Japan Cooperation Center, Petroleum

JCCP NEWS

No. 119 2014 September

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Topics

- JCCP Alumni Meeting
- The 22nd Joint GCC-Japan Environment Symposium
- Participation in Middle East Petrotech 2014
- DCS Simulator Briefing
- Corporate Cooperation in Oil-producing Countries

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Announcing Changes in Full-time Board Members

Mr. Masataka Sase retired from the position of CEO & Executive Director as of this past June 30, and assumed the position of Special Adviser, effective July 1, 2014.

The position of CEO & Executive Director has been filled by Mr. Tsuyoshi Nakai as of July 1.

Mr. Morihiro Yoshida, Managing Director, retired from JCCP, effective June 11.

We hope you will favor us with your continuous support and cooperation.

Special Adviser
Masataka Sase

CEO & Executive Director
Tsuyoshi Nakai

Outgoing Managing Director
Morihiro Yoshida

JCCP Alumni Meeting Held in Saudi Arabia

1. Purpose of the Meeting

In March 2014, JCCP organized and held the Second JCCP Alumni Meeting in Saudi Arabia. (The first meeting was held in UAE in November 2012.) Through such alumni meetings, JCCP aims to verify the effects and evaluations of JCCP activities that are implemented in oil-producing countries, obtain hints for an even more effective implementation of future activities, and strengthen personnel exchanges between these countries and Japan. JCCP also aims to promote deeper relations between counterpart oil-producing countries and Japan by requesting their continued support and cooperation in JCCP activities and building a network of cooperation in each country for these JCCP activities. Furthermore, as many JCCP alumni have become executive officers and managers in state-run oil companies in their respective countries, JCCP hopes the alumni meetings will ultimately contribute to the stable import of crude oil supplies to Japan.

2. Reason for Holding the Meeting in Saudi Arabia

Saudi Arabia was selected as the venue of the alumni meeting primarily because it is the largest and most important supplier of crude oil to Japan. Another reason is because there are as many as 911 JCCP alumni in Saudi Arabia as of March 2014, who presently hold important posts in national oil companies and related companies at a higher rate compared to other countries.

Mr. Abdulaziz F. Al Khayyal, Senior Vice President, Saudi Aramco, giving a speech as the guest of honor

3. Overview of the Alumni Meeting

The alumni meeting was held on March 6, 2014 at Le Meridien Al Khobar, a hotel centrally located in Al Khobar. In response to a broad invitation to JCCP alumni in Saudi Arabia, 121 people from Saudi Arabia attended the meeting. Together with 109 local Japanese participants, the meeting was attended by some 230 people.

(1) Participants on the Saudi Arabian side included many important figures particularly from Saudi Aramco, such as Mr. Abdulaziz F. Al Khayyal, Senior Vice

Commemorative VIP photo:
H.E. Mr. Jiro Kodera, Japanese Ambassador to Saudi Arabia (left);
Mr. Abdulaziz F. Al Khayyal, Senior Vice President, Saudi Aramco (third from left);
Ms. Huda M. Al Ghoson, Executive Director, Employee Relations & Training, Saudi Aramco (center)

Mr. Abdullah I. Al Jof, Manager, Technical Training Unit, Eastern Province Branch, MPMR, giving a speech on behalf of JCCP alumni in Saudi Arabia

Mr. Abdulrahman Al-Subaie, Manager, Riyadh Refinery, giving a speech on behalf of JCCP alumni in Saudi Arabia

President; Ms. Huda M. Al Ghoson, Executive Director, Employee Relations & Training; and Mr. Nasser A. Al-Nafisee, General Manager, Training & Development. Also among the Saudi Arabian participants were Mr. Abdullah I. Al Jof, Manager, Technical Training Unit, Eastern Province Branch, MPMR; and Mr. Abdulrahman Al-Subaie, Manager, Riyadh Refinery, representing JCCP regular course alumni.

(2) Participants on the Japanese side included H.E. Mr. Jiro Kodera, Japanese Ambassador to Saudi Arabia, his staff from the Japanese Embassy in Saudi Arabia, members from representation offices of Japanese oil wholesalers engaging in business in the GCC countries, and members from other Japanese companies in Saudi Arabia. From JCCP, the meeting was attended by the Executive Director, Managing Director, and other relevant officers.

(3) The meeting opened with welcome speeches by representatives on both the Japanese and Saudi Arabian sides, followed by a keynote presentation

2 The Arabian Sun | March 20, 2014 Company News/Opinion

Abdulaziz F. Al-Khayyal presents a gift to HE Jiro Kodera, the Japanese ambassador to Saudi Arabia, during a recent alumni meeting of the JCCP

A traditional re-enactment of a sword fight was part of the entertainment at the JCCP alumni meeting in al-Khobar.

Photos: Benito Alcayde/MPO

OPEC Basket Weekly Price trend for the past five weeks:

Friday, February 14, 2014 — $105.43
Friday, February 21, 2014 — $106.65
Friday, February 28, 2014 — $ 106.35
Friday, March 7, 2014 — $105.93
Friday, March 14, 2014 — $104.08

The Arabian Sun is a weekly publication issued free of charge by the Public Relations Department for Saudi Aramco employees.
Room B7, Dhahran Heights, Building 9156, D Wing, Dhahran, Saudi Arabia
Telephone, 876-0374; fax, 876-0233
Email: publishing@aramco.com
www.saudiaramco.com
ISSN: 1319-156X
Director, Publishing Division: Haitham Al-Jehairan
Editors: Jamsheed Din, Todd Williams
Editorial staff: Ted Brockish, Eamonn Houston, Scott Baklauf, Jeff McCoshen, Rawan Nasser.
Correspondence may be addressed to the editor, B-87, Dhahran Heights, Building 9156 (D Wing)
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Printed by:

JCCP meeting emphasizes human capital

AREF M. YOUNIS

AL-KHOBAR — Saudi Aramco's Educational Partnership Department recently co-hosted the Japan Cooperation Center Petroleum (JCCP) alumni meeting at an al-Khobar area hotel.

More than 200 guests participated in the event that was co-hosted by the JCCP. Guest of honor at the program was Abdulaziz F. Al-Khayyal, Saudi Aramco's senior vice president of Industrial Relations. He was accompanied by other members of the company's management including, Huda M. Al-Ghoson, executive director of Employee Relations and Training; Nasser Al-Nafisee, general manager of Training and Development; and Khalid Al-Mulhim, general manager of Government Affairs.

Also in attendance was HE Jiro Kodera, the Japanese ambassador to Saudi Arabia, along with other members of JCCP management and instructors.

In his welcoming address, the CEO of the regional JCCP office described the JCCP, which was founded in 1981 to promote technical cooperation and personnel exchanges with the oil-producing countries in the downstream sectors of the oil industry. Its major activities include programs to accept overseas technical and administrative staff for training, to dispatch Japanese experts abroad, to sponsor international conferences and seminars and to conduct studies and research. The JCCP is now involved in training Saudis to be effective operators in the downstream sector.

Al-Khayyal told his audience that the oil industry operates leading-edge technology and requires billions of dollars of investment. But he pointed out that the most important source of competitive advantage for any company is its human capital.

"And that is why the efforts of the JCCP are so important and so welcomed here in the Kingdom and throughout the region," noted Al-Khayyal. "By focusing on training petroleum professionals, sharing technical knowledge and best practices, and expanding cross-border networks of collaboration, JCCP enhances the caliber and qualifications of our people. That enables them to be better employees, without a doubt, but it also enables them to deliver for our many stakeholders around the world — including more than 120 million Japanese who depend on our petroleum for the prosperity of their society and the well-being of their communities. This is truly a mutually beneficial collaboration, as are all of the best and most enduring partnerships."

The Japanese ambassador underscored the importance of the relationship between his country and the Kingdom. He noted that Japan relies on Saudi oil as a main resource for its energy requirements. Therefore, training provided by JCCP ensures the transfer of technology and high levels of training for Saudis involved in the production as well as the downstream aspects of the relationship.

Also in attendance was Abdulrehman Subaie, manager of Riyadh Refinery. He recalled his first encounter with the Japanese work ethic during a maintenance program handled by a Japanese crew next to his office. "They were so dedicated and methodological that they were able to complete the job ahead of schedule; but, when I asked their supervisor about it he responded that the work performance and quality of standards were far more important. This is what got me interested in the JCCP program, whether for me or for my personnel."

Al-Khayyal said the JCCP programs were something of benefit for both nations. "These programs are important for both our countries, and I hope that these collaborative efforts — and the enduring friendships that they create — will continue to grow and prosper for many, many decades to come."

Article on the meeting printed in The Arabian Sun *(Sunday, March 20, 2014 issue): Ambassador Jiro Kodera (left) and Mr. Abdulaziz F. Al Khayyal (right)*

Meeting venue

JCCP alumni

by Ambassador Kodera, and speeches by Mr. Al Jof and Mr. Al-Subaie on behalf of JCCP alumni in Saudi Arabia. It also featured a showcase of Japanese culture, which included a kabuki lion dance performance and Japanese foods, including Japanese crafted candies, sushi and tempura.

(4) In a questionnaire completed by all alumni members attending the meeting, 80% said the JCCP training they received has been extremely helpful to them in their current operations. Among the activities that have been helpful, offsite training (head offices, refineries, etc.) ranked highest at 70%, followed by exposure to Japanese history and culture at 44%, and lectures at JCCP Headquarters at 42%. With regard to technical cooperation, the questionnaire strongly showed that alumni members have particular interest in such areas as efficiency improvement and enhancement of equipment operations, renewable energies, energy conservation, and wastewater treatment.

4. Summary

The alumni meeting achieved the following two results.

First, the large turnout of JCCP alumni in Saudi Arabia indicated JCCP's strong presence in Saudi Arabia. At the same time, owing to an article on the meeting (attached) that was printed in Saudi Aramco's in-house newsletter, recognition of JCCP increased especially within Saudi Aramco.

Second, responses to a questionnaire completed by members from Saudi Aramco and other Saudi Arabian participants allowed JCCP to gain an accurate grasp of needs in Saudi Arabia, and their many requests of JCCP provided hints on the direction of training and technical cooperation programs that would be required in the future.

As a result, we believe the alumni meeting contributed anew to building a network in Saudi Arabia, as well as to strengthening relations between Saudi Arabia and Japan.

<by Takaaki Yuasa, Training Dept.>

The 22nd Joint GCC-Japan Environment Symposium

The 22nd Joint GCC-Japan Environment Symposium themed "Sustainable GCC Environment – Challenges for Our Future" was held in Saudi Arabia over a three-day period from March 3 to 5, 2014, under the co-organization of JCCP and King Fahd University of Petroleum and Minerals (KFUPM). This year's symposium was divided into four sessions, with the fourth session featuring a discussion forum, and was attended by some 300 people from the GCC countries and Japan.

On March 2, one day in advance of the opening of the symposium, a Japanese delegation composed of Dr. Koichi Segawa, Professor Emeritus of Sophia University and leader of the delegation, Japanese speakers, Mr. Morihiro Yoshida, Managing Director of JCCP, and other JCCP members paid a courtesy call on H.E. Dr. Khalid S. Al-Sultan, Rector of KFUPM, to thank His Excellency for his support of the implementation of the symposium. Thereafter, a press conference was held at KFUPM, and Mr. Yoshida and Dr. Alaa A. Bukhari, organizing committee chairman, fielded questions from members of the media. News of the press conference was prominently featured in local newspapers, and contributed to increasing public recognition of JCCP in Saudi Arabia.

On the first day of the symposium, an opening ceremony began with welcome speeches by H.E. Dr. Khalid S. Al-Sultan and Mr. Hesham Ahmad Al-Musaiid, Manager, Saudi Aramco, representing the Saudi Arabian side, and Mr. Morihiro Yoshida representing the Japanese side.

Dr. Al-Sultan extended his gratitude to JCCP, Saudi Aramco, all speakers and participants, the KFUPM secretariat, and everyone else concerned for their contribution to implementing the symposium, and expressed his hopes that it would be a fruitful opportunity to shed light on the GCC countries' pursuit of diversified and sustainable energy sources. Mr. Al-Musaiid congratulated all parties concerned for the fifth holding of the symposium in Saudi Arabia, and expressed his expectations that the forum will bear fruit for all participants. Mr. Yoshida mentioned the keywords "synergy and mutual prosperity," which Prime Minister Shinzo Abe used in a speech on Japan's ties with the Middle East that he delivered during his visit to Saudi Arabia last year, and associated them with Japan's support of the GCC countries through the provision of energy-saving and environmental countermeasures. As JCCP is dedicated to the provision of such countermeasures, he said he believes the symposium, which composes an important part of JCCP's activities, will contribute to the future of the environment, and thus also to "synergy and mutual prosperity."

Following the opening ceremony, Dr. Segawa gave a keynote speech on "Catalyst Technology for Green and Sustainable Chemistry." He first explained that while the chemical industry, which produces petrochemical products and plastics, is a major industry, in Japan it has in the past released toxic substances that adversely affect the environment. However, owing to tremendous efforts to address such pollution issues, most have been solved. Dr. Segawa then explained that catalyst development has

Press conference

Dr. Koichi Segawa, Professor Emeritus of Sophia University, giving a keynote speech

Presentation of a commemorative plaque from H.E. Dr. Khalid S. Al-Sultan, Rector of KFUPM, to Mr. Morihiro Yoshida, Managing Director of JCCP

been promoted in Japan in consideration of minimizing chemical waste, avoiding the use of hazardous substances, and reducing the use of natural resources.

Following the keynote speech, experts from the GCC countries and Japan gave presentations in two sessions on day one: Session 1 on "Environmental Issues and Sustainable Environmental Development in Oil and Gas Industry," and Session 2 on "Ground Water and Wastewater Management." On day two (March 3), Session 3 was held on "Environmental Challenges for Desalination and Refining Industry," and Session 4 featured a forum that spotlighted environmental issues in refineries, following on from last year's program. In the forum, speakers from refineries in the five GCC countries (Saudi Arabia, Kuwait, Bahrain, Oman, and Qatar) and Japan gave presentations pertaining to the theme of the forum on "Management of Solid Waste, Wastewater and Gaseous Emissions in Refineries."

With regard to Japanese speakers, in Session 1, Dr. Seiji Maeda, Manager, Research & Development Planning Department, JX Nippon Oil & Energy Corporation, gave a presentation on "Technical and Social Demonstration of Hydrogen Stations Integrated with Gas Stations Targeting the Commercial Start of Fuel Cell Vehicles (FCV)." In Session 3, Mr. Hisato Aoyama, Manager, Heavy Oil Project Market Development Department, JGC Corporation, gave a presentation on "Application of Ultrafiltration Membrane System to Water Recycle System for Oil Industry," and Dr. Takanori Fujimoto, Senior Researcher Chemist, Research & Development Unit, Cosmo Oil Co. Ltd., gave a presentation on "Management of Wastewater and Approach of Excess Bio-Sludge Reduction for Refinery." In Session 4 (forum), Dr. Hiroki Kimoto, Chief Associate, Technology & Engineering Center, Idemitsu Kosan Co., Ltd., gave a presentation on "Prevention of the Material Degradation of Boilers."

