

LPG Loading Facility Compressor Lube Oil

Update 2021: BPS' Technology provides annual cost savings of over \$300,000 USD, and reduction in ESG Risk

Targa Resources - Galena Park Facility, Houston, TX USA, 2017 - 2021



**\$300,000 ANNUAL
COST SAVINGS**

Problem

High levels of Black Powder contamination (iron oxide, iron sulfide, silica and salts) from feed stock were bypassing filtration, contaminating compressor lube oil and damaging pumps, bearings, and seal faces. Two filtration methods were in use – a cone strainer upstream of the pump and high-pressure cartridge filters upstream of the compressor. The cone strainer was ineffective in removing Black Powder as it occurred in large quantities of particle sizes below 5 microns in size, resulting in premature repairs and replacement of the pump. On average, one pump was replaced every year, costing \$65,000.

Slugs of contamination would frequently plug off the cartridge filters, allowing the Black Powder to bypass directly into the compressor lube oil. The cartridge filters required replacement several times a week. Several seals were being replaced every year, at a cost of \$5,000 each. Compressor bearings were also occasionally replaced at a cost in excess of \$50,000.

Solution

A BPS Magnetic Separator was installed upstream of the pump, replacing the cone strainer. The existing cartridge filters remained in service.



Figure 1. Constant seal leakage from IMO Lube Oil Pumps.



Figure 2. Black Powder contamination on the seals.

Result

Once in operation, the separator removed virtually all the Black Powder, with no evidence of contamination on the cartridge filters. The BPS system has the capacity to hold months of contamination, eliminating the cartridge filter changes that were occurring every few days. The BPS system operates without flow restriction, no pumps have been replaced and unscheduled maintenance has been drastically reduced. Due to this, opportunities for accidents and spills have been minimized and the terminal is operating with a smaller carbon footprint. The compressor has been operating much more reliably. The client subsequently decided to install 8 additional BPS units.



Figure 3. Black Powder Solutions Magnetic Separator



Figure 4. Black Powder contamination captured by the magnetic elements.