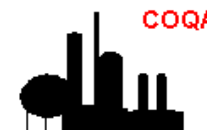




Survey of the quality measures in Crude-by-Rail sector
and
Introduction to the COQA – Crude-by-Rail Subcommittee

Presentation to Crude Oil Quality Association

June 2013



COQA – June 2013 Meeting

COQA and the Crude-by-Rail sector

1. Survey of the Crude-by-Rail sector from a quality perspective
 - A. Facilities and measures present
 - B. Common Concerns and remedies available
 - C. Pinch points and Evolution

2. Crude Oil Quality Association - Crude-by-Rail (CBR) Subcommittee
 - A. Mission Statement
 - B. Initiatives and Engagement



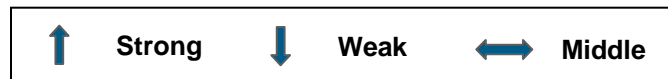
Crude-by-Rail Industry Overview



Crude by Rail Industry Overview - Facilities

Controls from a Capital or Personnel Perspective

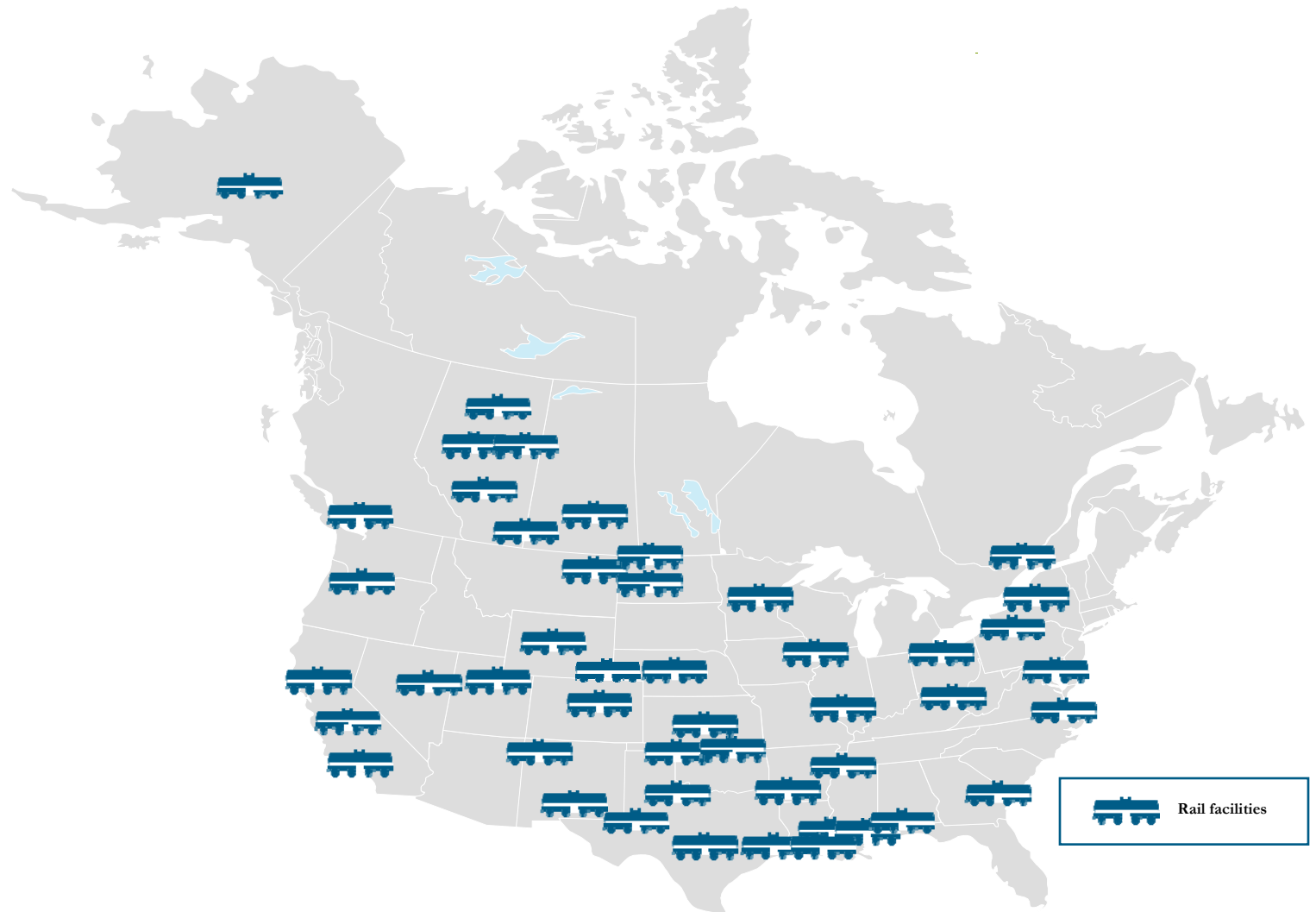
Facilities	Key Considerations	Controls	Accountability
Truck to Transloader and visa-a-versa AKA – “Cowboy Style”	<ul style="list-style-type: none"> Low to no automation; Personnel and procedures dependent Reactive to quality concerns Can segregate down to specific well or truck driver/company “Casual” and intentional blending 	↓	↔
Truck to Tank to Tankcar (Field Battery Units)	<ul style="list-style-type: none"> LACT or injection point assignable to a single or multiple parties Limited blending dependent on ancillary equipment Reactive but has the ability to manage quality 	↔	↔
Truck to Tank to Tankcar (1000+ bbl Tanks)	<ul style="list-style-type: none"> Reactive testing and controls available Tolerances for off spec deliveries Segregation of crude streams available Light, sweet pricing Benchmark established in the Brent-related market 	↔	↑
Pipeline to Tank to Tankcar	<ul style="list-style-type: none"> Production information in real-time Segregation and blending programs available Procedures and planning can control quality streams 	↑	↑



