

# Strategic Management and Automation of Refinery Offsite Operations

## Self-Study Training Seminar Manual

**SAMPLE**

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#### ***Session-4B Octane 101, fuels production economics and gaseous Fuels***

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Module-1	Session-1 Overview and fundamentals		Module-5	Session-1 Oil Movements and Management		Module-9	Session-1 Advanced Blend Control and Optimization	
	Oil and Gas Industry Economics-101			Oil Movements-I			Refinery-wide Planning & Scheduling	
	Overview of Refining			Oil Movements-II			Advanced Blend Control Strategy	
	Refinery Offsite Operations			Oil Movements-III			Offline Blend Optimizer	
	Problems and Challenges			Demo of Commercial OM&S System			Online Blend Control & Optimization	
	The Hydrocarbon Management (HM) in the Refining Industry							
Module-2	Session-2 Tank Farm Management		Module-6	Session-2 Overview of Fuels Blending Operations		Module-10	Session-2 Data Reconciliation and Analysis	
	Terminal Operations-I			Overview of Blending Operations			Data Reconciliation and Feedback	
	Terminal Operations-II			Crude Blending			Interface with Other Systems	
	Tank Farm Fundamentals-I			Products Blending			System Architecture	
	Tank Farm Fundamentals-II			Blenders Configurations			Over-all Integration	
Module-3	Session-3 Tanks Inventory Information Management		Module-7	Session-3 Field equipment and controls		Module-11	Session-3 Offsite Automation Project Justification	
	Tank Gauging System-I			Field Equipment and Instrumentations			Where and how to start	
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	Tanks Inventory Management System-I			Regulatory Blend Control			Identification of Automation Areas	
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Module-4A	Session-4A Tanks Quality Measurement			Session-4 Blending Models and Optimization			Session-4 Offsite Automation Project Implementation	
	Tanks Quality Analysis and Prediction-I			Linear Blend Models			Project Implementation Phases & Strategy	
	Tanks Quality Analysis and Prediction-II			Non-linear Blend Models			How to realize and sustain benefits	
	Tanks Fugitive Emission Measurement and Control-I			Methods to Handle Blend Non-linearity			Required Enterprise Changes	
	Tanks Fugitive Emission Measurement and Control-II			Blend Optimization			Putting it All Together	
Module-4B	Session-4B Octane 101, fuels production economics and gaseous Fuel			Lab Exercise to solve an LP problem of a small refinery			A treatise of ASTM Standards	
	The Mysteries of Octane							
	The Journey of Octane thru Refinery Lanes							
	Diesel or Gasoline, Which one to produce more							
	All about gaseous Fuels							

Notes: Each topic duration is 20-30 minutes, Total number of slides are 800+  
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**Next enclosed is a  
sample slides from  
session-3 of the  
curriculum.**