A total of 18 technical papers were presented during the symposium. Based on their experience and technologies, the speakers mutually shared technical advice and exchanged views throughout the course of the symposium in regard to environmental issues they face, and no doubt acquired information that is extremely useful to their research and operations.

In a closing ceremony held after the final presentation on March 5, Dr. Abu Nasser Khondaker from KFUPM expressed his gratitude to the KFUPM symposium secretariat, Saudi Aramco, the speakers and other parties concerned from the GCC countries and Japan.

On the last day of the symposium (March 5), participants from Japan and the GCC countries gathered for a technical tour. Guided by Mr. Ronald Loughland from Saudi Aramco's Environment Department, they toured the Ras Tanura Refinery (residential area) and a mangrove-planting project the company is implementing near the refinery. Mangrove planting involves time and effort, as seedlings are grown by gradually applying

Forum scene

Area where Saudi Aramco is implementing a mangrove planting project

water with higher and higher salinity. After gaining first-hand knowledge of the hard work that goes into planting mangrove trees, a common wish was expressed for the project to succeed and greenify Saudi Arabia's coastal regions.

The next GCC-Japan Joint Symposium is planned to be held in Kuwait. We have high expectations that it will not only contribute to environmental improvement in the GCC countries, but will also lead to even greater results as a forum for the discovery of specific needs for environmental improvement, the dissemination of JCCP activities to symposium participants, and personal exchanges among environmental personnel from the GCC countries and Japan.

<by Tsuyoshi Ota, Technical Cooperation Dept.>

FY2013 Joint GCC-Japan Environment Symposium Program

Opening Ceremony		
Keynote Speech	Japan	Dr. Koichi Segawa Professor Emeritus, Sophia University "Catalyst Technology for Green and Sustainable Chemistry"

	Country	Title	Speaker/Organization
Session 1: Environmental Issues and Sustainable Environmental Development in Oil and Gas Industry Session Chair: Mr. Abdul Wahab Zaki Ali (KFUPM/Saudi Arabia)			
1	Saudi Arabia	Environmental Impact of Upstream Oil and Gas Activities	Dr. Abdulaziz Al-Shaibani King Fahd University of Petroleum & Minerals
2	UAE	Removal of CO_2 and H_2S from Natural Gas Using Hollow Fiber Membrane Contactors at ADGAS Field Conditions	Dr. Mohamed H. Al-Marzouqi UAE University
3	Japan	Technical and Social Demonstration of Hydrogen Stations Integrated with Gas Stations Targeting the Commercial Start of Fuel Cell Vehicles (FCV)	Dr. Seiji Maeda JX Nippon Oil & Energy Corporation
Session 2: Groundwater and Wastewater Management Session Chair: Dr. Muhammad H. Al-Malack (KFUPM/Saudi Arabia)			
1	Saudi Arabia	Saudi Arabia: Moving Towards Sustainable Use of Natural Resources	Dr. Majed M. Abueshey Presidency of Meteorology and Environment
2	Kuwait	Water Security in the Gulf Cooperation Council (GCC) Countries: The Role of a Unified Regional Hydrogeological Database in Assessing Transboundary Aquifers	Mr. Adnan S.S.S.A. Akbar Kuwait Institute for Scientific Research
3	Oman	Usage of Treated Wastewater for Bio-fuel Production	Dr. Ahmed Al-Busaidi Sultan Qaboos University
4	Saudi Arabia	Performance of Submerged Fixed-bed Biofilm Reactor Packed with Black Scoria for Municipal Wastewater Treatment	Dr. Saber A. El-Shafai King Saud University

Session 3: Environmental Challenges for Desalination and Refining Industry Session Chair: Mr. Hamed Al Rumhi (Oman Oil Refineries and Petroleum Industries Co./Oman)			
1	Saudi Arabia	Effect of Discharges from Desalination Plants on Coastal Environments in Saudi Arabia	Dr. Mohamed Osman Saeed Musa Saline Water Conversion Corporation
2	Japan	Application of Ultrafiltration Membrane System to Water Recycle System for Oil Industry	Dr. Hisato Aoyama JGC Corporation
3	Japan	Management of Wastewater and Approach of Excess Bio-Sludge Reduction for Refinery	Dr. Takanori Fujimoto Cosmo Oil Co., Ltd.
4	Saudi Arabia	The EcoRight™ Biological Treatment Technology	Mr. Nidal Samad Saudi Aramco

Session 4: Forum: Management of Solid Waste, Wastewater and Gaseous Emissions in Refineries Moderator: Dr. Khaled Abdulkader (Saudi Aramco/Saudi Arabia)			
1	Japan	Prevention of the Material Degradation of Boilers	Dr. Hiroki Kimoto Idemitsu Kosan Co., Ltd.
2	Saudi Arabia	Environmental Best Practices in Groundwater Protection for the Oil and Gas Industry in Middle East	Mr. Philip Reed Saudi Aramco
3	Kuwait	Sustainable Environmental Development through Wastewater Management at KNPC	Mr. Yaqoub Alhaddad Kuwait National Petroleum Company
4	Qatar	Developing and Implementing a GHG Accounting and Reporting Program for Refineries	Mr. Yousef A.A.Y. Al-Hussaini Qatar Petroleum
5	Oman	Sohar Refinery Environmental Improvement Projects	Mr. Majid Al Saidi Oman Oil Refineries and Petroleum Industries Co.
6	Bahrain	Treatment Performance of the BAPCO Biological Wastewater Treatment Plant	Mr. Ali Redha Awadh Ali Hasan Bahrain Petroleum Company

Participation in Middle East Petrotech 2014 in Bahrain

The 9th Middle East Refining and Petrochemicals Conference & Exhibition 2014 was held over a four-day period from May 18 to 21, 2014 at the International Exhibition Center in Bahrain.

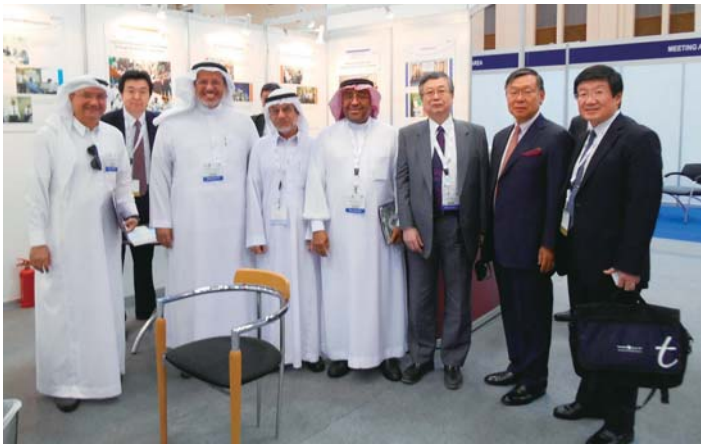
1. Overview

Petrotech is a large-scale international convention that is held every two years in Bahrain to promote the development and exchange of technologies in the oil-refining and petrochemical industries. It is organized and sponsored by state-run oil companies and petrochemical companies in the Middle East region (Saudi Aramco, BAPCO, ADNOC, QP, KPC, etc.), as well as global oil and petrochemical companies (Axens, Honeywell UOP, etc.). Themed on "Downstream Value Chain Integration Opportunities," this year's event opened on May 18 with a plenary session, in which opening addresses were given by H.E. Shaikh Ahmed bin Mohammed Al Khalifa, Chairman, National Oil & Gas Authority (NOGA), Bahrain; and Mr. Omar Bazuhair, Executive Director, Refining & NGL Fractionation, Saudi Aramco, Saudi Arabia. In addition to various sessions and workshops, the event also featured an exhibition by more than 80 companies. JCCP participated in the exhibition for the sixth time this year, staffed by Yoshishige Tsujimura and Misako Iwase from the Planning & Public Relations Group in the Administration Department.

Exhibition venue
(The Bahrain International Exhibition Center)

2. Objectives of Participating in the Exhibition

Through participation in the exhibition, JCCP hopes to introduce JCCP activities to people related to the oil business in Middle East oil-producing countries and to attendees of the convention and exhibition. At the same time, JCCP aimed to take advantage of the opportunity this year to present JCCP's 30-plus-year history of



Members of Saudi Aramco at the International Exhibition Center (from left to right):
Mr. Mohammed Al Abdulkarim, Manager of Jazan Refinery and Terminal Projects Department
Mr. Sulaiman Al-Bargan , General Manager of Jazan Refinery
Mr. Abdul-Rahman Al-Subaie, Manager of Riyadh Refinery
Mr. Abdullah Al-Deraibi, Operation manager of Jazan Refinery
Mr. Masataka Sase, CEO & Executive Director of JCCP (third from right)
H .E. Mr. Shigeki Sumi, Japanese Ambassador Extraordinary and Plenipotentiary of Bahrain (second from right)

cooperation in oil-producing countries, and to once again meet and exchange information with key figures in oil-producing countries who have played an important part in JCCP activities.

3. Exhibition

This being JCCP's sixth participation in the event, there was greater recognition of JCCP than before, and also owing to an email notice that was sent in advance to relevant parties in Bahrain and neighboring countries, many JCCP alumni took the time to visit JCCP's booth. Although the booth occupied a space of only 18 square meters, the steady stream of alumni gave it the atmosphere of a reunion.

Commemorating the 30th anniversary of JCCP activities, group photos and the names of people who participated in JCCP activities over the past 30 years were compiled into an album and made available for browsing by visitors to JCCP's booth. It was a hit with many alumni, who reminisced about their memories of Japan, as well as non-alumni, who took interest in not only JCCP's training program but also in Japan while flipping through photos of their colleagues and superiors in their younger days.

In addition to providing detailed explanations of JCCP activities, JCCP's booth also displayed a streaming video of JCCP activities and interviews with alumni in Arabic and English, and introduced the beauty of Japan by handing out promotional paper fans printed with JCCP's logo on a background of the World Heritage Site of Mount Fuji and cherry blossoms.

JCCP's booth

4. Summary

JCCP's participation in Middle East Petrotech 2014 ended on a high note, with JCCP's booth receiving a total of more than 200 visitors over the course of the event.

The fact that many alumni are now senior or management-class officers in their respective companies, and also include two generations of family members who have participated in a JCCP course, was interpreted as clear testament to the relationship of trust that JCCP and oil-producing countries have developed thus far.

<by Misako Iwase, Administration Dept.>

Topics

DCS Simulator Briefing

1. Introduction

JCCP offers various types of simulators to provide training that is as practical as possible. These simulators consist of a distributed control system (DCS) that is indispensable to plant operations and a miniature plant that is used in actual field devices. The DCS system consists of two simulator models, which are systematically renewed for improvement to provide training that measure up to the latest technical advancements. One of the simulators, namely the No. 6 simulator, manufactured by Azbil Corporation, was renewed three years ago, and the other, the No. 5 simulator, manufactured by Yokogawa Electric Corporation, was completed last October. As there have always been requests from JCCP members regarding DCS simulators, a briefing and introduction of the new DCS simulators was held for JCCP members, as outlined below.

2. Overview of the Briefing

The briefing attracted a larger turnout than expected, not only from JCCP's Training Department, but also

Hands-on experience session

from other departments as well. It was organized in three parts, beginning with an overview of the system, then providing an explanation of its startup method, and ending with a hands-on experience in DCS simulator operations for those interested. The general description of the system included the history of DCS that dates back roughly 40 years, the reason why the system is called a "distributed" instrumentation control system, an introduction of an actual field control station and other devices that compose the main parts of the system, and details of practical training that are provided in JCCP training programs.

A startup ceremony was provided by activating the operation that is usually first implemented in DCS simulator training—that is, the operation to inject water into the water tank. When water began to be injected into the three miniature plants practically at the same time, exclamations of surprise and applause arose from the participants.

The following hands-on experience session won great popularity with a larger number of participants than expected, in contrast to initial concern that only a few might be interested. During the session, a pair of participants each sat and practiced in front of the three operation desks, with additional participants waiting their turn.

The hands-on experience provided the same training that is provided to participants of JCCP training programs. In the operation to adjust the water level in the tank to a target value, some were able to make the adjustment smoothly in a short amount of time, while others were able to achieve the target value only after fluctuating above and below the target, but all participants seemed to enjoy the simulator exercise all the same.

New No. 5 simulator

3. Summary

Some of the participants had heard the term DCS for the first time, but the fact that they enjoyed the simulator experience was more than we had hoped for. It was a good opportunity for all JCCP members to become more familiar with the DCS simulators. Taking a hint from this opportunity, we hope to give closer consideration to providing an understanding of training facilities to all JCCP members and to obtain various ideas from them to enhance the effective utilization of all training facilities.

<by Kazuhiro Suzuki, Training Dept.>

Regular Course on Advanced Control Technologies in the Oil Downstream

1. Introduction

This course aimed to provide a wide range of basic to applied knowledge of distributed control systems (DCS) and other subjects related to instrumentation control in plants.

JCCP has two types of DCS simulator models that are connected to a DCS system and miniature plant. Based on a renewal schedule for improvement, one model was renewed three years ago, and the other completed its renewal last October. Taking the occasion of the renewal, new functions such as the fieldbus were introduced to the simulators, as an addition to the conventional instrumentation system. The course on Advanced Control Technologies in the Oil Downstream featured a program that incorporated these new functions, and was implemented from April 14 to 24, 2014, as outlined below.

2. Program Overview

2.1 Basic Instrumentation Control

(1) Process control theories

The participants first studied an overview of a basic control function (PID) that is incorporated in DCS systems, and its tuning methods, through a video and CAI (computer assisted instruction). They then engaged in a hands-on exercise in operating a DCS simulator to gather necessary data according to the tuning method they studied earlier and compute PID parameters. (Lecture and practice at JCCP Headquarters)

(2) Comprehensive study of DCS and related devices

Comprehensive knowledge was provided of the latest DCS functions, safety instrumented systems (SIS) that are being adopted worldwide, the latest in instrumentation technologies, such as the fieldbus system, and other such devices while observing actual systems and devices first-hand. (Offsite training at Yokogawa Electric Corporation, Mitaka Headquarters)

(3) Management of instrumentation devices

Participants learned about the structure and safe inspection methods of control valves (C/V) through a lecture on C/V maintenance management and hands-on training in C/V disassembly and assembly. (Offsite training at Azbil Corporation, Shonan Factory)

(4) Wireless instrumentation system

Wireless instrumentation system is gradually being introduced to refineries in Japan. Participants learned specifically about the basic technology, application and design of the wireless system through practical training. (Offsite training at Emerson Japan, Ltd., Mizushima Solutions Center)

2.2 Applied Instrumentation Control

(1) Process optimization

It is difficult to stabilize an actual process by basic DCS control functions only. Participants learned that these systems, the advanced control system and process optimization system that utilize optimization tools based on an even higher process simulator, are effective to solve the problem. (Lecture at JCCP Headquarters by Invensys Process Systems, Inc.)

