

CPO Seminar on Practical TPM Activities for Field Operators Held at Saudi Aramco



Seminar participants and lecturers

A Customized Program-Overseas (CPO) on TPM activities for visualization of field operations was held at Saudi Aramco, intended for machine operators and maintenance staff. It took place at the Yanbu Refinery's Training Center and at the site of a diesel fuel hydrodesulfurization unit in Process Area 3, over a period of 5 days, from March 2 to 6, 2013.

1. Objective and Background

Saudi Aramco and JCCP have implemented a series of joint seminars on TPM activities since fiscal 2008. Held at the Ras Tanura Refinery, Riyadh Refinery, Yanbu NGL, Jeddah Refinery, and Southern Area Oil Operations (Abqaiq), these seminars comprised classroom lectures only, and fell short of providing deep understanding of TPM activities, which are mainly field-oriented. Given this situation, the recent seminar on TPM activities for visualization of field operations was designed to mainly provide practical hands-on training to field managers, and was held on the refinery floor, at the strong request of Yanbu Refinery, which is currently considering the introduction of TPM activities.

The seminar program gave due consideration to the sustainability of TPM activities, as requested by Mr.

Basim A. Zarie, Superintendent, Planning & Training Division. It also aimed to encourage voluntary activities by field operators and maintenance staff who undertake operations and maintenance activities in the refinery.

2. Seminar Content

Lectures were given in the mornings on the first two days, and hands-on field training was provided in the afternoons to facilitate understanding of issues presented in the lectures.



Mr. Basim A. Zarie, Superintendent, Planning & Training Division, giving an opening speech

Lecturers included Fumihiro Tone from JCCP and three members from Idemitsu Kosan Co., Ltd.: Messrs. Yoshisumi Tamao, Masanori Wada, and Masaaki Desaki.

The group of participants consisted of a total of 22 elite members selected from Saudi Aramco's various refineries and departments. From the Yanbu Refinery, they included one engineer and three technicians from the maintenance department and 11 operators from the operations department. They also included one supervisor and one operator from the Ras Tanura Refinery, one maintenance planning officer from the Riyadh Refinery, one supervisor from Juaymah NGL, one maintenance engineer from Yanbu NGL, and two instructors from the Yanbu Training Center.

On the first day, the seminar began with an opening speech by Mr. Osama A. Hassan, Supervisor, Planning & Accountability, followed by a detailed explanation of the significance and objectives of the seminar by Mr. Zarie. Mr. Zarie attended a regular course on maintenance in fiscal 2008, and is also well-versed in Japanese-style management practices, so his support for the implementation of this seminar was deeply appreciated.

Mr. Tone defined and provided an overall description of TPM in his lecture entitled "Overview of TPM and maintenance management and safety management based on TPM activities in the refinery." In reference to a case example of a serious accident that occurred in an oil complex in Japan, he explained that TPM activities came to be introduced as a means for improving maintenance management following the accident. He also explained that the success and failure of TPM activities are predicated on the awareness of the leader, and emphasized the importance of management practices in oil-related companies in Japan and the role of the manager in boosting motivation in the workplace. Tone

then introduced representative small-group activities that form the core of TPM activities, including the tool-box meeting (TBM), hazard prediction activity, learning from near-misses, and the 5S policy, explaining that this policy is particularly important to achieving visualization.

In the afternoon, the participants engaged in Workshop Part 1 on extracting and examining problems in visualization in an actual workplace. Divided into two groups for pumps and compressors, they assessed the present state of defects and grime and searched for problems using a checklist.

On the second day, Messrs. Tamao, Wada and Desaki from Idemitsu Kosan introduced case examples of TPM activities implemented in Idemitsu's refineries. Mr. Tamao first gave a general outline of TPM activities, frameworks, and key points for establishing TPM activities in the refinery. Mr. Desaki then conducted an exercise in identifying defects using photos of pumps riddled with defects, to make the point that the spirit of initial cleanup—"cleanup equals inspection"—is the first step in voluntary maintenance activities, which form



Extracting problems



Mr. Masanori Wada giving a lecture



Initial cleanup



Hands-on training in visualization

an important pillar of TPM activities. Lastly, Mr. Wada showed a video of serious accidents that have occurred at Idemitsu Kosan in the past, to provide an understanding of the importance of visualization, and Mr. Tamao explained the effects of visualization in an easy-to-understand manner through photos of workplaces before and after the implementation of visualization activities.

