BLACK POWDER SOLUTIONS
The Leader In Industrial Magnetic Separation

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Petrochemical Condensate Black Powder Removal

BPS Separator at Condensate Inlet prior to entry into Refinery

South Korea, 2016

Application:

A new condensate refining petrochemical complex built near Daesan, South Korea understands the damaging impact of Black Powder contamination inherent in oil and gas fluids.

Problem:

Black Powder impedes the refining processes and causes premature wearing of all the components within the chemical refinery such as valves, meters, and compression units.

The tank farm storage facility and transmission lines are the primary sources of Black Powder. Throughout the refining processes, Black Powder precipitates from the product due to temperature and pressure change. Within tank farms, the high moisture content oxidizes the ferrous sulfurs and oxides creating Black Powder. In this environment, Black Powder increases exponentially because moisture is a catalyst; this causes the increased production of bacteria and chemical precipitates found entering the refinery.

Solution:

Apply one BPS Test Separator Module after the tank farm and before the refinery at the condensate inlet to clean the incoming condensate prior to entry into the refinery.

Variables:

Fluid	Hydrocarbon Condensate
Particle Content	Maximum 7.6 mg/L
Flow Rate during test	463.7m³/hr

System:

BPS Magnetic Separator

- Magnetic separator carbon steel housing 48”OD, 100” high
- 32 Magnetic Separators Rods 2”OD x 74” high made from 316SS

Results:

The initial test duration lasted 48 hours with a flow rate of 463.7m3/hr.

The BP collected was in excess of 20kg of Black Powder Contamination.

Photo B

Photo C

Photo A: BPS Separator after 48 hours of running, prior to cleaning

Photo B,C: BPS Separator during cleaning

Conclusion:

The initial results of this 48 hour test confirm the capability of the BPS system to clean Black Powder from the condensate stream without flow restriction. After the test, the Black Powder separator began full system operation.

Recommendation:

BPS recommends to apply Black Powder Systems before refineries, chemical plants, tank farms, pumping and metering stations to protect the refining processes and components.

Clean hydrocarbon fluids will ensure reduced costs and increase profitability in all these applications. Black Powder will cause premature wear of the pipeline wall and system components such as valves, meters, compression systems and reduced product quality for the customer. The clean gas and hydrocarbon fluids resulting from BPS separator systems will ensure reduced operating costs and increase profitability in all these applications. When installed before the costly traditional filtration systems will extend change out cycles and or replace them completely.