

# CASE STUDY

## Low Cost Compressor Facility Optimization leads to \$11K/Month OpEx Reduction Pocket Adjustments for Optimization and Decreased Utilization can yield Fuel Savings

### Background:

A compressor station consisting of three compressor packages:

#### Driver

Caterpillar  
G3612TA  
2647KW  
1000rpm



#### Frame

Ariel  
JGC  
4 Throw  
4 Stage

The client desired to optimize three compressor packages from one of its gas plants to minimize the amount of gas being recycled and more importantly reduce the amount of fuel gas being consumed by each of the units.

Detection provided a study to the client, proposing the ability to slightly open pockets, adding clearance to each stage, which would achieve the client’s desired objectives while also maintaining the operating parameters.

Using Detection Technologies’ Envision package, a software package that simulates accurate and ideal compressor performance, Detection engineers developed ideal pocket adjustments to minimize recycled gas while maintaining operating pressures which would not trip the unit on current pressure trip settings.

### The Mission:

Optimize the client’s compressors by opening pocks to minimize recycle, and thus reduce fuel gas consumption.

### The Solution:

Detection Technologies provided the client with recommended VVCP pocket settings in order to optimise the client’s compressor packages by minimising recycled gas. More importantly, the adjustments were designed to work well within compressor’s current set points in order to avoid any operating trips.

Stage Number		1	2	3	4
Throw Number		3	4	2	1
Cylinder Model		20-1/8C	14-1/8C	9-5/8C	6-1/4C-FS
Pocket Adjustment	cm	10.16	6.3	6.3	12.075

The client implemented the suggested pocket adjustment change and immediately recognized a reduction in fuel costs for each unit per day. The table below represents a comparison between the before and after performances of adjusting the pockets for each unit. It summarizes the decrease in power consumption and fuel gas burned because of the pocket adjustment.

**Recip Fuel Gas Consumption Summary Before Pocket Adjustments**  
( for the month of March 2011 )

Unit #	Compressor Name	Driver Manufacturer	Model	EUB License #	Environmental Registration #	Working Interest	Max kW	kW Used	Spec. Fuel Consumption (Btu/kWhr)	Fuel Gas Used (E3m3/d)
1001	Sunchild #1	Caterpillar	G3612TALE/AFR			100.00	2647	2010	7907	12.233
1003	Sunchild #3	Caterpillar	G3612TALE/AFR			100.00	2647	1975	7905	12.014
1004	Sunchild #4	Caterpillar	G3612TALE/AFR			100.00	2647	1991	7866	12.056
Total Number of Units : 3			Total Max kW : 7942			Total kW Used : 5976				
Total Fuel Gas Used (E3m3/d) : 36.303										

**Recip Fuel Gas Consumption Summary After May 5 Pocket Adjustments**  
( for the month of May 2011 )

Unit #	Compressor Name	Driver Manufacturer	Model	EUB License #	Environmental Registration #	Working Interest	Max kW	kW Used	Spec. Fuel Consumption (Btu/kWhr)	Fuel Gas Used (E3m3/d)
1001	Sunchild #1	Caterpillar	G3612TALE/AFR			100.00	2647	1857	7969	11.390
1002	Sunchild #2	Caterpillar	G3612TALE/AFR			100.00	2647	1820	7997	11.203
1004	Sunchild #4	Caterpillar	G3612TALE/AFR			100.00	2647	1780	8045	11.021
Total Number of Units : 3			Total Max kW : 7942			Total kW Used : 5457				
Total Fuel Gas Used (E3m3/d) : 33.614										

Total Fuel Gas Savings (E3m3/d) : **2.690**  
Estimated Total Monthly Savings at **\$11,400**

Detection provides the client with the ability to generate daily automated reports in order to trend the performance of its compressors. Along with this, clients can view a range of performance reports fleet wide using Detection’s Fleet Management Tool.

## The Impact:

The client found that the trends showed a drop from 36.3 E3m3/d of fuel gas burned across the plant down to 33.6 E3m3/d. **This resulted in the client saving \$11,400 per month in fuel gas burned.**

## About Detection:

Detection Technologies is a leader in optimizing remote assets for the Oil and gas industry. Our purpose-built solution delivers asset performance management to help you increase production, reduce risk, improve sustainability and reduce operating expenses. Our cloud-based, asset-specific solutions, are built on digital twins and leverage data analytics to provide a complete IIoT solution with autonomous edge capabilities. Over 100 organizations have trusted Detection to help them reduce their operating expenses, make more informed decisions, better manager field activities and reduce risk all while maintaining compliance.