

Creative Solution for Seamless Coke Handling

Savage Services Corporation

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Savage Services Corporation

- Privately held company based in Salt Lake City, Utah USA - 63 years
- Over 150 Operations in North America
 - Refinery and Sulphur Services
 - Coal and Power Generation Services
 - Rail Centric Services (Switching and Transloading)
- Dedicated to understanding customer unique needs, and developing *Creative Solutions* for our customers
- Committed to providing our customers with “*Best Value – No Worry*” service
- Services delivered through our S⁷ Operating System



Savage Services Operations



Coke Services

- in-plant handling and management
- dedicated transportation systems
- distribution terminals and ports

The Savage Approach to Creative Solutions

- Mission – Deliver Distinctive and sustainable services from an operator's viewpoint
- Materials management and transportation systems
- Facilities and related services
- Savage is committed to delivering Best Value-No Worry service

Frontier Refinery Coke Handling System Description & Challenges

Original Coke Drums and De-Coking Equipment



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Frontier Refinery Coke Handling System Description & Challenges

Coke Storage and Crushing Area



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Frontier Refinery Coke Handling System Description & Challenges

Coke Cars Unloading Process



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Frontier Refinery Coke Handling

New Coke Drum Coke Handling

- Our first assumption was to continue with the same coke handling system – Why change?
- Safety!!!
- Let's talk with our Coke Handling People – Is there a better way?

Frontier Refinery Coke Handling

Challenges of the prior system

- Safety Issues:
 - Personnel on coke structure “the Loader” indexing coke cars
 - Personnel unhooking loaded coke cars at the bottom of the drum from the string of 7 cars – there would be 12 cars in the future
 - Pushing coke cars with a front-end loader
- Handling Issues:
 - New drums require 12 coke cars to empty
 - Labor intensive
 - Double handling of coke

Frontier Refinery New Coke Handling System

Frontier's New Coke Drum Design and Location is set by early 2007 when Savage Service is first contacted – how do we proceed?



Customer Specific Needs

- Technical Criteria
 - Cutting Cycle
 - Material Flow from the Drums
 - Product Dewatering and Sizing
 - Eliminate Multiple Handling of Product
 - Stockpile Management
 - SH&E Requirements
 - System Reliability
 - Best Value

Coke Delivery and Sizing



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Coke Dewatering



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Coke Conveying



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Coke Stacking, Reclaiming, Loading and Data Collection



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Savage Operating Results

- Achieved the Technical and Financial Criteria
- Improved Safety: eliminated man on coke structure & moving railcars with front-end loaders – zero occurrence since inception
- Improved Handling: seamless handling eliminated double handling of coke
- Achieved Redundancy: Savage provides two feeder-breakers & two dewatering units
- Improved Environmental: Truck load-out eliminates trucks driving in stockpile area and reduced the footprint of the coke pad
- Achieved Seamless Handling
- Less Labor Intensive
- Improved Operations
- Delivering Best Value – No Worry Service

Thank You

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