

Solutions for Safe Transportation of COAL ASH

CSX COAL ASH TRANSPORTATION

As coal ash comes under increased scrutiny by regulators, CSX is positioned to help you meet the federal guidelines required for safe, efficient disposal of Coal Combustion Residuals (CCRs). Our solutions for transporting coal ash are safe, environmentally sound, and community friendly.

TODAY, CSX IS MOVING COAL ASH FOR REMEDIATION AND BENEFICIAL REUSE PURPOSES EFFECTIVELY AND IN SIGNIFICANT VOLUME.

CSX OFFERS

A dedicated team with years of industry experience in the energy, waste and minerals markets

Access to more than 100 coal-fired power plants

Access to rail-served landfills and beneficial reuse partners

An environmentally friendly solution to move CCRs to disposal sites and reuse facilities

A proven, safety-focused solution to minimize risk



STREAMLINED TRANSPORTATION OF COAL ASH

TRANSPORTING COAL ASH FOR DISPOSAL

Moving material by **rail is the safest possible surface transportation solution**, and preferable to moving via truck. A typical coal ash pond holds more than 1 million tons of material, which equates to 40,000 truckloads moving through communities. Alternatively, 1 million tons moved by rail can be shipped with just 100 trains, each hauling 100 cars, reducing highway and local road traffic and maximizing safety.

TYPICAL RAIL PROCESS:

1

Coal ash is loaded from ponds into covered cars.

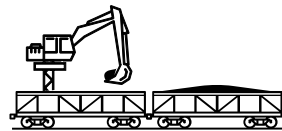
2

Railcars travel efficiently in single-purpose, single-destination, 100-car trains known as “unit trains,” providing increased speed and efficiency.

3

Ash is unloaded at the disposal site.

EXPLORING THE PROCESS



LOADING COAL ASH

The typical loading method includes a front-end loader to load the ash into a railcar. In order to ensure that no material escapes from the car in transit, a heavy liner (referred to as a “burrito wrap”) is placed in the car prior to loading or a crane is used to place a lid on top of the car after the car is loaded.



EFFICIENT TRAVEL

Unit trains carry the same material to the same destination. This ensures the best asset utilization and cycle times. Sites configured to accommodate an incoming and outgoing train simultaneously allow for what’s called a “drop-and-swap” cycle that transfers power quickly from the empty train to the loaded train for an even faster turnaround.



UNLOADING COAL ASH

Coal ash, or Coal Combustion Residuals, is classified by the EPA as a solid waste and as such needs to be moved to landfills having the Subtitle D permitting while also possessing appropriate capacity and rail infrastructure. CSX currently serves several Subtitle D landfills, and will be adding additional destinations as landfill operators and remediation companies permit their facilities to accept coal ash. CSX has flexible coal ash transportation solutions in order to provide variable unloading requirements, including using truck transloading near the final destination for moving ash to the final disposal site.

