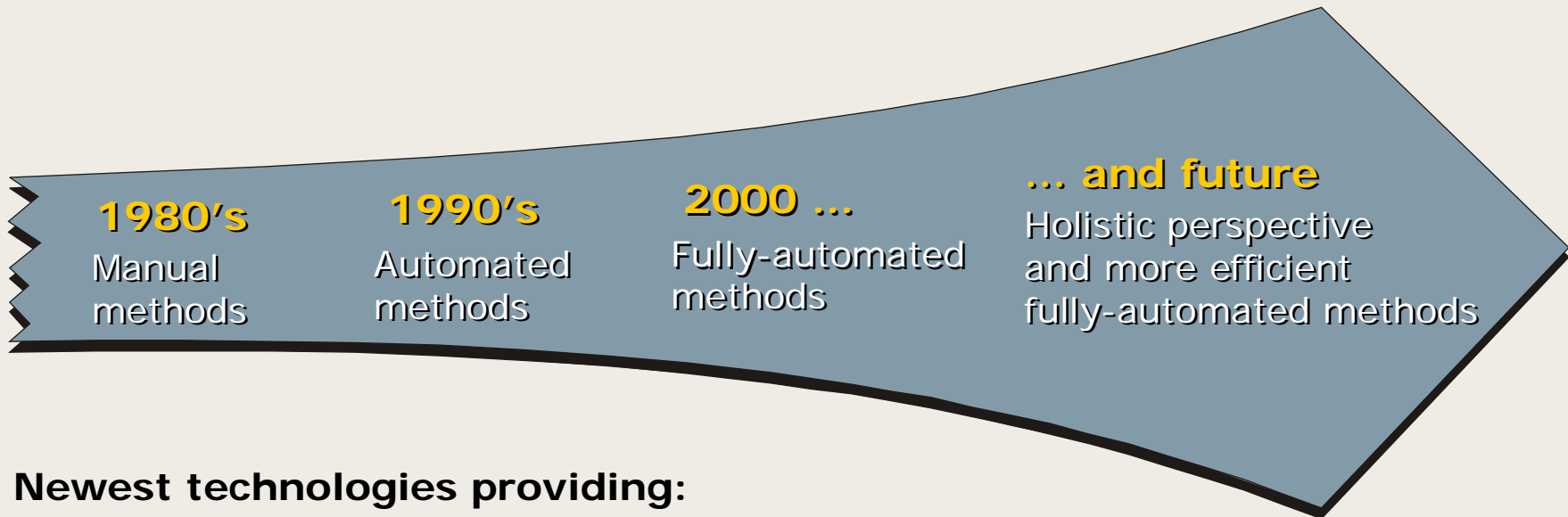


Introduction to automated tank cleaning and oil recovery



Historic development of tank cleaning methods



Newest technologies providing:

- Better cleaning result
- Faster cleaning process
- More efficient separation process
- Safer operations / non-entry
- Environmental protection
- Better cost-efficiency

Better plant operation

Problems

- Limited tank capacity
- Reduced through-put
- Limited tank flexibility

Solution: automated methods

- ✓ Releases dead stock
- ✓ Reduces tank down-time up to 80%
- ✓ Flexible change between oil products
- ✓ 99% recovery of hydrocarbons
- ✓ Minimum waste handling



