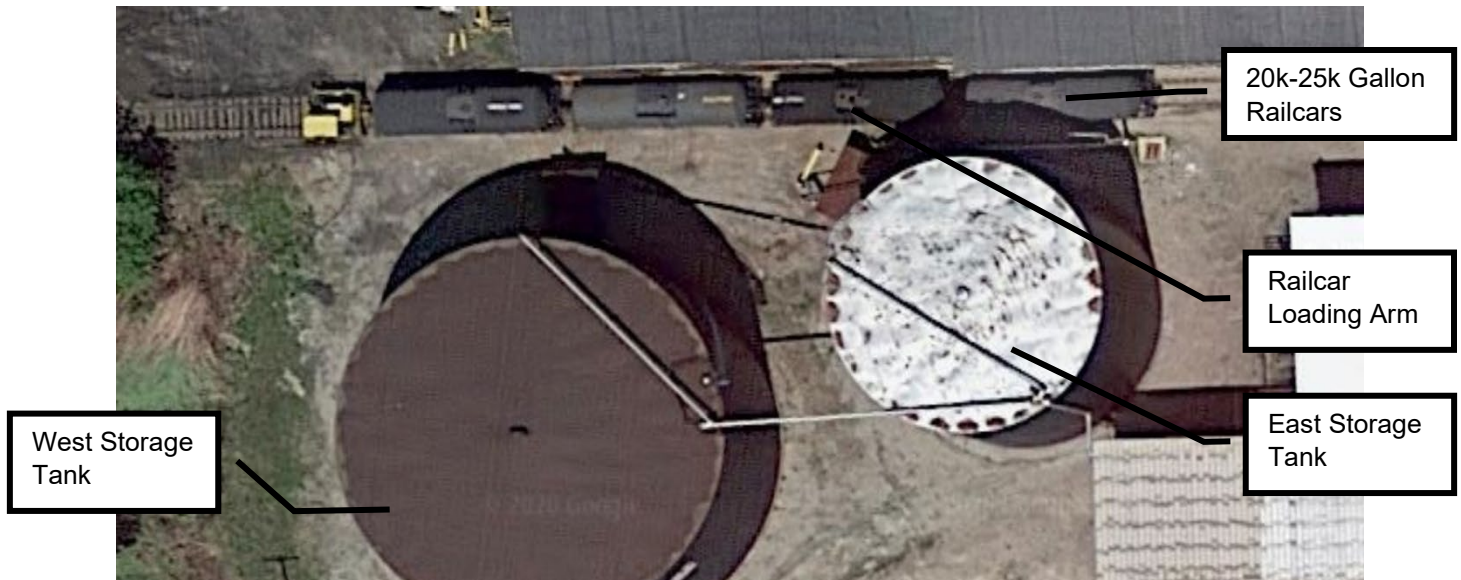


Molasses Railcar Loadout Overfill Protection at a Sugar Mill

Application Note

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Sugar Mill Molasses Tanks and Train Cars Lined up for Loading

Summary

Overfill Protection of Molasses Railcars

Products

PD9000-GP-4AI-10RY ConsoliDator+ in a PDA2909
Painted Steel NEMA 4 Enclosure

Key Features

- Multiple 4-20 mA inputs
- Up to 8 display channels per screen
- Bargraph display for tanks and railcar inputs
- 10 Relays for alarms, valve, and pump control
- NEMA 4 wall/field mount enclosure
- Additional input and output cards may be added in the field if required

Application

A sugar mill had two large molasses tanks that were used to fill railcars at their loadout facility. The railcars ranged in size from 20,000 to 25,000 gallons. They needed to maximize the fill of each railcar but leave space at the top to ensure that there were no spills.

Challenge

The sugar mill had experienced molasses spills when filling their railcars. These molasses spills were very expensive in terms of the cleanup and downtime in using their loadout facility. They needed an overfill prevention system to avoid spills and to safely optimize the filling of their railcars.

Solution

Three radar level transmitters were installed in the sugar mill loadout facility. Two transmitters were mounted on top of their storage tanks. The third transmitter was secured to a loading arm that monitored level as each railcar was being filled.

During filling the loading arm swivels out from the railcar loading platform to be positioned over the railcar. When the railcar is 75% full a relay turns off the pump to prevent the railcar from overfilling.

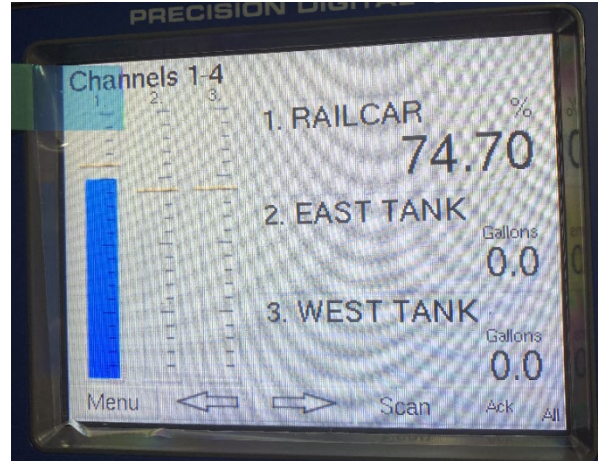


Radar Level Transmitter on Swivel Loading arm

The PD9000-GP-4AI-10RY ConsoliDator+ Multivariable Controller at the sugar mill accepts up to 4 analog inputs and has 10 SPDT relay outputs. The ConsoliDator+ numeric and bargraph color display indicates the volume of the East and West Storage Tanks and the ullage of the railcar as % full.

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PD9000 ConsoliDator+ Showing Railcar (%) and Storage Tank (Gallons) Levels

The relay outputs are used to provide high and low level alarms for the two storage tanks, and to turn off a pump when the railcar is 75% full. The railcars are filled manually beyond 75% full if desired.



PD9000 ConsoliDator+ in a PDA2909 NEMA 4 Wall/Field Mount Enclosure (Note: Picture Taken Before Setup Complete)

Additional input and output cards can be added to this ConsoliDator+ in the future if needed. The ConsoliDator+ has provided a successful solution in maximizing the fill of their railcars and preventing any spillage of molasses.