



ECOSOLUTION



# Eco Solution Overview

- Established in 2013
- Headquartered in Pittsburgh, PA
- Over 50 Years of Coal Experience
- #1 FCA Turn-key Program Provider for the Coal and Steel Industry

# Distribution Triangle



# FCA/SRA Lab

Side Release Testing



Freeze Conditioning Testing



# ESD Storage / Blending Facility

**Location: Pittsburgh, PA**

**Dedicated FCA Outbound  
Product Storage Capacity**

- 1,000,000+ Gallons
- 5 Tanks

**Operating Hours**

- 24 hours / 7 days a week

**Railroads Utilized**

- Norfolk Southern and CSX

**Barge Service Utilized**

- Ingram Barge



# ESD Storage / Blending Facility

**Location:** Evansville, IN

## **Dedicated FCA Outbound Product Storage Capacity**

- 500,000 Gallons

## **Rail Car Storage Capacity**

- 50+ Cars or 1,000,000+ Gallons

## **Operating Hours**

- 24 hours / 7 days a week

## **Railroads Utilized**

- N/S and CSX



# Problems from Frozen Coal



- Carryback = Inefficient Transportation
- Demurrage Costs
- Additional Labor to Unload
- Added Cost of Thaw Shed Fuel / Operation
- Reduction in Coal Production / Tons Shipped from the Mine



# ESD FCA Program Alternatives





# We Treat Moisture Not Coal

- Clean Coal Surface Moisture 7-12%
- Precipitation During Transit / Unloading
- Rail Car Precipitation Prior to Loading of Coal (Snow/Ice)
- Product Type / Selection
- Chemical Application



# Pre-Winter Services



- Location Visit / Assessment
- New Application Systems Design
- Install / Upgrade Equipment
- Sample / Test for Product Compatibility
- Clean Tanks As Necessary
- Formulate Application Rates for Shipments

# Pre-Loading Services (In-Season)

- Confirm Schedule with the Railroad, the Producer, and the Monitor
- Track Train Itineraries
- Inspect Application Equipment
- Confirm Chemical Inventory on Location
- Utilize Coal Cast Forecasting Service
- Verify Treatment Rate

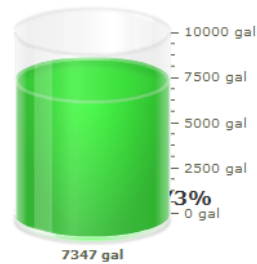


# Wireless Inventory Management (WIM)

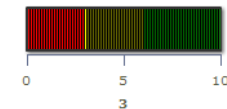
## Tank Status

Inventory Time: 4/7/2011 10:45:03 PM  
Primary Location Contact: Not Assigned  
Alarm Status: OK  
Comm Status: No Recent Update  
Maintenance Status: Low Battery Alarm  
Sensor Status: OK  
Level: 115.4 in  
Inventory: 7347.2 gal  
Tank Type: 0 Standard Vertical Cylindrical Tank  
Tank Height: 157.0 in  
Tank Number: 1  
Region: -----

