



## **Company Overview and Capabilities**

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# Company Overview and Capabilities

Presentation Overview



**Company Information**

**Bottom Ash Systems**

**Fly Ash Systems**

**Products**

**Other Systems and Businesses**

# Company Overview and Capabilities

Company Information



## Who is United Conveyor?

- Established 1920 with 90+ years of proven experience
  - Broadest portfolio of RELIABLE ash handling solutions
- Global leader in ash handling solutions for power generation
  - Operations in China, Germany, India and Thailand
  - Dominant market position in Japan through KHI License
  - Over 4,500 systems installed in more than 26 countries
  - Over 3 billion tons of ash conveyed
- Preferred supplier for dry sorbent injection and reagent handling

# UCC - Leader in Materials Handling Systems



> 450 Employees



Corporate Headquarters,  
Waukegan, IL, USA



Steel Fabrication, Indiana, USA



Warehousing and Assembly



European office Germany



UCC China, Tianjin & Beijing



UCC India, Pune



# UCC - Leader in Materials Handling Systems



More than 2.200 Reference Installations

## Bottom Ash

- Hydraulic Systems
- Pneumatic Systems
- Mechanical Systems
- Vibratory Systems

## Fly Ash

- Vacuum Systems
- Pressure Systems
- Dilute, Medium and Dense Phase

## Reagent Handling

- Truck & Rail Car Unloading
- Storage and Silo-to-Silo Conveying
- Injection Systems



