

# Pipeline 101

API International Trade and Customs Conference

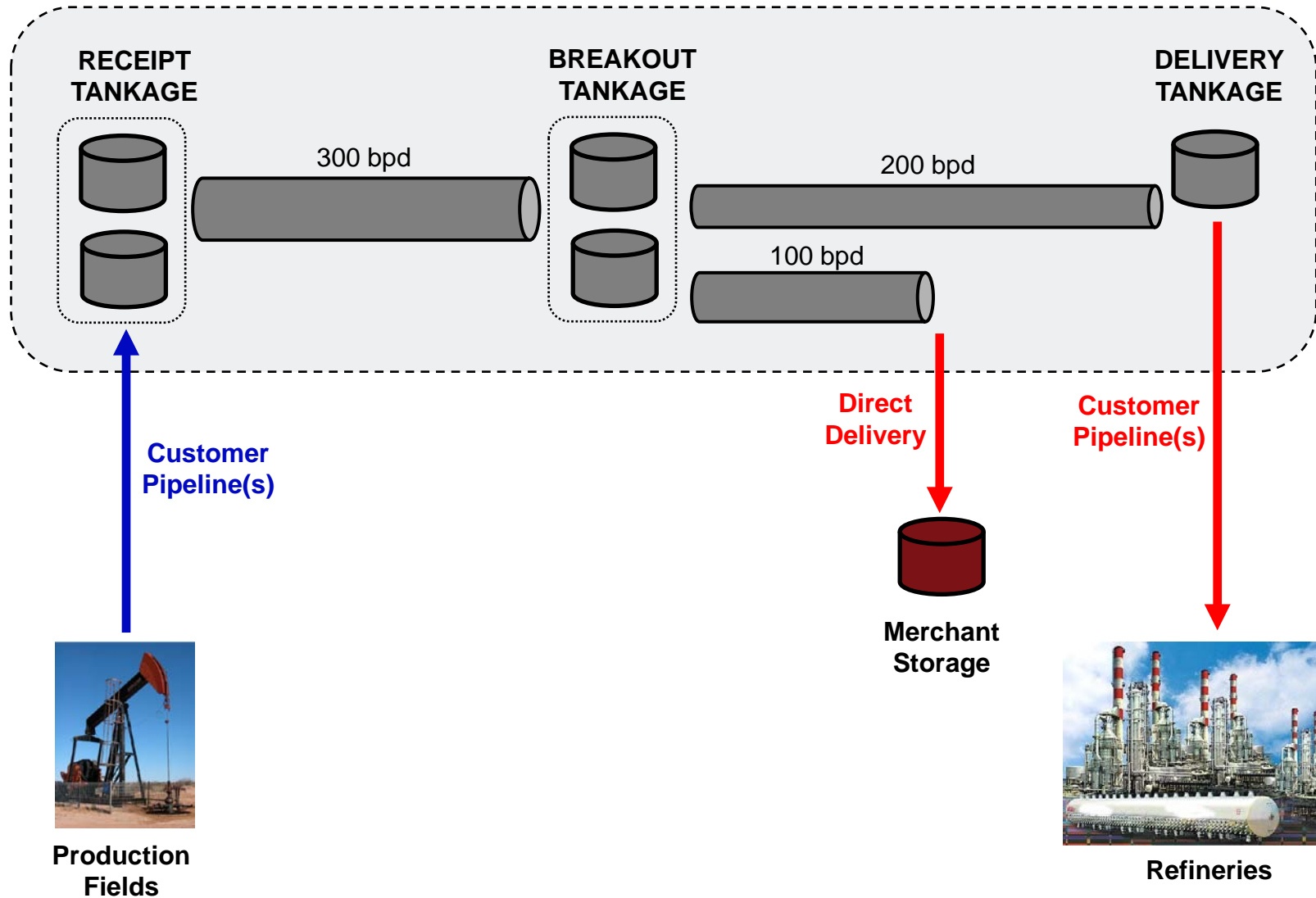
March 26, 2012



- Overview
  - Pipeline Terminology
  - Pipeline System
  - Batch System
  - Pipeline Processes
- Scheduling
- Control Centre Operations
- Pipeline Field Operations
- Accounting

