Written by Ray Thibault, CLS, OMA I & II, Contributing Editor
Wednesday, 10 November 2010 11:38

A well-oiled team approach has made the efforts of Valero's Port Arthur site a model for others.

Many articles have been published on the key components of world-class lubrication programs. This one focuses on a major refinery that, over 10 years ago, implemented the necessary steps to establish a state-of-the-art program. These efforts, in turn, have led to major equipment reliability improvements. The Valero Port Arthur site has built one of the finest refinery/petrochemical plant lubrication programs I have ever seen. ***...Ray Thibault***

Lubrication champion Mark Kavanuugh, CLS and MLA II certified, is a machinist with 40 years of experience. The Valero Refinery in Port Arthur, TX, is rated at 310,000 bbl/day. It started out as a Gulf Oil Co. refinery (which became Chevron), and was later purchased by Clark/Premcor, through which the lubrication program was originally implemented in 1999. Valero purchased the refinery in 2005 and has supported continuous improvement of the program ever since.

John Gobert, a machinist, was trained and brought in as the lubrication champion in 1999 to evaluate and improve the program. The initial step was to choose a single quality lubricant supplier. The following criteria were used in selecting the supplier:

- Product quality
- Logistics
- Technical service
- Price

Four candidate companies were carefully evaluated based on the above criteria. The decision was not based on price alone—*which is a common mistake made by companies with unsophisticated lubricant programs* . The Hurt Company (Hurt), a Houston-based supplier, was selected. The five major objectives for the lubrication program were:

- Competency
- Consolidation
- Cleanliness
- Condition monitoring
- Cooperation

Jimmy Thomson, MLA II, MLT certified, is a machinist with 35 years of service. Allan Thibodeaux, MLA II, MLT certified, with 34 years of service, is a head operator on the refinery's 260,000 bbl/day crude unit.

Competency

No lubrication program is successful without a champion. From 1999 until his retirement in 2006, John Gobert, MLA II, MLT certified (first for Premcor and later for Valero), was just that type of champion—*the individual most responsible for implementing a successful program.*

Mark Kavanaugh, now a CLS and MLA II certified, was brought in to work with Gobert on improving the program in 2001. Allan Thibodeaux and Jimmy Thomson, both of whom are now MLA II, MLT certified, joined the team of lube champions in 2002 and 2005, respectively.

While having a champion—*or champions*—is critical to the success of a lubrication program, so is having competent lubricators and the backing of management.
Valero has provided that backing by strongly supporting certification of employees involved in lubrication. Operators and machinists who perform lubrication have been involved in training programs by the in-house lube team, lubricant supplier and outside consultants. In fact, Valero now has more certified lubricators at its Port Arthur site than any other refinery or chemical company—*and more than most manufacturing facilities*. Lubrication certifications achieved by personnel at this refinery include:

- STLE Certified Lubrication Specialist — 1
- ICML Machinery Lubrication Analyst — 3
- ICML Machinery Lubrication Technician —17

(Editor's Note: In 2007, Valero's Port Arthur refinery received the John Battle Award for the Outstanding Lubrication Program of 2006 from the International Council of Machinery Lubrication. The site is the only refinery or petrochemical plant ever to win this prestigious award.)

Consolidation
Once upon a time, Valero's Port Arthur facility had several lubricant suppliers—*and was using 48 different oils and 20 greases*
. After the selection of Hurt as its sole supplier, a lube survey was performed with regard to the refinery's nearly 11,000 pieces of rotating equipment. Following this survey, the site was able to consolidate down to eight oils and three greases. This led to significant savings in storage costs and helped eliminate the risk of introducing the wrong lubricants into equipment. Table I summarizes the lubricating oil used by major equipment type. Table II summarizes the greases used by equipment type.

Table I. Summary of Lube Oil Now Used by Major Equipment Type at Port Arthur (After Completion of Lube Survey)

Equipment Type	Lubricant
Oil Mist System-Pumps and Motors	ISO 100 Turbine Oil
Centrifugal Compressors	ISO 32 Turbine Oil
Reciprocating Compressors Frame	ISO 150 R&O Oil
Reciprocating Compressors Cylinders	ISO 220 PAO
Process Steam Turbines	ISO 68 Turbine Oil
Centrifugal Pumps	ISO 68 Turbine Oil
Cooling Tower Gearboxes	ISO Synthetic PAO

Table II. Summary of Greases Now Used, By Major Equipment Type (After Completion of the Lube Survey)

Equipment Type	Grease
Electric Motors	Polyurea
Couplings	High-Speed Coupling Grease
Other Equipment	Lithium Complex Multipurpose Synthetic

For more info, enter 02 at www.LMTweeinfo.com