## Mill Rejects/Pyrites

- Wet and Dry Conveying

## Pulverized Fuel

- Once-Through
- Closed Loop Nitrogen

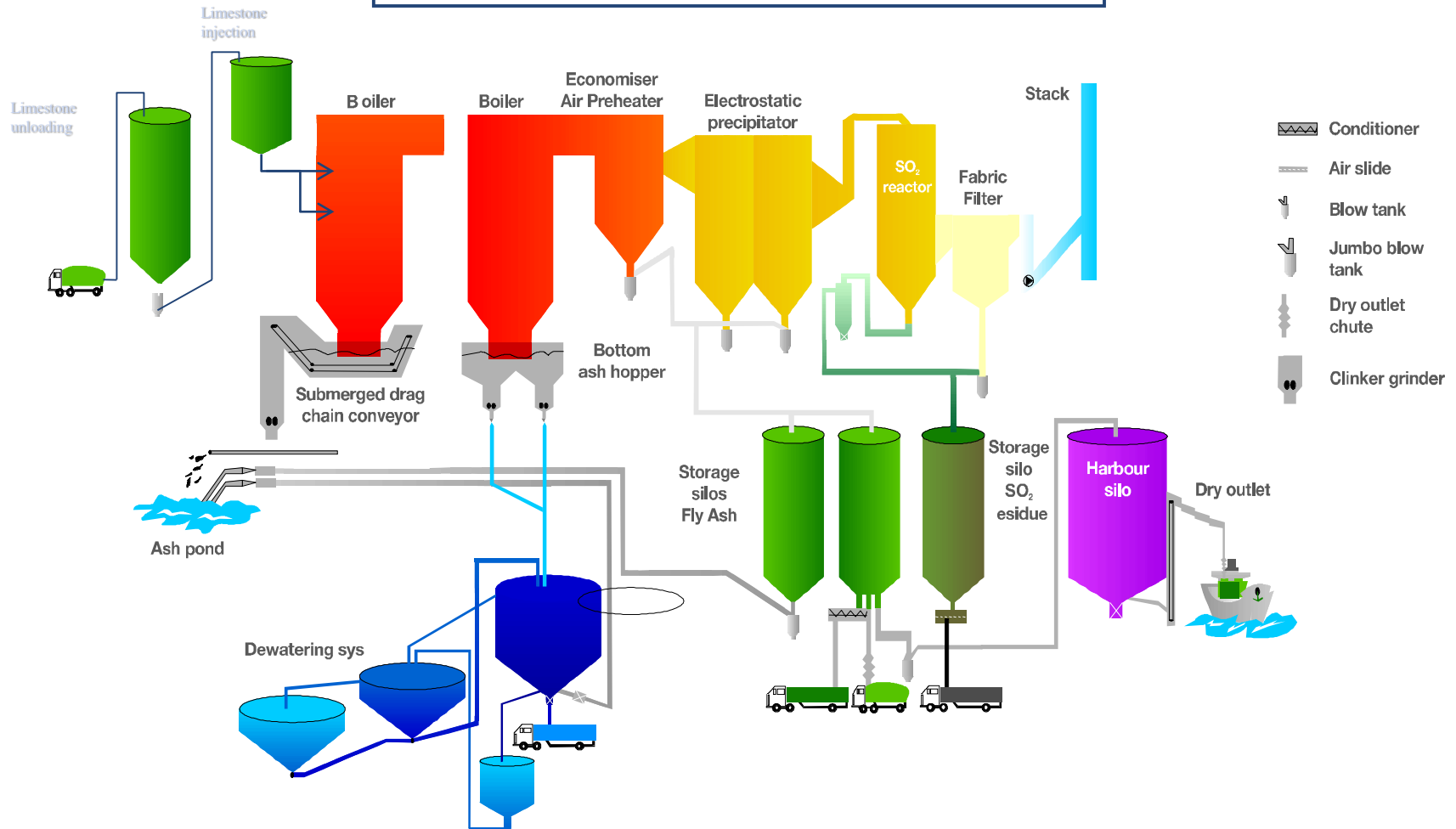
## System Components

- Crushers
- Feeders
- Filter Separators
- Gates / Valves
- Mixers
- Pipe / Fittings

# UCC - Leader in Materials Handling Systems



## UCC's Comprehensive Product Portfolio



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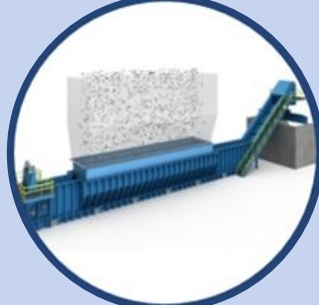
# Company Overview and Capabilities

## Bottom Ash Systems



### **CDR™ Continuous Dewatering Remote System**

- 4+ installations
- No Changes Under Boiler, Uses Existing Hopper
- Minimizes Outage Requirements
- Field-proven reliability



### **MAX™ Submerged Flight Conveyors**

- 100+ installations
- Continuous removal of ash
- Long-Term Economical Choice (Low O&M Costs)
- Simple Solution if Space is Available



### **DAX™ Dry Ash Extractor**

- 2 installations
- Continuous dry removal of ash
- Low power consumption
- Heat recovery and boiler efficiency improvement



### **PAX™ Pneumatic Ash Extractors**

- 10+ installations
- 1<sup>st</sup> dry bottom ash system using pneumatic technology
- Easily retrofitted around structural barriers
- Improved heat recovery and boiler efficiency



