## PROJECT BACKGROUND

- Customer is a player in the North American Coal Corporation.
- 1 M gallons of fuel used annually.
- Customer was seeking improved fuel filtration and water removal.
- They had new Tier IV Equipment on-site that needed addressed.
- 3 competitive solutions were being considered.

## DIAGNOSE

- Not meeting OEM filter life.
- Experiencing excessive machine downtime in their new Tier IV equipment.
- Competitor #1 - absorbing.
  - Low initial cost
  - Costly maintenance
- Competitor #2 - coalescing skid.
  - Higher initial cost
  - 95% water removal
- Competitor #3 - Schroeder BDS4.
  - < Competitor #2
  - 99.5% water removal

## DESIGN

### What We Did:
With the higher water removal efficiency, and overall lower cost, the customer became interested in Schroeder’s BDS4 | Bulk Diesel Fuel Skid solution.

- BDS4 = 99.5% Efficiency
- Competitor #2 = 95% Efficiency
- Example: 1% water in 1M gallons = **450 more gallons of water removed**

#### Particulate Removal

Paired with our 2QF5 Parallel Flow for improved winter performance:

- Reduced ΔP
- Higher Dirt Holding Capacity (DHC)
- Less “Gelling” prone media

Paired with a TCM-FC & CSI-B-7 for real-time contamination monitoring.
DELIVER

• Improved performance:
  • Pre and post tank filtration
  • High water removal efficiency
• Reduced maintenance:
  • Equipment filters meeting service intervals
  • No dispensing element changes from 2x per week
  • Parallel 2QF5 Filtration = + DHC
  • Automated water drain system
• Reduced maintenance:
  • TCM-FC for in/out particle counts
  • CSI-B-7 for remote data collection
  • Able to perform fuel quality trending

CUSTOMER BENEFITS

• Protects expensive, vital engine components against failures caused by water contaminated fuel

FURTHER APPLICATION AREAS

• All Mining Operations (Coal, Metallic, Aggregate)
• Construction (Large site development, Concrete, Highway)

ROI

Dispensing Element Savings

$33.4K

Labor Savings Per Year

$1.4K

Underlying values:
Dispensing element savings:
208 element changes / year at $163.46 each w/o BDS4 solution ($163.46 x 208 = $34,000).
Dispensing element savings:
4 element changes / year at $162.50 each w/ BDS4 solution ($162.50 x 4 = $650).

$34,000 - $650 = $33,350.

PRODUCT SPECS

BDS4 | Bulk Diesel Multi-Skid

Flow Rating: 210 to 280 gpm
Inlet/Outlet Connection: -32 (ORB) SAE J1926
Drain Connection Upper & Lower: 1/4" NPT Ball Valve
Max. Operating Pressure: 100 psi (7 bar)
Temperature Range: -20°F to 165°F (sump heater) -32°F to 165°F (standard)
Element Change: 33.80"
Weight: 904 lbs.

For internal use only. In case of questions please Contact the FUEL FILTRATION group.

Bulk Mining Fuels

<table>
<thead>
<tr>
<th></th>
<th>Without BDS4</th>
<th>With BDS4</th>
<th>Savings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dispensing Elements</td>
<td>208 ele. / yr.</td>
<td>4 ele. / yr.</td>
<td>-204 ele. / yr.</td>
</tr>
<tr>
<td>Dispensing Elements</td>
<td>$34,000 / yr.</td>
<td>$650 / yr.</td>
<td>-$33,350 / yr.</td>
</tr>
<tr>
<td>Element Changeout Labor</td>
<td>52 hrs. / yr.</td>
<td>1 hr. / yr.</td>
<td>-51 hrs. / yr.</td>
</tr>
<tr>
<td>Element Changeout Labor</td>
<td>$1,500 / yr.</td>
<td>$25 / yr.</td>
<td>-$1,475 / yr.</td>
</tr>
</tbody>
</table>

This customer sold 2.1M tons of coal in the same year (@ $22.89 per ton)
Income from coal delivered = $48M USD
  • >$131,000 USD per day
  • >$5,400 USD per hour

Productivity increase of 1% boosts annual revenue by $480,000
  • That’s equivalent to 89 hours or 3.7 days
  • Consider that most fuel related repairs involve 2-3 days downtime
  • This does not account for the additional repair and maintenance costs (often exceeding $50,000 per repair)