# Refinery Offsite Operations.

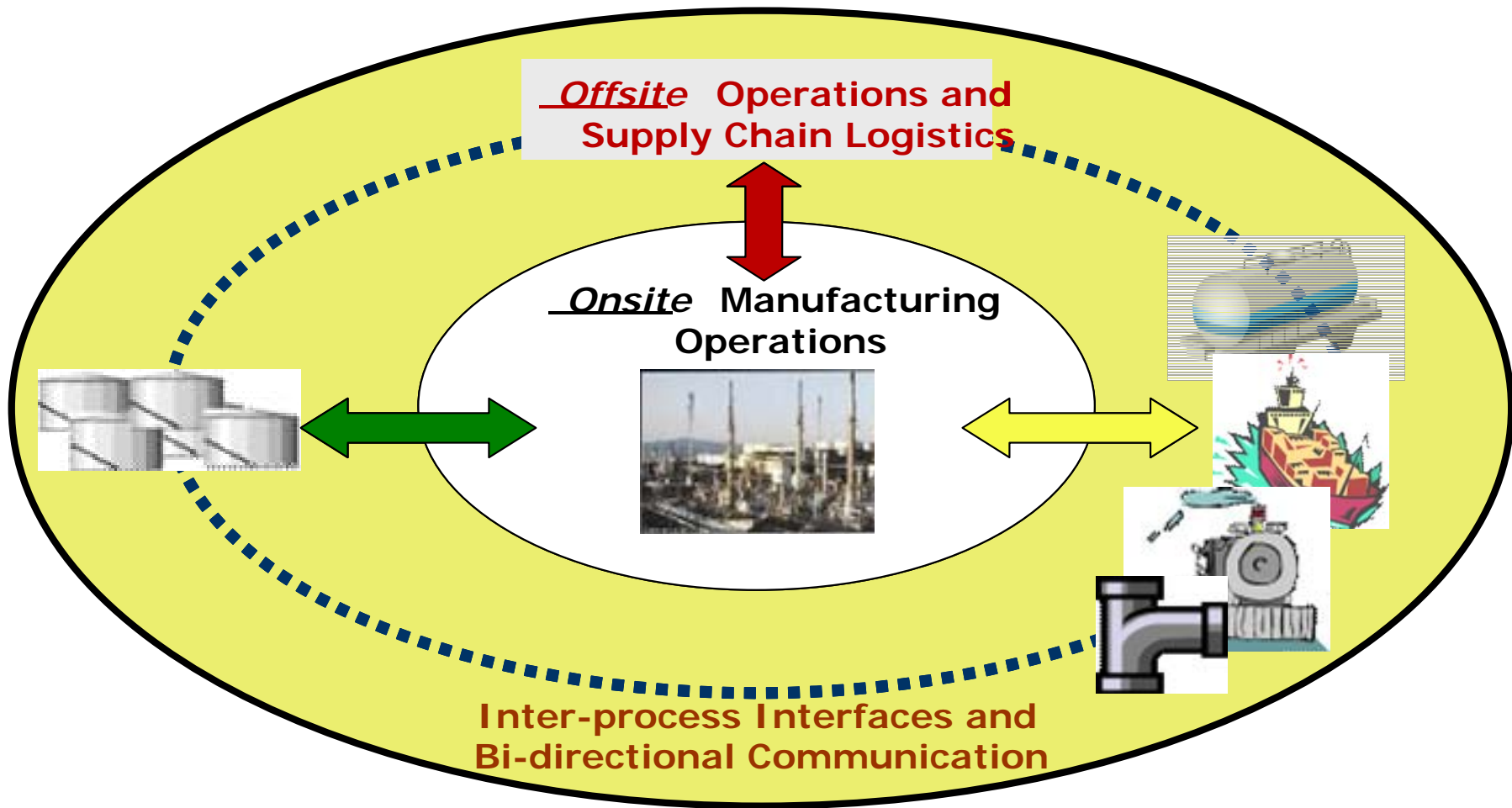
# Overview

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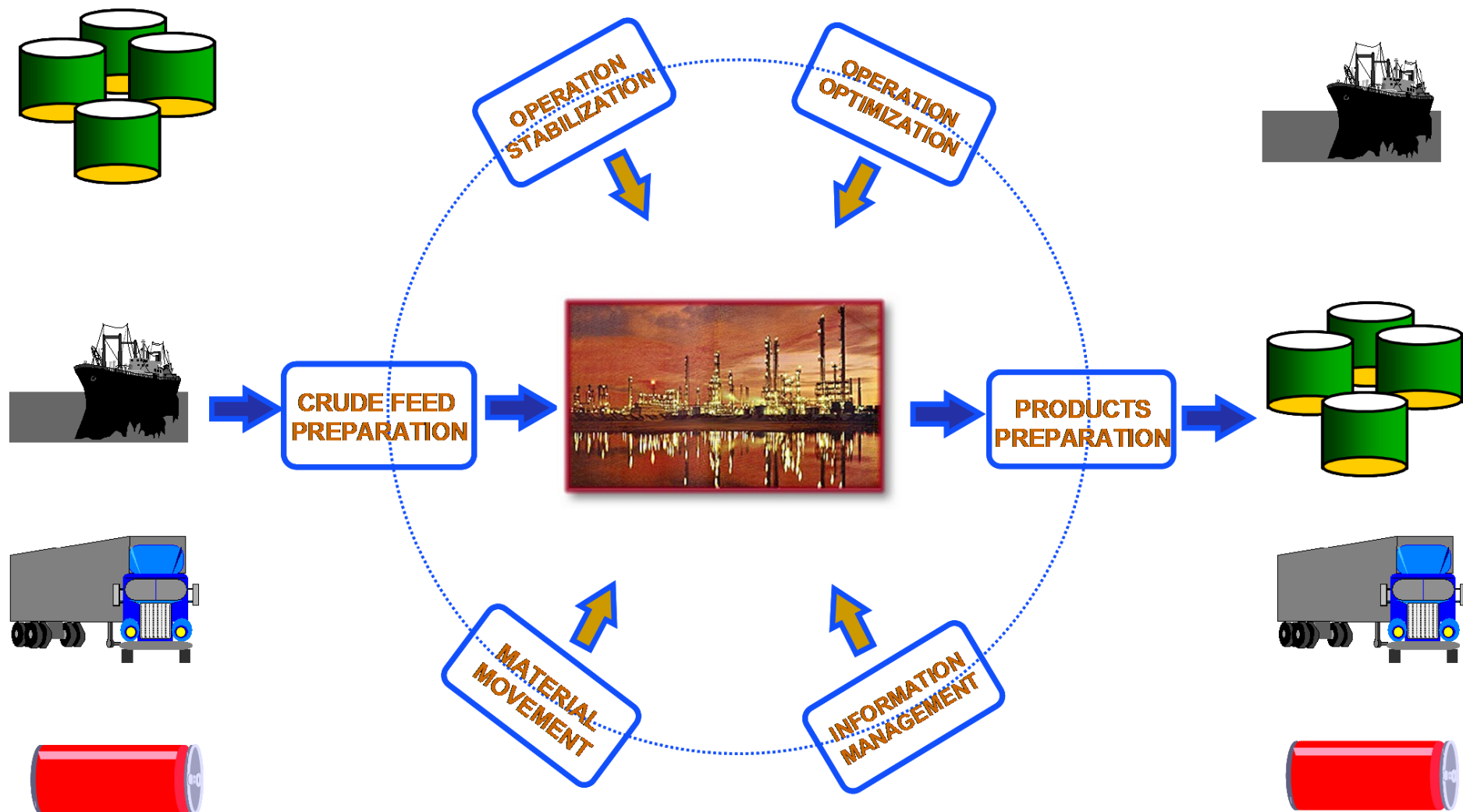
- Onsite and Offsite Operations
- Feeds, Processing and Dispatch
- Offsite Operations
- Integration
- Terminal Operations
- Crude Blending
- In-plant Material Movement
- Tank Farm Operations
- Product Blending Operations
- Blending Configurations



# Onsite and Offsite Operations

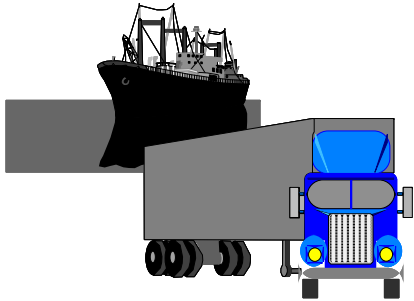


# Feeds, Processing and Dispatch

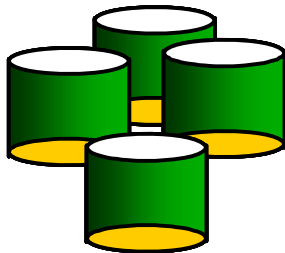
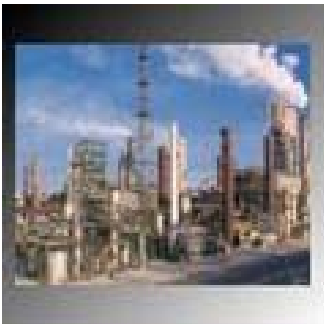