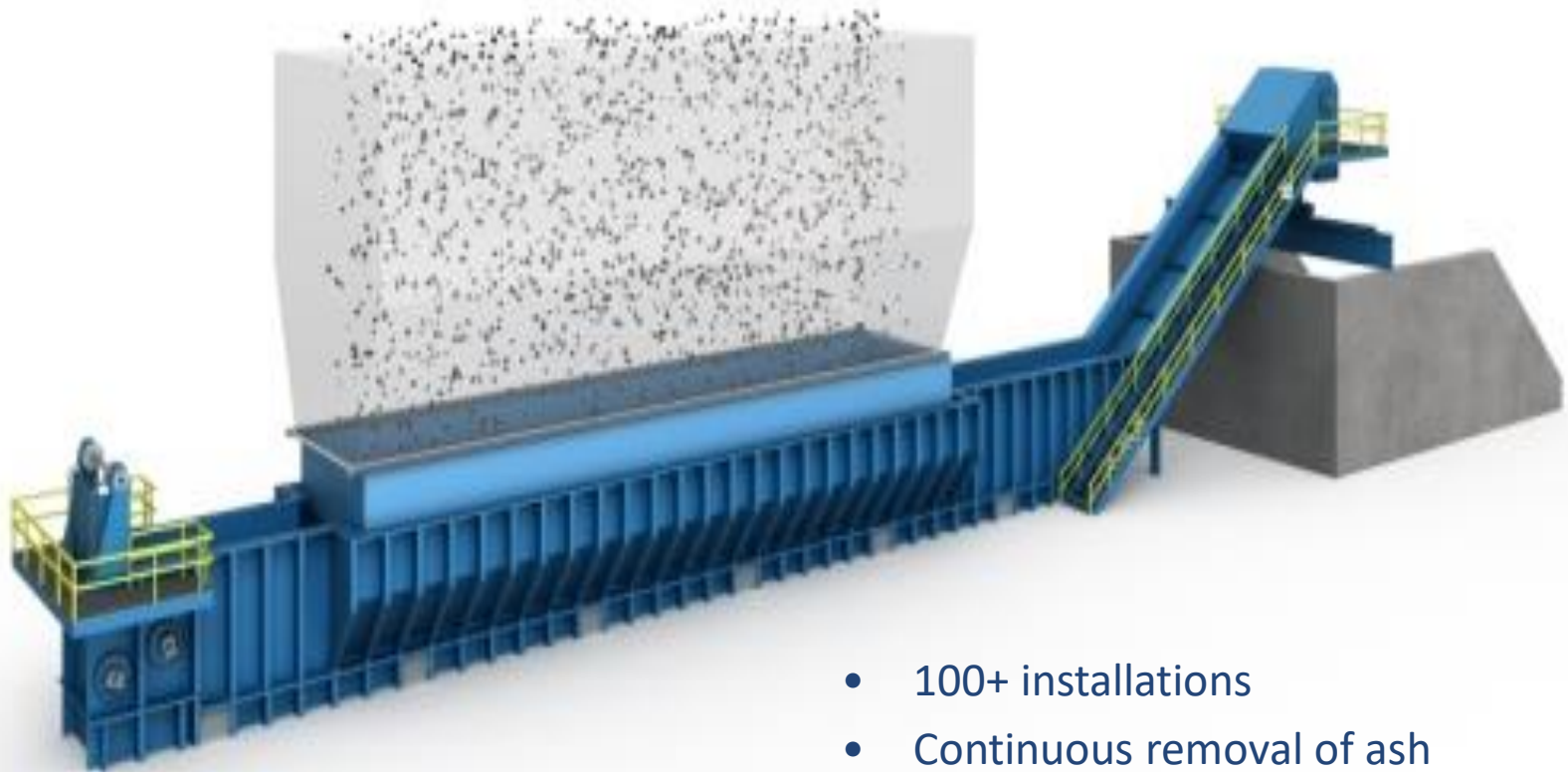
### **Hydraulic (Sluice) Systems**

- 1,000+ installations
- Transports bottom ash to a collection pond
- Field-proven reliability
- With the disappearance of wet ponds, systems get retrofitted into other Systems (MAX, CDR, DAX, PAX...)