- Shipper (Customer) – the party that contracts with the pipeline for the transportation of petroleum
- Nominations – provide tenders for movement
- Consignee – takes final ownership of the batch off the Common Carrier System
- Batch - a commodity type distinguished from other commodity types by volume and/or physical characteristics and/or composition
- Receipt Tankage - designed to accumulate incoming volumes until such time that the volumes are scheduled to pump
- Breakout Tankage - designed and built at locations where there is a substantial rate change, due to volumes entering or leaving the system

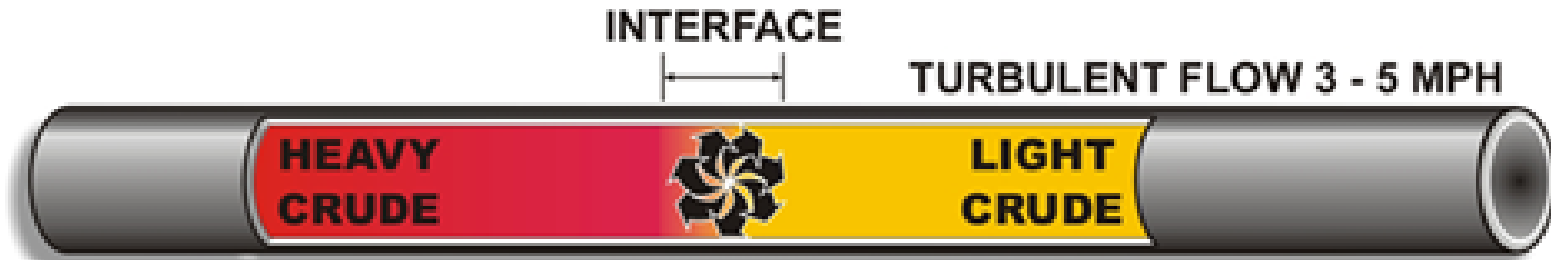
# Overview – Pipeline System



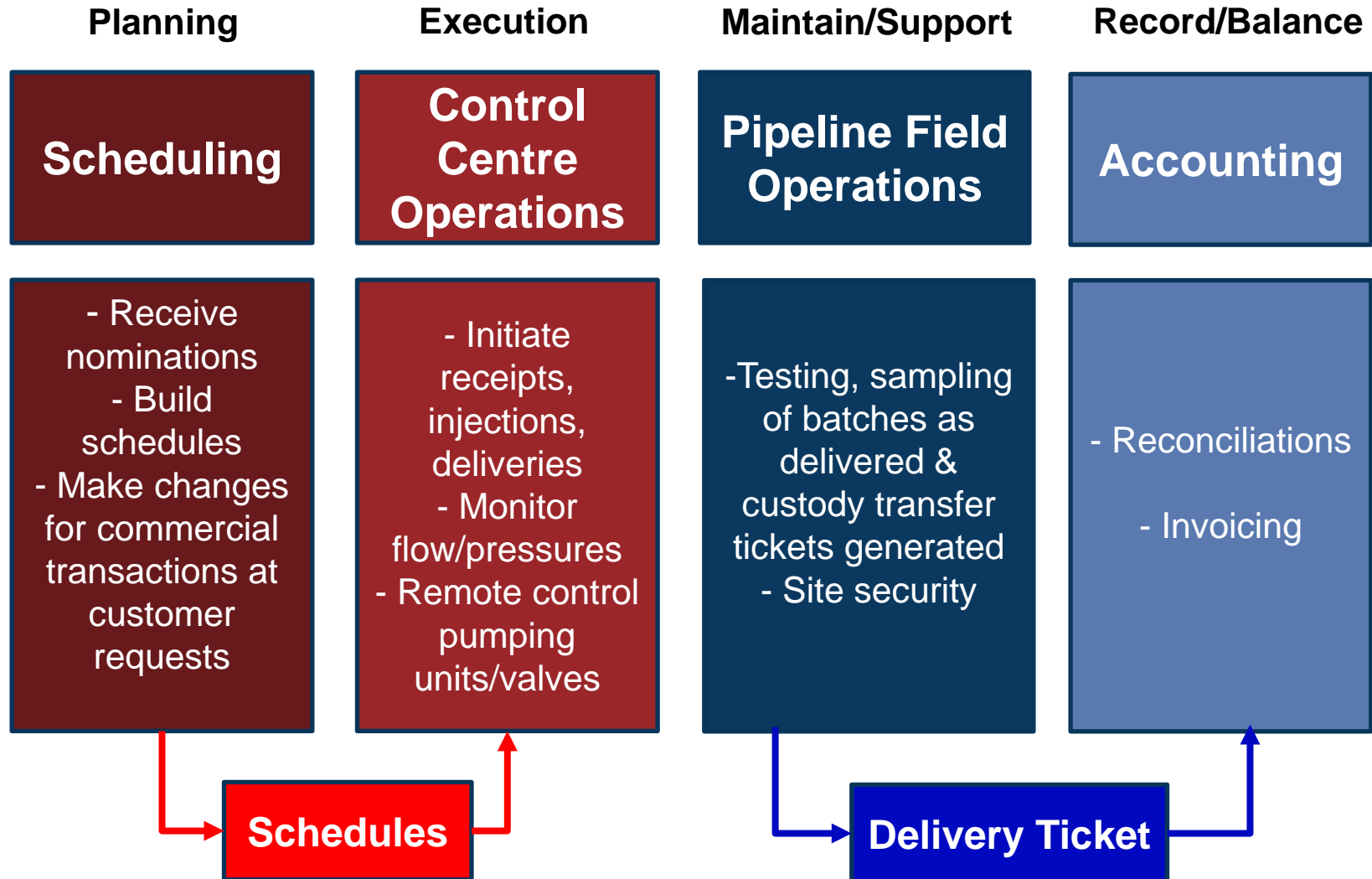


- Pipeline is operated in a segregated, or batch mode
- Pipeline operator does not assume ownership of the transported product in the pipeline system
- Gross volumes are scheduled and tracked through the system from injection to delivery

