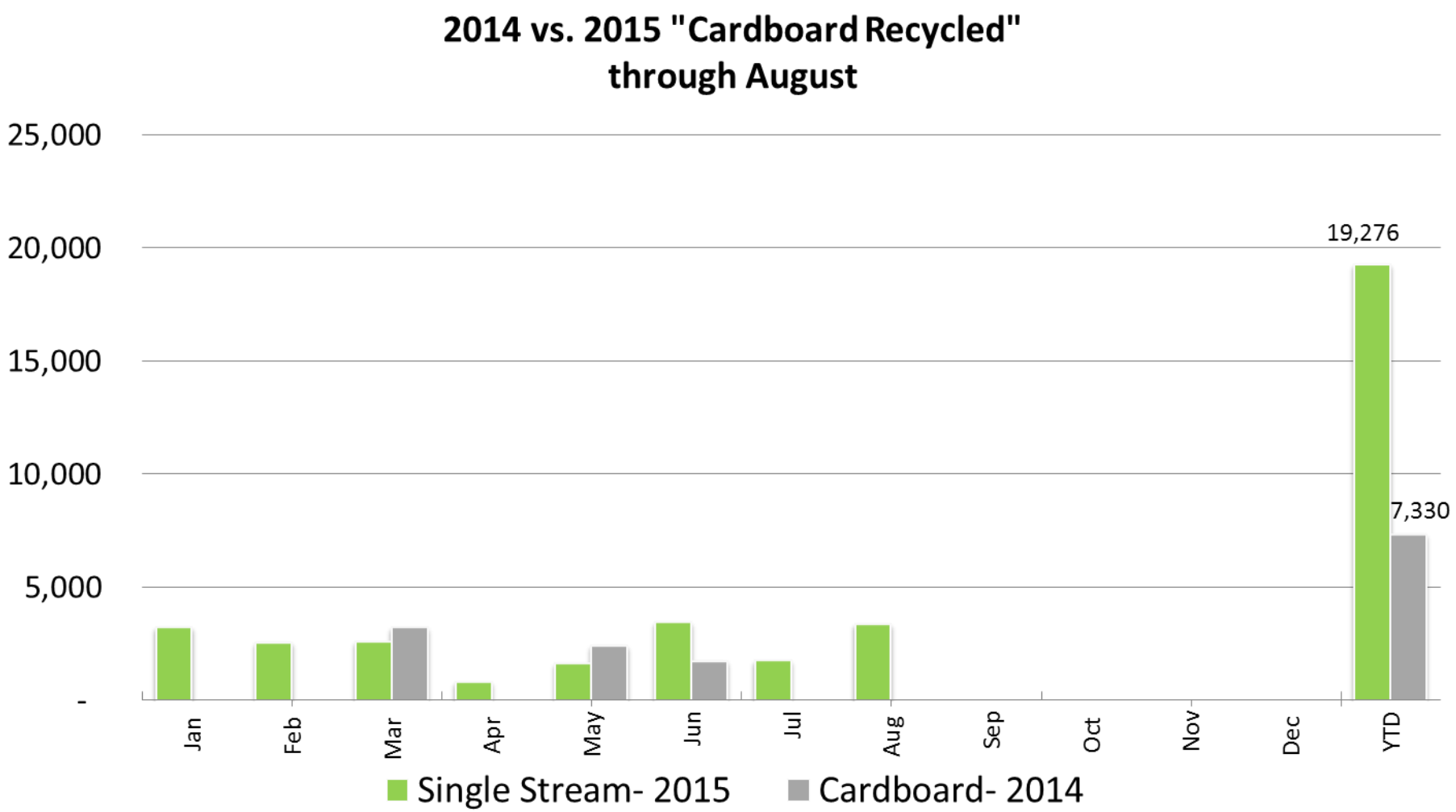
Where are we today-



How did we get here



How did we increase 3%



Questions??

ADEQ Arizona Department of Environmental Quality

Questions?

Contact us! We are here to help!

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