# Company Overview and Capabilities

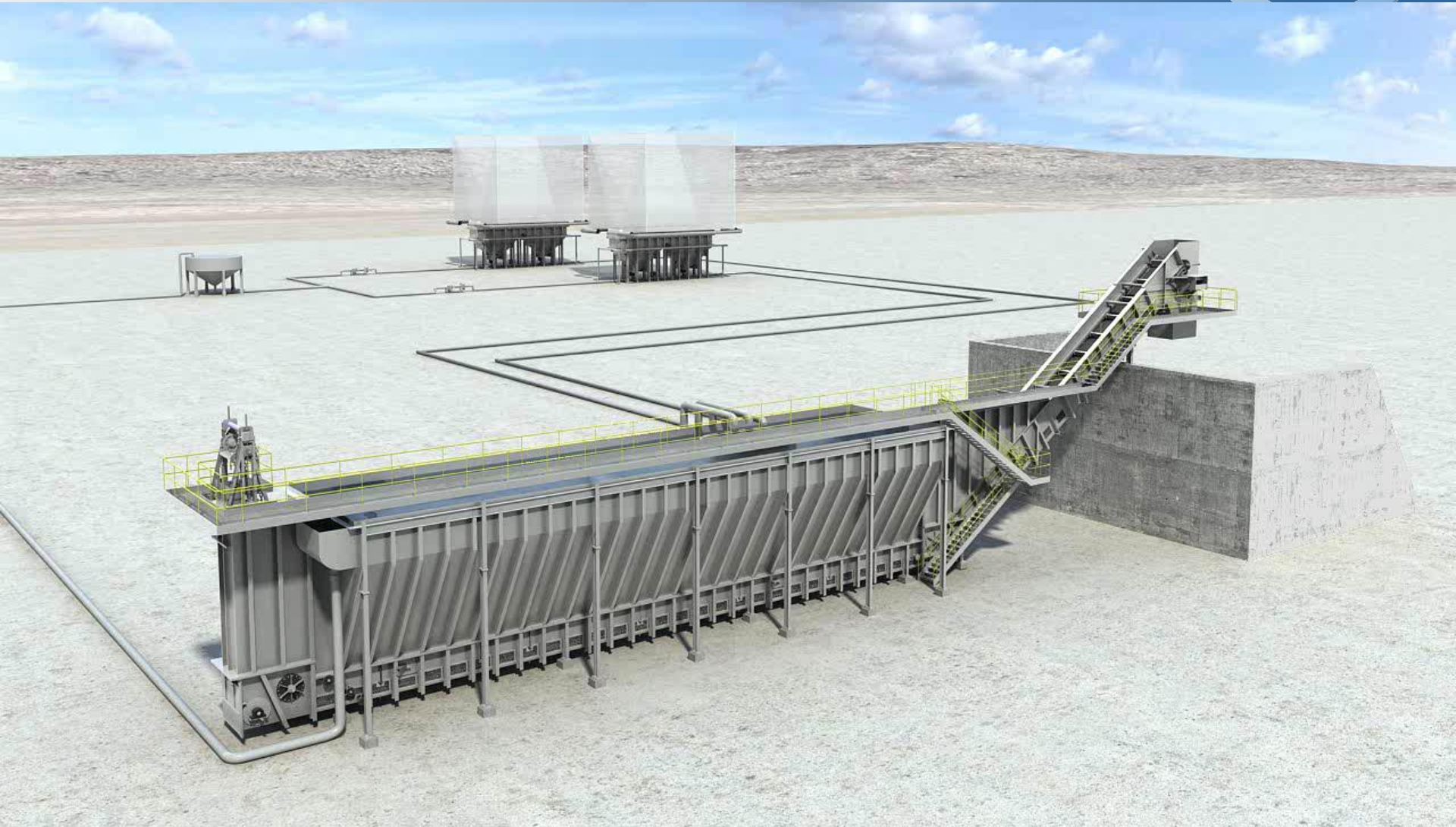
MAX™ – Submerged Flight Conveyor



- 100+ installations
- Continuous removal of ash
- Low power consumption
- Uses small amount of water

