



southernfield **ENVIRONMENTAL
ELEMENTS**

southernfield ENVIRONMENTAL ELEMENTS

Woodyard

- Routine Maintenance
- Outage Maintenance
- Emergency Repair
- Parts

Stokers

- Repair & Maintenance Services
- Emergency Stoker Rebuilds & Repairs

Engineering

- New APC Equipment
- Inspections
- Electrical Troubleshooting
- Flow Studies

Air Pollution Control OEM

- Dry and Wet Electrostatic Precipitators
- Baghouses
- Dust Collectors
- Scrubbers
- Parts and Service

General Maintenance

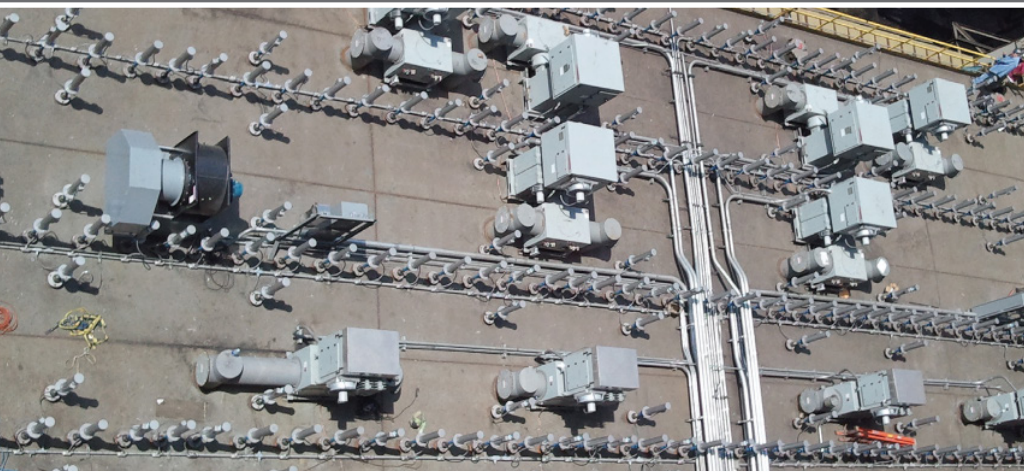
- Air Heaters
- Furnaces & Associated Air Systems
- Flue Gas Ductwork
- Stack Erection & Repair
- Longterm Contracts

24hr. Emergency Repair Services Available
1-844-476-5031



Table of Contents:

Overview and History	4
OEM – Environmental Elements	5
Precipitator Services	6
> Maintenance and Repair	
> Inspections	
> Parts	
Stoker Services	9
> Maintenance and Repair	
> Rebuild	
Baghouse and other APC	10
> OEM – Environmental Elements	
> Maintenance and Repair	
> Inspections	
> Parts	
Air Preheater Services	12
> Inspections	
> Maintenance and Repair	
Tubular Air Heater Services	13
> Maintenance and Repair	
> Inspections	
> Parts	
Woodyard	14
> Maintenance and Repair	
> Inspections	
> Parts	
General Maintenance	15
> Maintenance and Repair	
> Inspections	
Engineering Services	16
> OEM Design	
> Equipment Improvement	
> CFD	
ProcessBarron	18
> Overview	
> Diagram	
> Services	
> Precision Field Services Division	



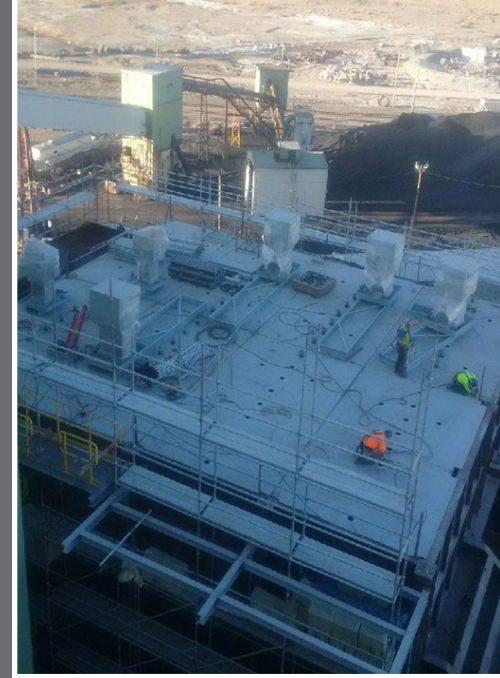
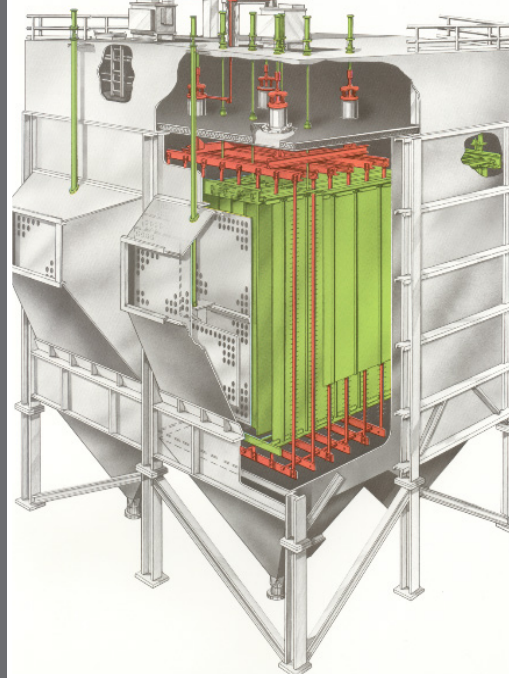
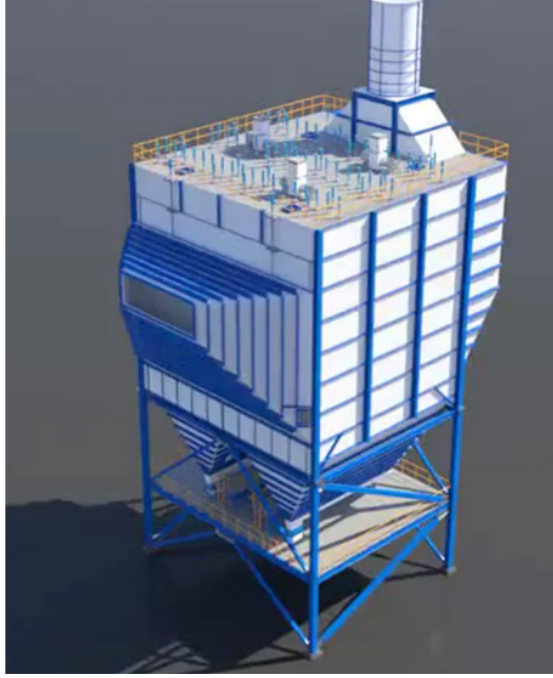
Overview & History

