

PIPELINES

FTA Motor Fuel Meeting - 2006

David Retz
Chevron

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Why are Petroleum Products
Measured in 42 Gallon Barrels?

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Why are Petroleum Products Measured in 42 Gallon Barrels?

- ◆ Crude oil was originally transported in old wooden whiskey barrels.
- ◆ Whiskey barrels were made in a standard 42 gallon size for ease of transport and measurement.
- ◆ It stuck!

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4 Types of Pipelines

- ◆ Crude Oil
- ◆ Natural Gas
- ◆ Product Pipelines
- ◆ NGL Pipelines

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Crude Oil Pipelines

- ◆ Move crude oil from production sites to storage facilities, refineries and ports.
- ◆ Interstate pipelines (Texas to Indiana)
- ◆ Trans-border pipelines (Alberta to Illinois)
- ◆ Local pipelines (Bakersfield to L.A.)

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Natural Gas Pipelines

- ◆ Transports processed gas from production areas to storage facilities and to “city gates”.
- ◆ “City gates” are where the pipeline system interconnects with local utilities distribution network.

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Products Pipelines

- ◆ Move finished products from refineries, storage facilities and ports to terminals for truck distribution to retail sites.
- ◆ Common carrier and Proprietary.
- ◆ Proprietary are typically short pipelines serving proprietary terminals near refineries.

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NGL Pipelines

- ◆ Relatively few in number.
- ◆ Move natural gas liquids from natural gas processing plants to markets including refineries, fractionation plants, chemical plants and truck racks.
- ◆ May be fully finished products or “mixed streams” of liquids.

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Pipeline Regulations

- ◆ All interstate common carrier pipelines are regulated by the FERC in terms of operation and tariff.
- ◆ Pipeline regulations tend to drive pipelines into separate legal entities from refineries or marketing operations to ease administrative burdens and to comply with various regulations and FERC orders.

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Product Pipelines - Detail

- ◆ First crude oil pipeline was laid in Titusville, PA in 1859.
- ◆ Largely constructed in the 1940s and 1950s in response to attacks upon tankers and to add transportation capabilities.
- ◆ Recent consolidation in the pipeline industry. Kinder Morgan has acquired many "legacy" pipeline assets, including terminals.

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Product Pipeline Movements

- ◆ Product movements of different products are called “batches”.
- ◆ Batches range in size from 2,000 to 3,200,000 BBLs. (42 gallons in a BBL)
- ◆ “Pigs” no longer used to physically separate product types.
- ◆ Transmix is the product created when two non-compatible fuels interface.

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Product Pipeline Movements

- ◆ Speed of Product Movement?
 - 3 mph to 5 mph
 - Texas to New York in 14-24 days, average 18.6 days.
 - Product pipelines only flow one way.

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Product Pipeline Movements

- ◆ Nearly all of the pipeline system is underground for safety reasons.
- ◆ “Contents Under Pressure”
- ◆ Tapping or drilling a hole in an active p/l is very dangerous.
- ◆ P/Ls are monitored 24/7/365 by operators looking for any drop in line pressure or flow rates

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How to Find P/L Theft



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Products in Pipelines

- ◆ Most common sequence of products shipped:
 - ◆ Reformulated Regular Gasoline
 - Low Sulfur Diesel Fuel
 - Jet Fuel
 - High Sulfur Diesel
 - Conventional Gasoline
 - All Premium Gasolines
 - Reformulated Regular Gasoline (repeat)

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Pipeline Inventory Accounting

- ◆ Two different methods used:
Discrete Batch and Pool Methods
- ◆ Discrete Batch is similar to shipping via UPS...what you put in is what you can pull out.
(Colonial / Plantation)
- ◆ Pool Method acknowledges the fungible nature of petroleum products and allows for withdrawal anywhere after delivery to carrier. (Magellan / Williams)

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Interconnect “Terminals”

- ◆ An interconnect terminal is not a “terminal”.
- ◆ It is a location where two or more pipelines “interconnect” and where “break-out” storage may be utilized to “park” product awaiting ongoing shipment.
- ◆ Linden, NJ Plantation, Colonial and Buckeye P/L interconnect. No truck rack.

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Transactions of Pipeline Inventories

- ◆ Sales – all or part of a pipeline batch may be sold or bought while in the custody of common carrier pipeline.
- ◆ Trades – all or part of a pipeline batch may be traded for another quantity of fuel to be delivered at a different location or different time. (Supply problems)

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Products in Pipelines

- ◆ Pipelines restrict types of products shipped to reduce creation of waste products and to enhance revenue.
- ◆ Typical products:
 - Gasoline
 - Diesel
 - Jet
 - Heating Oil

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Products in Pipelines

- ◆ Uncommon Products
 - Aviation Gasoline (lead)
 - Racing Fuel (lead)
 - Dyed Diesel (or any dyed product today)
 - “Black Oils” (No. 6 and heavier)
 - Waste products / off-spec products

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Products in Pipelines

- ◆ Rebrands, Downgrades and Pipeline Designated Grades
 - Rebrand – designating, at delivery from the p/l, a product from one code to another. Low sulfur diesel fuel to home heating oil.
 - Downgrade – intentionally downgrading the value of the product to meet operational requirement. Delivery of 89 octane for a 87 octane order.

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Products in Pipelines

- ◆ Pipeline Designated Grades – “To Each Their Own.”
- ◆ Colonial P/L has 62 unique product codes. 29 codes are fungible and remaining are batched separately. P/L can combine products from different shippers to maximize efficiency, meet operational needs and minimize transmix. There are 38 product codes for gasoline.

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Transmix?

- ◆ Most common sequence of products shipped:

Reformulated Regular Gasoline
Low Sulfur Diesel Fuel
Jet Fuel
High Sulfur Diesel
Conventional Gasoline
All Premium Gasolines
Reformulated Regular Gasoline (repeat)

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P/L Deliveries to Terminals

- ◆ P/L's deliver product to terminals connected to the pipeline.
- ◆ Terminals may be associated with the p/l operator or may be third-party terminals operated by oil companies or others.
- ◆ Report in ExSTARS and States if required

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P/L Delivery to Terminals

- ◆ Services Provided:
 - Creating the “cut” between different products.
 - Providing a receiving report and forecast of receipt time by product. (aka delivery ticket or receiving meter ticket)
 - Dye diesel fuel upon request where dyed diesel inventories are held in the terminal. (Plantation P/L in the Southeast)

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Questions?

- ◆ Remember, pipeline movements of finished products are above the point of taxation for most purposes.
- ◆ Nearly impossible for an un-registered person (IRS) to be a shipper on the pipelines.

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