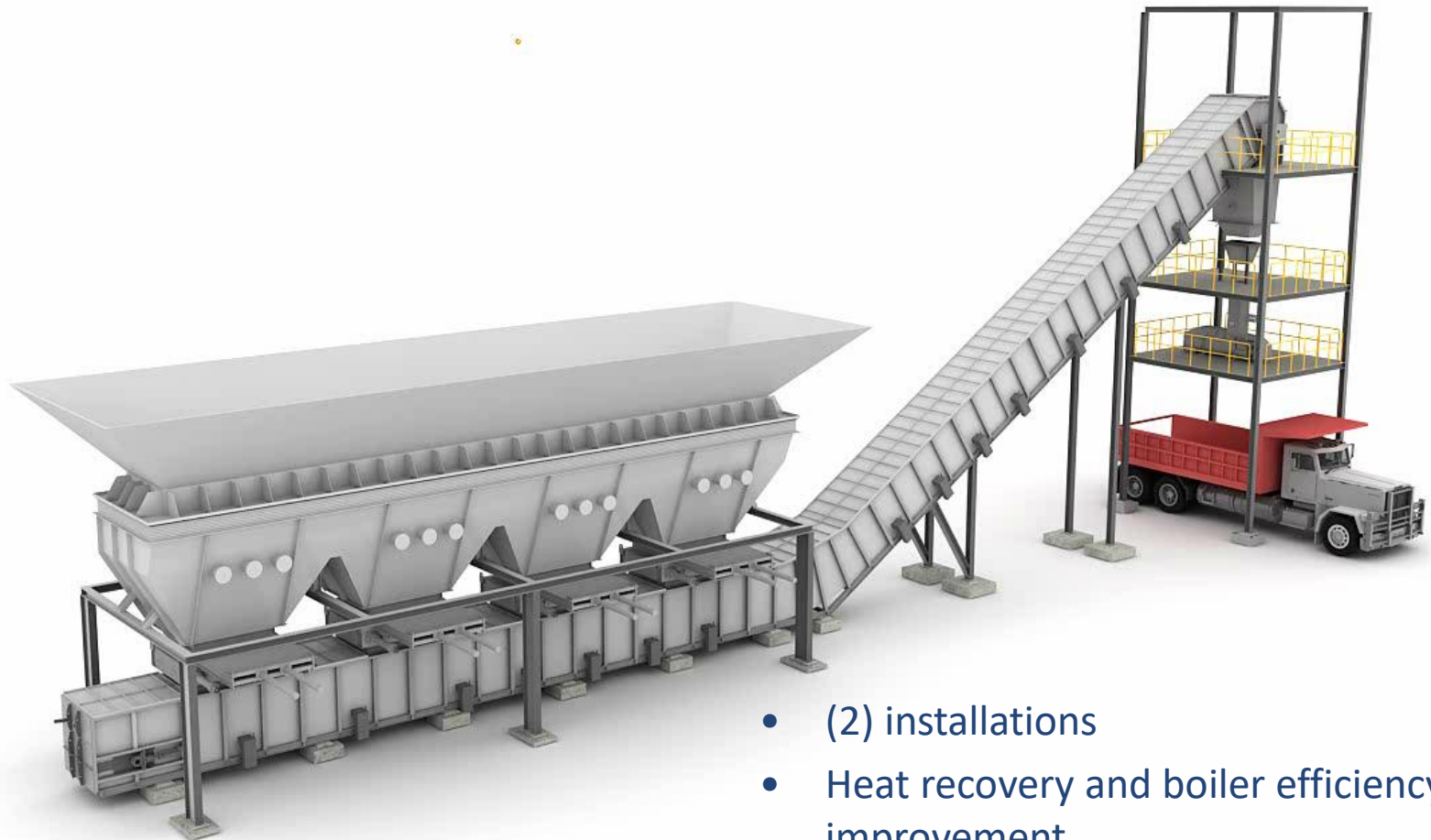
# Company Overview and Capabilities

CDR™ - Continuous Dewatering Remote System



# Company Overview and Capabilities

DAX™ – Dry Ash extractor



- (2) installations
- Heat recovery and boiler efficiency improvement





# Company Overview and Capabilities

PAX™ – Pneumatic Ash Extractor

- Superior Heat Recovery
- Un-burnt Carbon Control
- Low Lifecycle cost



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Fly Ash Systems



Vacuum



## NUVEYOR® Vacuum Systems

- 2,000+ installations
- Capacity up to 80 TPH
- Distances up to 450m (1,500 ft.)

Pressure



## NUVA FEEDER® Pressure Systems

- 1,000+ installations
- Capacity up to 175 TPH
- Distances up to 2,400 m (8,000 ft.)



## DEPAC® Pressure Systems

- 400+ installations
- Capacity up to 200 TPH
- Distances up to 1,600 m (5,250 ft.)



## MultiDAC™ Pressure Systems

- 50+ installations
- Capacity up to 130 TPH
- Distances up to 450 m (1,500 ft.)

Slurry



## HDCC™ Slurry Systems

- 10+ installations
- Capacity up to 200 TPH
- Distances up to 10km (6 miles)

