

# Seminar on “Refinery Maintenance Management and TPM” Held in Iran and Saudi Arabia

## 1. Iran

The National Iranian Oil Refining and Distribution Company (NIORDC) is focusing its efforts on upgrading facility maintenance technologies and improving safety management at its refineries. Mr. S. Mahjoubi, Deputy Director, Production Coordination and Supervision, who attended the FY2009 JCCP Program Seminar (TCJ) last July, took the occasion of the program seminar to convey to JCCP NIORDC’s request for a seminar designed to introduce TPM (Total Productive Management) and other kaizen activities that are employed by refineries in Japan. The principle aim of implementing such a seminar, Mr. Mahjoubi explained, is to bring changes in awareness among refinery engineers in Iran. Responding to this request, JCCP sent a three-member team to NIORDC’s Tehran Refinery to conduct the requested seminar from November 7 – 11, 2009. The members included a lecturer from JCCP’s Training Department (F. Tone, lecturer) and two external experts (Messrs. Yoshisumi Tamao and Atsushi Ishizawa from Idemitsu Kosan Co., Ltd.). Mechanical engineers and process engineers were eligible to apply, and 21 participants were ultimately selected to attend the seminar from the NIORDC Head Office and its nine refineries.

A lecture on “Oil Industry in Japan” was given first, to provide a general understanding of the current situation in the oil industry in Japan. It particularly focused on the structure of Japan’s dependency on the Middle East region for crude oil, and hence the importance for Japan to build a stable relationship with the Middle East. The lecture on “Overview of Safety Management and TPM Activities in the Refinery” introduced serious accidents that have occurred in refineries and petrochemical plants in Japan due mostly to poor maintenance management. These examples illustrated the reason why there has been a surge in voluntary improvement activities and why TPM activities came to be introduced in Japan. The lecture also discussed ideal management practices and the significant role of the manager in increasing motivation in the workplace, and introduced TPM and small-group activities that have become common practices in Japanese refineries. In the lecture on “Case Examples of TPM Activities/Improvement Activities for Refinery Management,” the significance and achievements of TPM activities were discussed in reference to step-by-step examples of TPM activities implemented in two refineries of Idemitsu Kosan, from the introduction to the results of those activities.

Group discussions were also held for the first



*Seminar participants*



*Group discussion*



*Lecture session*

time in a TPM seminar in Iran, as a means for allowing participants to actually experience the meaning of engaging in small-group activities. The participants were given an assignment of “raising an issue in their workplace, identifying the gap (problem) between the ideal image and reality, and coming up with a measure for reaching a common ideal.” As instructed, the participants divided into small groups, and within their group they shared an issue they face in their workplace. They then selected an issue of high priority, analyzed the issue’s essential cause, and created an action plan for resolving the issue as a group. The topics of discussion varied from group to group, ranging from issues related to energy consumption to discussions on electrical shock accidents with electric drills, and were discussed in detail using completion diagrams and diverse factor analysis methods to explain the fine points of the issues to each other. The group discussion session thus turned out to be a highly productive learning experience for the participants.

Mr. Mahjoubi summarized his impression of the program by saying that it has planted seeds of completely new management ideas in the minds of the participants and has given them a new vision. Through this experience, many participants said they feel they have acquired a better understanding of TPM. Other participants said they intend to apply what they learned in this program to improving their workplaces, based on the understanding that “cooperation between managers and employees underlies the efforts of Japanese refineries to improve productivity and profits,” and that “the goal of TPM

is to achieve an effective coordination not only of equipment and tools, but also between managers and employees.” Furthermore, a participant noted that the seminar had, as hoped, reminded him anew that maintenance is the steady accumulation of simple and concise practices.

## **2. Saudi Arabia**

Saudi Aramco is striving to improve facility maintenance technologies, and is focusing on implementing activities related to safety management and preventive maintenance. To strengthen these activities, it requested JCCP’s cooperation in acquiring knowledge about TPM and other improvement activities and the latest in maintenance management employed by Japanese refineries so that it may improve and reform refinery maintenance management technologies in Saudi Arabia. In response to this request, JCCP implemented a seminar last fiscal year on human resource development centered on TPM and other improvement activities, and the second seminar of the series was held at Saudi Aramco’s Riyadh Refinery from October 31 to November 4, 2009. A team of four Japanese lecturers from JCCP’s Training Department (F. Tone) and external companies (Mr. Akio Higashi, Showa Shell Sekiyu K.K.; Messrs. Yoshisumi Tamao and Atsushi Ishizawa, Idemitsu Kosan Co., Ltd.) conducted the second seminar, which was attended by 20 carefully selected participants from Saudi Aramco’s four refineries and two NGL Fractionation Departments.



*Group presentation*

The main lectures on “Maintenance Management in Japanese Refineries” and “Overview of Safety Management and TPM Activities in the Refinery” first introduced the reality and transition of maintenance management practices in Japan. They then expounded on issues facing Japanese refineries and the voluntary initiatives through which they resolved those issues, before discussing the background to introduction of TPM in Japan. They also discussed management principles in Japan and the important role of the manager in raising worker motivation in the workplace, as well as introduced examples of small-group activities. Many of the participants seemed to find Japan’s “Point and Call” practice highly interesting, and said they would like to include it in their daily operations. In the session on “Case Examples of TPM/Improvement Activities for Refinery Management,” the various case examples of refinery improvements achieved through TPM activities captured the participants’ strong attention. At the end, all participants voiced their opinion that TPM activities are extremely effective, and that there is a lot to learn from them.

In the small-group discussion session, each group was asked to “raise an issue in their workplace, identify the gap (problem) between the ideal image and reality, and to think of a measure for reaching a common ideal,” as in the session in Iran. Under the guidance of the lecturer, the participants probed deeper and deeper to identify the roots of an issue and analyzed its essential cause to come up with specific countermeasures. Some groups engaged in particularly in-depth discussions on such challenging issues as changes in maintenance systems, the



*Presentation of the completion certificate  
Mr. Ali A. Al Hazmi, General Manager, Riyadh Refinery  
(right)*

construction of a system that would enable the procurement of raw materials as quickly as possible, and issues relating to single equipment in the workplace. Since the issues were common themes to all departments, the participants said they were able to engage in active discussions and exchanges of views, and evaluated the session as highly meaningful.

At the end of the program, the participants noted that they could perhaps more easily adapt the TPM concept to their workplaces if they could gain a better understanding of actual TPM activities through onsite training. They thus requested the implementation of a practical TPM training program at a Japanese refinery that practices TPM activities. The participants’ earnest desire to more fully understand TPM activities and to apply them to improving and restructuring their workplaces was a significant change from the previous seminar in 2008, in which participants showed greater interest in holding group discussions than in the TPM concept itself. The lecturers feel that this change in focus clearly demonstrates the effective outcome of the seminar.

*<by Fumihito Tone, Training Dept.>*



*Seminar participants*