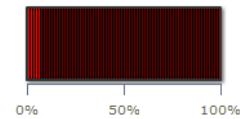
### Tank Level



### Signal Strength



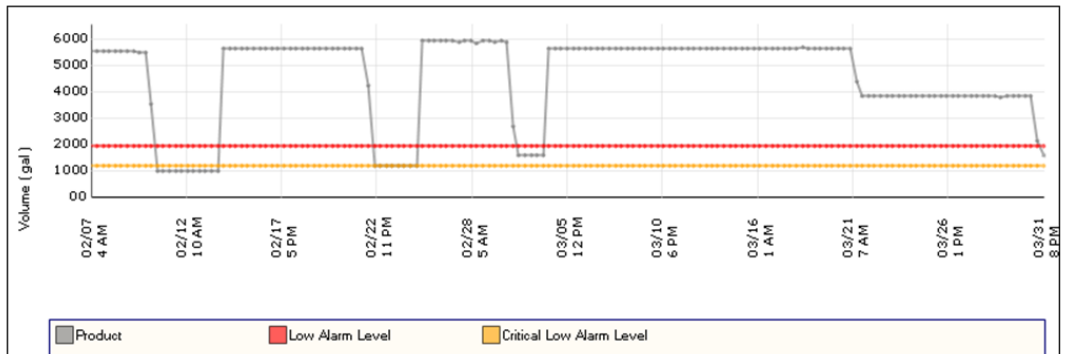
### Battery Level



## Tank History

### Date Range

From: 2/7/2011 To: 3/31/2011



# WIM Benefits for ESD/Customer

| Status | Inventory Time            | Level   | Inventory  | %       | Temperature |
|--------|---------------------------|---------|------------|---------|-------------|
| OK     | 3/4/2011 8:15:41 PM (F)   | 86.3 in | 5682.2 gal | 94.70 % | 68.00 °F    |
| FD     | 3/4/2011 12:15:41 PM (F)  | 86.3 in | 5682.2 gal | 94.70 % | 68.00 °F    |
| LA,FD  | 3/4/2011 4:15:42 AM (F)   | 29.7 in | 1581.1 gal | 26.35 % | 68.00 °F    |
| LA     | 3/3/2011 8:15:43 PM (Th)  | 29.7 in | 1577.4 gal | 26.29 % | 68.00 °F    |
| LA     | 3/3/2011 12:15:44 PM (Th) | 29.7 in | 1581.1 gal | 26.35 % | 68.00 °F    |
| LA     | 3/3/2011 4:15:44 AM (Th)  | 29.7 in | 1577.4 gal | 26.29 % | 68.00 °F    |
| LA     | 3/2/2011 8:15:43 PM (W)   | 29.7 in | 1577.4 gal | 26.29 % | 68.00 °F    |
| OK     | 3/2/2011 12:15:44 PM (W)  | 44.5 in | 2717.8 gal | 45.30 % | 68.00 °F    |
| OK     | 3/2/2011 4:15:46 AM (W)   | 93.0 in | 5943.3 gal | 99.06 % | 68.00 °F    |
| OK     | 3/1/2011 8:15:46 PM (Tu)  | 93.1 in | 5946.3 gal | 99.10 % | 68.00 °F    |
| OK     | 3/1/2011 12:15:46 PM (Tu) | 93.0 in | 5943.3 gal | 99.06 % | 68.00 °F    |
| OK     | 3/1/2011 4:15:47 AM (Tu)  | 93.1 in | 5947.7 gal | 99.13 % | 68.00 °F    |




- Automatic Order Generation Option
- Real-time Product Inventory Access
- Level Alarm Options to Eliminate Spills / Running Out of Product
- Third Party Verification of Product Use
- Increase Delivery Efficiencies = Reduced Costs for All Involved

# Coal Cast (Weather Forecasting)

Routes:

| Route Overview: East Thunder |                            |                              |                           |                           |                                   |                                   |                             |
|------------------------------|----------------------------|------------------------------|---------------------------|---------------------------|-----------------------------------|-----------------------------------|-----------------------------|
| Weather Hazards              |                            |                              |                           |                           |                                   |                                   |                             |
|                              | Wed, 25                    | Thu, 26                      | Fri, 27                   | Sat, 28                   | Sun, 29                           | Mon, 30                           | Tue, 31                     |
|                              | <a href="#">Wright, WY</a> | <a href="#">Parmelee, SD</a> | <a href="#">Akron, IA</a> | <a href="#">Clare, IA</a> | <a href="#">La Porte City, IA</a> | <a href="#">Mount Carroll, IL</a> | <a href="#">Chicago, IL</a> |
| Lowest Minimum Temperature   | 42°F                       | 37°F                         | 34°F                      | 36°F                      | 36°F                              | 38°F                              | 37°F                        |
| 24-hr Precipitation          | 0.46"                      | 0.27"                        | 0.15"                     | 0.18"                     | 0.35"                             | 0.65"                             | 0.36"                       |
| Chance of Precipitation      | 66%                        | 41%                          | 60%                       | 51%                       | 62%                               | 55%                               | 44%                         |

Click on a city above for a detailed 7-day weather forecast.

 No Weather Hazard     Temperature Hazard     Frozen Precipitation Hazard

- Coal Cast's Algorithm generates custom application rates for each loading between the Producer and the Customer
- 7-day forecast to factor any transit or unloading delays
- Verifies Low Temperature, Chance and Amount of Precipitation
- System Operates in real-time 24/7/365
- Customized login for Customer viewing