# Offsite Operations

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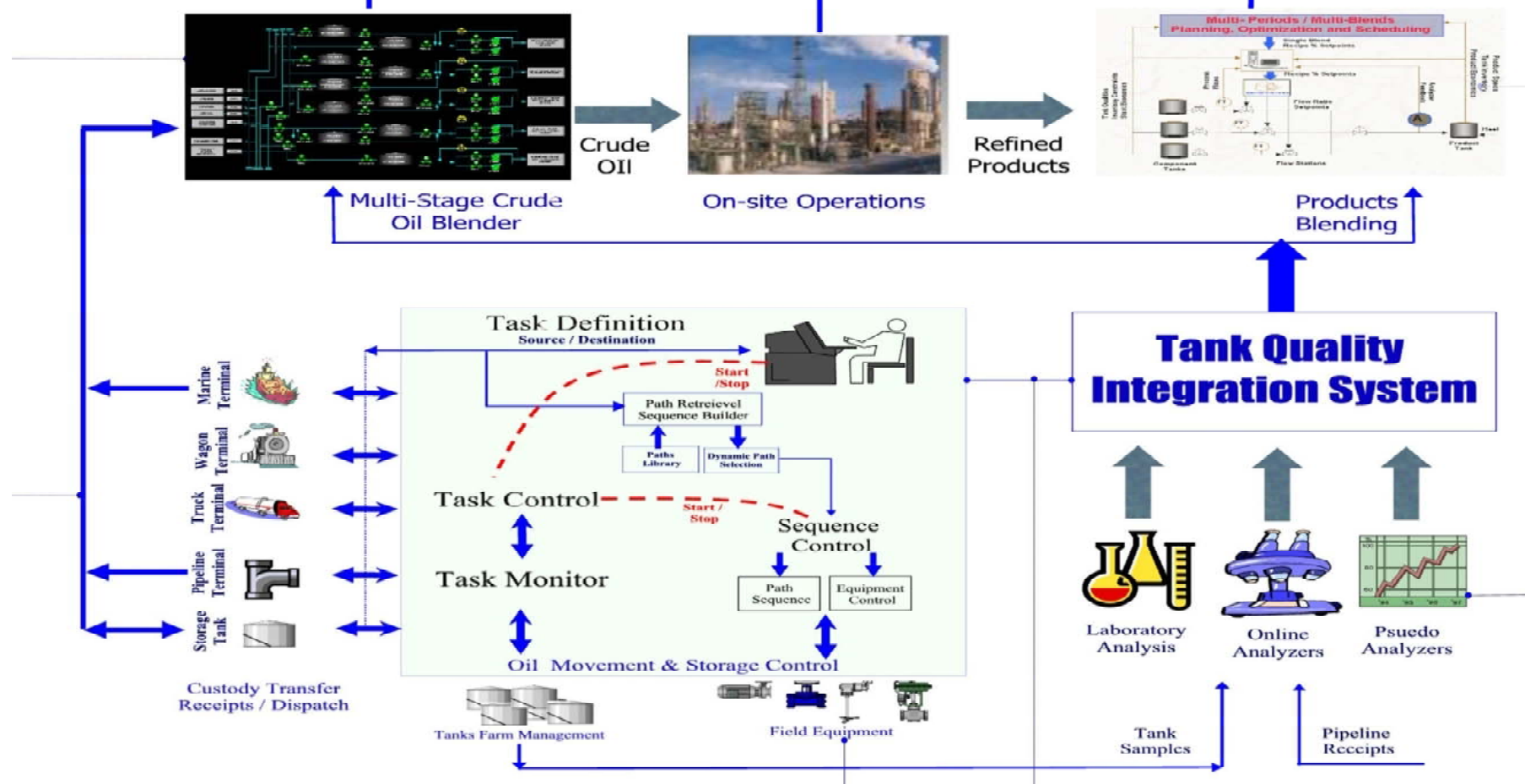
- **Terminal Operations**
- **In-plant Material Movement**
- **Tanks Farm Management**
- **Products Blending**
- **Crude Blending**
- **Feeds / Products Preparation**