THE CSX NETWORK

OVER AN EXTENSIVE 21,000- ROUTE-MILE RAIL NETWORK,

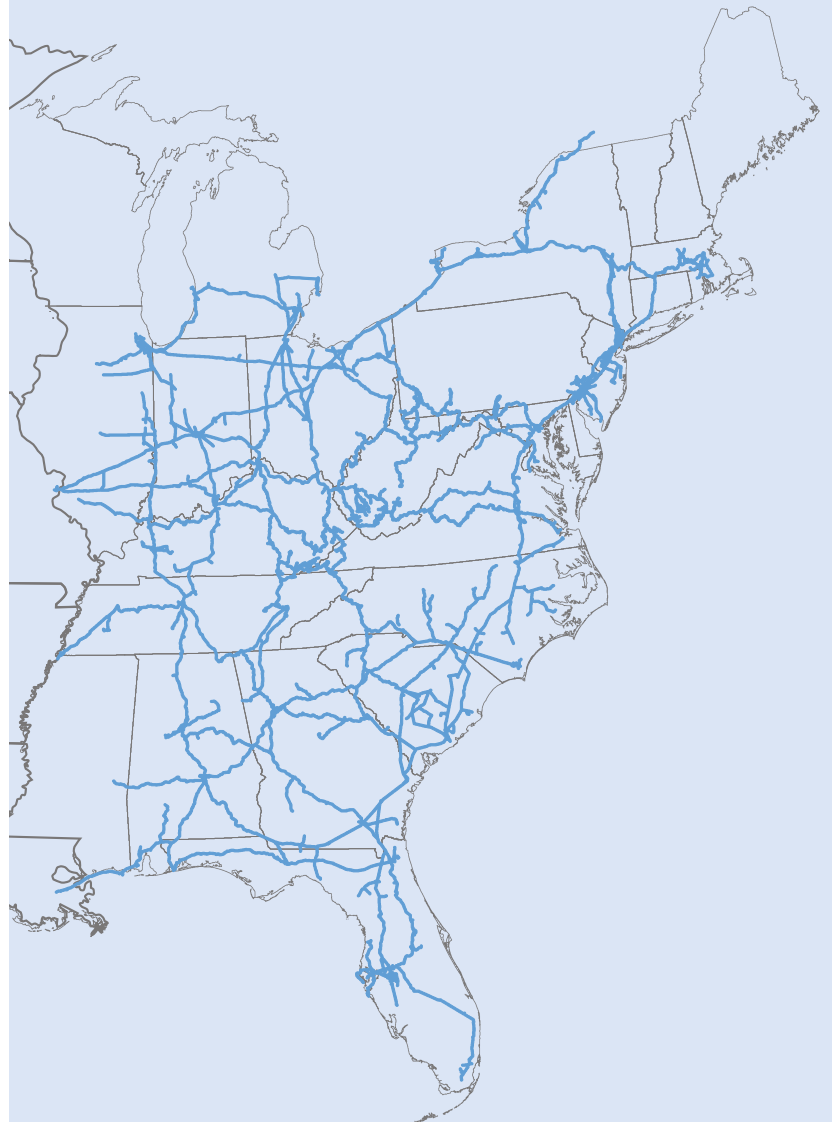
CSX serves 23 states, Washington D.C., and the Canadian provinces of Ontario and Quebec. Additionally, we access thousands of production and distribution facilities through track connections to more than 240 short line and regional railroads.

**WE ARE CONTINUING
TO ADD NEW COAL ASH
DISPOSAL AND BENEFICIAL
REUSE LOCATIONS. PLEASE
VISIT WWW.CSX.COM/MAPS
FOR INTERACTIVE MAPS
SPECIFIC TO COAL ASH.**

21,000 MILES OF TRACK

240 SHORTLINES

31,000 EMPLOYEES



TRANSPORTING COAL ASH FOR BENEFICIAL REUSE

If you are interested in moving coal ash for beneficial reuse purposes, including as a raw material in the production of cement or as a substitute for cement in the making of concrete, CSX offers direct connections to numerous cement producers, fly ash and slag locations, and cement terminals throughout the East Coast.

TYPICAL RAIL PROCESS - BENEFICIAL REUSE:

1

Coal ash is loaded directly from coal-fired unit's pollution control system into covered hopper cars.

2

Cars travel efficiently in merchandise trains. The smaller volume of material is better suited for movement in batch service to provide a cost-effective option versus other transportation modes.

3

Ash is unloaded at the destination site. CSX currently serves several cement plants and cement terminals or a CSX TRANSFLO facility can provide an intermodal solution.



SAFETY AND SECURITY

Choosing to do business with CSX is choosing a reputable partner with a relentless commitment to safety. Keeping to our core value “Safety is a Way of Life,” we remain uncompromising in our commitment to safety.

CSX sets a high bar for operational safety. To verify that we are meeting our standards, we continually monitor our performance against internal and external requirements. This ensures we are able to safeguard our employees, the communities in which we operate, and our customers’ freight.

There are several governing bodies that regulate employee and operational safety in our industry, including the Federal Railroad Administration (FRA) and Occupational Safety and Health Administration (OSHA).

ABOVE AND BEYOND THE RULES SET BY FRA AND OSHA, CSX HAS ITS OWN SAFETY AND OPERATIONAL STANDARDS TO WHICH WE HOLD ALL CSX EMPLOYEES ACCOUNTABLE, INCLUDING:

SAFE JOB PROCEDURES

At daily pre-shift safety briefings, employees discuss the pertinent safety issues of the day. Employees also participate in pre-task briefings throughout the work day to evaluate safety issues in preparation for specific tasks.

PEER SAFETY PROGRAMS

Voluntary and full-time craft workers are assigned to enhance safety, provide counsel to co-workers and provide another avenue to surface safety issues and ideas.

SAFETY OVERLAP PROCESSES

Employees participate in local, regional, division- and system-wide safety meetings to ensure that team members at all levels have the tools and information they need to resolve issues as they arise.