Dilute Phase

Dense Phase

# Company Overview and Capabilities

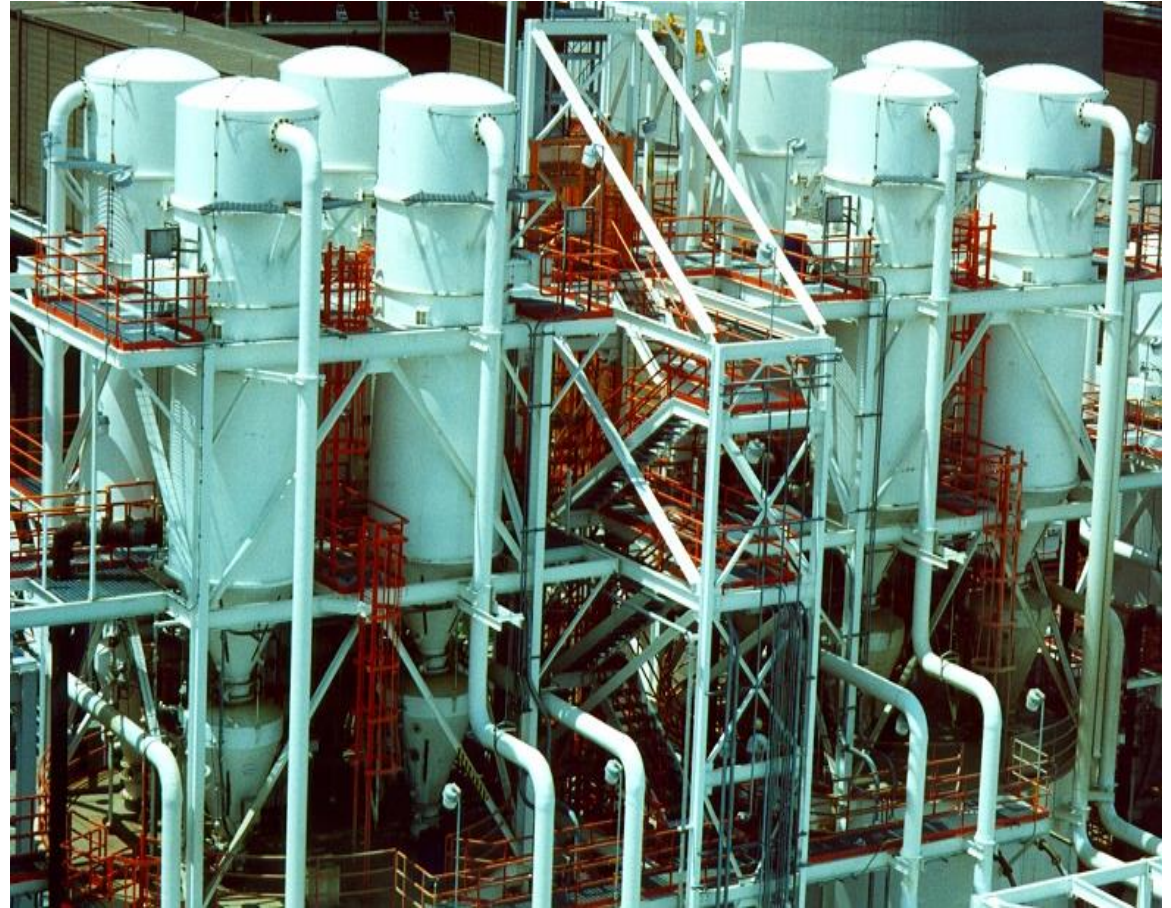
NUVEYOR® : System view under EP





# Company Overview and Capabilities

NUVEYOR® : Filter separator arrangements



# Company Overview and Capabilities

NUVAFEEDER<sup>®</sup> - Vessels arrangement





# Company Overview and Capabilities

NUVAFEEDER<sup>®</sup> - View under hoppers





# Company Overview and Capabilities

DEPAC<sup>®</sup> - System view under EP



# Company Overview and Capabilities

MULTIDAC™- General Layout under Hopper



# Company Overview and Capabilities

## Fly Ash handling - Summary



- MultiDAC™ Pressure System
  - Economical for short & intermediate distances



- DEPAC® Top & Bottom Discharge Pressure Systems
  - Economical for intermediate to long distances



- NUVAFEEDER™ Pressure Systems
  - Economical for intermediate to long distances



- NUVEYOR™ Vacuum Conveying System
  - Economical for short distances
- Combination Systems
  - Economical for relatively large number of hoppers with intermediate to long conveying distances



# Company Overview and Capabilities

DFC™ - Dry Flight Conveyor - Coarse Ash (Economizer) System



**Continuous removal of Economizer Ash (Hawthorne Power Station)**

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## Proprietary Products



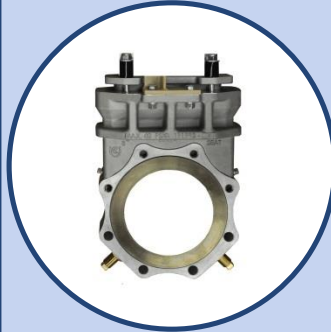
### Crushers and Bottom Ash Components

- EXCEN-CRUSHERS®
  - 18" Diameter
  - 27"X20"
  - 33X30"
  - 54"X43"
- Hydroveyors
- Jetpulsion pumps