(2) Examples for applied APC system

A visit was made to an actual plant to study an

Hands-on training using the No. 5 simulator

Hands-on training using the No. 6 simulator

overview of the APC system, including the background to its development, effectiveness, and development and maintenance management framework, and specific examples of applied APC systems. (Offsite training at Idemitsu Kosan Co., Ltd., Aichi Refinery)

(3) Alarm management

As guidance and standards of alarm management are provided by a number of different institutions, a general overview was provided of this guidance and standards, in addition to functions that are installed in the latest DCS systems (at JCCP). (Lecture at JCCP Headquarters by Azbil Corporation)

(4) DCS engineering

Hands-on engineering training was provided over two days, to allow participants to experience both of the new DCS simulators. More specifically, a lecture was provided about differences in the conventional communication protocol, the HART protocol, and the fieldbus system, and hands-on training was provided on the control of an actual fieldbus device, based on an examination of the defining relationship for reading data from the fieldbus device to a DCS, the development of a screen for monitoring processes, and the definition of a controller.

(5) Modernization of instrumentation

This lecture provided a general summary of the course. In addition to covering recent topics in instrumentation, such as in regard to the fieldbus system and wireless instrumentation, it provided notes about the modernization of instrumentation through case examples of the renewal of instrumentation facilities. (Lecture at JCCP Headquarters by JGC Corporation)

3. Summary

In this course, greater weight was placed on practical training using DCS simulators compared to previous implementations of the course, but less time was needed to complete each hands-on training assignment. This is likely due to the participants possessing advanced skills, and also because the new DCS simulators have become more user-friendly than their previous versions. However, as responses to a questionnaire conducted at the end of the course revealed that participants desired more time for training in APC, DCS, fieldbuses and wireless instrumentation, this will be taken into consideration in improving the course program in the future.

<by Kazuhiro Suzuki, Training Dept.>

CPJ Seminar on Japanese-style HRM/HRD for KNPC

1. Background and Objective

The new generation of young people in a resource-rich, affluent Gulf country like Kuwait is particularly hard pressed to find employment among the country's entire working population, as the upstream industries they seek offer limited job openings. However, given an environment in which projects for the construction of new oil refineries and chemical complexes and expansion of facility capacities are launched one after the other, measures need to be taken to secure employment for the national workforce by attracting young nationals to new downstream projects.

In the upstream sector of the oil and natural gas industries, the number of direct employment is limited in scale by the frequent use of contractors compared to general businesses, and management personnel and specially skilled engineers are preferentially employed. When taking this into consideration, future jobs for young nationals should be made available in energy device industries, in which full-time employees assume central roles in operations, as they do in Japan's oil refining and petrochemical industries.

In Kuwait as well, companies that contribute to increasing domestic employment are concentrated in the downstream sector, such as the oil refining and petrochemical industries. The country thus faces the major challenge of employing and training nationals, including not only conventional employees but also the increasing numbers of new workers, and of employing them until their age of retirement under an employment style much like Japan's traditional personnel system represented by lifetime employment and seniority-based advancement, so that it may achieve the nationalization target in the energy industry.

Kuwait National Petroleum Company (KNPC) is taking this situation as a turning point in the personnel employment and education system in affluent Gulf countries, where cheap foreign labor is used to undertake operations and routine work and nationals are promised executive positions in state-run companies after acquiring an education, and is aiming to make improvements in its personnel system.

Based on the above understanding, a customized course was held on two occasions, from March 3 to 14 and from June 2 to 13, 2014, designed to help KNPC respond to the anticipated increase in national employees by formulating a human resource development program based on lifetime employment and lifelong training during employees' course of employment.

2. Seminar Content

The March seminar was attended by 17 participants and the June seminar by 13 participants. As they were all managerial personnel related to HRM and HRD, such as team leader and so on, at KNPC, consideration was given to introducing Japanese-style practices in comparison

Participants at the March seminar:
At Idemitsu Kosan Co., Ltd., Aichi Refinery

Participants at the June seminar:
At JCCP Headquarters

with KNPC's HRM/HRD systems. A general outline of the program is shown below.

(1) Primary emphasis was placed on the understanding that there are no HRM rules and practices that are common to all companies and organizations, and that these entities in each country should develop appropriate HRM practices in light of their country's history, climate, culture, way of thinking and codes of conduct.

(2) Japan's post-war economic growth achieved the world's second-highest GDP in 23 years after World War II, outranking Germany. Japan's HRM/HRD practices were given as examples that supported Japan's growth; however focus was also placed on the changes that took place thereafter. An improvement of Japanese-style HRM/HRD practices was first attempted by adopting the management-by-objective scheme and results-oriented approach in response to social changes, but extreme introduction of the results-oriented approach caused various problems in a large majority of companies and organizations in Japan. As a result, there is now a trend to correct the mistake of adopting the results-oriented approach and to restore the conventional HRM/HRD system.

(3) In particular, to provide an understanding of the successful growth of the Japanese economy after the war, light was first shed on how the thought processes and codes of conduct of the Japanese people have developed within the country's 2,000-plus year history, and emphasis was placed on the importance of recognizing how they combined with the demands of the times to form the foundation of Japan's unique HRM system (lifetime employment, seniority system, company unions) and ultimately contribute to postwar reconstruction and rapid growth.

(4) The employment and development of national workers is a major issue in Kuwait, as it is in other affluent oil-producing countries, and "Kuwaitization" is also an important issue to KNPC. However, as the labor market in Kuwait is not characterized by high mobility as it is in the Western countries but is more similar to that in Japan, it was explained that HRM/HRD systems established by inviting Western consultants to the country would not function effectively, and that Japanese-style HRM/HRD would be more suitable.

(5) Practical on-the-job training aimed to deepen participants' understanding of how to introduce new education/training systems and bring them to success, such as (1) by providing not only knowledge of HRM systems but also specific case studies of small-group activities and Kaizen activities related to HRD at Idemitsu Kosan Co., Ltd. and JX Nippon Oil & Energy Corporation, and (2) by discussing issues related to how to formulate and implement specific education/training programs on HRD at Meisei University.

3. Summary

The two seminars seemed to be highly well-received by the participants. Thus, JCCP wishes to extend continued assistance to KNPC and see through to the development of an HRM/HRD system that would place Kuwaiti workers in most job categories at KNPC.

<by Taro Shoji, Training Dept.>

CPO Seminar on Corrosion, Maintenance and Inspection of Static Equipment for Professional Engineers from Saudi Aramco

1. Background and Objective

Customized Programs-Overseas (CPO) on maintenance management, maintenance management by TPM activities, and safety management have been held on a continuous basis for Saudi Aramco's refinery engineers since fiscal 2007. Within this scheme, JCCP recently received a request for a course on specialized maintenance and inspection technologies for middle-level-class engineers and above, from the Professional Engineering Development Division (PEDD), a division under the Engineering Services Department at Saudi Aramco that is responsible for providing education and training programs to Saudi Aramco's professional engineers. In response to this request, JCCP organized a seminar that aimed to build the technical capacities of engineers who engage in maintenance and inspection activities at Saudi Aramco. Based on three themes—corrosion control technologies for refinery equipment, facility deterioration evaluation and countermeasures, and inspection technologies—selected from among the technical management standards compiled by the Japan Petroleum Institute (JPI) (and translated into English by JCCP), the seminar was implemented over a five-day period from February 9 to 13, 2014 at PEDD, located in Saudi Aramco's Head Office district. The lecturers of the seminar included Fumihiro Tone and Hiromitsu Saito from JCCP, Mr. Kiyoshi Sakaino from JGC Corporation, and Mr. Takashi Shimizu from Chiyoda Corporation. These members were judged and approved by Saudi Aramco as highly appropriate lecturers for the seminar, based on a prior screening of their curriculum vitae and an oral examination conducted over the phone.

The participants were a group of 15 engineers engaged in maintenance and inspection activities at Saudi Aramco's various facilities, including refineries, NGL fractionation plants, gas production plants, pipelines, and research institute. They were a wide-ranging group composed of engineers with only a few years of experience to those with more than 25 years of experience.

2. Seminar Content

The seminar opened with a message from Mr. Bassam Bokhari, Division Head of PEDD, who explained that the seminar was realized with support from JCCP, and encouraged the participants to absorb the knowledge of Japanese maintenance and inspection technologies related to corrosion and make full use of that knowledge in future operations. Following Mr. Bokhari's speech, Tone (JCCP) gave a lecture entitled "Maintenance

Participants of the seminar

management in Japanese refineries," and discussed the significance and purposes of maintenance management. He also introduced case examples in which facility design flaws led to corrosion accidents, from among serious accidents that have occurred at oil complexes in Japan.

On the second day, Mr. Shimizu (Chiyoda Corporation) gave a lecture on facility deterioration evaluation and countermeasures with particular focus on three issues: deterioration and damage from high-temperature operations (temperatures above 200°C), environmental embrittlement and cracks (temperatures below 200°C), and mechanical damage (ductile fracture, brittle fracture, fatigue fracture). The lecture captured the attention of the participants by incorporating references to the JPI standard, API and NACE as much as possible, and actual case experiences.

On the third day, Mr. Sakaino (JGC Corporation) lectured on inspection technologies that are frequently used in refineries, ranging from the general to the latest technologies, and introduced specific application examples to discuss the advantages and precautions of various inspection methods.

On the fourth day, Hiromitsu Saito (JCCP) spoke on corrosion control technologies for refinery equipment. Giving particular focus to such topics as corrosion that occurs in the process from the vacuum distillation unit to desulfurization unit, material deterioration and other similar types of damage, material improvement as a countermeasure to inspection damage, and operational environment measures, he introduced Japan's experience, knowledge and technologies that have been applied to corrosion and other similar types of damage in Japanese refineries, the improvement of materials as a countermeasure to such damage, and measures for operational environments.

On the final day, quizzes that were given every day during the seminar and graded were returned to the participants, and each of the lecturers explained the major points. On the whole, the participants rated the seminar extremely highly, with no negative feedback concerning the content and materials of the seminar, or the English proficiency of the lecturers. Moreover, JCCP received a request from PEDD for continued implementation of the seminar.

3. Summary

As mentioned above, a quiz was given after each lecture for the first time in a CPO, to verify the participants' degree of understanding of each lecture. As it prompted the participants to focus on answering all questions while referring back to their textbooks, the quizzes seemed to be an effective way to maintain concentration and enhance learning among the participants.

<by Fumihiro Tone, Training Dept.>

Report on the Training Cooperation Program

—Saudi Arabia & Qatar—

From February 25 to March 10, 2014, JCCP Lecturer Fumihiro Tone visited Saudi Arabia and Qatar as part of a scheme to extend JCCP's cooperation in strengthening relations for development of human resources in major oil-producing countries, following his last visit in November 2013. In Saudi Arabia, meetings were arranged with key persons in various relevant departments in Saudi Aramco, the principal oil company in Saudi Arabia, to explain and exchange views regarding JCCP regular courses to be offered in fiscal 2014, obtain their views about JCCP's assistance within Saudi Aramco's education program, and explain some of the details being planned as part of the preliminary preparation for the JCCP alumni meeting scheduled to be held in fiscal 2014 in Saudi Arabia. In Qatar, a meeting was held to discuss the schedule for implementing a training program at Qatar Petroleum.

1. Saudi Arabia

(1) Riyadh Refinery

In a meeting with Mr. Abdulrahman Al Subaie, Manager; Mr. Abdulaziz M. Al-Shugair, Maintenance Superintendent; and Mr. Raad E. Al-Ali, Planning Superintendent, a discussion was held regarding the method and dates for implementation of a maintenance-related seminar at the Riyadh Refinery. To clarify the effectiveness of a planned implementation of regular maintenance, the refinery members requested the seminar to be designed to identify onsite problems and problem areas based on comparisons between the scope of regular maintenance at the Riyadh Refinery and in Japan so that future improvements could be made. They expressed a particular desire to address the critical path. Through the meeting and subsequent email correspondence, the two sides agreed to initially send a Japanese expert during the regular maintenance period at the Riyadh Refinery (April 30 – May 1, 2014) to identify onsite issues, and thereafter organize a five-day seminar from June 1 to provide comparisons between the scope of regular maintenance at the Riyadh Refinery and in Japan and examine improvement measures from the issues that have been identified.

Mr. Abdulrahman Al Subaie, Manager, Riyadh Refinery (second from left)

(2) Professional Engineering Development Division (PEDD)

A review of the evaluations of CPO-22-13 (implemented Feb. 9 – 13) was held with Mr. Rashid Kaleel Rahman, Supervisor, Program Development, who acted as JCCP's counterpart for the seminar. The PEDD members who participated in the seminar gave extremely high marks to the seminar itself as well as the textbook, and higher-than-average marks to the presentation skills of the lecturers. Mr. Rahman further noted there is a good chance for a seminar to be implemented again next fiscal year. As PEDD held a committee meeting this past June to discuss next fiscal year's programs, he said a similar seminar as this recent CPO will probably be registered for implementation next fiscal year.

(3) Professional Development Department (PDD)

A meeting was held with the new director of PDD, Mr. Abdullah Z. Al-Otaibi, for discussions aimed at maintaining friendly relations between PDD and JCCP. PDD plays a large role in the human resource development of all Saudi Aramco employees who are university graduates or higher, and is thus in charge of receiving and approving/rejecting applications for training programs inside and outside the country, keeping records of results, etc. with regard to all PDD employees who are university graduates or higher. The training of high school-graduate employees is

Mr. Abdullah Z. Al-Otaibi, Director, PDD (right)

undertaken by the Industrial Training Department (ITD), which also sends participants to JCCP regular courses. Mr. Al-Otaibi expressed his wish to further solidify the ties of cooperation that have so far been established between PDD and JCCP, and said he will continue to send participants to JCCP programs. In particular, Mr. Al-Otaibi noted that he feels JCCP regular courses are effective in promoting information exchanges and creating cooperative ties among the participants, as they bring together participants from multiple countries.

(4) HR Development Division, Refining & NGL Fractionation

Refining & NGL Fractionation established the HR Development Division within the department this fiscal year, to cover the overall development and training of human resources in the department. JCCP's Tone thus met with Mr. Rafat M. Sagah, who was appointed Superintendent of the new division. Mr. Sagah explained that as he has been placed in charge of training units at refineries and other facilities owing to the establishment of the new organization, he will designate Mr. Rayyn S. Tayeb, Supervisor (A), Manpower Development Unit, to be JCCP's counterpart.

According to Mr. Sagah, exposure to Japanese culture and customs through training at JCCP has provided a significant experience and has brought many changes to all employees who have attended a JCCP regular course. As a new training framework has been established, he said that an application has been filed for the implementation of a CPO on Japanese-style HRM and HRD intended for the staff of Refining & NGL Fractionation's HR and Training Units, and that he will also be among the participants of the seminar.

