

Modern Service Station Construction & Operations

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October 26, 2009



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Imperial Oil

Design & Operating Principles

- Current design and operational best practices significantly reduce the chance of creating a new Brownfield
- Modern designs incorporate learnings from past incidents and decommissioning experiences
- Decommissioning of sites built in last 20 years confirm progress is being made

Advances in Site Construction

- Double walled tanks and lines with an interstitial “space” between container with gasoline and outside shell
 - Interstitial tank space either under a vacuum or filled with liquid
 - Tanks & lines are pressure tested after installation & the complete fuel dispensing system is 3rd party tested prior to opening.
- Containment sumps under each dispenser and as part of fill pipe assembly for tanks
 - Collect any inadvertent drips, filter failures, etc.
- Pressurized line leak detectors installed to detect unusual pressure changes in the piping between tanks and pumps
- Most jurisdictions have formal licensing program for petroleum contractors

Features of a modern Service Station



Adapted from Gilbarco Veeder-Root

Advances in Site Management

- Automated tank gauging installed in underground storage tanks provides constant fuel volume readings
- Sensors installed in sumps and interstitial spaces that detect hydrocarbons. Shuts down system and sounds alarm if any fuel detected
- Electronic system installed that automatically reconciles tank gauging results, fuel sales and fuel deliveries. This provides early detection of a meter calibration issue, delivery issue and alerts to the possible causes
 - Central monitoring and investigation

Summary

- It is possible to design and operate a facility that prevents creation of a new brownfield
 - Incorporate experience from incidents and cleanup of older sites in new site design
 - Update operating practices
 - Install preventative measures where possible