



INTRODUCTION

Freezing flow across valves is not uncommon in oil and gas production. This occurs due to the Joule-Thomson Effect, which states that if the pressure of a gas drops enough, the entrained condensation will freeze.

This phenomenon often leads to production downtime and accompanying frustration.

The Catco Catalytic Heater is a flameless heater designed specifically to prevent freezing in oil and gas production environments.

In this field study, we'll show how the heater performed at a gas compression station in Veracruz.

PROBLEM

A producer was operating a compressor station in Guaricho, Agua Dulce, Veracruz.

The problem they were facing was the compressor was stopping because the condensed water particles mixed within the gas were freezing. This occurred as a result of the Joule-Thomson effect, which happened throughout processing the differential pressure through the Kimray Valve.

Stopping the compressor had a significant impact on production as it completely stopped until the gas condensation problem was resolved.

This resulted in a loss of resources and revenue as well as man-hour costs to have operators address the problem.

APPLICATION & PRODUCT DETAILS

- Production Type: Compression Station
- Gas Volume: 2.4 mmcf/d
- Solids in Fluid: Low
- Corrosiveness: Low
- Upstream Pressure: 430 PSI
- Downstream Pressure: 143 PSI
- Vessel Type: 2-Phase Separator
- Ambient Temp: 90 °F

SOLUTION

Tired of stopping production and spending the time required to defrost their regulators, the producer worked with the FCM team to install a Catco Catalytic Heater around the valve body to see if it could prevent the freezing.

Date of Installation: 2/15/21

Summary of Installation: The Catco Heater was installed around the valve body where the pressure drop was occurring and freezing was taking place

Model: KSC71-212A-1-40 (ENCL W/(1) 12V 10X12 HEATER)



RESULTS

Whereas the temperature at the valve outlet had been hovering around the freezing point of water (32 °F), the temperature after installation of the heater increased to between 70°F and 93°F—an increase of over 20°F.

The producer also experienced an improvement in gas combustion and has not had to shut down due to freezing any more.