### Mixer and Unloaders

- Paddle mixers
- Pin-paddle mixers
- Rotary unloaders



### Gates and Valves

- 40D knife gates
- 150W knife gates
- Swing disc valves
- DEPAC® inlet valves
- Sheardisk valves
- Rotary disc
- Slide gate
- Vent valves
- Air intake valves
- sluice gates
- Fly ash intakes and diffuser feeders



### Pipe and Fittings

- Abrasion resistant pipe
- DURITE® conveying fittings and pipe
- SPARTAN fittings
- NUMAFLEX fittings
- Ceramic fittings
- Expansion joints
- Connections
- Gaskets



### Filter and Separators

- Bin vent filters
- Bag filters & cages
- Filter separators

# Company Overview and Capabilities

Warehousing and Inventory



**Largest Inventory of Replacement Parts in the Industry**

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# Company Overview and Capabilities

Mill Rejects, Dry Sorbent Injection and Lime Handling



## Mill Reject Systems

- 300+ installations
- Removal of large, coarse pyrites
- Systems utilize sluice, mechanical, vacuum or positive pressure pneumatic technology



## Dry Sorbent Injection

- Performance-based turnkey solutions
- Utility and industrial boilers
- Economical and effective solution to reduce SO<sub>2</sub>, SO<sub>3</sub>, mercury and acid gases.
- Fraction of the capital cost of a wet and dry scrubbers

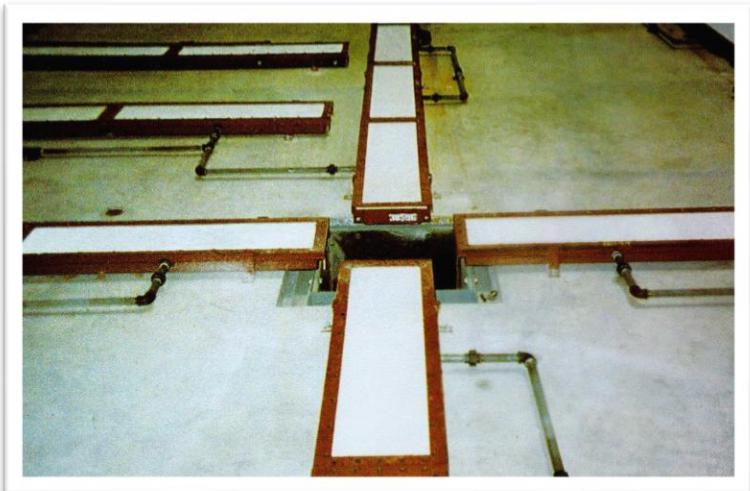


## Reagent Handling

- Over 30 years experience designing lime and reagent handling systems
- Systems include truck and rail unloading, bulk storage and silo-to-silo conveying
- Reagents including limestone, pebble lime, hydrated lime, trona and magnesium oxide