In 2006, Southern Field Maintenance and Fabrication was founded as an industrial maintenance company serving the Pulp and Paper, Power Generation, Steel, and Cement sectors. In 2010, Air Pollution Control was added as a division which is now a large part of the company. In 2015, a combined buyout of the family owners of ProcessBarron and Southern Field brought the companies together under common ownership, while retaining independent management. In 2018, after purchasing the assets of Environmental Elements Corporation, Southern Field rebranded as Southern Field – Environmental Elements (Southern Field - EEC). Environmental Elements is the largest precipitator OEM in North America and has over 1,500 installations of air pollution control equipment around the world (ESP, Fabric Filter, Dry scrubber).

As a privately held company with project managers, engineers, safety staff, field service engineers, superintendents, and skilled construction craft - we have the expertise, quality, and safety to support your next project.

Today, we provide industry leading support for many types of industrial equipment and operate from three locations including:

- Luverne, AL - Corporate Office and Shop
- Fletcher, NC - Project Management and Engineering
- Jacksonville, FL - Precipitator Parts



Electrostatic Precipitator-OEM

The EEC precipitator incorporates state-of-the-art design elements consisting of Rigitrode® discharge electrodes, Modulok™ collecting plates, Opti-Rap™ rapping systems and DOCIV™ microprocessor based automatic voltage controls to provide unsurpassed emissions performance and equipment operating characteristics. Designs include dry and wet precipitators. Over 1,500 installations worldwide.

RIGITRODE® discharge electrodes have successfully demonstrated excellent performance characteristics over a wide variety of applications and performance requirements. The electrode is fabricated from tubing with uniformly spaced corona studs welded along the length of the electrode to optimize the voltage/current relationship required for each application. Assembled into the precipitator as a rigid structural matrix, the system has sufficient stiffness to resist displacement due to electrical forces and lateral forces resulting from over-full hoppers.

The MODULOK™ collecting electrode was specifically developed to achieve exact plate alignment and structural integrity necessary for today's challenging applications, yet still provide excellent rapping response for dislodging the collected particulate. Extensive testing and broad application have demonstrated its superior ability to transmit rapping energy and its cleanability under all types of service and plate heights. The plate is comprised of a series of roll formed modules with interlocking edges that snap securely together for a strong mechanical bond. The design requires no field assembly and prevents deformation and oil-canning which occurs when individual panels are welded together along their vertical height. Southern Field - EEC can offer a variety of rapping system options. In each case, the entire rapping system is located outside the gas stream and can achieve plate acceleration in excess of 200g.

Southern Field - EEC offers an array of microprocessor based controls for its precipitator system. The DOCIV™ automatic voltage power controller with Mid Frequency Upgrade is the latest in performance and reliability.



Precipitator Repair Services

Southern Field - EEC is an experienced precipitator repair and maintenance company. Our superintendents and safety supervisors are familiar with the tight turn arounds and schedule of this work. Hot work and rigging in confined spaces with fall protection creates unique challenges for this sector of our business. Safe, quality completion is the priority for our construction team and your facility. Our project managers, engineers, and inspectors work hard to complete quality control, scheduling, and punchlists to ensure the success of your outage.

Services provided:

- Annual Maintenance
- Internal Rebuilds (All OEM).
- Casing Rebuild
- Hopper Replacement
- Drag Alignment
- Conveyor Repair
- Drive Millwright
- Expansion Joint and Damper Replacement
- Stack Repair



Inspections

Our skilled Field Service Engineers (FSEs) have experience working on all types of industrial equipment and processes and are ready to relay their expertise directly to your project. From working with individual mill personnel during the outage to providing detailed reports specifying exact locations of repairs and replacements, our FSEs can do it all.

Our FSEs work closely with our experienced supervisors and their crews to ensure your equipment is repaired correctly, safely, and in a timely fashion.

Southern Field – EEC also completes a high level of on-site quality control and provides accountability for all services provided.