# Integration of Offsite Operations

## Enterprise Business and Financial Systems

## Refinery-wide Planning and Scheduling System



# Terminal Operations

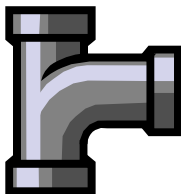
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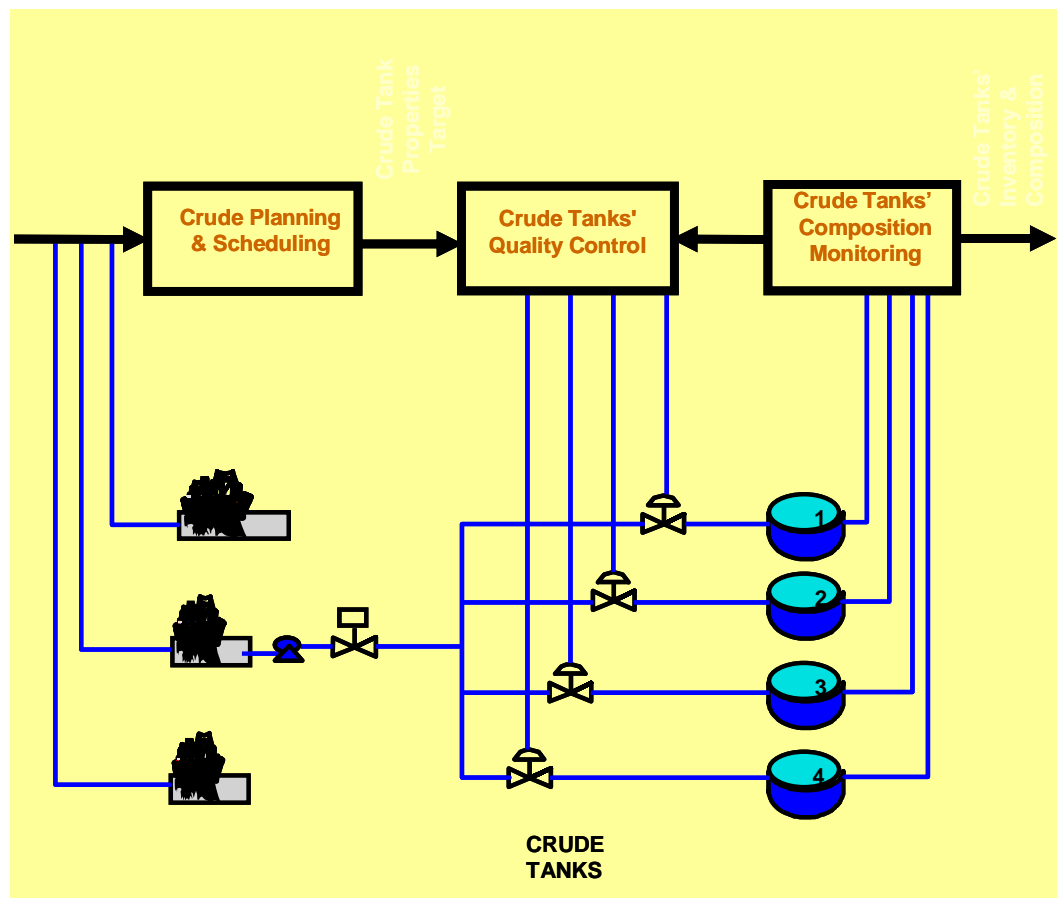
- Receipts of Crude / Products by Ships / Trucks / Pipelines