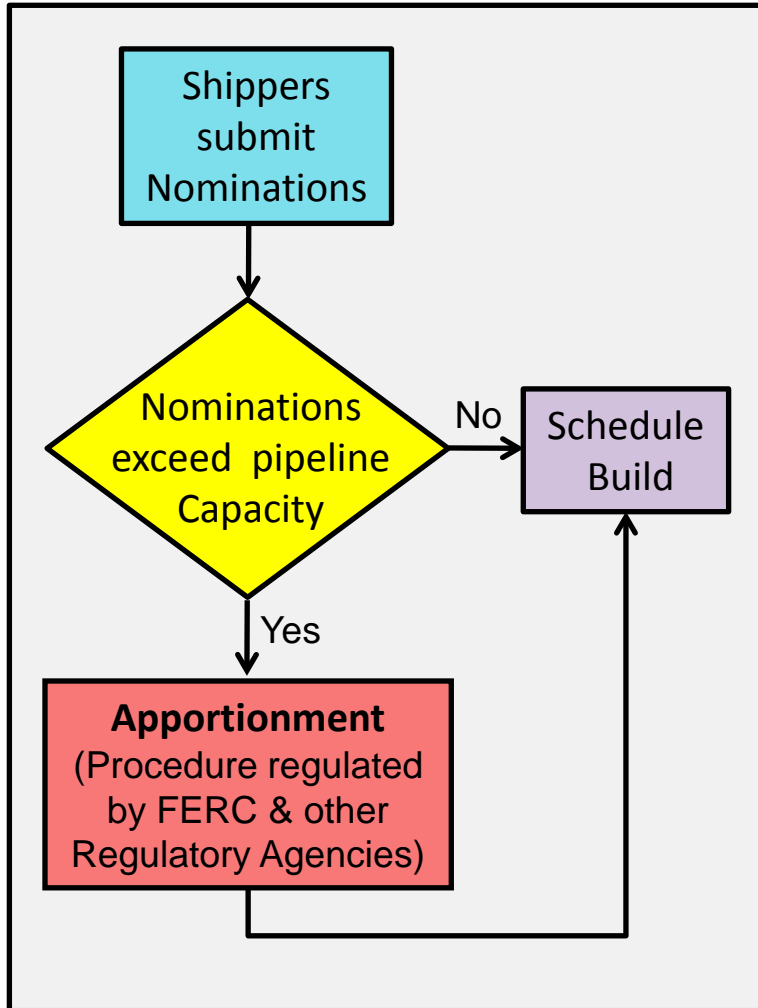
# Overview – Batch Movements



# Overview - Pipeline Processes




## Nominations




## Building Schedules

- Average batch size is 62,900 bbls
- Each batch is assigned a unique number
- Create a batch sequence:
  - Ratability
  - Quality
  - Minimize Pressure Cycling
  - Power savings
  - Special Requests from Shippers
- Planned maintenances
- Available Flow Rates
- Tank Retention Times

## Publish Schedules

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- Schedule reports include:
    - All batches that the shipper owns
    - All injections of volumes tendered in the Nominations
    - All deliveries from both the current and previous Nominations period
  - Schedules provide transit times from injection to delivery points
  - Customers should be able to confirm that the schedule aligns with Nominations and ratability meets the end-user's needs