# Company Overview and Capabilities

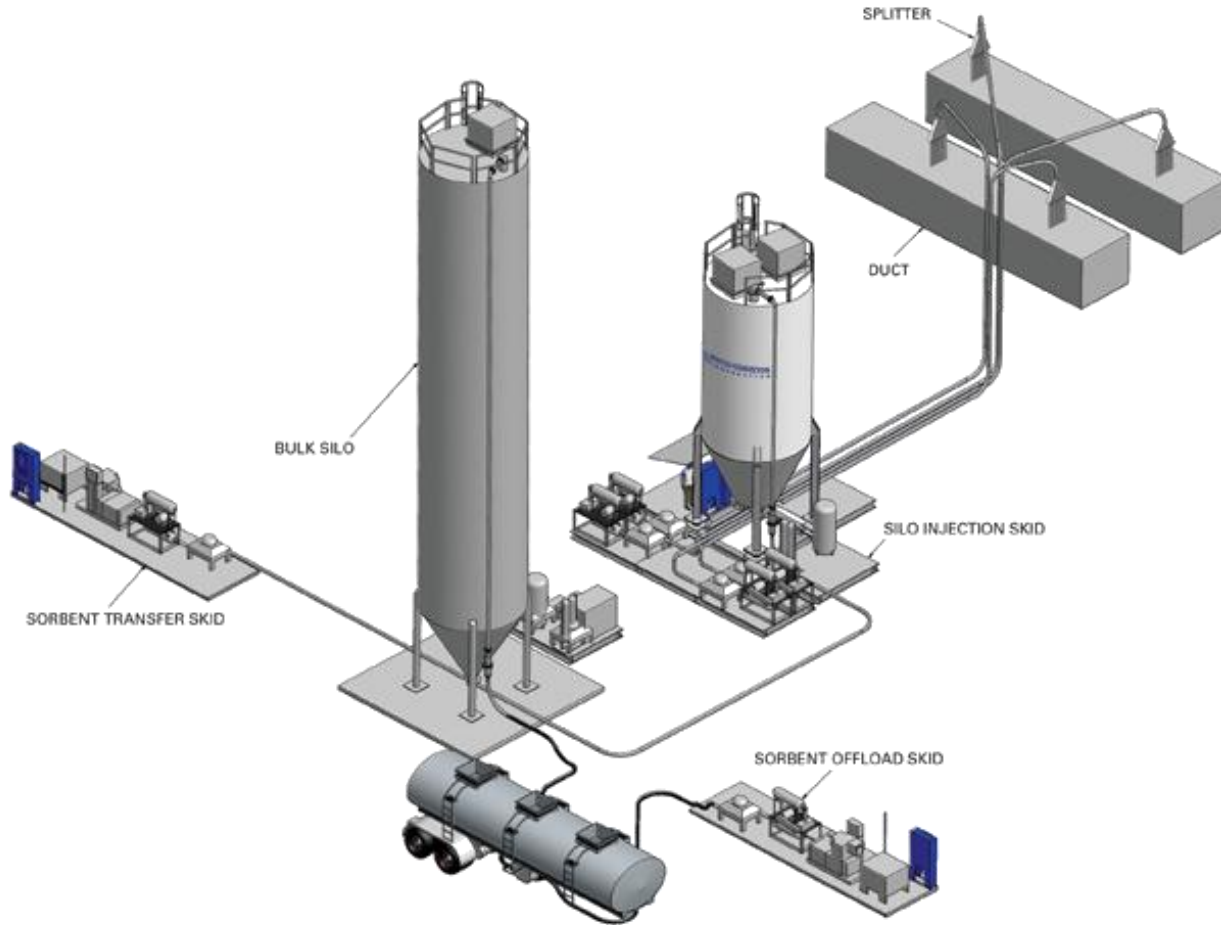
Bins and Silos Equipment





# Company Overview and Capabilities

DSI – Dry Sorbent Injection





# Company Overview and Capabilities

## Material Testing Capabilities

**This testing environment allows for complete analysis of physical, chemical and conveying characteristics of material.**

- Bulk and particle density
- Fluidizability
- Sieve size distribution level
- Microscopic examination
- Setup and conditioning
- Pick-up velocity
- Arching and ratholing Index
- Permeability and deaeratability
- Moisture content
- LOI or unburnt carbon
- X-Ray fluorescence (XRF)
- Free-lime and water testing



**More than 500 ash samples permanently stored...  
50 new ash samples tested every year!**



# Company Overview and Capabilities

## Test Loops

Our facility contains (6) complete test loops which are used to simulate the behaviours of material in conveying lines under various conditions.

### Dilute Phase

1 USTPH Capacity  
2" pipe, 100' [30m] long & 7 elbows

### MultiDAC™ Dense Phase

25 USTPH Capacity  
6" pipe, 870' [265m] long & 18 elbows

### Lime/Reagent Handling

5 USTPH Capacity  
3" pipe, 100' [30m] long & 3 elbows

### DEPAC™ Dense Phase (Bypass)

5 USTPH Capacity  
4" pipe, 100' [83m] long & 7 elbows

### DEPAC™ Dense Phase

10 USTPH Capacity  
3" & 4" pipe, 500' [152m] long & 14 elbows

### High Density Slurry

7 USTPH Slurry Capacity  
1 1/4" pipe, 125' [38m] long & 8 elbows



# Any Questions?