Crude by Rail Industry Overview – Common concerns

Integrity issues concentrated on expanding volume and operator carelessness

- In field blending and crude spiking
 - NGL and “splash” blending
 - Methane and CO² suspended in crude streams
- BS&W monitoring should be stressed when receiving rail deliveries
 - Trash and other such debris inside crude
 - “Crude Watering”
- High H₂S deliveries
- Potential to test per car load and reject loads before delivery
- Not committed to a single market
- Able to work with providers to modify
- Volumes are manageable inside a larger system
 - Dilution is the solution



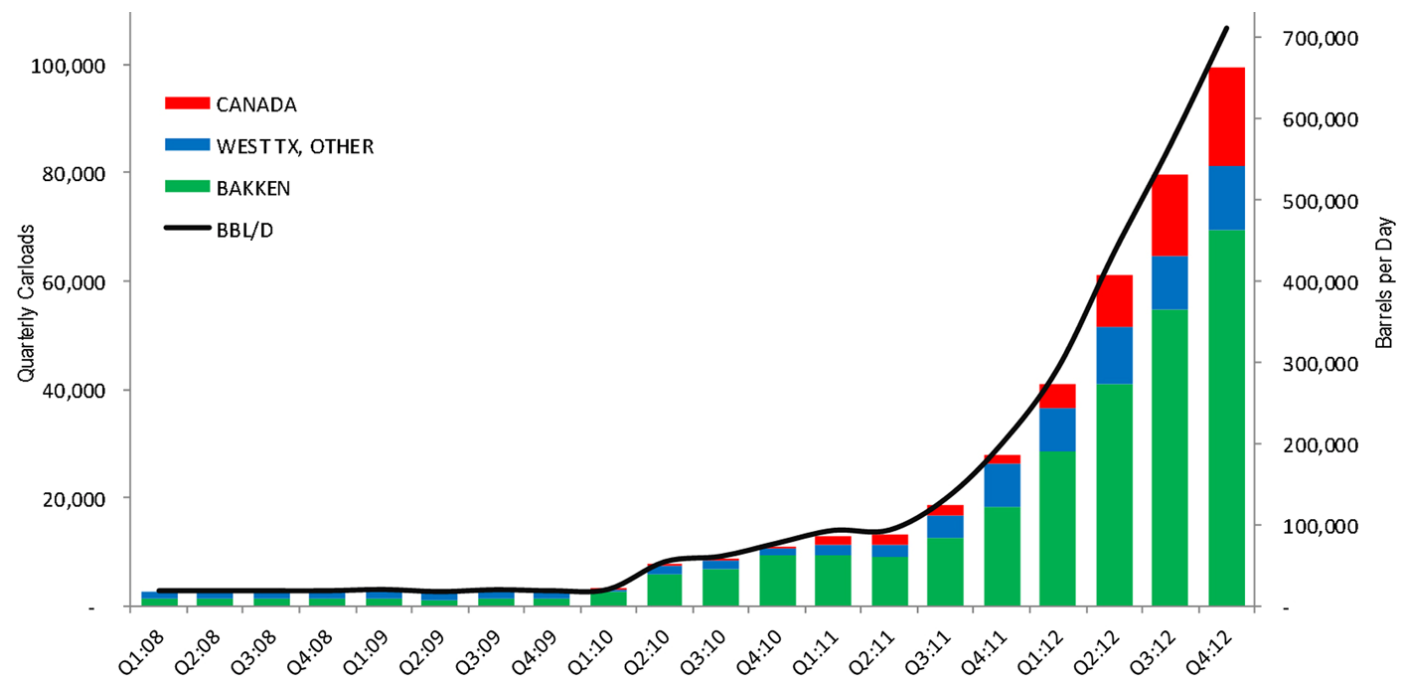
Crude by Rail Industry Overview - Transition

Rail industry growing and talent and capital pouring in

- As market grows talent and capital directing towards the sector

- Equipment shortage soon to be solved
- Efficient trade routes developing
- More value added services being applied
- Product high grading and specialization
- End users moving further and further down the value chain
- Integration on a minor scale now available

Total U.S. Plus Canada Quarterly Originated Crude-by-Rail Carloads



(Source: Association of American Railroads (AAR), Surface Transportation Board (STB), Raymond James research)



Crude Oil Quality Association

Crude-by-Rail (CBR) Subcommittee



Crude-by-Rail – Mission Statement

A Forum to discuss crude integrity concerns of the Crude-by-Rail sector

The Crude Oil Quality Association - Crude-by-Rail (CBR) Subcommittee is established to support the oil industry and principally its participants in the crude-by-rail sector to ensure that the integrity of the crude oil streams are upheld.

The CBR Committee hopes to achieve this purpose by:

- 1. Providing a forum for the free exchange of “best practices” amongst those engaged with the COQA**
- 2. Serving as an intermediary for the oil industry with our partners in the rail industry and the rail industry’s regulators**
- 3. Initiating research and industry collaboration on exceptions in the crude-by-rail sector**



Crude-by-Rail – Initiatives and Engagement

Working within exiting venues and providing continued communication

- **Engaging rail service providers (Class 1 and Short lines)**
 - Understanding where rail company's concerns are and working with our members to address them
- **Working within existing organizations and industry group within the Rail and Oil & Gas industries**
 - Dialoguing with regulators and providing peer reviewed and industry sound information
 - Ensuring that the energy industry has a presence in the rail transportation organization and visa-a-versa
- **Ensuring that this renewed medium is operated responsibly and safely, thus continuing to be provide an conduit for energy movements**