# Loading Services

| ESD FREEZE CONDITIONING SERVICE REPORT  |  |   |                                   |  |                                   |                     |             |
|---|--|---|-----------------------------------|--|-----------------------------------|---------------------|-------------|
|  |  | Eco Solution Distributing<br>124 Lintel Drive<br>McMurray, PA 15317 |                                   | Phone: 724-941-4140<br>Fax: 724-918-9870<br>Chemtrec Emergency: 800-537-9540 |                                   |                     |             |
| GENERAL INFORMATION   |  |   |                                   |  |                                   |                     |             |
| Train #   |  |   | Monitor Name                      |  |                                   |                     |             |
| Coal Company  |  |   | Arrive FCA Monitoring             |  |                                   |                     |             |
| Plant Name  |  |   | Date                              | Time   | am/pm                             |                     |             |
| City, State   |  |   | Plant Signature                   |  |                                   |                     |             |
| Monitor Type  | <input type="checkbox"/> Monitor Only <input type="checkbox"/> Monitor and Product Application |   | Complete FCA Monitoring           |  |                                   |                     |             |
| Weather   |  |   | Date                              | Time   | am/pm                             |                     |             |
| Temperature   | Precipitation  | Amount  | Plant Signature                   |  |                                   |                     |             |
| <input type="checkbox"/> Rain   | <input type="checkbox"/> Snow  | <input type="checkbox"/> Sleet                                      | Total FCA Hours                   |  |                                   |                     |             |
| APPLICATION EQUIPMENT CONDITION   |  |   |                                   |  |                                   |                     |             |
| Pump System   | Metering System  | Strainers/Filters   | Conveying Lines                   | Nozzles/Bars   | Storage Tanks                     |                     |             |
| <input type="checkbox"/> OK   | <input type="checkbox"/> OK  | <input type="checkbox"/> OK   | <input type="checkbox"/> OK       | <input type="checkbox"/> OK  | <input type="checkbox"/> OK       |                     |             |
| <input type="checkbox"/> Repaired   | <input type="checkbox"/> Repaired  | <input type="checkbox"/> Repaired                                   | <input type="checkbox"/> Repaired | <input type="checkbox"/> Repaired  | <input type="checkbox"/> Repaired |                     |             |
| <input type="checkbox"/> Replaced   | <input type="checkbox"/> Replaced  | <input type="checkbox"/> Replaced                                   | <input type="checkbox"/> Replaced | <input type="checkbox"/> Replaced  | <input type="checkbox"/> Replaced |                     |             |
| Service Performed or Required:  |  |   |                                   |  |                                   |                     |             |
| FCA/SRA PRODUCT USAGE AND INVENTORY DATA  |  |   |                                   |  |                                   |                     |             |
| Tank #  | Tank Capacity  | Product   | Start Level                       |  | End Level                         |                     | Total Usage |
|   |  |   | Inches                            | Gallons  | Inches                            | Gallons             | Gallons     |
|   |  |   |                                   |  |                                   |                     |             |
|   |  |   |                                   |  |                                   |                     |             |
|   |  |   |                                   |  |                                   |                     |             |
|   |  |   |                                   |  |                                   |                     |             |
|   |  |   |                                   |  |                                   |                     |             |
|   |  |   |                                   |  |                                   |                     |             |
| PRODUCT APPLICATION DATA  |  |   |                                   |  |                                   |                     |             |
| Period Covered From:  |  | To:   |                                   | Specific Comments:   |                                   |                     |             |
| Total Tons  |  | Totals  | Total # Cars                      |  |                                   |                     |             |
| FCA Start Inv.  | Gallons  | SRA Start Inv.  |                                   |  |                                   |                     |             |
| FCA End Inv.  | Gallons  | SRA End Inv.  |                                   |  |                                   |                     |             |
| FCA Deliveries  | Gallons  | SRA Deliveries  |                                   |  |                                   |                     |             |
| FCA Usage   | Gallons  | SRA Usage   |                                   |  |                                   |                     |             |
| FCA Target PPT  | PPT / GPC  | SRA Target GPC  |                                   |  |                                   |                     |             |
| FCA Actual PPT  | PPT / GPC  | SRA Actual GPC  |                                   |  |                                   |                     |             |
| Plant Signature   |  |   | Date:                             |  |                                   |                     |             |
| Eco Solution Signature  |  |   | Date:                             |  |                                   |                     |             |
| White - Customer Service   Canary - Customer   Pink - Monitor                     |  |   |                                   |  |                                   |                     |             |
|   |  |   |                                   |  |                                   | Page _____ of _____ |             |

- Inspect each Rail Car; Documenting any Snow, Ice, or Carryback
- Set Equipment to the Requested Application Rate
- Document Application, Usage, etc. in Report
- Reconfirm Application Rates every 10 Cars

# Post-Loading Services

- PM Equipment
- Document Final Inventory and Chemical Applied
- Email / Fax Reports
- Order Additional Product as Necessary
- Report Maintenance or Service Issues
- Customer Visits to Audit FCA / SRA Performance





# FCA-100 (CaCl Based Product)

- Best Value in the Industry
- Dual FCA/SRA Performance
- Treated More Rail Cars than Any Other FCA/SRA Agent
- Freeze Point Below  $-38^{\circ}$  F
- Not Corrosive to Aluminum or Steel Cars



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# FCA-207 (CaCl / Glycol Blended Product)



- Superior Ice Melting Properties
- #1 Performance Product when dealing with Re-Freeze from Precipitation
- Increased Unloading Efficiencies
- Eliminates Thaw Shed Use
- Dual Performing FCA/SRA Product
- Cost Effective Alternative to Glycol-based Agents
- Non-Corrosive for all Rail Cars
- Guaranteed Performance
- Can be Applied Hot (Shown Above)



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# FCA-307 (Glycerin Product)

- GREEN Product
- Non-Corrosive on all Rail Cars
- Excellent Shear Strength Performance
- Cost Effective Alternative to Glycol Products
- Side Release Capabilities
- 0% Methanol Content



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# FCA-600 (Glycol Product)

- Non-Corrosive on all Rail Cars
- Excellent Shear Strength Performance
- Cost Effective Alternative to Glycerin Products
- Side Release Capabilities
- Frozen Coal Thaw Capabilities



# FCA-800 (Hot Acetate Thawing Product)

Before Application



Product Applied at 200° F



After Application



# What's the next step?

- Have you experienced **dumping problems in the past** during winter months?
- Does your **O&M budget increase** in the winter?
- **How much fuel** is consumed to operate your **Thaw Shed**?
- Do you **know how much is spent** on FCA/SRA products?