- Shipment of Finished Products by Ships / Trucks / Pipelines

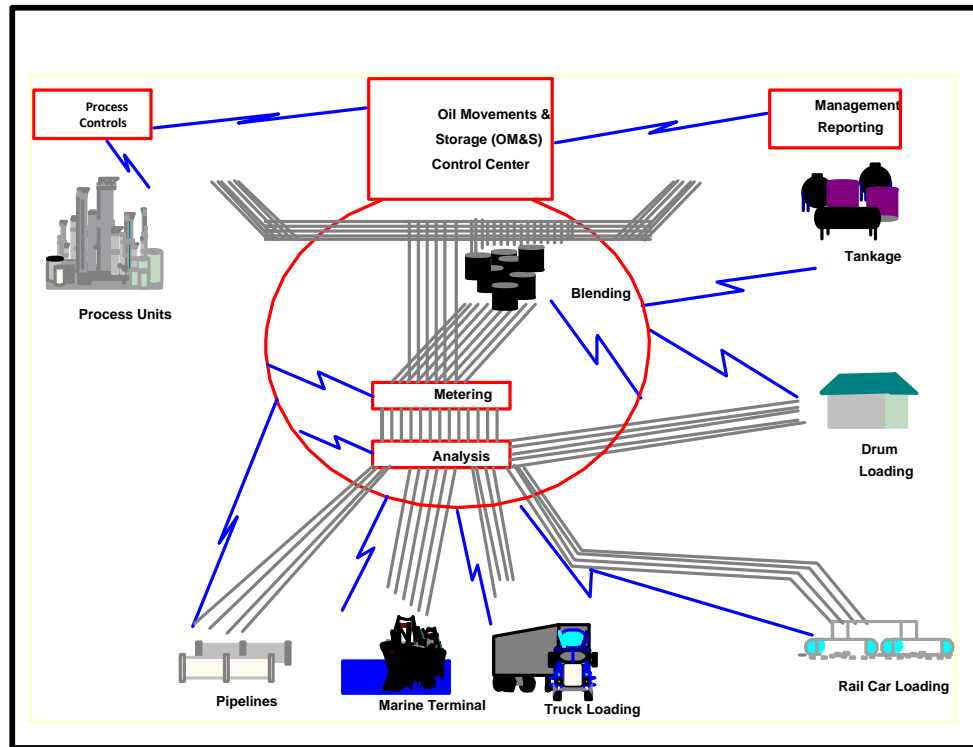


# Crude Blending



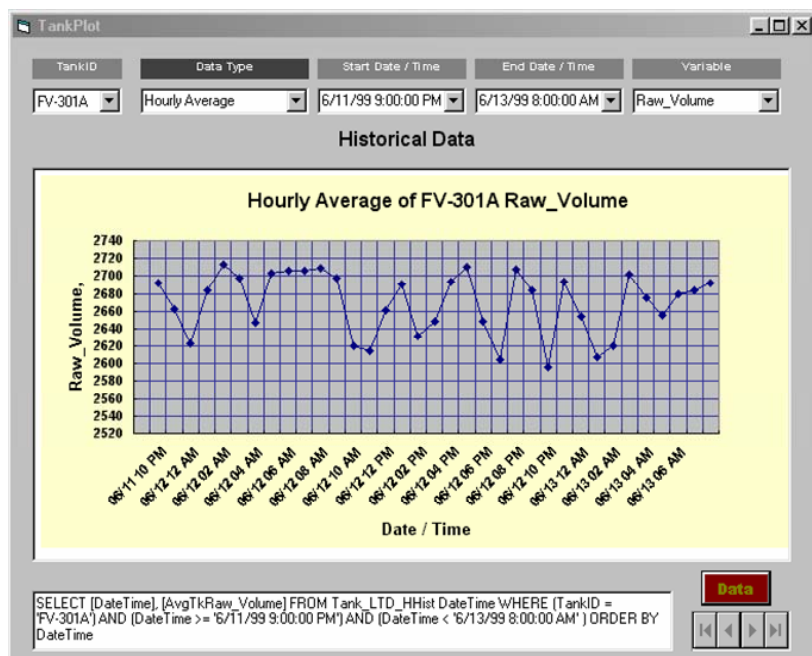
- Ships-to-Tanks
- Tanks-to-Tank
- Tanks-to-Units
- Pipeline-to-Tanks
- Tanks-to-Units Inline

# In-plant Material Movement



- Pipeline to Unit
- Recirculation
- Tank To Tank
- Tank To Unit
- Unit To Pipeline
- Unit To Ship
- Unit To Tank
- Unit to Unit