In the afternoon, the participants engaged in Workshop Part 2 on extracting and examining problems in visualization in an actual workplace, and took to the task of identifying areas for cleanup from among the problems and concerns they had extracted on the previous day. For the compressor, they limited the range of their task, as it was too large to complete within the time available.

On the third day, the problems that were extracted were classified into those related to maintenance and those related to visualization, and after narrowing them down to 10 or so visualization problems due to limited time, the participants discussed their levels of priority, cleanup method, overall plan, and members to be in charge of each task. In temperatures reaching to 35°C, they applied themselves to the cleanup with vigor, actively cleaning oil stains with a solvent and eliminating dust with an air blower or water hose. Some areas were ready for painting by the same afternoon.

On the fourth day, Mr. Desaki first explained about the necessary tools for achieving visualization of gauges and how to use them, and had the participants engage in hands-on practice in cleaning the gauges.



Before



After

The participants then moved to the site of their workshop for post-cleaning verification, and performed additional cleaning and painting of needed areas. Certain considerations were given so that paint colors and remedies to some of the equipment defects conformed to Saudi Aramco's regulations. Among the problems extracted were malfunctions of the vibration indicator and pressure gauge in regard to the compressors, and malfunctions of the pressure gauge in regard to pumps, but because these problems require the judgment and instruction of a supervisor from a dedicated department and also require time to address, they were decided to be left until they could be addressed in future activities. Lastly, visualization measures were applied to selected equipment, to visualize the proper range of gauges and motor rotation direction, for example. After completion of training in the workplace, both groups looked back on their tasks and summarized matters that came to their attention during the activity and future action plans.

On the fifth and last day of the seminar, the participants compiled presentation materials in preparation for giving a report on the results of their activities to the refinery management. They formed the structure of their presentation in consultation with each other, and made the necessary corrections to the materials by having a speaker rehearse the presentation. Such team efforts could also be said to be a meaningful result of this seminar.

The closing ceremony was held with the attendance of Mr. Mustafa M. Almahdi, Yanbu Refinery Manager, Mr. Zarie, and Mr. Mohammed S. Aidarous, Supervisor, Training Unit. Mr. Almahdi said the seminar presented knowledge and skills that would prove highly useful in upgrading refinery maintenance, and should be put to full use hereafter. He also articulated his plan to request JCCP's cooperation in implementing similar seminars in the future. Tone expressed his appreciation to the Saudi Aramco management on behalf of JCCP, and brought the seminar to a close after presenting the participants with a completion certificate.

3. Observations

Last year (FY2011), a seminar on workplace visualization activities was held for supervisors and post-supervisors, with the main aim of developing leaders of visualization activities.

This year, the seminar was held for operators and maintenance staff. Because they normally work under

instructions from their supervisors, there was a slight concern about whether they would be comfortable with taking voluntary action. The concern, however, was dispelled once the seminar began. The participants seemed to enjoy and gain a sense of satisfaction in engaging in practical, hands-on training in an actual workplace as in the previous seminar, indicating that such training would also be effective if incorporated in other seminars in the future. In particular, the participants seemed well aware of the objective of cultivating the "my machine," "my plant" ownership mindset that is a keyword in TPM activities, and thus seemed to take the hands-on training with a sense of purpose. Field activities are necessary for achieving specific results such as changes in awareness and improving equipment reliability, and the establishment of systems and schemes that managers can initiate are particularly important.

The Yanbu Refinery is presently composed of three areas, two of which have been used for onsite training in this seminar. The participants applied themselves to two days of initial cleanup activities, and achieved the intended results of visualization. At the end of the seminar following their presentations, most of the participants declared their intention to apply the practice to their respective workplaces, and raised expectations for future achievement of visualization.

In a meeting held after the seminar, the Training Unit sought the continued implementation of the seminar next year. Thus the content, period of implementation, and other particulars of the seminar will be discussed in detail hereafter, with a view to offering an even more practical seminar that includes onsite training and that could be attended by all members concerned, from manager-level employees to field operators and maintenance staff.

<by Fumihito Tone, Training Dept.>