2. Qatar

Corporate Training Department, Qatar Petroleum

A meeting was held with Dr. Abderrazak Bella Baci, Head, Program Development & Evaluation, to discuss a proposal for a customized program in response to a request from Qatar Petroleum for a training program on issues regarding earthquake responses in refineries. In regard to the FY2014 course schedule, Dr. Baci expressed an interest in the new course on strategic management, but noted the long course duration and said five days or so would be more realistic for QP employees to attend.

3. Summary

The recent visits to three departments at Saudi Aramco and the Corporate Training Dept. at Qatar Petroleum identified strong expectations of JCCP training activities and desires for continued cooperation. There seems to

Mr. Rafat M. Sagah, Superintendent, HR Development Division, Refining & NGL Fractionation (center)

Dr. Abderrazak Bella Baci, Head, Program Development & Evaluation, QP (right)

be a strong underlying trend coming from the Middle East countries' experience in interacting with various Asian countries through business, to rediscover Japan in recognition of its consistent manufacturing quality and human nature backed by culture. Given this situation, we will strengthen our commitment to continue making steady efforts to keep in frequent contact and cooperate with JCCP counterpart departments in each country.

<by Fumihiro Tone, Training Dept.>

Personnel Exchange

Report on the Training Cooperation Program

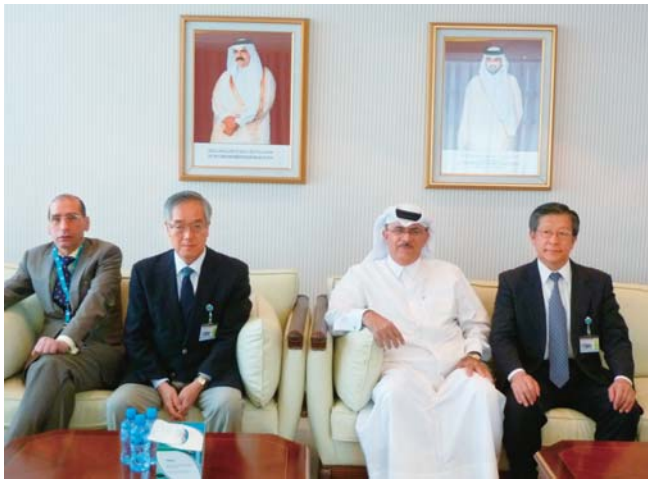
—Qatar & UAE—

To contribute to human resource development in oil-producing countries, Koichi Io, Operations Department, and Fumihiro Tone, Training Department, visited Qatar and UAE from May 3 to 8, 2014. Specifically, they aimed to provide advice concerning measures for improvement of the operation of training frameworks and training content, strengthen relations with key persons in the HRM/HRD departments at Qatar Petroleum and Tasweeq in Qatar and ADNOC and TAKREER in UAE, and identify needs in each company.

1. Qatar

1.1 Qatar Petroleum, Corporate Training Department

JCCP's previous counterpart at Qatar Petroleum was replaced by a new member in October 2013, so this was the first chance for JCCP members to meet with the present counterpart, Ms. Fatima Mohamed Al-Ali, Assistant Manager, Vocational Training, A/Assistant Manager, Professional Learning. Ms. Al-Ali said that as JCCP regular courses harbor no problems whatsoever, and are highly rated by all participants, she intends to continue sending QP employees to participate in JCCP regular courses. The JCCP members, in turn, explained that should Qatar Petroleum have any request for a special course, JCCP would be happy to consider its implementation as a customized program.



At Tasweeq:
Mr. Abudulla Al Abdulmalek, Executive Director–Administration Directorate (second from right), and Dr. Majid Ibrahim, Head of Learning and Development (far left)

1.2 Tasweeq Head Office

A meeting was held with Mr. Abudulla Al Abdulmalek, Executive Director – Administration Directorate, and Dr. Majid Ibrahim, Head of Learning and Development, to confirm the final content of an "information exchange program for young generation," which has been explored in detail since last fiscal year. As no problems were confirmed in the program content, preparations were begun for implementation of the program from December 2 to 12, 2014 as the first choice for receiving young employees from Tasweeq. Meanwhile, a suggestion was made to set the dates from January 25 to 29, 2015 for sending young employees from Japan to stay in Qatar. Both sides agreed to finalize the details by mid-July.

2. UAE

2.1 HR, TAKREER Head Office

A meeting was held with Mr. Ahmed Herzallah, Head, Career Development Section, and others in the

At TAKREER:
Mr. Ahmed Herzallah, Head, Career Development Section (second from right)

At ADNOC:
Mr. Mohamood Al Mulla, Head, Coordination Department, Marketing Research & Business Support Division (far left)

section to discuss customized programs (CPO) that JCCP has been implementing annually. A CPO on maintenance activities had been scheduled for 2014, but when JCCP proposed the seminar in January, Takreer's annual schedule for training had already been planned, and the CPO could not be accommodated in the 2014 schedule. Thus, in a discussion held once again, a CPO on corrosion, maintenance and inspection of static equipment was agreed to be implemented in 2015. Additionally, a general description was given of a TPM course in response to a request for a CPO featuring classroom lectures intended for refinery operators. Both sides agreed to respectively consider the above seminar content and discuss details at a later date.

2.2 ADNOC

A meeting was held with Ms. Salama Al Mansoori, Training Specialist and JCCP's counterpart in the HRM department, and Mr. Mohamood Al Mulla, Head, Coordination Department, Marketing Research & Business Support Division, to provide a background explanation to JCCP's emergency assistance program for UAE and an overview of expenses accompanying its implementation. Both ADNOC officers expressed their appreciation for the scheme, although they said they have no specific requests at the moment. It is thus necessary to consider ways to present and promote training proposals for receiving participants to Japan in the form of a CPJ seminar.

3. Summary

The implementation of human resource development programs such as the emergency assistance program for ADNOC is expected to be concentrated during the period from January to March 2015. At present, a customized program related to the environment is being arranged, and will be strongly promoted hereafter.

With respect to cooperation with the human affairs department in state-run oil companies in each country, the necessity of holding regular interviews was strongly felt, to ensure adequate responses.

<by Fumihiro Tone, Training Dept.>

JCCP Regular Courses Completed

TR-1-14 Future Advanced Technology for Petroleum Industry
April 7 – April 24, 2014 **Lecturer: Bunsuke Kariya**

Content: New Business Strategies in Japanese Oil Companies; World Energy Situation and New Energy; Class Discussion 1: Current Efforts for Technology Development; Profitability Improvement Simulation by JCCP Refinery; Hydrogen Society; Petroleomics (the technology for characterizing crude oil and its products at the molecular level); Class Discussion 2: Future Energy Vision of Your Country

<9 countries / 14 participants>

Site visits: Cosmo Oil Co., Ltd. (Central Research Laboratory); Sanyu Plant Service Co., Ltd. (waste treatment factories and research center); Japan CCS Co., Ltd. (Tomakomai Demonstration Site); Fuji Oil Co., Ltd. (Sodegaura Refinery); Fuel Cell and Solar Energy Demonstration House; Ebina Hydrogen Refueling Station; Chugai Technos Corporation (Tsukuba Bio-frontier Center)

Countries: Indonesia, Iraq, Kuwait, Libya, Myanmar, Nigeria, Sudan, Thailand, Vietnam

TR-2-14 Advanced Control Technologies in the Oil Downstream
April 7 – April 24, 2014 **Lecturer: Kazuhiro Suzuki**

Content: Petroleum Industry in Japan; Outline of Information and Control Systems in Japan; PID Tuning Methods; Process Control Practice with Distributed Control System (DCS); Latest DCS and Instrumentation; Safety Instrumented System; Engineering Practice on DCS; Advanced Process Control; Process Optimization; Fieldbus Engineering; Modernization of Instrumentation

<12 countries / 17 participants>

Site visits: Yokogawa Electric Corporation (Mitaka Headquarters); Azbil Corporation (Shonan Factory); Idemitsu Kosan Co., Ltd. (Aichi Refinery); Emerson Japan, Ltd. (Mizushima Solution Center)

Countries: Indonesia, Iraq, Kazakhstan, Kuwait, Libya, Myanmar, Nigeria, Pakistan, Saudi Arabia, Thailand, Uzbekistan, Vietnam

TR-3-14 Petroleum Marketing
May 13 – May 30, 2014 **Lecturer: Masayuki Jimbo**

Content: Petroleum Industry in Japan; Refinery Shipping System of Petroleum Products; On-site Observation of the Facilities; Endless Price War in Retail Market; Oil Flow to Mass Consumers; Latest Service Station Facilities; Integrated Refueling System; Facilities and Safety Refueling Operation; Distribution of Petroleum Products; Facilities and Safety Measures; New Automobile Fuel; Business Expansion to Non-oil Field; Management by Rational Thinking Process; Workshop "Advanced Negotiation"; Workshop "Financial Accounting"; Workshop "Procurement"; Workshop "Oil Derivatives"; Workshop "Decision Making Process of Crude Oil Buyers"

<9 countries / 21 participants>

Site visits: Idemitsu Kosan Co., Ltd. (Tokuyama Complex); Fujitani Inc. (depot, service stations); San-ai Oil Co., Ltd. (Haneda Airport Branch); Tatsuno Corporation (Yokohama Factory); JX Nippon Oil & Energy Corporation (Head Office)

Countries: Cambodia, Indonesia, Iraq, Kazakhstan, Myanmar, Nigeria, Saudi Arabia, UAE, Vietnam

TR-4-14 Upgrading Processes of Heavy Oil
May 13 – May 30, 2014 **Lecturer: Takaaki Yuasa**

Content: Outline of Upgrading of Heavy Oil; Hydrotreating and Hydrocracking Catalyst; Thermal Cracking Process; IGCC Technology and Selection of Heavy Oil Upgrading Process; FCC & Resid-FCC Process Technology; Hydrotreating and Hydrodesulfurization Process Technology; FCC Catalyst Reaction Theory; Thermal Cracking (Delayed Coker, Flexi Coker) Unit and FCC Unit; Operation and Troubleshooting and Decreasing Effect in Heavy Oil Production; Developed HDS & FCC Catalyst and Its Theory; Process and Characteristics of RFCC and VRHDS Unit; Evaluation Technology and Its Results for HDS Catalyst & FCC Catalyst; Process Simulator Practice of FCC Start-up & Operating Trouble Examples; Linear Programming and Production Planning for Refinery

<11 countries / 15 participants>

Site visits: JGC Catalysts & Chemicals Ltd. (Kitakyushu Operation Center); Nippon Ketjen Co., Ltd. (Niihama Division); JX Nippon Oil & Energy Corporation (Negishi Refinery)

Countries: Indonesia, Iraq, Kuwait, Libya, Myanmar, Nigeria, Pakistan, Peru, Qatar, Sudan, Vietnam

TR-5-14 Advanced Field Devices and Control
May 27 – June 13, 2014 **Lecturer: Kunio Kawashima**

Content: Latest Control System and Wireless Instrument; Outline of Level Gauges and Practice; Outline of On-line Analyzer; Review of Process Control Theory Using Dynamic Simulator; Review of Process Control Theory Using Wet-Simulator; Outline of Emergency Shutdown System; Control Valve Engineering; Vibration Measurements and Diagnosis; Refinery Information and Control System; Instrument Maintenance; Outline of Flow Meters and Practice; Latest System; Outline of Transmitter & Control Valve and Practice; Latest Instrument Engineering

<11 countries / 16 participants>

Site visits: Yokogawa Electric Corporation (Mitaka Headquarters); Endress+Hauser Yamanashi Co., Ltd. (Yamanashi Factory); DKK-Toa Corporation (Tokyo Engineering Center); Shinkawa Sensor Technology, Inc. (Hiroshima Factory); Idemitsu Kosan Co., Ltd. (Chiba Refinery); Oval Corporation (Yokohama Operation Center); Azbil Corporation, (Shonan Factory)

Countries: Iraq, Kazakhstan, Kuwait, Libya, Myanmar, Nigeria, Pakistan, Saudi Arabia, Sudan, Vietnam, Yemen

TR-6-14 Advanced Technologies in a Transforming Energy Market
June 5 – June 20, 2014 **Lecturer: Tetsuo Arii**

Content: This course is newly designed for managers or experts in corporate planning, energy efficiency, renewable energy and new business development. This new course is focused on energy policy, renewable energy, technology innovation and innovative business model. Participants studied technologies and business regarding high efficiency power generation, solar & wind power, smart community, fuel cell & hydrogen technology and CCS (Carbon Capture and Storage). In the workshop, they prepared their own project plans for their countries by utilizing Japanese advanced technologies.

<10 countries / 18 participants>

Site visits: The Institute of Energy Economics, Japan (IEEJ); New Energy and Industrial Technology Development Organization (NEDO); Honda Motor Co., Ltd.; Sharp Corporation; Kawasaki Heavy Industries, Ltd.; Fukuoka Prefecture; Kita-Kyushu Smart Community Creation Project; JX Nippon Oil & Energy Corporation; Hitachi Ltd.; JGC Corporation; Mitsubishi Heavy Industries, Ltd.; Chiyoda Corporation

Countries: Kuwait, Myanmar, Nigeria, Pakistan, Philippines, Saudi Arabia, Sudan, Thailand, UAE, Vietnam

TR-7-14 Maintenance Management
June 10 – June 27, 2014 **Lecturer: Masami Funayama**

Content: Petroleum Industry in Japan; Maintenance Management in Japanese Refineries; Corrosion and Fouling Control for Petroleum; Manufacture and Inspection Technologies for Turbine and Boiler; Manufacture Technology and Material Characteristics of Stainless Steel Tubes & Pipes; Maintenance Technology and Reliability Management for Plant Pumps; Project Management; Maintenance Management; Risk & Reliability Management; Inspection Management System; Maintenance Management & Technology as Contractor; Operational Practices and Maintenance of Mechanical Seals; Safety and Reliability of Aged Plants; Plant Life Cycle Engineering

<10 countries / 15 participants>

Site visits: Mitsubishi Hitachi Power Systems Co., Ltd. (Nagasaki Plant); Nippon Steel & Sumitomo Metal Corporation (Steel Tube Works); Torishima Pump Mfg. Co., Ltd. (Takatsuki Works); JGC Corporation (Yokohama Headquarters); Sankyu Inc. (Maintenance Centre); Eagle Burgmann Japan Co., Ltd. (Niigata Factory)

Countries: Indonesia, Iraq, Kuwait, Myanmar, Nigeria, Saudi Arabia, Sudan, UAE, Uzbekistan, Vietnam

Joint Project on the Removal of Mercury from Natural Gas (Oman)

Natural gas is a fuel that releases less carbon dioxide per unit energy consumption compared to oil and coal, and is imported in the form of liquefied natural gas (LNG). As it is not as widely distributed as oil, it is an important source of energy to a country like Japan that is dependent on foreign imports to satisfy most of its energy needs. Moreover, it poses minimum risk in terms of geopolitics, and is also important from the perspective of diversifying energy sources.