Our FSEs can provide:

- Mechanical Inspection
- Electrical Inspection
- Drag Alignment
- T/R Oil Sampling
- Controls Upgrades
- Controls/Rapper Tuning
- Equipment Evaluation/Upgrade
- Comprehensive Reporting
- Phone Support
- Emergency Service



APC Parts Supply

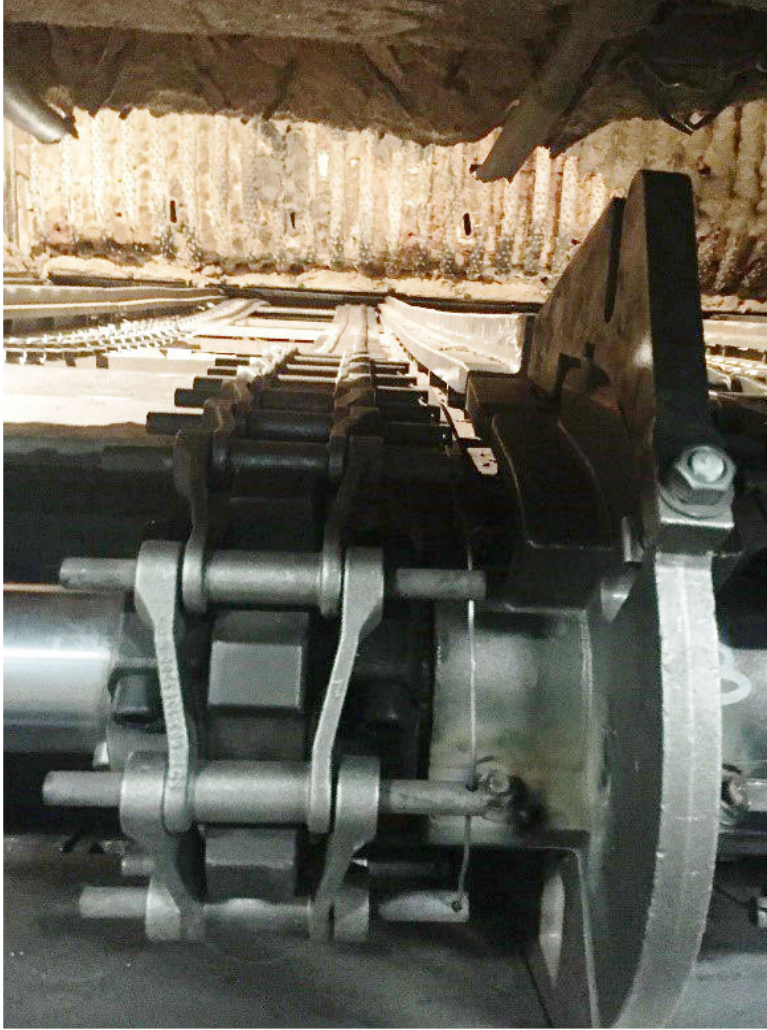
At our regional office in Jacksonville, FL, we have over 16,000 square feet of enclosed warehouse space containing all types of OEM and custom replacement parts. Available 24/7 all year long, Southern Field - EEC can provide you with all of your parts for emergencies and scheduled outages. Custom design/engineering is available for outdated or obsolete parts.

Currently Stocked:

- Insulated Rapper Rods
- Drag Chain Sprockets Rapper
- Electromagnetic Rappers
- Tumbling Hammers
- Rapper Coils
- Collecting Plates
- Stand Off Insulators
- Locking Collars
- Rigid Electrodes
- Replacement Drag Chains
- Mounting Bases
- Bearings
- Ground Cables
- Wires & Weights
- Support Insulators
- Electrode Repair
- Access Doors & Hardware
- Access Door Gasket
- Rapper Shoes
- Graphalloy Bearing Inserts
- Rapper Boots
- Anvil Beams
- Antisway Bars
- Screw Conveyors
- Kits Patch Plates
- Sprockets
- Rapper & Voltage Controls

CALL FOR CATALOG

1-800-PART-EEC



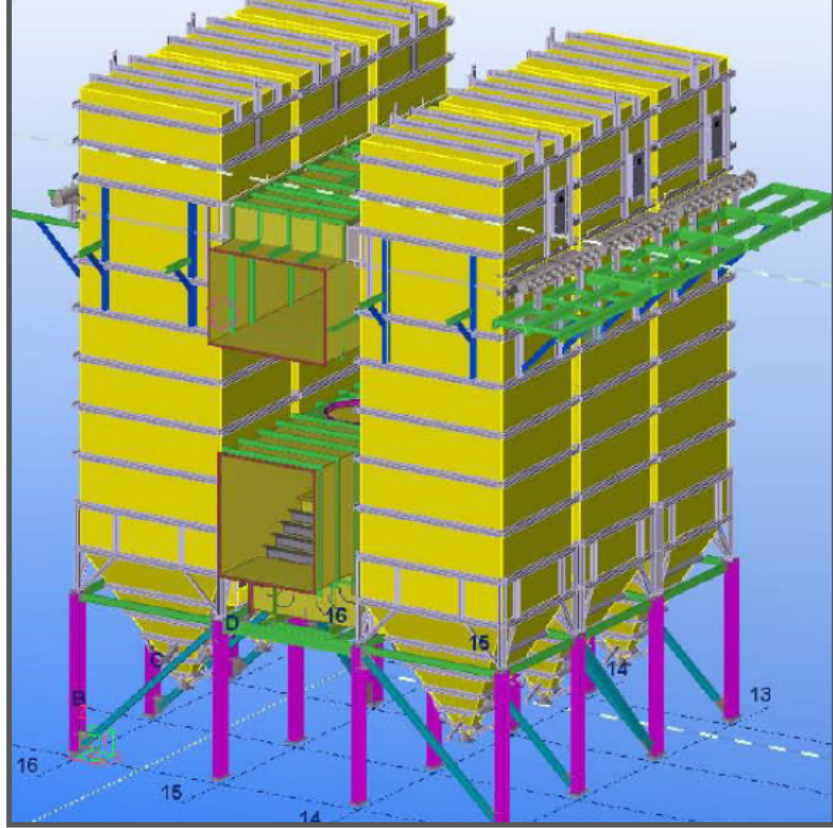
Stoker Services

In 2006, Southern Field Maintenance and Fabrication was founded as an industrial maintenance company. Southern Field - EEC has been a leader in boiler fuel feed equipment for over a decade. As the contracted labor force for Detroit Stoker, our supervisors and journeymen have commanding skill and experience in stoker system repair and maintenance. We service All OEMs of fuel feed systems.