## Changes/Adjustments to Schedules

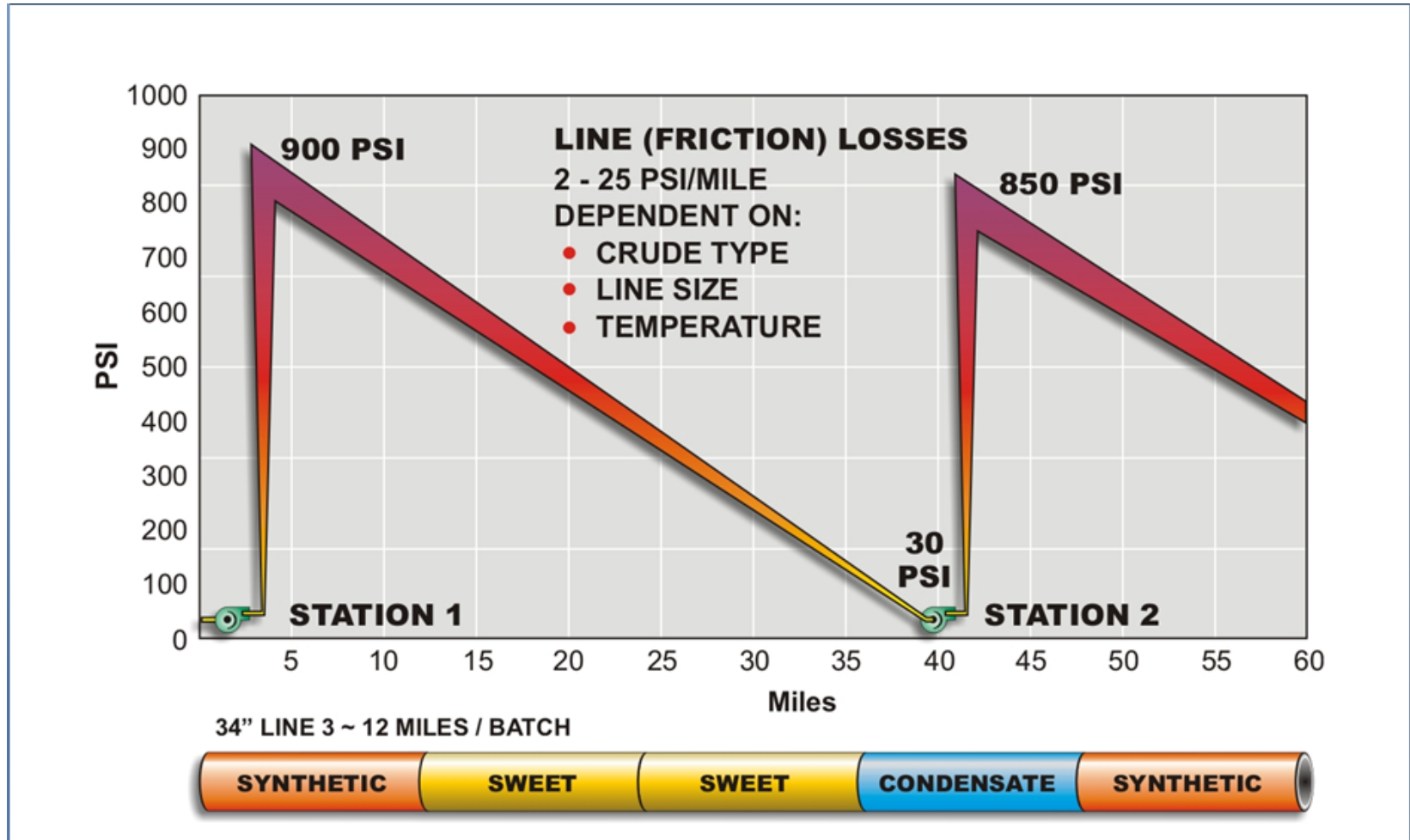
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- Shippers make changes throughout the month for commercial transactions under the regulations of common carrier
  - While a batch is in transit, numerous changes can occur including changes in:
    - Ownership
    - Consignee
    - Delivery Location
  - Schedules revised daily to accommodate changes and operational requirements



- Monitors pipeline flow 24 hours per day
  - Pressure conditions and trends
  - Tracking of product as it moves through the pipe
- Controlling product batches when they enter and exit the pipeline

- Start and stop pumping units
  - Initiates receipts, injections, landings and deliveries
  - Manages flow in/out of tanks
- Closed system from receipt to delivery ensures control of customers product & that regulatory requirements are met
- Diverting or shutting off the flow of products in case of an emergency or maintenance shutdown
- Supervising emergency situations and dispatching crews when required

- Pipeline Operations





- Maintaining and repairing the pipeline, pumps, compressors, valves, metering and electronic equipment
- Calibrating instruments for SCADA requirement

- Site security, safety measures and emergency response
- Testing and sampling of batches as they are received and delivered at custody transfer locations

## Typical Terminal

- Receipt Lines
- Receipt Meters
- Tanks
- Varied Storage Capacity
- Booster Pumps
- Outgoing Lines
- Pump Stations
- Mainline Pumps



## Meter Manifold



- Custody Transfer Delivery Meters

## Purpose

- Primary for custody transfer – accurate recording of volumes & deliveries off the common carrier system
- Key element for leak detection

## Considerations

- **Meters are not located at international border**
- Cost
- Duplication of equipment
- Additional security & environmental concerns at a location that may be remote & could shut down feed stock to US Refineries

## Accuracy

- Must meet API industry standards
- Approved by CBP
- Commercial Accountability between Pipelines, Interconnecting Facilities, and Shippers

- Tariff invoicing for the pipeline
- Preparation of Shipper Balance Statements – summary of activity for each commodity for each pipeline system (receipts/deliveries/ and commercial transactions between customers)
- Terminal and pipeline reconciliation
- Final inventory balancing
- Reporting to government agencies
  - CBP, FERC, and DOE



Questions?