However, natural gas contains large amounts of mercury, which must be removed to prevent corrosion of natural gas facilities. Mercury must also be removed from natural gas as it is a metal that has been restricted in recent years due to its strong toxicity to living organisms. Today, LNG production plants in operation around the world are equipped with mercury removal units, which use mercury removing agents made of expensive zeolite materials that have short lifecycles. For this reason, LNG production plants are strongly seeking the development of low-cost, long-life mercury removing agents.

Taking this situation into consideration, JCCP launched the "Joint Project on the Removal of Mercury from Natural Gas (Oman)" as a FY2013 project, as outlined below.

1) Period of implementation: April 2013 – March 2014
2) Overseas counterpart: Sultan Qaboos University (SQU)
3) Participating companies: Cosmo Engineering Co., Ltd.; Hagio High Pressure Containers Co., Ltd.
4) FY2013 project activities
   (1) Removal of impurities from natural gas
   (2) Manufacture of a laboratory testing apparatus
   (3) Performance evaluation of adsorbents using the laboratory testing apparatus

JCCP and SQU also held a Memorandum of Agreement (MOA) signing ceremony for implementation of the joint JCCP-SQU project in fiscal 2013.

The signing ceremony took place in the main building of SQU on November 3, 2013. On the Japanese side, members of JCCP were joined by the Japanese Ambassador to Oman and executive officers from Cosmo Engineering Co., Ltd. and Hagio High Pressure Containers Co., Ltd. The Omani side included executive officers of SQU and members of the royal family. Local newspapers in Oman printed an article on the ceremony, and contributed to spreading information and increasing public recognition of JCCP activities in Oman.

The following achievements were made in fiscal 2013.

(1) Removal of impurities from natural gas

An examination was made into the composition of natural gas mined and refined at Petroleum Development Oman (PDO)'s Saih Nihayda Gas Plant. The plant operates a mercury removal unit (MRU), which was confirmed to reduce mercury concentration from 15 – 60 μg/Nm^3 at the inlet to 20 – 100 ng/Nm^3 at the outlet. PDO's standard for mercury concentration at the outlet of the mercury removal unit is 5,500 ng/Nm^3.

(2) Performance evaluation of adsorbents using a laboratory testing apparatus

The performance of adsorbents was tested using nitrogen gas or methane impregnated with mercury as model gas. Three types of activated carbon (HG-1, HG-2, HG-S) and activated carbon HG-W were examined as adsorbents for removing impurities from natural gas.

As a result of the above examination, two tests were implemented: one using an adsorbent containing HG-S only, and the other using an adsorbent containing HG-W and HG-S at a 1:1 volume ratio.

Since the gases used in the laboratory test contain mercury, there was concern that it would adhere to the inner walls of the gas cylinder. Thus, the impact of mercury adhesion to the inner walls of the gas cylinder was examine and assessed. As a result, traces of mercury were found adhered to the walls of the gas cylinder, but since the amount was extremely small, the impact of any adhesion of the mercury content in the natural gas in the cylinder was judged to be negligible.

(3) Manufacturing of the laboratory testing apparatus

A laboratory testing apparatus was manufactured with reference to the gas throughput and operational pressure

of the mercury removal unit in operation at PDO. With consideration given to safety, the conditions for the laboratory test were set at a pressure of 0.1 MPa and a per-column flow rate of 2.0 NL/min. After transporting natural gas obtained from the Saih Nihayda Gas Plant to SQU, it was fed into a column filled with mercury adsorbent, and the concentration of mercury content in the gas was measured both at the inlet and outlet to confirm the ability of the adsorbent to adsorb mercury.

The laboratory testing will be continued until the beginning of fiscal 2014, to evaluate the ongoing performance of the adsorbents that were introduced, and to assess and examine breakthrough time. Based on the results of the above, the volume of adsorbent to be introduced to the actual mercury removal unit will be decided. Furthermore in fiscal 2014, a pilot unit will be designed and manufactured, and during fiscal 2015, the pilot unit will be installed in a gas field in Oman to evaluate its adsorbent performance using actual gas.

<by Yukio Nobayashi, Technical Cooperation Dept.>

Technical Cooperation

Special Cooperation Study on Technical Support of Introduction of Formation Water Treatment for Refineries in Southern Region of Iraq

"Study on Technical Support of Introduction of Formation Water Treatment for Refineries in Southern Region of Iraq" was implemented as a special cooperation project for Iraq funded by the FY2013 METI subsidy, with the participation and cooperation of the Water Reuse Promotion Center and Swing Corporation.

Formation water gushing forth

1. Background

Iraq boasts the world's fifth-largest oil reserve (150 billion barrels according to 2012 year-end BP statistics), and faces large expectations to produce increasing amounts of crude oil. As the oil industry requires large volumes of water, Iraq has conventionally depended on the Tigris and Euphrates Rivers to supply the industry's water needs, but it is now hard-pressed to secure alternative water resources, given the recent decrease in river water volume accompanying the construction of dams upstream in neighboring countries and water quality deterioration in the southern region.

Fortunately for Iraq, large volumes of formation water have been confirmed in the country, and the Ministry of Oil-Iraq is considering using formation water as a new water resource to avert a crisis in water supply to oil fields. The formation water that the ministry has targeted has been gushing forth continuously for 30 years, and its abundance has been actively confirmed through geological surveys. However, since formation water contains sulfate and has a rather high concentration of salt, it cannot be used as is, and must be treated in some way.

Under this situation, Petroleum Research & Development Center (PRDC), an establishment of the

Ministry of Oil-Iraq, requested JCCP's cooperation in developing and introducing an effective water treatment technology in 2012, and JCCP spent a year implementing a cooperation study.

2. Objective

The study aims to propose a water treatment technology that is applicable to treating and recycling formation water in the southern region of Iraq to South Oil Company (SOC), a national oil company governed by the Ministry of Oil-Iraq, in response to a request from the ministry for implementation of a cooperation study toward this goal.

3. Content and Progress

The following activities were conducted in fiscal 2013: information was collected on the water quality of industrial water in the oil industry; the target quality of treated water was clarified based on that information; a survey was conducted on the actual state of formation water; the properties of formation water were confirmed based on an analysis of water quality; a table test was performed using formation water; and treatment processes were examined and presented to the Iraqi side based on the results of the water quality analysis and table test.

■ Water quality analysis

Water quality was analyzed twice, roughly one month apart. Five-liter samples for analysis were collected in Iraq, first in June, and next in July. The samples collected in June arrived in Japan in approximately two weeks, and those collected in July arrived one month later.

As a result of analyzing the water quality of the samples in Japan, they were found to be brackish with a TDS (total dissolved solid) concentration of several thousand milligrams per liter. They had a relatively high concentration of sulfate ions, and contained certain amounts of organic substances, as well.

External appearance of a water sample package

■ Establishment of water quality target

In addition to examining the water quality of formation water, the water quality of industrial water used in Iraq's oil industry was also examined as reference for establishing a water quality target for treated water.

■ Examination of treatment processes

In order to achieve the target water quality, formation water needed to be subjected to desalination treatment. In consideration of the volume of water to be treated, as well as ease of operational management, proven track record in Iraq, and other such factors, desalination treatment using an RO (reverse osmosis) membrane unit was decided to be adopted.

However, when performing desalination using an RO membrane unit, the RO influent water must satisfy stringent water quality requirements to maintain stable operations, and proper pretreatment tends to be necessary whenever the RO method is adopted. Thus, to examine appropriate pretreatment methods, formation water was once again sent to Japan from Iraq to perform a table test.

In the table test, a treatment method that has been mainly approved to have a physicochemical effect was selected and adopted for pretreatment of the RO membrane unit.

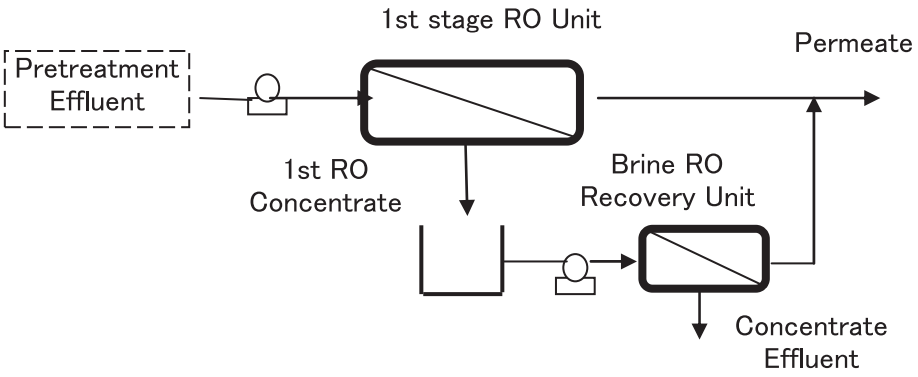
■ Selection of a treatment process

After analyzing water quality, selecting a pretreatment process based on a table test, and examining the effectiveness of desalination using an RO membrane unit, a treatment was selected as shown in the flow diagram below.

To maintain stable RO operation and increase water recovery rate in the RO treatment process, a desalination process that would increase water recovery rate was included as a process that could ensure both good water quality and stable operations, although stable operations would be affected to a slight degree.

■ Consultation with the Iraqi side

During this fiscal year's survey period, face-to-face technical meetings were held three times while exchanging information and views with the Iraqi side via email as necessary. In the technical meetings, the



The selected treatment flow

Japanese side reported on the method and results of the water quality analysis and the significance thereof, as well as the method and results of the table test and the underlying principle of the treatment flow derived from it. After active exchanges of questions and answers, the Iraqi side ultimately reached an understanding of the Japanese side's views and accepted the proposed treatment flow. The two sides then finalized the design requirements for a pilot plant, and will be taking it to the demonstration stage.

4. Future Plans

The study will be developed and launched as a joint project for Iraq this fiscal year, with plans to manufacture a 100m^3/d pilot plant in Japan based on the proposed treatment process. Thereafter, Iraqi engineers will be invited to Japan to attend a technical training program to acquire knowledge of the concept of treatment, maintenance management methods, etc. Then, after transferring the pilot plant to Iraq, a demonstration operation will be conducted in Iraq, and the operational data will be shared between the two countries toward demonstrating the effectiveness of the treatment flow. The project is scheduled to be completed next fiscal year.

<by Hironao Naganuma, Technical Cooperation Dept.>

After the consultation meeting

Consultation meeting

The 15th Kuwait-Japan Joint Symposium

The 15th Kuwait-Japan Joint Symposium was held on January 20 and 21, 2014 under joint organization by Kuwait Institute for Scientific Research (KISR), Kuwait National Petroleum Company (KNPC) and Japan Petroleum Institute (JPI). The symposium has been held annually in Kuwait, initially with KISR as partner, and with the addition of speakers from KNPC from the 5th symposium. At this year's symposium, the number of speakers from KNPC surpassed the number from KISR for the first time. Furthermore, speakers from Kuwait Oil Company (KOC) and a catalyst company in Kuwait also gave presentations, and contributed to the diversity of the symposium with the participation of both researchers and business operators.

The Japanese side not only presented technical papers, but also captured the interest of Kuwaiti companies with even more practical presentations themed on "advancements in petroleum refining processes," which included the troubleshooting of actual cases of manufacturing facility corrosion in the refinery and procedures for operational optimization.

The names of the Japanese speakers and their presentation themes are shown below.

(1) Prof. Keiichi Tomishige, Dr. Sci., Dept. of Applied Chemistry, Graduate School of Engineering, Tohoku University
Keynote lecture: "Natural gas conversion to synthesis gas by methane reforming using Ni catalysts modified with noble metals"

(2) Dr. Toshimitsu Suzuki, D.Eng., Professor Emeritus, Kansai University
"Highly selective oxidative dehydrogenation of propane to propylene"

(3) Dr. Masayoshi Soga, D. Eng., Professional Engineer (Resource), Senior Manager, Energy Economics Research Dept., JX Nippon Research Institute, Ltd.
"Possibility that the global refining system could supply low sulfur fuel in 2020"

(4) Mr. Yuji Kato, Rotating Equipment Engineering Group, Technical & Engineering Center, Idemitsu Kosan Co., Ltd.
"Utilization of regenerative repair for rotating equipment"

(5) Dr. Kenji Katoh, D.Eng., Material Specialist, Lloyd's Register Group Limited
"Development of corrosion-resistant steel for cargo oil tank of crude oil tankers and its international standardization"

As the guests of honor, Mr. Ahmad S. Al-Jemaz, Deputy CEO, Mina Abdullah Refinery, KNPC, and Mr. Shigeru Yamamoto, First Secretary, Economic & Commercial, Japanese Embassy in Kuwait, also participated in the symposium.

Seminar scene

(From the left): Prof. Keiichi Tomishige, Graduate School of Engineering, Tohoku University and leader of the Japanese delegation (representing the Japanese speakers); Mr. Shigeru Yamamoto, First Secretary, Japanese Embassy in Kuwait; Mr. Ahmad S. Al-Jemaz, Deputy CEO, Mina Abdullah Refinery; Dr. Meena Marafi, Executive Director, Petroleum Research Center; Mr. Morihiro Yoshida, Managing Director of JCCP

<Opening Speeches>

Mr. Shigeru Yamamoto:

Mr. Yamamoto first offered his congratulations on the holding of the 15th Kuwait-Japan Joint Symposium, then reported on the results of the meeting between Prime Minister Shinzo Abe and His Highness Prime Minister Sheikh Jaber Al-Mubarak during Prime Minister Abe's visit to Kuwait in 2013. Specifically, Mr. Yamamoto spoke about the agreement that was included in the joint statement issued after the meeting, which promised bilateral cooperation in diverse areas including the energy sector, and raised expectations for Japan's contribution to Kuwait's oil industry through joint implementation of the project by Kuwaiti and Japanese oil companies.

Mr. Morihiro Yoshida, Managing Director of JCCP:

Mr. Yoshida mentioned the Memorandum of Understanding on mutual cooperation of education institutions that was exchanged between Japan's Ministry of Education, Culture, Sports, Science and Technology and Kuwait's Ministry of Higher Education during Prime Minister Abe's visit to Kuwait, and said the emphasis that was placed on cooperation in the scientific research sector is worthy of mention and an indication that JCCP's many years of activities have been recognized by the governments of both countries. Mr. Yoshida said he is convinced that the symposium and cooperation projects that have been implemented by KISR and JCCP to date will further strengthen relations between Kuwait and Japan.

The two-day symposium inspired active exchanges of views between the speakers and audience, at times turning into heated discussions, and ended with a closing speech by Dr. Meena Marafi, Executive Director, Petroleum Research Center, as summarized below.

<Closing Speech>

Dr. Meena Marafi:

Dr. Marafi called on both the speakers and audience to think beyond the success of this symposium and consider all possible areas for improvement, in order to develop this symposium into a forum for promoting mutual knowledge and experience through collaboration between the researchers' world of academia and the practical world of companies. She also expressed her wish to see further development of the symposium in the future by strengthening diverse networks so that the symposium could provide a meaningful opportunity to build an even better future in the oil industry.

