

# PumpSmart

## Case Study

## Pipeline Cargo Pumps

### Challenge

As part of a new gateway terminal in Texas, a large pipeline company needed a reliable and flexible way to control their cargo pumps. This set of pumps is critical to moving product within and out of the terminal and failure is costly.

The pumps need to stage on and off to meet flow rate demand to loading berths when a ship is docked. At other times there is also a need to select certain pumps to transfer product from one storage tank to another.

Additionally, the facility was looking for flexibility in control locations; either by an operator standing at the HMI screen or remotely through their plant-wide control system.

### Benefits

ITT's PumpSmart Medium Voltage solution provides the ability to easily control multiple pumps to meet a required flow rate (with automatic staging and destaging). The onboard logic delivers sophisticated control that keeps the pumps within their reliable region under changing conditions. To help accomplish this, it utilizes SmartFlow™ sensorless flow measurement, which can derive the flow of each pump within  $\pm 5\%$  of the rated pump flow without the need for external flowmeters at each pump.

Additionally, PumpSmart provides unique pump protection features to detect and avoid adverse conditions that could cause pump failure.



*Overall site view*



*First ship being loaded at the dock*

Part of the ITT Family



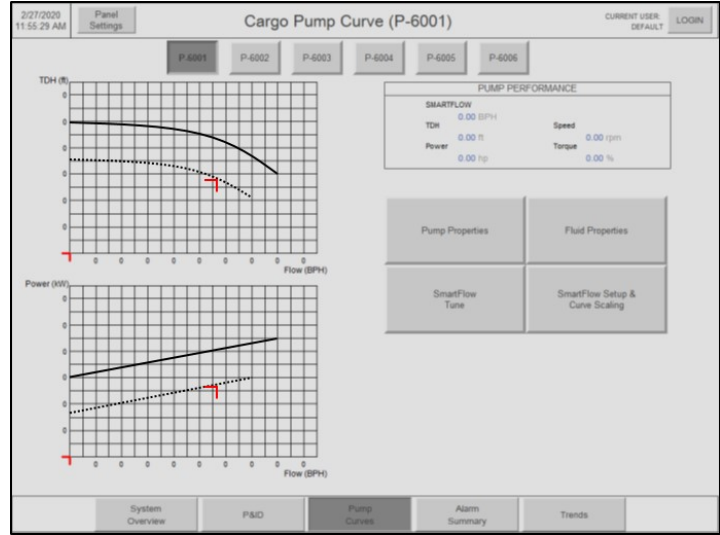
# Solution

A single PumpSmart controller was installed to control all 6 pumps. Once a desired flow rate is input, the PumpSmart automatically stages on the necessary pumps and balances the load between pumps.

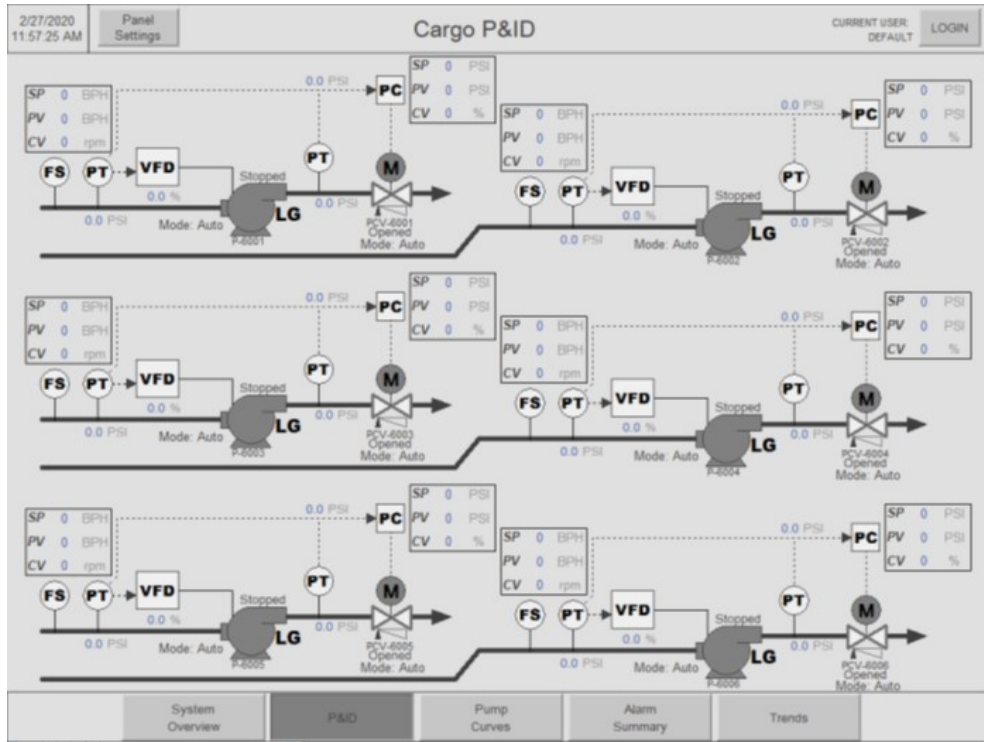
Tank-to-tank transfer operation can be selected with the necessary pumps being employed to achieve the transfer.

Special pump protection features provide a margin of safety during operations. The pumps are protected against dry run conditions and because PumpSmart is able to calculate the flow, minimum flow fault protection also reduces the risk to the pump and motor.

PumpSmart provides all this while allowing flexibility in inputs from the HMI or from the plant control system.



PumpSmart Live Pump Curve and Operating Point



PumpSmart HMI Operator P&ID View and Control Screen