



**REFINERIA
ISLA (CURAZAO) S.A.**
FILIAL DE PETROLEOS DE VENEZUELA S.A.

**Performance improvement at ISLA furnaces due to better sootblowers
from Messrs. J. SEELEN GMBH.**

CD 3 Furnaces:

All the 5 CD 3 furnaces are designed with convection banks. Prior to 1992 only manual cleaning was carried out, stopping the furnace after every year. It was a time consuming process and also proper cleaning was not possible. The fluegas temperature used to increase by 40 to 50°C within three months and used to remain there till the next cleaning.

Since installing sootblowers by J. Seelen GMBH, in 1992, CD 3 furnaces were stopped only for scheduled turnarounds and maintenance jobs for cleaning has come down. Fluegas temperature has come down by 70°C on an average.

The estimated benefit due to sootblowers at CD 3 saved ISLA an average of US\$ 220000 per year since September 1992.

FP 1&2 Furnaces:

Air preheater (DEKA) fouling in FP2 furnace was forcing many unplanned unit shutdowns in the past few years. Ineffective on-line cleaning resisted the fluegas passage creating excessive pressure drop. This in turn caused back pressure in the furnace leading to unsafe situations forcing the unit shutdown. Whenever the DEKA or convection bank was fouled, the draft available from the chimney was lost before the convection bank itself and back pressure was experienced in the combustion chamber. Without sufficient draft in the furnace, smoke starts leaking from the furnace all the possible openings.

In an effort to facilitate on-line cleaning and to avoid the unplanned shutdowns in FPU's, more effective sootblowers to air preheater and convection bank were installed by J. Seelen GMBH.

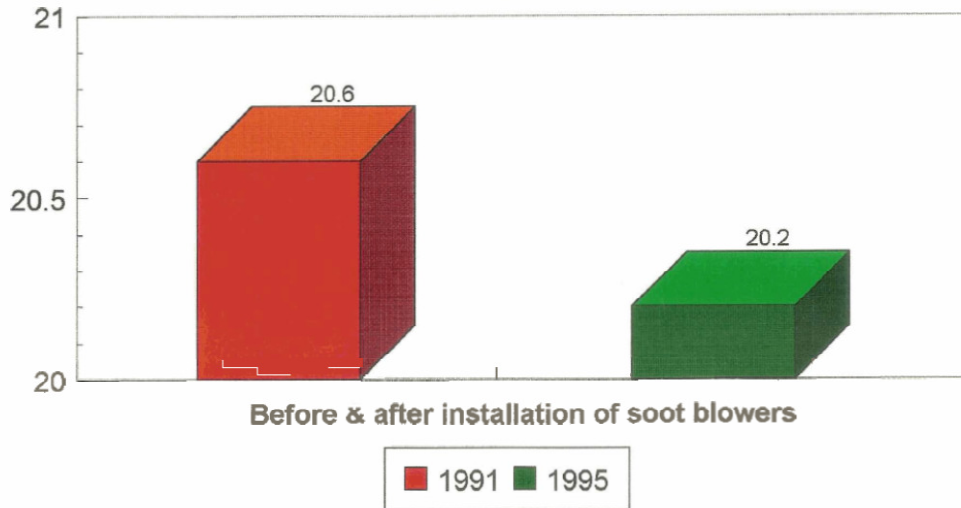
Since implementing this project in Sep 1995, combustion efficiency has improved with an average 20°C drop in fluegas temperature. Pressure drop across the air preheater and convection bank remains steady, and no unplanned FP 2 unit shutdowns experienced so far. Besides environmental nuisance of leaking smoke from the FP 2 furnace is not seen.

The estimated benefit due to this modification saved ISLA US\$ 120300 in the last 7 months. Encouraged with the results ISLA is now completing the same job in FP 1 furnace also.

Feedback on sootblowers installation at CD 3, FP 1 & FP 2 furnaces			
CD 3 furnaces: All 5 furnaces are designed with soot blowers.			
<u>Condition before installation of soot blowers</u>			
	Exit gas temperature deg C		390 - 460
	Shutdown period for cleaning		1 week/yr
<u>Condition after installation of soot blowers</u>			
	Exit gas temperature deg C		350 - 370
	Savings in fuel approx 3%		
	Shutdown period for cleaning		Nil
<u>Benefits</u>			
	Savings in fuel cost NAF/yr		415800
	Savings in maint. cost NAF/yr approx.		50000
	Savings due to unit availability NAF/yr		0
	Loss in processing is normally made-up due to excess capacity available		
	less cost of steam NAF/yr		-66825
	Net benefit in NAF/yr		398975
FP 1 & 2			
Sootblowers are installed both in Convection bank & Airpreheaters of FPU's.			
<i>Before soot blowers</i>			
	Exitgas temperature in deg C		410 - 450
	Unit stop required sootcleaning after every six months		
	Nuisance of smoke leak from the furnace roof		
<i>After sootblowers</i>			
	Exitgas temperature in deg C		390 - 410
	Savings in fuel approx 1.5%		
<u>Benefits</u>			
	Savings in fuel cost NAF/yr		139725
	Savings in maint. cost NAF/yr approx.		50000
	Savings due to unit availability NAF/yr		272000
	Loss in processing is normally made-up due to excess capacity available		
	less cost of steam NAF/yr		-133650
	Net benefit in NAF/yr		328075
	Total benfits from CD 3 & FPU's NAF/yr		727050

