



## Application: Gas Turbine

*ISOPur Fluid Technologies purifies Caterpillar Solar Gas Turbine lube oil "better than new" and removes sludge at Refined Sugar, Inc.*

### Introduction

Refined Sugar, Inc., located in Yonkers, NY, has co-generation station on the premises for the purpose of refining sugar. This power plant generates half of its own electricity via a Caterpillar Solar Gas Turbine.

### The Challenge

Refined Sugar was experiencing a high level of particulate contamination within their gas turbine, which resulted in earlier than expected turbine rebuild. During a routine inspection of the four-megawatt gas turbine, some bearing wear was detected, ultimately resulting in a costly overhaul after only five years of operation. Oil analysis showed a high concentration of very fine particulate between one and five microns. Visible evidence of varnish was also present.

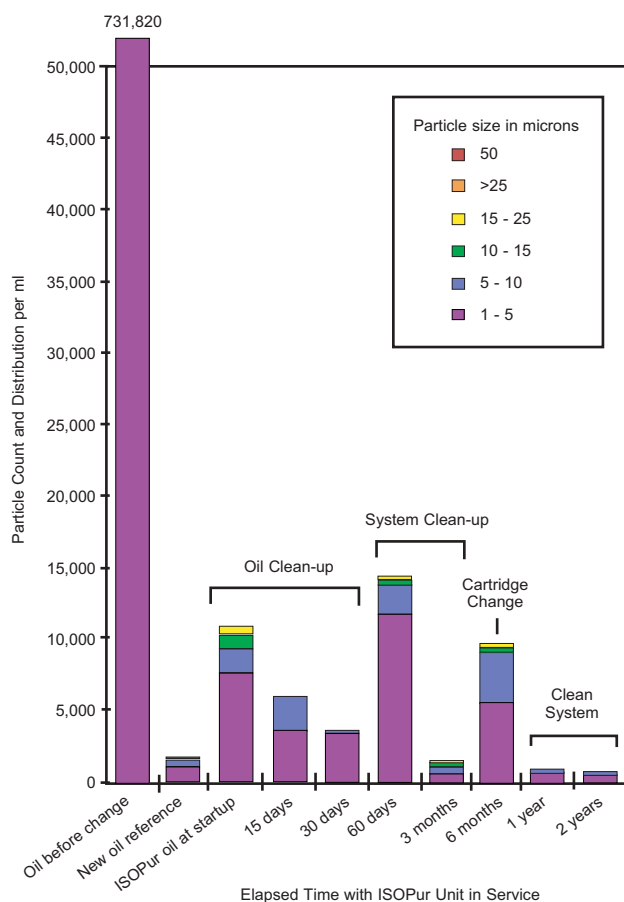
### The Solution

The ISOPur unit was introduced into the turbine lube oil system on a kidney loop and oil analysis was conducted regularly.

Within 30 days the ISOPur Balanced Charge Purification (BCP) technology steadily restored the system to a cleanliness level which exceeded that of new oil from the distributor (see graph). After six months, the oil was restored to pristine condition, maintaining low concentrations of both large and small particles. The piping, components, and fittings of the machinery showed no varnish or discoloration due to loose sludge and fine particles.

The ISOPur unit and gas turbine operated without incident for over three years. Both systems required minimal maintenance. Frank Hoch, Refined Sugar Engineering Service Manager, stated "I was blown away by these results. There is no technology out there that comes close to what ISOPur can do. Cleaning oil is one thing - but varnish and sludge removal is unheard of."

Gas Turbine Lube Oil Particle Count



### The Return

Before the ISOPur unit was installed, Refined Sugar had replaced a number of turbine components, incurred thousands of unseen dollars in downtime, and had budgeted dollars for oil replacement. ISOPur single-handedly improved turbine reliability and performance, thereby extending turbine life. Refined Sugar's cost benefits are numerous and include lower operating costs, reduced down time, and the elimination of bearing and engine component failures.