Services Provided:

- Grate Replacement and Upgrade
- Bearing Replacement and Upgrade
- Shaft Replacement
- Total Rebuild





Baghouse & Other APC

Southern Field - EEC offers a wide range of fabric filter systems designed to control particulate emissions in a variety of utility and industrial applications. With the fabric filter, a particulate laden gas stream passes through the filter bag so that the particulate is collected on the surface of the fabric. Fabric filters are high efficiency collection devices capable of collecting fine particulate from the gas stream. Typical collection efficiencies exceed 99.9%. Southern Field – EEC offers both Pulse-Jet and Reverse Air Fabric Filter Systems.

PULSE-JET FABRIC FILTERS

The Southern Field - EEC Pulse-Jet Fabric Filter System consists of individual fabric filter modules, each containing up to 720 filter bags each 6 inches in diameter and ranging in length from 10 to 28 feet. With pulse-jet filters, gas flows from the outside to the inside of the bags. The bags are mounted on cages to keep them from collapsing from the force of the flue gas. Dirty gas enters the patented Stepped Inlet Manifold and is uniformly distributed among the modules. Gas enters each module through a vaned inlet elbow near the top of the hopper where a patented Inlet Vane System uniformly turns and distributes the gas flow upward, depositing the dust on the exterior surface of the bags. Clean gas passes through the fabric and into the outlet manifold through air-operated poppet dampers. Periodically, the fabric is cleaned by a pulse of compressed air injected into each filter bag through a venturi nozzle. Pulse cleaning dislodges the dust cake collected on the outside of the bag and allows it to fall into the hopper for evacuation. Cleaning can be performed either on-line or off-line depending upon customer preference, bag life issues, or emission performance requirements.

The results of these proprietary systems are uniform distribution of gas and dust and reduced mechanical pressure drop... the secret to LONG bag life.



Services

- Bag Change Out and Replacement
- Precipitator - Baghouse Conversion
- Tube Sheet Repairs
- Structural and Casing Repair
- Ductwork Modification and Repair
- Damper Installation and Repair
- Pulse Jet Piping and Controls
- Inspection and Reporting
- Bag Supply (Felt, Fiberglass, Gore-Tex, Nomex)
- Bag Leak Detection Systems
- OEM Design



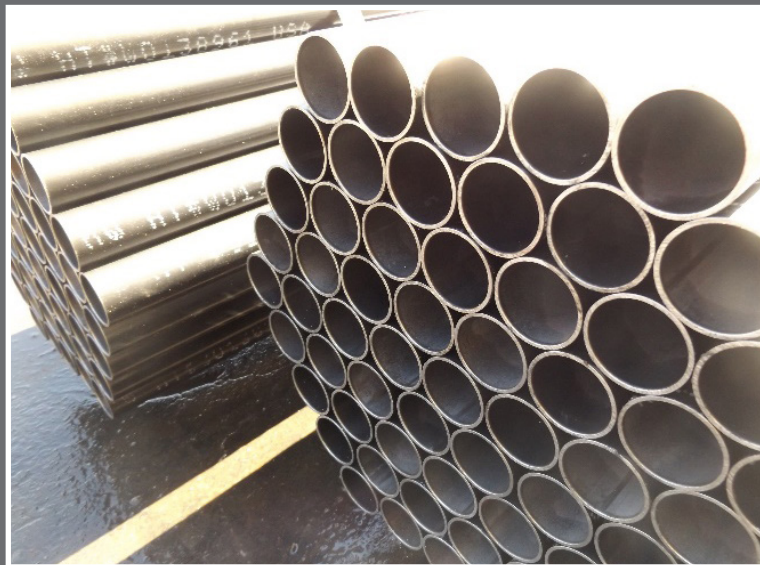
Air Preheaters

Used by:

- Boiler companies
- Utilities
- Manufacturers

Services Include:

- A detailed life assessment of your heat exchangers and prepare detailed inspection reports
- A tailor-made engineering and supply service for upgrading older regenerative heat exchangers to achieve higher thermal efficiency and higher availability, lower leakage rates, and lower operating cost
- Wide range of cleaning equipment for improved cleaning efficiency to ensure longer operating periods between required shut-downs for maintenance
- Seal and Basket Replacement (Also SCRs)



Tubular Air Heaters

Installation and supply of Tubes, Tubesheets, Sleeves, Couplings, and Plugs

Benefits of a Well Maintained, Efficient Unit:

- Lowers fuel consumption due to higher inlet temperatures resulting in reduced fuel costs
- Fuel is burned more completely which results in lower emissions
- Maintains proper operating conditions for downstream equipment such as Precipitators and Baghouses
- Consistent and controllable exiting flue gas temperatures
- Lower fan amperages
- Overall boiler efficiency - Every 40° F increase in fresh air inlet temperature increases boiler efficiency by 1%.

Two common types of Tubular Air Heaters used in industrial settings relate to the direction of the tubes - vertical or horizontal. Damage occurs differently in each type of unit.