PUBLIC SAFETY AND SECURITY

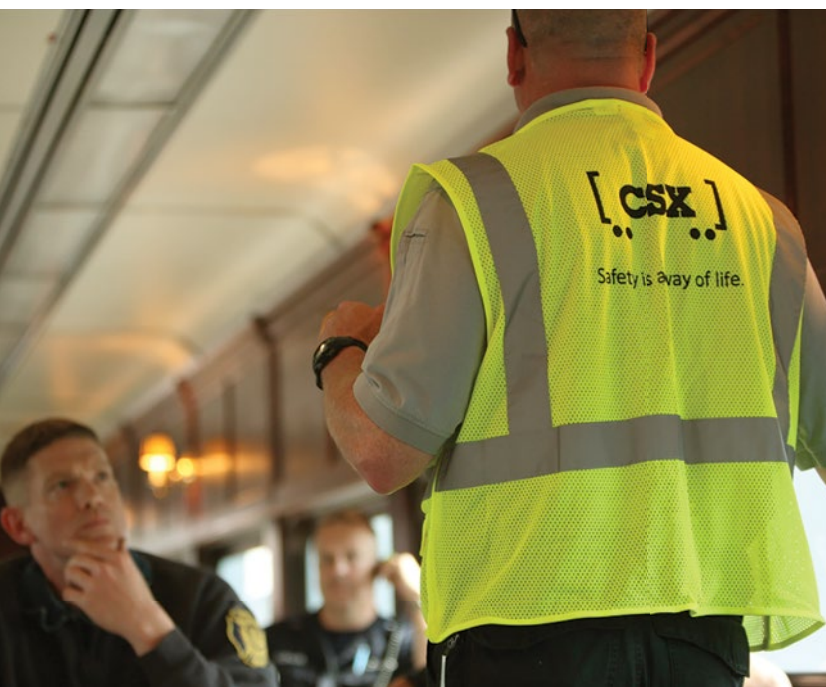
To further promote the safety of the company's rail network and neighbors, the CSX Police work to safeguard personnel, infrastructure, property, and provide security. CSX Police Special Agents, who are located strategically across CSX's network, are sworn law enforcement professionals who meet rigorous standards and partner with local, state, and federal law enforcement.

CSX's Infrastructure Protection team complements the resources of the CSX Police by focusing on the security threats against the network. These employees work closely with local, state and federal agencies to collaborate and share information on public security matters.

EMERGENCY PLANNING AND RESPONSE

Zero accidents is always the goal, but when derailments and other railroad emergencies do happen, CSX is prepared with significant resources to minimize the impact on communities and the environment. Through a trained group of CSX employees and trusted support organizations, the CSX response is immediate and comprehensive, and CSX personnel remain in affected communities as long as needed.

CSX has worked hard to build relationships with first responders and empower them with the skills and knowledge they need. In 2015, CSX trained and provided resources to more than 10,000 first responders in rail safety.



ENVIRONMENTAL RESPONSIBILITY

Rail is the most environmentally friendly way to move freight over land.

CHOOSING TO MOVE FREIGHT BY RAIL INSTEAD OF TRUCK:

Reduces greenhouse gas emissions by 75%

Improves fuel efficiency (in 2015 our trains moved one ton of freight an average of 471 miles on one gallon of fuel)

Reduces highway gridlock and maintenance costs

CSX continues to be recognized as a leader in environmental responsibility by organizations such as the Environmental Protection Agency, the Dow Jones Sustainability Index, and the Carbon Disclosure Project



ADVANCED ENGINEERING

CSX is leveraging technology across the network to promote safe and efficient operations and to improve the service experience we deliver to customers. One of the newest and most exciting technology investments is in predictive analytics and diagnostic technology related to our assets – track, locomotives and railcars. By developing and deploying these innovative advanced engineering tools, CSX is able to identify potential equipment health issues before they cause an asset failure – reducing line-of-road train stops and helping to prevent derailments.