The symposium highlighted Kuwait's strong interest and high expectations of Japan's technologies, and provided the realization that JCCP activities have played an important role within the concerted efforts of diverse Japanese institutions to establish cooperative ties with Kuwait.

<by Keiko Ebihara, Technical Cooperation Dept.>

[Day One] Monday, January 20, 2014	
9:00-9:30	Opening Addresses: Mr. Ahmad S. Al-Jemaz, Deputy CEO, Mina Abdullah Refinery, Kuwait National Petroleum Company Mr. Shigeru Yamamoto, Commercial Attaché, Embassy of Japan in Kuwait Prof. Keiichi Tomishige, Head of Delegation, The Japan Petroleum Institute Mr. Morihiro Yoshida, Managing Director, Japan Cooperation Center, Petroleum
9:30-10:15	Keynote Lecture: "Natural gas conversion to synthesis gas by methane reforming using Ni catalysts modified with noble metals" (Prof. Keiichi Tomishige, Tohoku University, Japan)
10:15-10:45	Coffee Break

10:45-12:00	SESSION 1: Catalyst and Process Development; Chairperson: Dr. Hassan Al-Rabiah	
10:45-11:10	Paper 1	"State-of-the-art 'Catalyst systems' for heavy oil processing" Hasan M. Qabazard, Kuwait Catalyst Company, Kuwait
11:10-11:35	Paper 2	"Influence of support and supported phases on catalytic functionalities of hydrotreating catalysts" Mohan S. Rana, Kuwait Institute for Scientific Research, Kuwait
11:35-12:00	Paper 3	"Highly selective oxidative dehydrogenation of propane to propylene" Kenta Fukudome and Toshimitsu Suzuki, Kansai University, Japan
12:00-13:00		Prayer Time & Lunch Break
13:00-14:20	SESSION 2: Green Initiatives in Refining Industry; Chairperson: Dr. Toshimitsu Suzuki	
13:00-13:25	Paper 4	"Possibility that the global refining system could supply low sulfur fuel in 2020" Masayoshi Soga, JX Nippon Research Institute Ltd., Japan
13:25-13:50	Paper 5	"Non-oxidative treatment methods on spent hydroprocessing catalysts" Narjes Ghaloum, André Hauser, Sakeena Al Sairafi, Hanadi Al Sheeha, Kuwait Institute for Scientific Research, Kuwait
13:50-14:15	Paper 6	"Petroleum refining processes emission sources: major contributing processes and ways of mitigation" M.S. Al-Rashidi, S.M. Al-Salem and A.R. Khan, Kuwait Institute for Scientific Research, Kuwait
14:15-14:40	Paper 7	"The establishment of the R&D Center — KIPRC" Rachid Chedid Sablit, Khairyah Kheefan Al-Hamad, Kuwait Oil Company, Kuwait

[Day Two] Tuesday, January 21, 2014		
8:30-10:40	SESSION 3: Advancements in Corrosion Mitigation; Chairperson: Mr. Saad Al-Dhafiri	
8:30-8:55	Paper 8	"Development of corrosion-resistant steel for cargo oil tank of crude oil tankers and its international standardization" Kenji Katoh* and Seiji Nishimura**, *Lloyd's Register Group Limited, **Nippon Steel & Sumitomo Metal Corporation, Japan
8:55-9:20	Paper 9	"Understanding the interactions between corrosion layers and inhibitor films in flow conditions" Abdulmuhsen Akbar*, Xinming Hu**, Chun Wang**, Richard Barker** and Anne Neville**, *Kuwait Institute for Scientific Research, Kuwait, **University of Leeds, UK
9:20-9:45	Paper 10	"Challenges in restoration of a titanium steam condenser" Mohammed Moyeenuddin, P.K. Mukhopadhyay and Hussain Al-Shammari, KNPC Shuaiba Refinery, Kuwait
9:45-10:10	Paper 11	"A novel fracture mechanics technique for the determination of susceptibility of engineering materials to stress corrosion cracking" Rihan Omar Rihan, Kuwait Institute for Scientific Research, Kuwait
10:10-10:40		Coffee Break
10:40-11:55	SESSION 4: Failure Investigation; Chairperson: Dr. Kenji Katoh	
10:40-11:05	Paper 12	"Experience of super austenitic stainless steels in LNG import facility" Saad Al-Dhafiri, Thammer Al-Ansari and K. Laxma Reddy, KNPC Mina Al-Ahmadi Refinery, Kuwait
11:05-11:30	Paper 13	"Premature failure of upper PA/BFW heat exchanger tubes in delayed coker unit" Ali Radhi Saad Al-Azemi, KNPC Mina Abdullah Refinery, Kuwait
11:30-11:55	Paper 14	"Failure of DEA lean/rich exchanger in gas sweetening unit" Saad Al-Dhafiri and Ravi Mohan Gupta, KNPC Mina Al-Ahmadi Refinery, Kuwait
11:55-13:00		Prayer Time and Lunch Break
13:00-14:40	SESSION 5: Corrosion Management; Chairperson: Dr. K. Ravindranath	
13:00-13:25	Paper 15	"Managing corrosion in bleed and high pressure flash gas lines containing NH_4HS" Hiren Harishkumar Zala and Bader M.A. Al-Harbi, KNPC Shuaiba Refinery, Kuwait
13:25-13:50	Paper 16	"Utilization of regenerative repair for rotating equipment" Yuji Kato and Yoichi Tokita, Idemitsu Kosan Co., Ltd., Japan
13:50-14:15	Paper 17	"Monitoring of stagnant and low flow lines in petroleum refineries" Faisal Al-Refai, Vinod Kumar Bhatia and Sandeep Patil, KNPC Mina Abdullah Refinery, Kuwait
14:15-14:40	Paper 18	"Corrosion management in small bore drains and vents" Sunil Kumar Birla and P.K. Mukhopadhyay, KNPC Shuaiba Refinery, Kuwait
14:40		Closing Remarks Dr. Meena Marafi, Executive Director, Petroleum Research Center, Kuwait Institute for Scientific Research, Kuwait

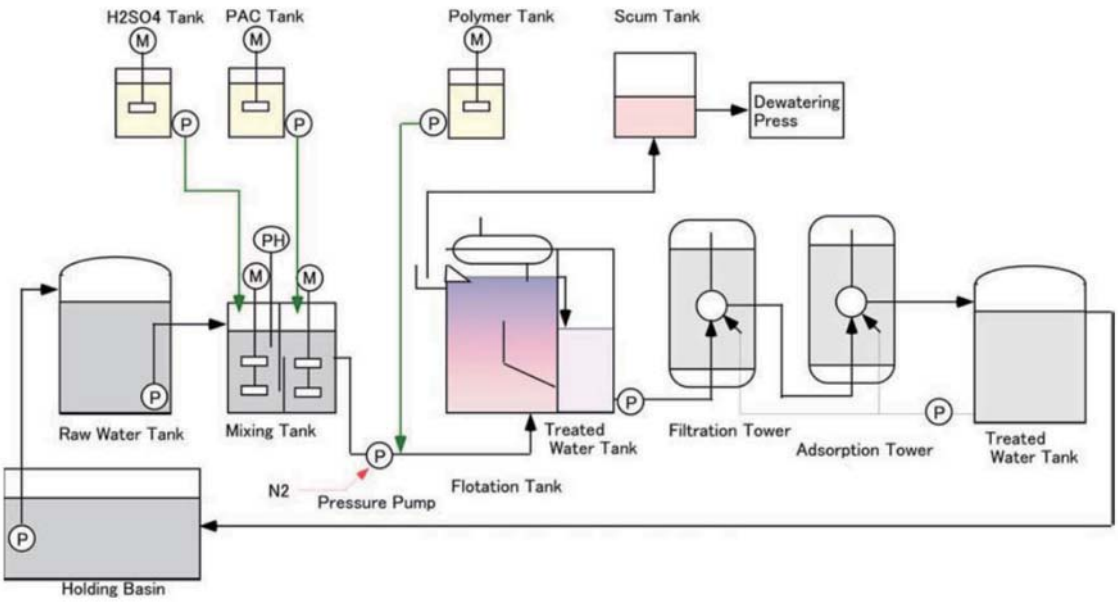
Joint Project on Treatment and Utilization of the Oilfield-produced Water in Oman Phase II

Oilfield-produced water (oily wastewater that is generated in association with the production of crude oil) accounts for the largest ratio of waste matter that is generated in the process of crude oil production. In the case of Petroleum Development Oman (PDO), a major crude oil production company in Oman, the amount of produced water that is pumped up with crude oil is roughly eight times the amount of crude oil produced, and is increasing yearly as crude oil is pumped up. Oil droplets contained in produced water are extremely small (30μm or smaller in diameter) for the most part, and cannot be completely separated using existing gravity oil separators. For this reason, the Omani government has prohibited the discharge of produced water into shallow aquifers (100-200m underground), calling instead for it to be discharged into deeper aquifers (approx. 1,000m underground). Due to this change, large pumps with greater motor power have become necessary, and the cost of discharging produced water has risen, creating large demand for treatment technologies that would treat produced water even further so that it could be used aboveground.

In some oilfields in southern Oman, produced water contains a relatively low concentration of salt of around 4,000 – 7,000 mg/L. Therefore, if the oil content in such produced water could be adequately removed, the treated water could be used as irrigation water. As a single oilfield alone produces some 250,000 m^3/day of produced water, corresponding to roughly the average amount of water supplied daily to the capital city of Muscat, produced water could be considered a latent water resource that is available in abundance. Thus, securing new water resources such as by recycling oilfield-produced water while also maintaining existing water resources is indispensable to sustainable development in Oman.

The objective of this study is to treat oilfield-produced water in Oman using low-cost wastewater treatment technology, and to perform a pilot test for the effective utilization of the treated water. The effective utilization of oilfield-produced water would resolve the waste issue accompanying oilfield development, and contribute significantly to the sustainable development the country seeks, by creating a new water resource.

In consideration of the above, JCCP launched the Joint Project on Treatment and Utilization of the Oilfield-produced Water in Oman Phase II as a FY2013 project, as outlined below.



Flow of the pilot plant used in the study

1) Implementation period: April 2013 – March 2014
   The project commenced in 2011, slated to end in FY2013.
2) Overseas counterpart: Sultan Qaboos University (SQU)
3) Participating company: Shimizu Corporation
4) Activities during FY2013:
   (1) Examination of effective removal methods for produced water using EOR technology
   (2) Treatment test of EOR-applied water using a pilot plant
   (3) Coagulation-flotation treatment using two-phase swirling flow microbubbles
   (4) Cultivation of algae using EOR-applied produced water and treated water

A pilot plant was installed on campus at SQU as described below to examine the treatment of oilfield-produced water and other related issues.

The following is an overview of results achieved during FY2013.

(1) A laboratory test was performed to compare the performances of polyaluminumchloride (PAC), which has been conventionally used as a coagulant, and aluminum sulfate (AS). As a result, it was confirmed that AS is effective for coagulation sedimentation of viscous produced water like the water in question in Oman.

(2) EOR-applied produced water was collected in June, August and December, and a continuous treatment test was performed using a pilot plant. Additionally, the coagulation sedimentation effect of AS was confirmed in the case where polymer is used as a thickener in the EOR process.

(3) After supplying raw water to the coagulation mixing tank and sufficiently mixing it with AS, it was supplied to the filtration tank at low pressure, and high-polymer coagulant was fed to the flotation tank so as minimize destruction of the floc. Through this process, it was confirmed that good oil content and SS content could be separated from produced water.

(4) It had already been confirmed that produced water with low salt concentration could be used as agricultural irrigation water. However, consideration needed to be given to possible health hazards if a thickener is to be used in the EOR. If algae could be cultivated, the possibilities of using thickened produced water would expand. Through this fiscal year's examination, it was found that the concentration of thickener in the EOR agent has no impact on the development of algae.

The activities implemented during FY2013 confirmed that oilfield-produced water that has been subjected to an EOR process could also be treated continuously even if a thickener has been applied, if an appropriate agent is used and the treatment method is improved. Additionally, the necessary information was acquired for scaling up the project, and a cost estimate was created.

The project ended in fiscal 2013, but it is expected to strengthen future relations with Oman and contribute to deepening ties between Japan and Middle East oil-producing countries.

<by Yukio Nobayashi, Technical Cooperation Dept.>

Progress Report on the Joint Study for Catalytic Polymerization Unit Improvement in QP Refinery

During fiscal 2013, JCCP implemented the "Joint Study for Catalytic Polymerization Unit Improvement in QP Refinery" with the Mesaieed Refinery, operated by Qatar's national oil company Qatar Petroleum, and made a proposal for improvement based on the results of the study.

1. Background

Qatar is an oil-producing country in the Middle East region with a population of approximately 1.7 million. It exports LNG, crude oil and oil products, and has proven reserves of some 25.9 billion barrels of crude oil, estimated to have a reserves-to-production ratio of around 45 years. Of the roughly 1,569,000 barrels of crude oil that the country produces per day, approximately 28%, or 440,000 barrels/day, is exported to Japan, making Qatar the third-largest supplier of crude oil to Japan, after UAE. With respect to natural gas, Qatar boasts the world's largest proven reserve. Having production facilities with the capacity to produce more than 93 million tons/year of natural gas, the country has also established deep ties with engineering companies in Japan.

QP's Mesaieed Refinery consists of three principal systems: Refinery 1, Refinery 2, and a condensate refinery. The group of crude oil distillation units that comprise the 10,000b/d Refinery 1 were built in 1974, and those comprising Refinery 2 were additionally built in 1984 with a 70,000b/d capacity, along with new downstream facilities. Thereafter, import/export facilities were installed in 1989, and a group of condensate distillation units (condensate refinery) were built in 2001. Moreover, accompanying these facilities, various additions have been made over the years to achieve high efficiency.

To contribute to the Mesaieed Refinery's initiatives for further development, JCCP has implemented a series of technical cooperation projects with the refinery as its counterpart since fiscal 2004. They have included studies on flare gas reduction technology, studies on LPG recovery efficiency improvement, support for countermeasures against corrosion/fouling, and studies on operational improvement of naphtha hydrodesulfurization units in refineries, among others. Based on the relationship of trust that has evolved continuously through such projects, JCCP has once again agreed to implement the project described below in fiscal 2013, in response a request from QP.