Erosion

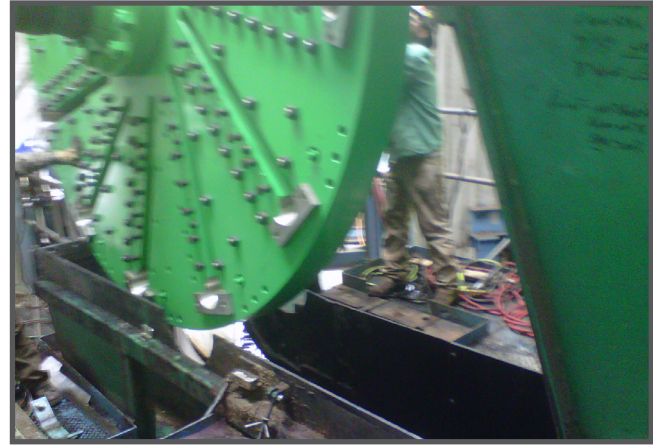
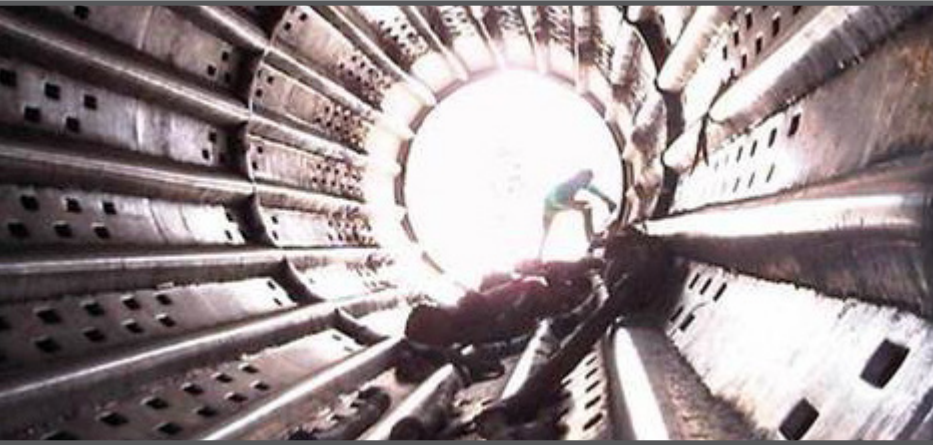
- Caused by flue gas

Mechanical

- Soot blower damage
- Fouled tubular internals
- Poor maintenance

Corrosion

- Usually at fresh air inlet area
- Temperature drops below acid dew point causing condensation



Woodyard

Repair and Rebuild

- Routine maintenance
- Emergency repair
- Outage maintenance

Outage Maintenance

- Debarker lifter build up or replacement
- Hardsurfacing
- Chipper replacement
- Conveyor drive – diskscreen replacement
- Laser alignment
- Modifications
- Inspections for quality control
- Chain and Deck Replacements

Parts

- Internal part replacement
- Chip card breakers
- Replace old with new
- Stacker/Reclaimers



General Maintenance

Repair & Rebuild

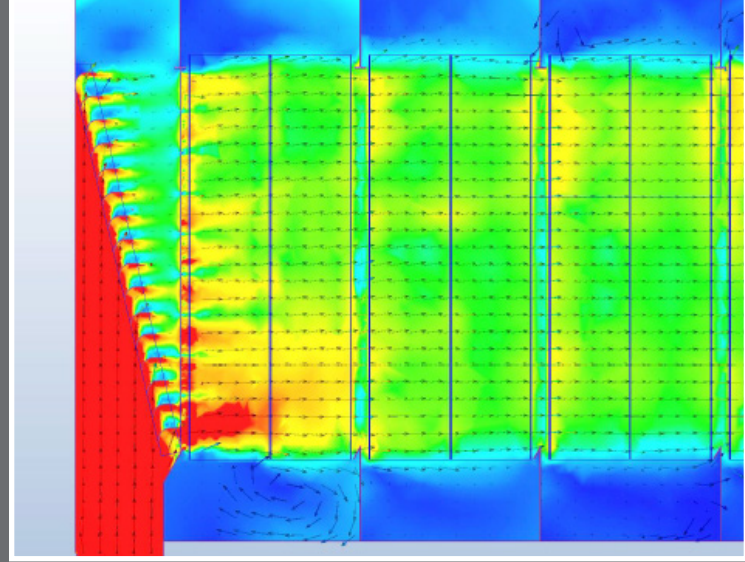
- Routine maintenance
- Emergency repairs
- Outage maintenance
- Long term maintenance

Upgrades

- Increased production
- Materials upgrades
- Increased reliability
- Increased longevity

Parts

- Internal replacement parts
- Reverse Engineered components
- Standard OEM and specialty parts



Air Pollution Control Engineering Services

Our capable and experienced engineering staff offers a variety of services to provide your facility with the best Air Pollution Control services:

- OEM Design and Sizing (proven and accurate)
- Fabrication/Rebuild Drawings for over 1500 installations worldwide
- CFD Studies and Upgrades
- Precipitator Upgrades and Efficiency Improvement
- Detailed Engineering and CAD Services
- Electrical and Controls Upgrades

Sharing common ownership with ProcessBarron allows Southern Field-EEC to support additional projects with OEM technology for many other products beyond Air Pollution Control