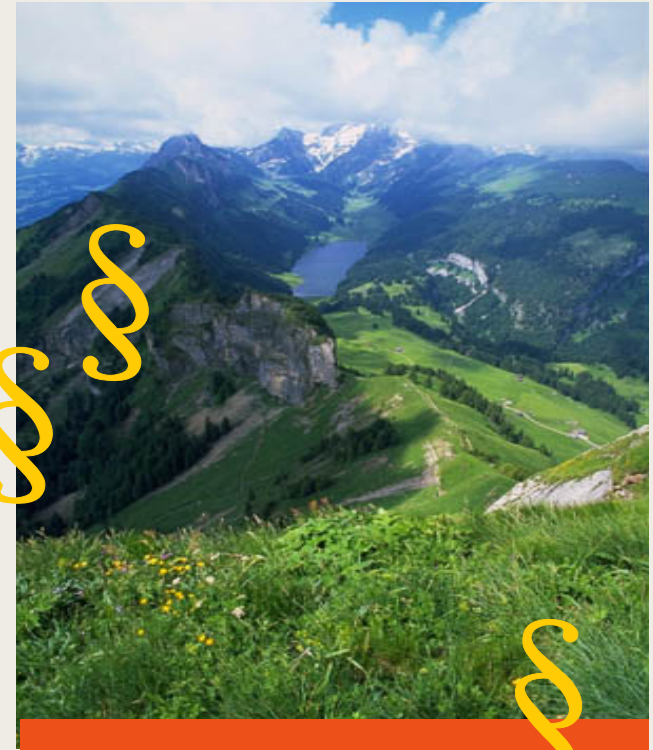
Environmental protection

Problems

- HC emissions to atmosphere
- Ground and water contamination

Solution: automated methods

- ✓ Closed loop cleaning system
- ✓ Minimum use of resources (water, energy etc.)
- ✓ Reduced HC emission to the air
- ✓ Simultaneous sludge separation minimising disposals
- ✓ Efficient recovery of hydrocarbons



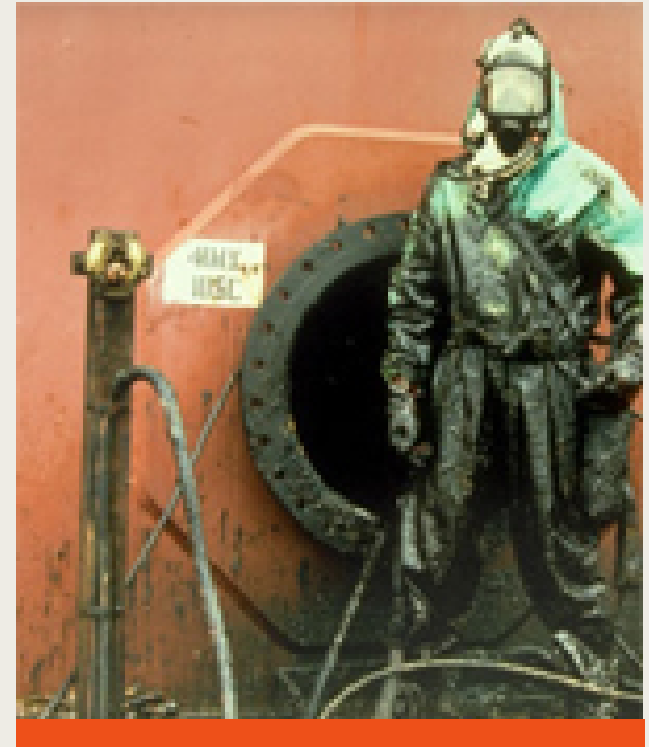
Increased focus on health & safety

Problems

- Explosion risks
- General plant safety and security
- Hazardous work environment

Solution: automated methods

- ✓ Non-man entry system
- ✓ No explosion risks
- ✓ No exposure of hazards
- ✓ Highly qualified staff
- ✓ Monitored process and progress report
- ✓ ISO 9001:2000



Better plant economy

Problems

- Tiresome waste handling
- Wasting valuable oil sludge
- Increased environmental legislation

Solution: automated methods

- ✓ Cleans all types of oil
- ✓ Simultaneous cleaning and separation process
- ✓ Separated oil directly to export pipeline – no quality loss
- ✓ Reduced down-time



Direct and Hidden Costs



Process and technology

				Process			
Sludge minimisation	De-sludging	Tank cleaning	HC recovery				
BLABO® (Oreco)				Technology			
COWS (Taiho)			Phaser 600/450 (3i)			Fully automated	
GasTight (Hydrochem)							
SuperMacs (3i)							
				Semi-automated			
Hydrodozers (Willacy)							
P43 (OPEC)							
Mixers							
				Manual			
Numerous manual service providers							