Presentation at the final debriefing meeting

Participants of the final debriefing meeting

2. Overview

1) Implementation period: April 2013 – March 2014
2) Overseas counterpart: Qatar Petroleum (QP)
3) Participating company: Cosmo Engineering Co., Ltd.
4) Objective: Operational improvement of the catalytic polymerization unit at the refinery

At QP, gasoline base material and product LPG are produced from light olefins that are generated in the residue fluid catalytic cracking (RFCC) unit. However, the production of LPG with product specifications requires a larger amount of auxiliary feedstock hydrogen for hydrogenation than initially planned. As matters stand, an excessive amount of LPG accompanies the off-gas from the hydrogenation unit that is used in the refinery as fuel gas, and is compromising product LGP yield. Furthermore, the high vapor pressure of product LPG is also posing a problem with their safe and stable storage, and there has thus been a need for operational improvement toward achieving greater LPG yield. In response to this need, JCCP implemented a countermeasure assistance project for operational improvement of the catalytic polymerization unit at QP's Mesaieed Refinery, based on the experience and technologies for operational improvement accumulated by Japan's oil industry. Through this project, JCCP has not only contributed to increasing operational efficiency at the Mesaieed Refinery, but is confident that it has adequately transferred Japan's oil refining technologies and know-how related to operational improvement to Qatar Petroleum.

3. Summary

As a result of a survey and examination of operational status conducted jointly with QP, it was found that the catalytic polymerization unit at the Mesaieed Refinery has the following issues.

(1) To achieve LPG with product specifications in the catalytic polymerization unit, a far larger amount of auxiliary feedstock hydrogen than the design amount was consumed for hydrogenation in the hydrogenation unit.
(2) The reaction temperature that was set to increase olefin conversion rate in the hydrogenation unit had a smaller margin than the polymerization reaction-causing temperature, so there was concern regarding the risk of the polymerization reaction deactivating the hydrogenation catalyst.
(3) Among the auxiliary feedstock hydrogen for hydrogenation mentioned in (1) above, the large amount of hydrogen discharged from the top of the product LPG separator was accompanied by LPG, thereby undermining product LPG yield.
(4) Exhaust gas was drawn out from the top of the product LPG separator in order to maintain safe LPG vapor pressure in the storage tank, and this also contributed to undermining LPG yield.

The following proposals were made in regard to the above problems.

(1) Judging by the result of analysis of the hydrogenation catalyst extracted from the hydrogenation unit, the decline in catalyst activity is thought to be caused mainly by catalyst poisoning by chloride compounds.
(2) It is most likely that the chloride compounds are derived from by-product hydrogen from a continuous regeneration-type catalytic reformer that is the source of hydrogen for hydrogenation, but further efforts should be made to identifying the source of the chloride compounds by implementing an analysis of the feedstock LPG system and hydrogenation system.
(3) The analysis result mentioned in (1) above also includes sulfur compounds. Although they are not as strongly poisonous to catalysts as chloride compounds, the source of sulfur compounds should also be identified from the perspective of the lifecycle of high-cost hydrogenation catalysts.
(4) At present, chlorine removal is performed after mixing feedstock LPG and hydrogen for hydrogenation, but there is concern that organic chloride compounds are generated from catalytic action on the chlorine removal adsorbent. Since adsorption treatment by adsorbents becomes difficult once organic chloride compounds are generated, an inquiry should be made with a Chlorine Guard absorbent manufacturer and conversion made to a chlorine adsorbent that does not synthesize organic chlorine.
(5) As hydrogen-rich gas from a continuous regeneration-type catalytic reformer is also probably used as the source of hydrogen for units such as naphtha, kerosene and diesel oil hydrotreaters, consideration should also be given to

the removal of chloride compounds on the reformer side.

(6) Even if the activity of hydrogenation catalysts is restored and the amount of hydrogen for hydrogenation is decreased, it would probably still be necessary to maintain a certain amount of hydrogen venting from the top of the product LPG separator to control the product LPG vapor pressure, so any drop in LPG yield caused by the LPG accompanying the vented hydrogen is likely inevitable.

(7) To curb the drop in LPG yield as mentioned in (6) above, the installation of a fractionating column is recommended in place of a product separation tank.

(8) In addition to the present vapor-phase hydrogenation, there is also liquid-phase hydrogenation, which has become more prevalent in recent years. From various aspects, the adoption of liquid-phase hydrogenation should also be considered as an option.

Debriefing session with QP

A final report was prepared based on the above survey and examination results, and a final debriefing meeting was held with the attendance of members from various departments of the Mesaieed Refinery. The fact that active discussions took place among members from different departments during the presentation could also be interpreted as an indication that the content of the proposals was highly beneficial to QP.

<by Masatoshi Yokotsuka, Technical Cooperation Dept.>

Technical Cooperation

Study of Environmental Measures for Crude Oil Shipping Terminal in Middle East Area (Saudi Arabia)

This study was implemented as a JCCP Technical Cooperation Project funded by a subsidy of the Ministry of Economy, Trade and Industry (METI) for projects in oil-producing countries, with the participation of JX Nippon Oil & Energy Corporation and JFE Engineering Corporation.

1. Background

As the background to launching the project, the crude oil delivery department and environment department at Saudi Aramco previously submitted a proposal to the company's management for recovery of VOC (volatile organic compounds) that are discharged by tankers when shipping crude oil. In response, the management gave its approval to promote examinations and countermeasures for VOC recovery, and the two departments began a joint effort to pursue the proposal. Information about this initiative reached JCCP, and led to the implementation of the project.

JX Nippon Oil & Energy Staging Terminal Corporation's Kiire Terminal functions as a crude oil stockpiling terminal, as well as a staging terminal that temporarily receives crude oil from the Middle East and ships it to affiliated refineries. During the transfer of crude oil, gas containing VOC (mainly LPG fractions), which has caused urban ozone, used to be discharged from the hold of the tankers. The JX Group has thus developed a ground-installed VOC recovery unit called Tanker Vapor Recovery (TVR) unit, which characteristically cools crude oil and uses the crude oil as a VOC adsorbent to enhance VOC recovery rate, and built and placed it in operation at the Kiire Terminal.

2. Progress of the Project

Taking into consideration that large supplies of crude oil are exported from the Middle East oil-producing countries to Japan, JCCP launched a project in FY2011 that aims to introduce TVR technology to the Middle East region, to help prevent air pollution using a commercially proven unit developed in Japan, and to contribute to promoting environmental countermeasures in oil-producing countries.

In FY2011, a demonstration test of an improved TVR unit (TVR combined with a membrane separator to increase VOC recovery rate) was performed at the Kiire Terminal using a small-scale facility. Saudi Aramco stipulates a prescribed VOC recovery rate, but the FY2011 test verified that Saudi Aramco's requirement would be satisfied.

In FY2012, efforts were made to develop a shipboard VOC recovery unit for tanker vapor recovery on single-point mooring (SPM) such as at Saudi Aramco's Juaymah Terminal. As the VOC recovery process was planned to be installed onboard a seaborne ship, waves were expected to cause large fluctuations during the winter when the coastal regions are hit by extreme weather. This created the concern that if a conventional adsorption tower were introduced to the floating VOC recovery process, it would be affected by wave fluctuation and not be able to achieve proper VOC adsorption performance. As a result, it was considered preferable for the shipboard TVR process to incorporate technology that can maintain VOC recovery rate without being easily affected by the fluctuation of waves, and a demonstration test using new technology was performed to collect the necessary and sufficient data for designing a commercial unit.

By December 2012, a proposal was submitted to organizations in Saudi Aramco involved in the selection of a VOC recovery process, and FY2012 came to a close while waiting for Saudi Aramco to establish a selection process.

In June 2013, an inquiry was made to Saudi Aramco regarding the status of deliberation of a selection process, but their response stated that adoption of the TVR technology had been deferred at the first candidate terminal. To satisfy the recovery rate requested by Saudi Aramco, an apparatus that utilizes new technology developed in the FY2012 project was proposed, but a different system backed by a better track record was ultimately chosen.

At a different terminal, it was said that the decision on whether or not adopt the TVR technology would be made in September, but when Saudi Aramco was asked about the situation in October, it revealed that the selection has been delayed, and that there is little possibility of a conclusion being reached by the end of FY2013.

3. Future Plan

From a subsequent survey, it was found that the market for the TVR plant itself, excluding the vessel, is worth about 100 billion yen in the Middle East Gulf countries. As shipping facilities are predominantly of the SPM type installed on the water, the shipboard installation specification that was newly developed in FY2012 is expected to become the mainstream. Since the shipboard TVR comprises a new market, efforts for its development are expected to be made going forward.

<by Tsuyoshi Ota, Technical Cooperation Dept.>

TVR at the Kiire Terminal

Study on the Promotion of a VOC (Volatile Organic Compound) Recovery Unit for Service Stations (SS)

1. Overview

At gasoline service stations, liquid gasoline inevitably vaporizes and dissipates into the air when filling cars and when offloading gasoline from lorries to the underground storage tank of the service station. When you fill your car by yourself, you have probably noticed a swaying haze rise up from the filler cap as you fill the fuel tank. This is gasoline vapor.

Gasoline and other such volatile chemical substances such as toluene, xylene, ethyl acetate and various organic chemical compounds that transform into a gaseous state when exposed to the atmosphere are collectively called volatile organic compounds (VOC), and are considered health- and environment-damaging pollutants. VOC, in particular, are known to cause air pollution by producing irritating photochemical oxidants in the presence of nitrogen oxide (NOx) and sunlight. Furthermore, VOC are also a source of concern as a secondary cause of suspended particulate matter (SPM) and PM2.5 (SPM with particulates that are smaller than 2.5μm), which has become a controversial subject in recent years.

International initiatives are being taken to reduce VOC emissions, including in the EU, where a requirement has been imposed on large service stations to install VOC recovery units by 2018. In Japan, voluntary VOC reduction initiatives have conventionally been implemented. Meanwhile, the revised Air Pollution Act has stipulated an even stricter emission regulation in 2006, and Tokyo and some other local governments have made VOC reduction compulsory by local ordinance.

Fueling island at SS949
(photo provided by JX Nippon Oil & Energy Corporation)

Gasoline vapor is not only a source of odor and air pollution, but could also become a source of fire if ignited, not to mention a loss of gasoline itself to the service station owner.

The project thus aimed to explore the possibility of introducing to the Middle East and Southeast Asia a recovery unit (VRU) that liquefies and recovers gasoline vapor at service stations.

The project was begun in fiscal 2011, and is being implemented under the leadership of JX Nippon Oil & Energy Corporation. In fiscal 2013, a demonstration unit was operated at a service station in Abu Dhabi to acquire data, and an attempt was made to optimize the VOC recovery unit. At the same time, the possibility of implementing the project in Middle East oil-producing countries other than UAE and in Southeast Asia was also surveyed and examined.

In general, two stages of VOC recovery at service stations are commonly employed. Stage 1 is recovery during the offloading of gasoline at the service station (recovery of gasoline vapor emitted from the underground storage tank of the service station when offloading gasoline from the lorry to the underground tank), and Stage 2 is recovery when pumping gasoline into cars (recovery of gasoline vapor emitted from car fuel tanks when filling the tank with gasoline at the service station). Stage 1 VOC recovery is further divided into two methods. One method is to have the delivery lorry recover the gasoline vapor from the underground storage tank (the lorry transports the gasoline vapor back to the oil terminal and changes it back into liquid form), and the other is to install a recovery unit in the service station and return the gasoline vapor back into the underground storage tank in liquid form. This project adopted the method of installing a recovery unit that uses silica gel as an adsorbent in a service station, to return gasoline vapor back into the underground storage tank of the service station in liquid form.

The VRU that was transferred to SS949
(photo provided by JX Nippon Oil & Energy Corporation)

Joint inspection prior to commencing demonstration operation
(photo provided by JX Nippon Oil & Energy Corporation)

2. Test Operation in Abu Dhabi

In fiscal 2012, a VOC recovery unit was initially installed in SS970 and data were acquired, but ADNOC Distribution (the affiliate dedicated to distribution/marketing by the state-run oil company ADNOC in Abu Dhabi), the counterpart in the project, instructed the demonstration unit to be moved to a different service station (SS949) for safety reasons, in 2013. Thus, the existing VOC recovery unit was moved from SS970 to SS949 in fiscal 2013, as instructed.

3. Evaluation of the Test Operation Result

(1) Evaluation from the environmental perspective

Currently, UAE has no environmental regulations and standards concerning VOC emission. Therefore, comparisons were made against Japanese standards. In Japan, VOC emission from service stations is regulated by local ordinance of large cities such as Tokyo. Japan's Air Pollution Prevention Act also regulates VOC emission from refineries and tanks in oil terminals, but does not provide for VOC emission from service stations.

(2) VOC emission standards for service stations regulated by local ordinance (Tokyo, etc.)

Although recovery rate did not reach 98%, the figure originally targeted, the requirement of installing a VOC recovery unit with an 80% or higher recovery rate in service stations has been satisfied.

(3) Evaluation of economic viability

During the three-month demonstration period, 9,247 kg of hydrocarbons were recovered using the VOC recovery unit. When assuming a gasoline vapor density of 700 kg/kl, the amount of gasoline recovered equals 13.21 kL, worth a total of 21,136 AED (gasoline unit cost calculated at 1.6 AED/L).

4. Introduction to Countries Other than Abu Dhabi

Through surveys conducted in the project, it was found that service stations operated by Kuwait Petroleum Company (KPC) have already begun Stage 1 VOC recovery at oil terminals from several years ago, like in UAE, and the installation of facilities for Stage 2 VOC recovery (recovery of gasoline vapor that is emitted when gasoline is pumped into cars at service stations) has also been completed.

In Qatar and Bahrain, commercial vapor recovery was considered not to be economically viable, as there are few service stations in these countries (70 in Qatar, 16 in Bahrain).

The surveys thus revealed that VOC recovery initiatives are already being pursued in Middle East countries where gasoline recovery is judged to be economically viable, while in Asia, needs for VOC recovery are expected to grow hereafter in South Korea and China, as VOC emission regulations have just recently been established, and potential markets are also expected to emerge in Indonesia and other countries where no emission regulations yet exist.

While the project came to a close in fiscal 2013, a plan is underway to implement a VRU introduction project in Indonesia with the incorporation of new ideas.

<by Sadao Wada, Technical Cooperation Dept.>

Progress Report on the Special Cooperation Program on Research & Development of Evaluation of FCC Additives and HDS Catalysts for Vietnam

During fiscal 2013, JCCP provided technical assistance to two subsidiaries of Vietnam's state-run oil company Petrovietnam (PVN)—Vietnam Petroleum Institute (VPI) and PVPro (Research & Development Center for Petroleum Processing)—through implementation of the "Research & Development of Evaluation of FCC Additives and HDS Catalysts," as a special cooperation program for Vietnam.

1. Background

Vietnam has 4.4 billion barrels of proven crude oil reserves (OGJ report as of January 2012) and the third-largest crude oil reserves of all countries in the Asia-Pacific region, but there is potential for this amount to increase if exploration and development of offshore oilfields is strengthened. Vietnam's crude oil production may have dropped slightly from before, but even so, the country still produces 330,000 b/d, and is one of few countries in Asia that produces oil independently. Furthermore, Vietnam has maintained a high economic growth rate of around 6 to 7% over the past decade, despite a slight slowdown in recent years, and is expected to be an important oil-producing country and trade partner to Japan in the future. Petrovietnam, in particular, is one of Japan's most important counterparts (CP), as it controls major oil businesses in Vietnam. As a direct cooperation project with Petrovietnam's research departments VPI and PVPro, this project is expected to make a large contribution to Vietnam.