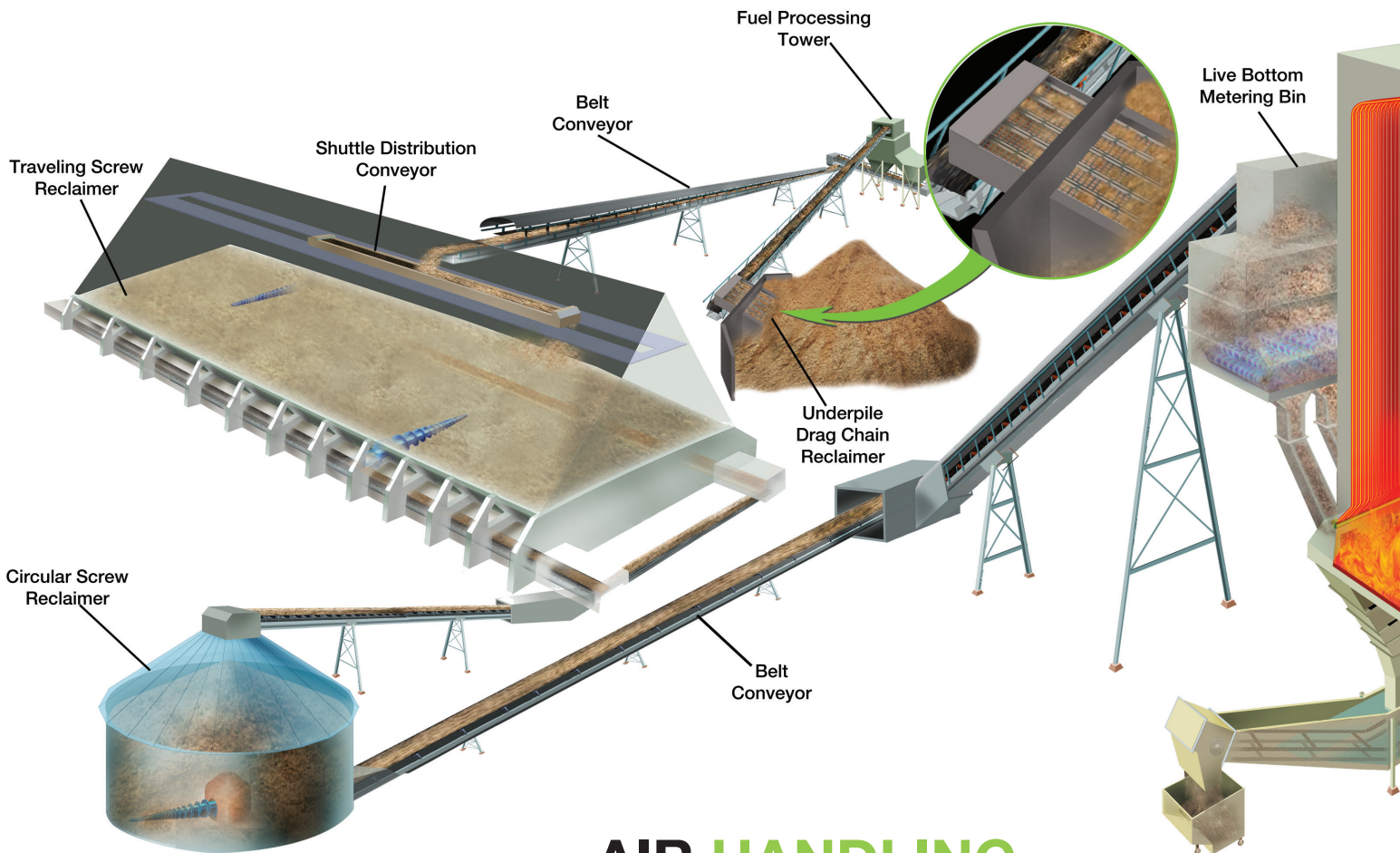


design, fabrication, installation, maintenance, and repair of air, flue gas and bulk materials handling system equipment. From our production facilities near Birmingham, Alabama, we offer a wide range of manufactured products and turnkey services to our customers in a variety of industries including power, biomass, pulp and paper, iron and steel, cement, lime, textile, foundry and mining.