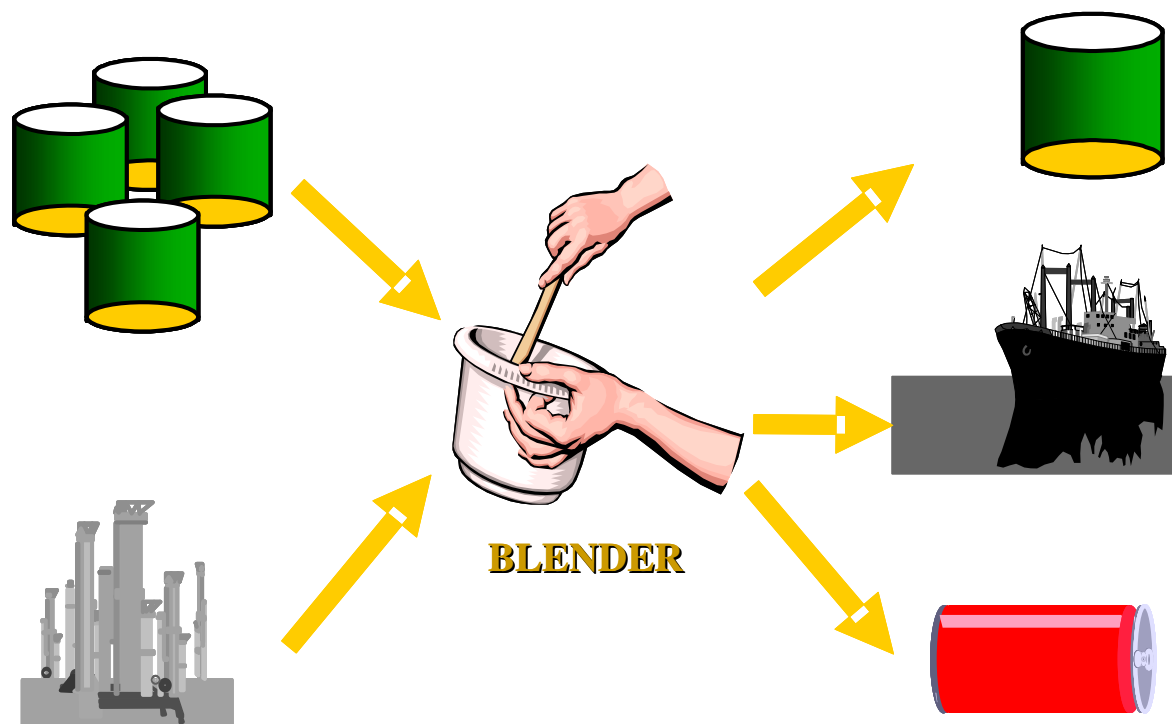
# Tank Farm Operations



- Tanks Loading / Unloading
- Tank Swings
- Water Drainage
- Recirculation

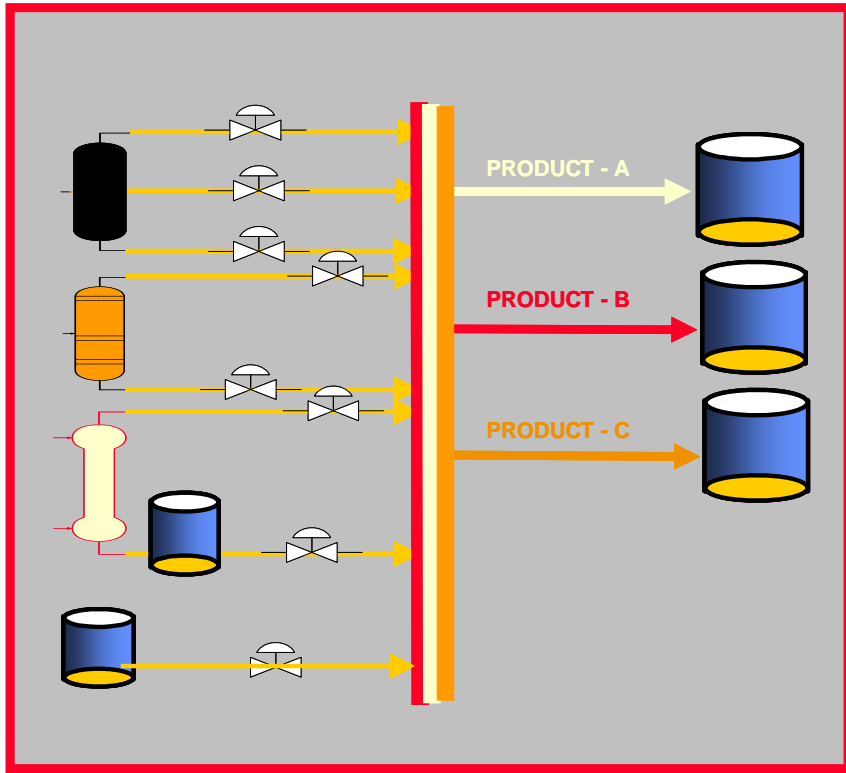


# Product Blending Operations



- Gasoline
- Fuel Oil
- Diesel Oil
- Lube Oil

# Blending Configurations



- Tanks-to-Tank
- Units-to-Tank
- Units -to-Tank with some Intermediate Stock Tanks
- Tanks / Units-to-Ships
- Tanks / Units-to-Pipeline
- Single Product Vs Simultaneous Multi-Products Blending

# Summary

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- **Offsite operations in a refinery constitute major activities of the plant operations.**
- **Any lack of efficiency in these operations can affect the bottom-line severely.**
- **Onsite or process unit operations focus on operating units safely and optimally, whereas offsite operations target on product qualities and maximize profitability.**