

## CDR™ Operation

During operation, material is conveyed through a slurry pipe and discharged into the forward section of the remote SFC. Upon entry, the velocity of the slurry is rapidly reduced allowing the ash to directly settle into the conveying section. Material collected in the conveying section is then carried by flights up the dewatering ramp, where it is discharged into a load-out bunker or secondary conveying arrangement. The sluice conveying water is then pumped back to the boiler house to complete the closed-loop, zero liquid discharge system.



- ELIMINATES ASH STORAGE PONDS
- NO OUTAGE TIME REQUIRED
- NO CHANGE TO EXISTING HOPPERS
- GREATLY REDUCES PLANT WASTEWATER

The CDR System is designed to accept slurry discharge from one or more operating units. System installation requires no modification to existing ash handling equipment beneath the boiler and can be commissioned with the plant online, resulting in no outage time.

This wet-to-dry conversion option is most favorable when considering capital cost and maintaining plant availability.



## The UCC Commitment

As an industry innovator, we have long been at the forefront of ash handling technology. We recognize the importance of providing customers with the best equipment and latest technology that meet their demanding requirements and plant needs.

With our own advanced testing and technology lab, we are able to maintain control over the quality and delivery of our systems and equipment. The result is superior and predictable performance for our customers.

Our dedicated team of engineers, sales, service and in-house designers spans the globe covering six continents, assuring you that we can provide exceptional service whenever needed. This is our commitment to you.

## UCC Material Handling Solutions

### Fly Ash (Dilute, Medium and Dense Phase)

- Vacuum Systems
- Pressure Systems

### Bottom Ash (Wet and Dry)

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

### Mill Rejects

- Hydraulic System
- Pneumatic Systems

### Economizer Ash

- Hydraulic Systems
- Mechanical Systems
- Pneumatic Systems

### Dry Sorbent Injection

- Predictive (CFD) Modeling
- On-Site Testing and Demonstration
- Pneumatic Systems
- Installation

### Lime Handling

- Truck and Rail Unloading
- Pneumatic Systems

### System Components

- Crushers
- Mixer/Unloaders
- Gates/Valves
- Pipe/Fittings
- Filter/Separators
- Tanks/Vessels



## CDR™ System Continuous Dewatering & Recirculation For Dry Bottom Ash Handling

Global Operations in:  
United States • Europe • China • India  
Systems in over 60 Countries

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# CDR

## Continuous Dewatering & Recirculation

Coal-fired power plants are faced with heightened environmental concerns and public scrutiny of ash handling and storage practices. Utilities still using ash ponds have important choices to make to ensure compliance with coming regulations while managing their plant operating costs.

The new Continuous Dewatering and Recirculation (CDR) System is the latest innovative solution from United Conveyor Corporation (UCC) designed to meet both power plant operational needs and environmental requirements. The CDR System eliminates the ash pond, requires little to no outage time and significantly reduces wastewater from the plant's water balance.



### The CDR™ System

The CDR System represents a major technical advancement in bottom ash conveying by combining the benefits of a traditional recirculation system with the proven dewatering technology of a Submerged Flight Conveyor (SFC). The CDR System is ideal for plants that currently have sluice conveying for bottom ash, economizer ash and mill rejects/pyrites, and are looking to avoid the costly and extended outage time typically associated with other system installations. In addition to a simple and fast conversion, the CDR System greatly minimizes numerous operational and maintenance concerns prevalent in traditional dewatering technologies.

The CDR System ties into the existing sluice conveying lines, diverting slurry discharge to a remote conveyor located outside of the boiler house. The conveyor, or remote SFC, is highly engineered to combine the necessary functions of ash dewatering and particulate settling into a single unit, making it a very cost-effective solution.

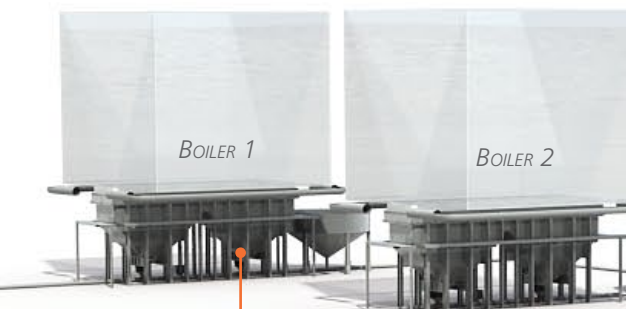
## The CDR System Advantage

### CLOSED-LOOP RECIRCULATION SYSTEM

- Eliminates bottom ash sluice water as a wastewater stream
- Accepts ash sluice lines from multiple units
- Reduces water consumption through recirculation
- Eliminates ash storage ponds

### NO CHANGES REQUIRED BENEATH THE BOILER

- Existing equipment remains in service



EXISTING BOTTOM ASH HOPPERS

### REDUCED EQUIPMENT SCOPE

- Combines ash dewatering and particulate settling into a single unit
- Eliminates the need for costly retrofit work associated with replacing existing bottom ash system
- Reduced foundation design and construction costs

SLURRY FROM EXISTING ASH SYSTEMS

ASH SLURRY INLET PIPE

WATER RETURNS TO EXISTING ASH SYSTEMS

OPTIONAL SURGE TANK

REMOTE SFC

BUNKER

### CONTINUOUS DEWATERING AND DISCHARGE OF ASH

- Eliminates dewatering bins and storage ponds
- Dewateres ash to moisture levels suitable for landfill disposal or beneficial use
- Any runoff water is returned to SFC
- Addresses current and forthcoming environmental requirements

### PROVEN AND RELIABLE TECHNOLOGY

- Extensive SFC reference installations around the globe
- Simple, robust design assures dependable operation
- Zero Liquid Discharge (ZLD) System
- Standard section with flexibility for varying sizes/flows
- Continual feedback on ash and water levels for system monitoring

### CONSTRUCTED FOR DURABILITY

- New equipment has been robustly engineered for challenging utility operations
- Proven component design for reduced maintenance
- Sacrificial Anodes installed to prevent corrosion

### NO OUTAGE TIME REQUIRED

- Piping and control system tie-ins can be completed while online

### NUMBER OF INSTALLATIONS

Submerged Flight Conveyors **60+**  
 Closed-Loop Recirculation Systems **60+**