process**barron**

southernfield ENVIRONMENTAL ELEMENTS

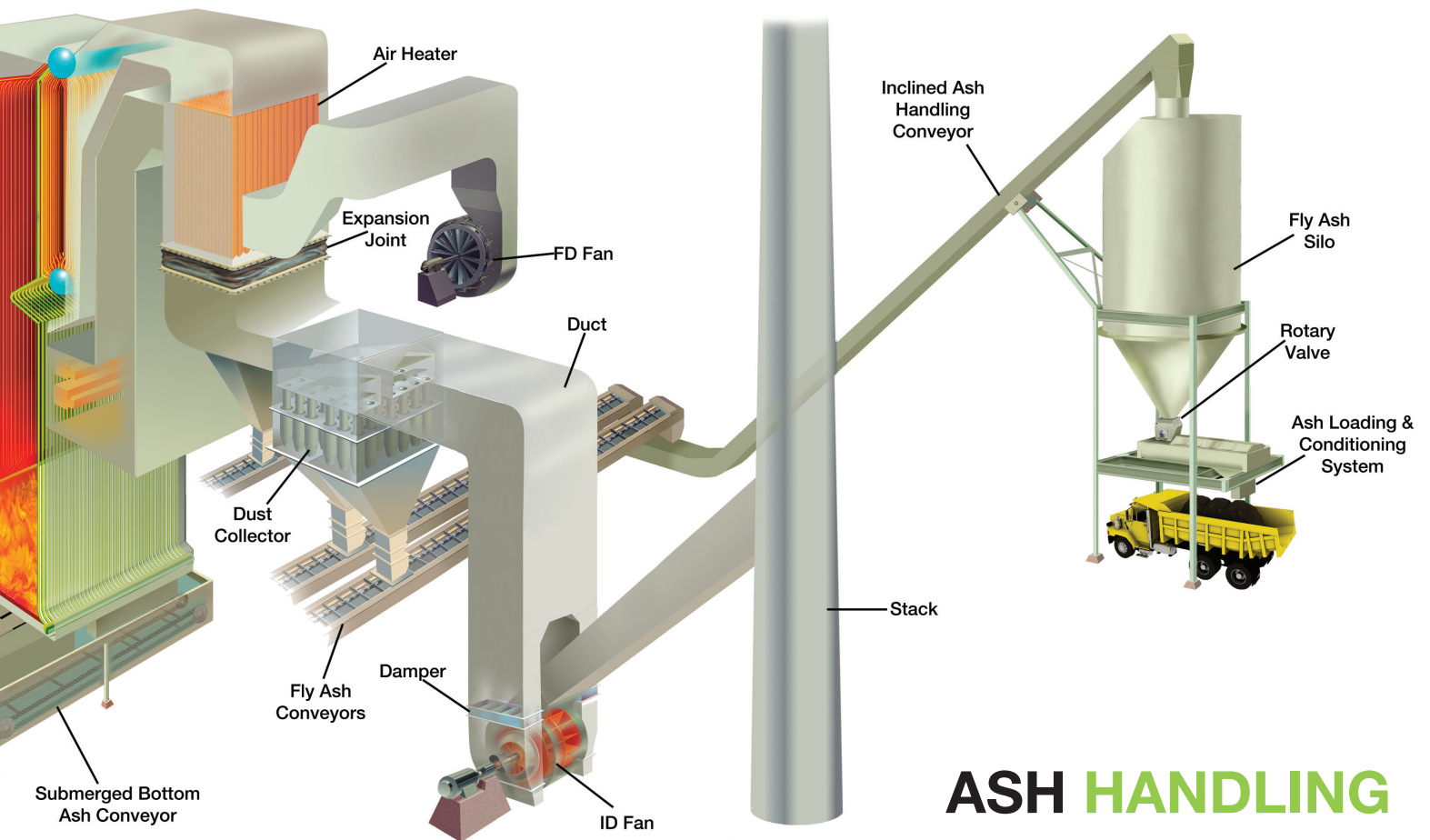
BULK HANDLING



AIR HANDLING

COMPANY SERVICES

With over thirty years experience, we are a proven provider of air, flue gas and bulk materials handling equipment. ProcessBarron is an industry leader as a result of its quality products, proven reliability and dedication to customer service. We pride ourselves on our ability to quickly solve system problems and keep facilities operating with minimal downtime.



ASH HANDLING

www.processbarron.com | 205-663-5330 | For emergency repair call 1-800-226-3267



AIR HANDLING

At ProcessBarron, our fan designs have been developed by experienced engineers and skilled craftsmen. We are able to effectively work with clients to address issues and recommend solutions throughout their facility, not just provide a single product or service.

New Fans

- Engineered, fabricated, and installed

Upgrades

- Environmental, performance, efficiency

Repairs

- Increase life of existing fans

Rebuild

- Any make or diameter fan

Emergency Repair Service

- 24 hours a day, 7 days a week.

Auxiliary Equipment

- Dampers, Expansion Joints, Ductwork Dust Collectors, Air Heaters, Grate Seals and Kiln Seals

BULK HANDLING

ProcessBarron offers its customers a full suite of bulk materials handling products and can provide turnkey solutions for a variety of fuel types and applications, including biomass. We develop customized systems for each individual application and client and ensure performance once installed.

Material Handling Systems

- Turnkey Solutions
- Solid Fuel / Biomass Feed Systems
- Ash Handling, Storing & Unloading

Individual System Components

- Custom Conveyors
- Bark Bins
- Circular & Traveling Screw Reclaimers
- Ash Conditioners & Unloaders
- Rotary Airlock Feeders
- Double Dump Valves
- Spare Parts, Accessories
- Emergency Repair Service

FIELD SERVICES

Our construction group has completed installations throughout the US, and many times is the only contractor onsite for unexpected outages and maintenance shutdowns. By minimizing a facility's downtime, we are able to save our clients millions of dollars in missed revenue and operating costs.

