

## BNSF Intermodal Electrification Evolution

May 16, 2007

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## BNSF Intermodal Overview

- **Largest rail intermodal carrier in the world**
  - 10.1 million intermodal lifts in 2006
  - 8.2 mil at 33 BNSF Intermodal Hub facilities
  - 1.9 mil at 16 International On-Dock facilities
- **Pacific Northwest = 1.18 mil in 2006 11.6% total lift volume**
  - Seattle International Gateway 307k
  - South Seattle 207K
  - Portland 172k
  - PNW on-dock 489k



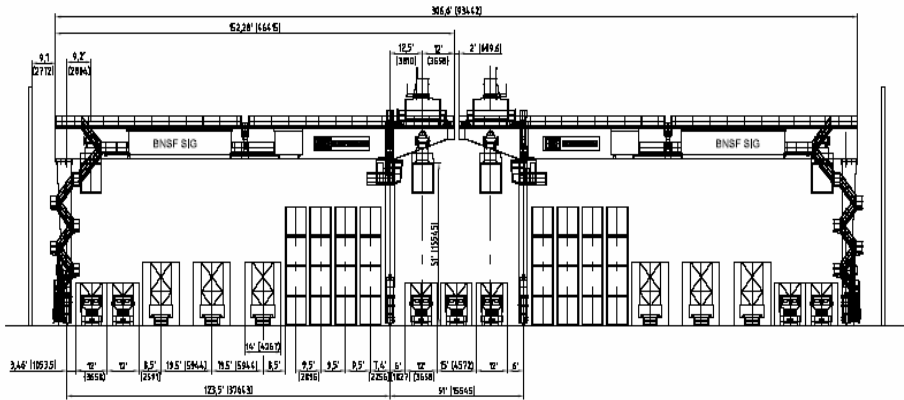
## BNSF Intermodal Network



## Update on BNSF's Seattle crane technology

- **North SIG to receive four electric wide span cranes in 2007**
- **Cranes built by Konecranes of Finland**
- **Specifications**
  - Stack one over four high
  - Entire span is 152 feet, cantilever is 26 feet
  - Four rows of container stacking under each crane
  - Three truck lanes under each crane
  - Three ramp tracks under each crane
  - Two crane modules

# North SIG cranes



# North End Looking South



## South End Looking North



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## Eastside Looking Southwest



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## Westside Looking East



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## Why Wide Span Electric Cranes?

- Crane design size and weight predicated rail mounted cranes (RMG's)
- Electricity most practical and most environmentally friendly power source
- WS design provides most practical utilization of land
  - Most container stacking slots
  - Allows more loading track space, thus reduces railcar switching
  - All aspects of intermodal operation are performed under span of crane
  - Eliminates need for UTR's (yard trucks)
  - Provides means for "semi-automation" or full automation

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## BNSF SIG, model for intermodal efficiency since 1984

- **100% container stack operation: ZERO Units on wheels**
  - Currently deploys only ten diesel powered lift machines
  - NO (ZERO) UTR's (hostler trucks)
  - Normal ratio of UTR's to lift machines is 6 to 1
  - Unique stack operation at SIG has avoided emissions from up to 60 UTR's since it opened in 1984
- **Bottom line: Organized container stacking is a major process enhancement for reduction of emissions at intermodal facilities**
- **Control of trucking by railway is key component to success at SIG**



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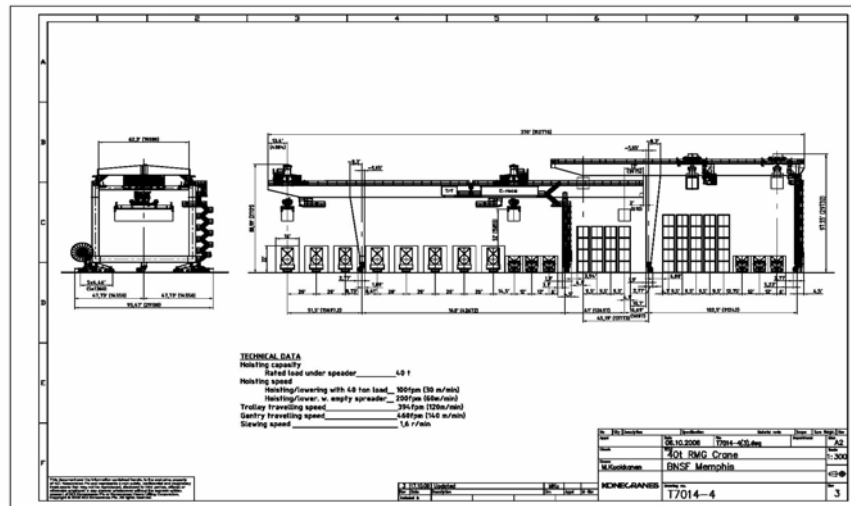
## Process and Equipment conversion

- **BNSF is currently completing design of electric wide span cranes at several locations**
  - Memphis
  - KC
  - LA
  - Chicago
- **Current "all-wheeled" operations are not as efficient or environmentally acceptable as new design**
- **Stacking containers is a significant process change for the industry**



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## SIG on steroids, Master plan to be tested at Memphis



## BNSF: Rising to the Future of Intermodal starting in Seattle

