

Texaco® VARTECH Industrial System Cleaner helps restore gas turbine to maximum productivity for an annual revenue gain of over \$350,000.*

**Chevron North America Exploration Production Company,
San Joaquin Valley Business Unit, McKittrick, California**



The situation

The southern end of California's Central Valley is very hot. Summer temperatures typically exceed 30°C and frequently climbs to 40°C. This creates challenging working conditions for people and equipment.

Chevron San Joaquin Valley Business Unit (SJV) operates more than 16,000 wells, producing 159,000 barrels of crude and 53 million cubic feet of natural gas, daily. Despite the severe environment, SJV has thrived for over 100 years and is California's top oil and gas producer.

SJV has world-class heavy crude oil steam flooding expertise. The SJV oil field located in McKittrick, California (west of Bakersfield) uses a Solar Taurus 60 gas turbine in a co-generation configuration, simultaneously producing steam and electricity. The steam facilitates oil recovery using the steam flooding process and the electricity is sold to a power utility.

During summer, the gas turbine bearings were running too hot for the turbine to operate at its full design capacity. Even when running just below the lubrication oil and bearing alarm temperatures, the turbine could produce only 3.3MW of electricity, significantly under its 5.5MW design capacity. High ambient temperatures were part of the problem, but the SJV operations team also suspected that varnish was interfering with the efficiency of the oil coolers. Visual inspection of the lubricant reservoir revealed varnish bathtub rings, supporting the suspicion that varnish was the culprit.

The lost electricity production was also causing lost revenue. Having 2MW less to sell to the local power utility was costing SJV over \$350,000 in revenue per year.*

Steam flooding is a thermal oil-recovery method in which steam is injected into the reservoir to reduce crude viscosity and assist in pumping it to the surface.

The solution

To address the varnish issue, the SJV team:

- > changed the oil filters
- > replaced 15% of the used in-service oil with Texaco VARTECH Industrial System Cleaner (ISC)
- > restarted the system.

As the gas turbine approached full capacity, it was apparent that something had radically changed. All system temperatures remained within the acceptable range, and no alarms were triggered.

* Results may vary depending on equipment type, operating conditions and utility costs.

The gas turbine continued at full capacity for two weeks with no high-temperature alarms. Then the mixture of used in-service turbine oil and VARTECH ISC was drained. The system was flushed, the filters replaced and the system refilled with Texaco® GST turbine oil.

	BEFORE VARTECH ISC:	AFTER VARTECH ISC:	IMPACT OF VARTECH ISC:
Header temp.	71°C	68°C	-3°C
Bearing temp.	97°C	90°C	-7°C
Unit output	3.3 MW	5.5 MW	+2.2 MW

SJV was able to operate the gas turbine at full design capacity, with no temperature alarms

Results

VARTECH ISC allows SJV to operate its co-generation equipment at full capacity year-round, even during the hottest summer months, to help ensure maximum revenue from the sale of electricity.

“VARTECH Industrial System Cleaner did its job very well, and we can now run the unit at its full design capacity. The operators are very happy because they don’t have to constantly monitor temperatures and juggle the output.”

Andrew Gerlings,
Lead Power Solutions Operations Engineer

Run Better Longer

Texaco Lubricants has developed advanced expertise, premium lubricants and targeted programmes for a broad array of industries, to help our customers’ equipment and operations Run Better Longer.

Find out more at [texacolubricants.com/VARTECH](https://www.texacolubricants.com/VARTECH)

The OEM identified herein did not participate in this field test and the results of this field test should not be construed as an endorsement by them. Always follow OEM recommendations. Consult your Texaco representative for more information.