Emergency Repair Service

- Available 24/7 for timely, top-quality work

Preventative Equipment Maintenance

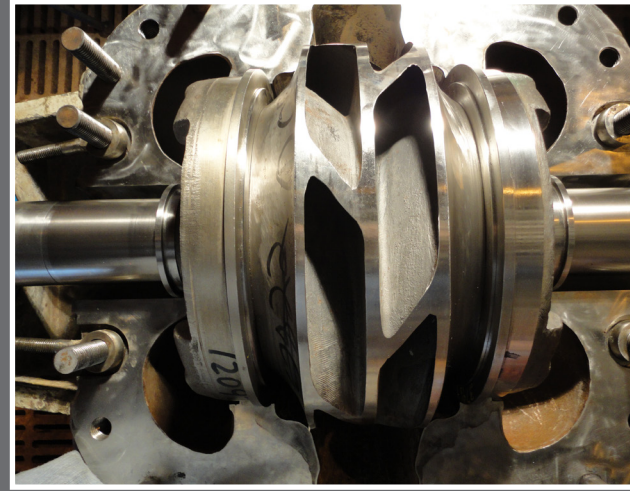
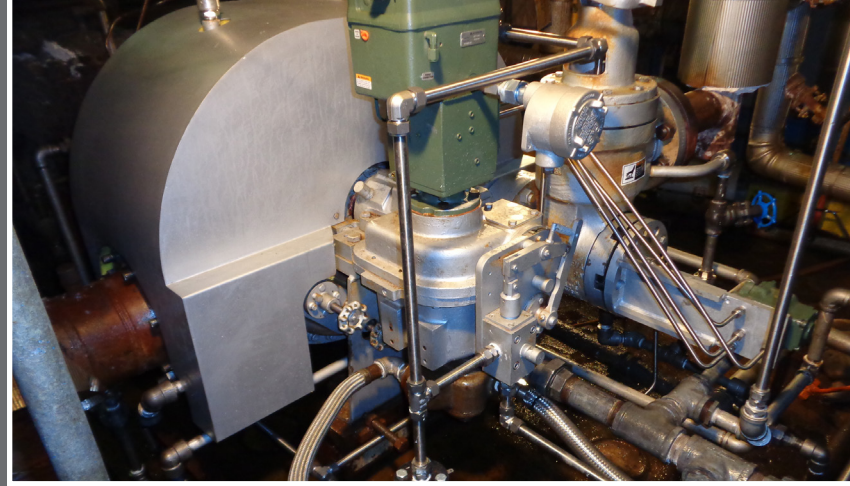
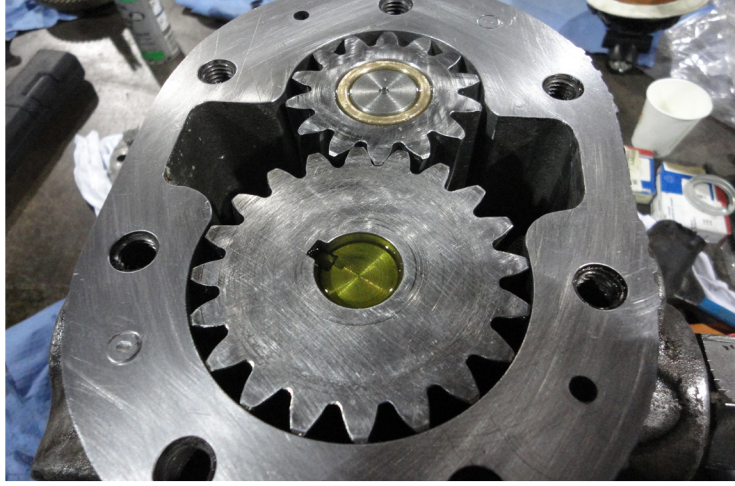
- Scheduled outages ensure plants are operating efficiently and reliably

Installation

- Offered as part of our turnkey solutions

Technical Solutions

- Fan Balancing
- Alignment
- Modal Analysis
- Vibration Analysis
- Technical Assistance
- Visual Inspection



Precision Field Services

Our Precision Field Services division, operating within our Field Service Group, specializes in industrial maintenance, service, and installation. With a team of highly-skilled, multi-craft members that have accredited training, we can ensure safety, precision, and reliability to our customers.

This group is committed to providing continuous improvement, service, quality, and technical assistance. By employing systematic and methodical procedures to eliminate failure and waste, the Precision Field Services division is able to offer value-added services to our customers, always.

Services

- Precision Industrial Maintenance
- Precision Turbine Maintenance
- Precision Laser Alignment



Products & Services

Bulk & Ash Handling

- Bulk Materials Handling Systems
- Receiving, Storage, & Delivery Systems
- Live Bottom Metering Bins
- Under-pile Drag Chain Reclaimers
- Circular & Traveling Screw Reclaimers
- Material Sizing & Classification Systems
- Custom Engineered Belt, Screw, & Drag Conveyors
- Fly Ash & Bottom Ash Handling Systems
- Fly Ash Storage Systems
- Fly Ash Conditioning & Truck Loading Systems
- Submerged Bottom Ash Drag Chain Conveyors
- Rotary Airlocks & Double Dump Valves

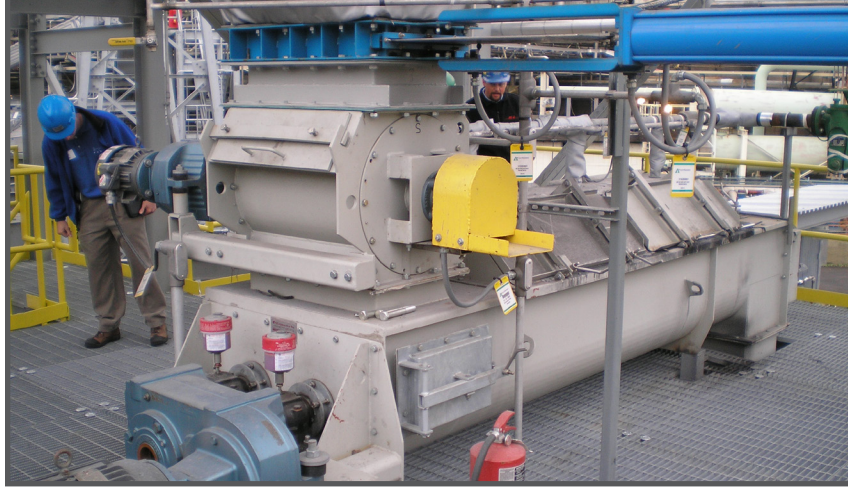
Air & Gas Handling

- Mechanical Draft Fans
- Economizers
- Tubular Air Heaters
- Mechanical Dust Collectors
- Custom Dampers
- Fabric & Metal Expansion Joints
- Ductwork & Exhaust Stacks
- Boiler Upgrades & Stokers
- Draft System Engineering
- Fan & Vibration Analysis
- Draft System Assessment
- Efficiency Upgrades

Turnkey Services

Equipment Redesign & Retrofit

24 Hour Emergency Repair



process**b**arron

southernfield **ENVIRONMENTAL
ELEMENTS**

Total System Solutions

Design | Engineer | Fabricate | Install
Service | Repair | Rebuild