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**CSX IS ABLE TO IDENTIFY
POTENTIAL EQUIPMENT HEALTH
ISSUES BEFORE THEY CAUSE AN
ASSET FAILURE...**

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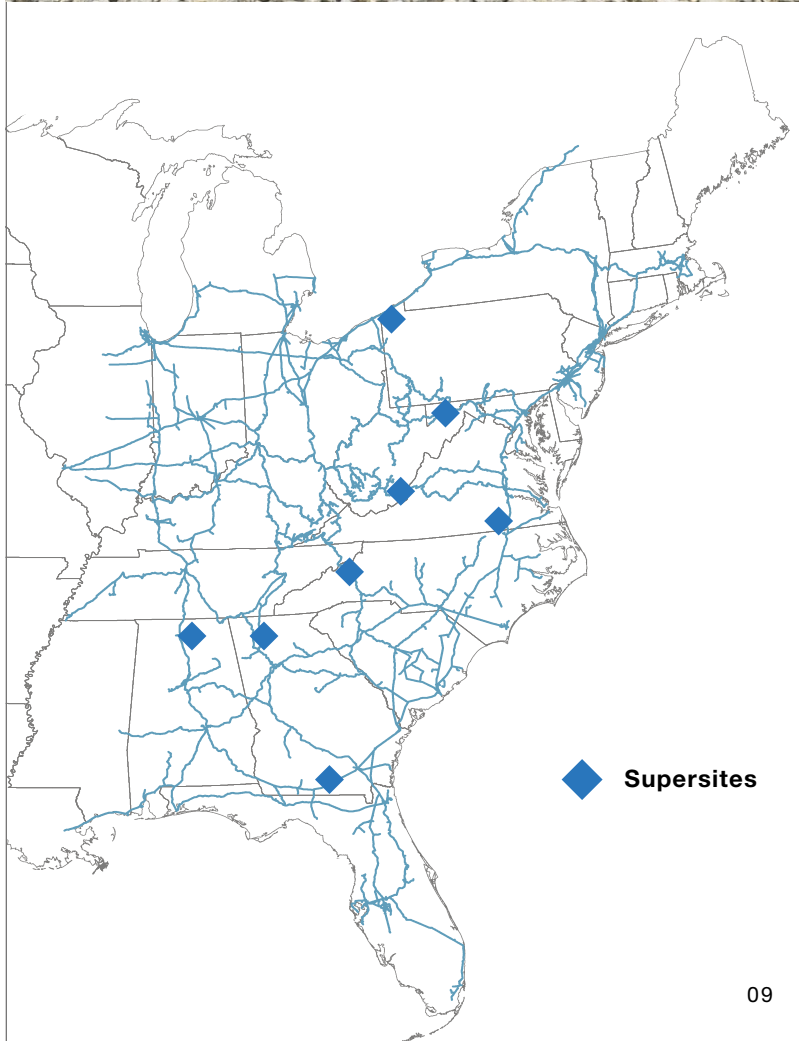


NETWORKED WAYSIDE DETECTORS

CSX has a “web” of 870 defect detectors spread across the network to gather vast amounts of information as railcars pass by them. The collected data is then analyzed in a central location by a combination of computer algorithms and CSX team oversight. These detectors can identify conditions including hot bearings and flat or out-of-round wheels – small issues that can create big problems if left unchecked. Because these risks are proactively identified, CSX car inspectors can spend less time finding issues and more time fixing them, therefore improving efficiency and minimizing line-of-road stops.

CSX wayside detectors are also connected to a national network of detectors, allowing CSX and its peer railroads to share data and ensure that cars being interchanged are receiving full diagnostic evaluations regardless of where they are on the national rail network.

Many of these detectors are concentrated at locations that CSX calls diagnostic “supersites,” where a combination of several specialty detectors can take many different measurements during a single train pass.



INNOVATION FOR TOMORROW

CSX is creating an environment of predictive and proactive maintenance with fewer unscheduled train service events. The comprehensive visuals and data we obtain from these diagnostic tools allow CSX to identify trends and to predict and address maintenance needs before issues occur. By predicting these maintenance events, we can avoid disruptions to our customers.

Our dedicated Advanced Engineering team is continuously using cutting-edge technology to make the railroad as safe as possible, safeguard customer freight, and reduce emergency maintenance costs for both customers and the railroad.



CUSTOMIZED SOLUTIONS

Whether you're moving coal ash for remediation or beneficial reuse, CSX helps your company minimize risk by offering a safe, reliable, and environmentally friendly transportation solution. Our partners include remediation companies, who we have worked with for years on hazmat and radioactive soil removal moves; rail and disposal management companies; landfill owners and operators; and cement plants.

**LET US WORK WITH YOUR
TEAM TO IDENTIFY THE BEST
EQUIPMENT, SITES AND
TRANSPORTATION LOGISTICS
TO ENSURE COAL ASH IS
MOVED QUICKLY AND SAFELY.**

For more information and to discuss possible solutions, contact your CSX representative or visit **csx.com/waste**



HOW TOMORROW MOVES