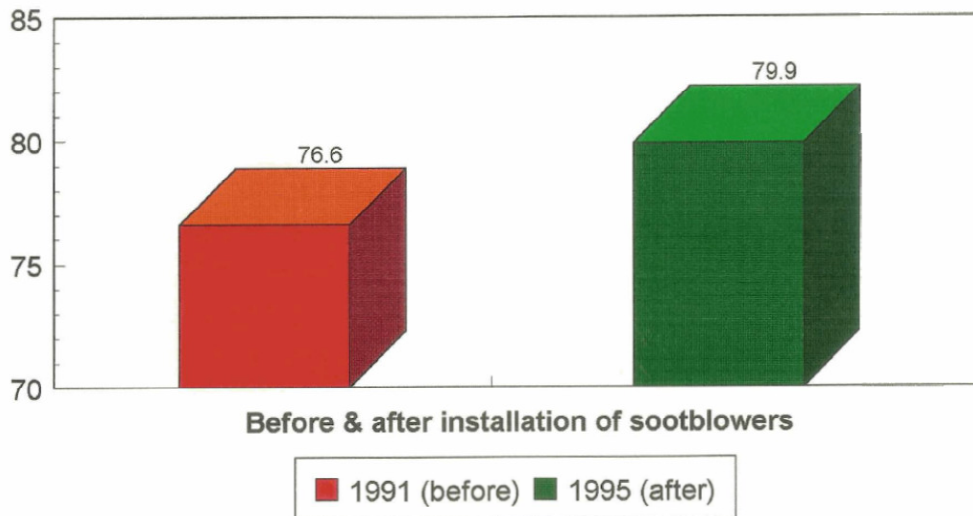
Fuel & Operating cost @ CD 3

in million NAFs/year

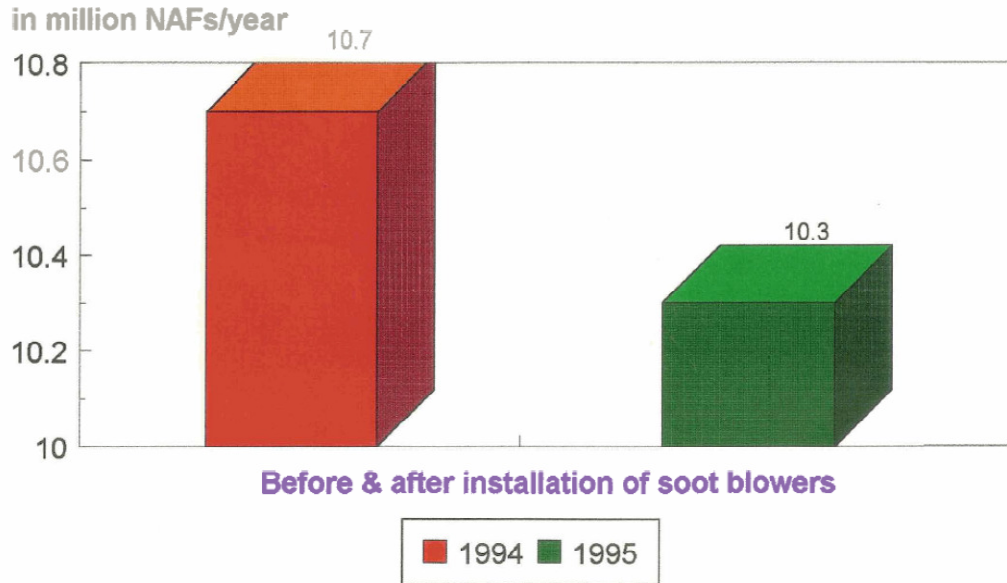


Furnace efficiency @ CD 3

Furnace efficiency in %



Fuel & Operating cost @ FPU



Furnace efficiency @ FPU