Discussion at PVPro

Petrovietnam presently operates the Dung Quat Refinery with a capacity of 150,000 b/d, which is planned to be increased in the future. The refinery's main cracking unit is the RFCC (residue fluid catalytic cracking) unit. The company also has plans to construct the Nghi Son Refinery with a 200,000 b/d capacity in the near future, to be equipped with an RFCC unit and an RDS (residue desulfurization) unit for pretreatment of residues. PVPro thus requested JCCP's guidance in evaluating FCC additives and HDS catalysts. The request reflected Vietnam's wish to actively introduce Japanese technologies to enhance technological capabilities and refinery efficiency in Vietnam's promising oil-refining industry.

Given the above background and request, PVPro and JCCP agreed to implement the following activities in fiscal 2013.

2. Overview

1) Implementation period: April 2013 – March 2014
2) Overseas counterpart: VPI (Vietnam Petroleum Institute); PVPro (Research & Development Center for Petroleum Processing)
3) Participating company: JGC Catalysts and Chemicals Ltd.
4) Activities

The project was implemented in Vietnam as part of JCCP's special cooperation program for oil-producing countries, with PVPro, the R&D department of Petrovietnam, as the counterpart. It aimed to transfer to PVPro technologies for the evaluation of two types of catalyst that are needed for stable and efficient operations of an RFCC unit: FCC additives, which are added to FCC catalysts; and HDS catalysts, which

are loaded into the RDS unit for pretreatment before sending residues to the RFCC unit.

In fiscal 2013, the final year of the three-year project, PVPro engineers were invited to Japan on two occasions to attend a training program on evaluation technologies for the two types of catalyst at JGC Catalysts and Chemicals, and to learn about the latest technologies related to oil refining catalysts through lectures. Engineers from JGC Catalysts and Chemicals were also sent to PVPro on two occasions to provide onsite technical guidance using the company's process units. Furthermore, members from the management class at VPI, an institution ranked above PVPro, and Petrovietnam were invited to Japan to exchange views on the status and degree of contribution of the project. At the end of the fiscal year, a review meeting was held in Vietnam with the attendance of all parties concerned, to summarize and share the results of the project in fiscal 2013.

3. Summary

The transfer of technologies for the evaluation of FCC additives, which are added to RFCC catalysts, and HDS catalysts, which are used in the RDS unit prior to processing residues in the RFCC unit, was carried out through the following events.

(1) Invitation of PVPro engineers to Japan

PVPro engineers were invited to Japan to receive even more practical training on FCC and HDS catalyst evaluation technologies at JGC Catalysts and Chemicals, and to discuss the latest oil refining catalyst technologies.

(2) Visits to PVPro by Japanese engineers

Engineers from JGC Catalysts and Chemicals visited PVPro on two occasions to provide technical guidance on FCC and HDS catalyst evaluation technologies.

Meeting with JGC Catalysts and Chemicals Ltd.

Members of the review meeting at PVPro

(3) Invitation of management-class personnel to Japan

Management-class personnel from PVPro, VPI and Petrovietnam were invited to Japan to meet with management-class officers at JCCP and JGC Catalysts and Chemicals and share views on the significance and results of the project.

(4) Review meeting

At the end of the fiscal year, members involved in the project, including the Petrovietnam Group, gathered at VPI and PVPro to summarize the FY2013 activities of the project and to discuss and share views on its achievements.

Through the above activities, PVPro acquired the ability to evaluate FCC catalysts on its own, where it had previously relied on licensors and catalyst makers. By being able to accurately evaluate equilibrium catalysts at the Dung Quat Refinery and assess the operational status of the refinery's FCC unit, the project also achieved the goal of enhancing evaluation technologies at PVPro. Furthermore, the project deepened understanding of FCC and HDS catalysts, and prompted PVPro to make independent efforts to examine catalysts and otherwise engage in other applications of the technology.

In the final review meeting, the enhancement of evaluation technologies at PVPro was recognized as an achievement of the project, not only by PVPro, the direct beneficiary of the technical guidance, but also by members of VPI. Also in the final review meeting held at VPI, which included the attendance of a number of members from PVN, the parent company, members shared the awareness that VPI and PVPro's technological capabilities have been enhanced through the project.

Lastly, both VPI and PVPro expressed their deep appreciation for the project, demonstrating that Japan's technical support has been beneficial.

<by Masatoshi Yokotsuka, Technical Cooperation Dept.>

2nd International KACST-KAUST-JCCP Workshop on Surface and Subsurface 4D Monitoring

1. Introduction

JCCP engaged in a joint project with King Abdulaziz City for Science and Technology (KACST) to develop ground deformation assessment technologies, which lasted until fiscal 2012. From fiscal 2013, it launched the "Joint Project on CCS Monitoring Technology for the Underground Storage of CO_2 Produced in Oil Refineries" based on the precursor study with the participation of Kawasaki Geological Engineering Co., Ltd. (See *JCCP NEWS* No. 118 for details.)

As part of the project, KACST, King Abdullah University of Science and Technology (KAUST) and JCCP jointly held the 2nd International KACST-KAUST-JCCP Workshop on Surface and Subsurface 4D Monitoring on the KAUST campus in the suburbs of Jeddah, over a three-day period from March 4 – 6, 2014.

The first workshop was held by KACST and JCCP in January 2012 on the KACST campus in Riyadh, and the second workshop held after two years was jointly sponsored by three parties, namely KACST, JCCP and KAUST, with the new addition of KAUST.

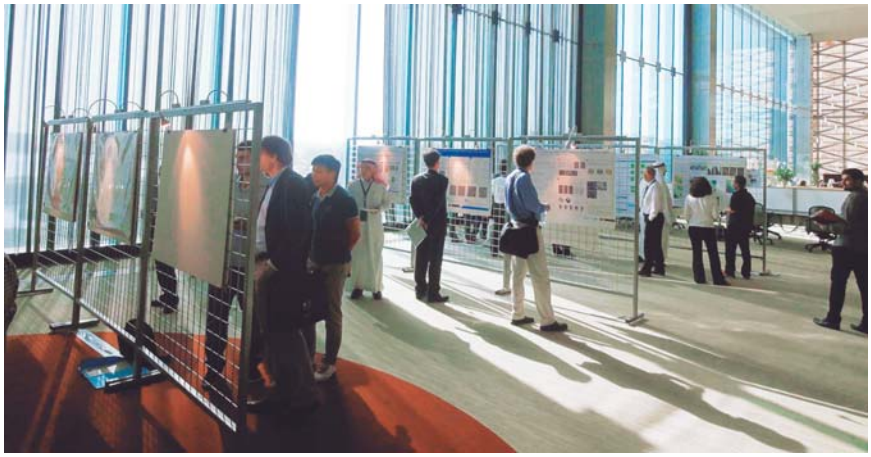
KAUST was established in 2009 as a graduate university, and in 2013, welcomed Dr. Jean-Lou Chameau, formerly president of the California Institute of Technology (Caltech), which ranked the first in the World University Rankings for 2013-2014, as the new president of KAUST. Under the sponsorship of the Custodian of the Two Holy Mosques, King Abdullah Bin Abdulaziz Al Saud, the university is pursuing the goal of achieving the status of leading institution for science and technology not only in the Islamic world but also in the entire world, and mustered top-level researchers from around the globe.

2. Surface and Subsurface 4D Monitoring Technology and CCS

What is surface and subsurface 4D monitoring technology? Put simply, in cases where the target site can be directly accessed, surface and subsurface monitoring is the act of analyzing how sound waves and vibrations are directly and actively transmitted, using underground radar, a seismic vehicle or observation wells on land or a seismic survey vessel at sea, and assessing subsurface conditions by changes in conductivity detected by electrical logging. In cases where the site in question cannot be directly accessed or is located in a vast desert or sea, surface and subsurface conditions are assessed through remote sensing technology employing a radar satellite or an airplane.

Dr. Jean-Lou Chameau, President, KAUST;
Mr. Morihiro Yoshida, Managing Director of JCCP;
Dr. Khalid Al-Damegh, Director, KACST

Dr. Chameau giving an opening speech



Poster session

Countries around the world are pursuing studies of 4D monitoring technology with hopes of utilizing it not only for resource exploration and reservoir management, but also for monitoring landslides and ground subsidence, and eventually predicting volcanic eruptions and earthquakes. During the cold war era, various monitoring and detecting technologies were used, such as the synthetic aperture radar technology (particularly InSAR interferometric synthetic aperture radar technology) that was developed to detect hidden underground missile silos, and airborne multi-sensors and other submarine detection technologies including MAD-magnetic anomaly detection technology. However, with the end of the cold war, efforts were directed to apply these technologies to civil use for resource exploration, disaster prevention and other peaceful purposes. This in itself could certainly be considered one of the fruits of peace. Furthermore, with the emergence of 4D technology, it would become possible to monitor chronological changes through continuous monitoring and to assess surface and subsurface conditions by time-lapse analysis.

In oil and gas exploration, geophysical exploration surveys, seismic surveys and 3D analysis are costly business that requires an enormous fund. However, once oil or gas is discovered and production begins, it is rarely possible to implement such surveys again and capture time-lapse changes to assess ground behavior once production starts. This is because the economic advantages of examining changes in existing oil and gas fields cannot surpass the advantages of performing geophysical exploration surveys, seismic surveys and 3D analysis for a completely new development project.

Meanwhile, CCS is pointless if the behavior of CO_2 that is injected underground cannot be monitored. Moreover, since CCS produces no output of value like oil and gas production, it is necessary to minimize costs as much as possible. This is even more so today, given the drop in market prices in emissions trading. Conversely, the ability to monitor subsurface conditions continuously at low cost is attracting the interest of oil companies that have been spending large amounts on seismic surveys and 3D analysis and turning their attention to the possible use of 4D technology to monitor subsurface behavior in crude oil and gas reservoirs with an ultimate target set on EOR (enhanced oil recovery).

3. Overview of the Workshop

The workshop began on March 5 with opening speeches given by Dr. Jean-Lou Chameau, President, KAUST; Dr. Khalid Al-Damegh, Director, Oil & Gas Research Institute, KACST; and Mr. Morihiro Yoshida, Managing Director of JCCP.

In their speeches, they stressed the significance of holding the workshop in Saudi Arabia for the second

Audience listening with keen interest

	Theme	Speaker	Organization
1	[Keynote Presentation 1] Full waveform inversion applied to 4D hydroacoustic tomography	Hitoshi Mikada	Kyoto University
2	Interferometric migration for 4D monitoring	Gerard Schuster (Danglian Zhan)	KAUST
3	The interpretation of time-lapse data obtained by seismic ACROSS source operated in Al-Wasse water pumping field in Saudi Arabia	Junzo Kasahara	Tokyo University of Marine Science and Technology
4	Unraveling waveform inversion with an eye on time-lapse seismics	Tareq Al-Khalifa	KAUST
5	Elastic anisotropies of core samples under very high confining pressure from multi-channel elastic wave velocity measurement	Hisao Ito	University of Tokyo
6	InSAR observations of volcanic and seismic processes in the Middle East	Sigurjón Jónsson	KAUST
7	Advanced InSAR for reservoir monitoring and modeling	Alissio Rucci	TRE Italy
8	Long-term surface deformation monitoring and analysis in water-dissolved gas production areas by time-lapse SAR interferometry	Shuichi Rokugawa	Japan Agency for Marine-Earth Science and Technology (JAMSTEC)
9	Characterizing aquifer and fault hydromechanical properties at basin-scale using InSAR-derived ground deformation	Estelle Chaussard	University of California, USA
Poster Session (KAUST Library)			
10	[Keynote Presentation 2] Paradigm change in large-scale subsurface imaging using 3D inversion of airborne and marine electromagnetic data	Michael S. Zhdanov	University of Utah, USA
11	Deep diagnostic technologies for reservoir mapping and monitoring at a new scale	Alberto F. Marsala	Saudi Aramco
12	Seismic and electromagnetic modeling and inversion to monitor CO_2 geological storage	Jose Marcione	OGS, Italy
13	Permanent monitoring with buried land hydrophones and geophones in a desert environment	Andrey Bakulin	Saudi Aramco
14	Field data observation and numerical study with a permanent seismic source ACROSS towards hydrocarbon reservoir monitoring	Mamoru Takanashi	Japan Oil, Gas and Metals National Corporation (JOGMEC)
15	Marchenko below a complex overburden	Joost van der Neut	Schlumberger
16	Time-lapse monitoring of deep volcanic processes: Lessons from the 2007 SEA-CALIPSO experiment on Montserrat, BWI	Larry D. Brown	Cornell University, USA
17	Improving time-lapse seismic repeatability: Otway site permanent geophone array field trials	David Lurnley	University of Western Australia
18	Time-lapse seismic monitoring of CO_2 injection at Ketzin, Germany: 3D surface and subsurface downhole observations	Stefan Luth	Uppsala University, Sweden
19	Scrutinizing CO_2 sequestration: A case study coupling InSAR and geomechanical modeling to monitor spatial and temporal characteristics of CO_2 injection at In Salah, Algeria	Andrew Shepherd	University of Leeds, UK

Wrap-up discussion by the speakers

time in two years, in a larger scope than the first workshop with the participation of experts in surface and subsurface ground deformation assessment and resource exploration, as well as experts in disaster prevention and other relevant fields. Mr. Yoshida also expressed how he was pleased that the first workshop was not a one-shot success but led to the holding of the second in response to strong requests from the previous participants.

Following a preliminary offshore inspection tour on March 4, the workshop featured two days of presentations and poster sessions on March 5 and 6.

Worthy of special mention is that the results of the KACST-JCCP joint project on the ACROSS (Accurately Controlled Routinely Operated Signal System) technology were presented by Dr. Junzo Kasahara, Professor at Tokyo University of Marine Science and Technology (Advisor at Kawasaki Geological Engineering Co., Ltd.), in his presentation titled "The interpretation of time-lapse data obtained by seismic ACROSS source operated in Al-Wasse water pumping field in Saudi Arabia." Mr. Masaru Takanashi from JOGMEC also made a presentation on oil reservoir monitoring using the ACROSS technology.

The workshop thus provided a forum for introducing and boosting awareness of Japan's ACROSS technology to the international community.

4. What Next?

The workshop provided presentations and active questions and answers on technologies for assessment of ground deformation, and promoted information exchanges on innovative technologies in the field. Those who participated in both the first and second workshops uniformly noted that the first workshop was highly meaningful, but that the second was even better, with upgraded presentations and interactive discussions.

JCCP would like to thank everyone at KAUST and KACST who have made behind-the-scenes efforts to materialize the workshop, which closed with a charged air of expectation for implementation of the third workshop.

<by Sadao Wada, Technical Cooperation Dept.>

Our Technical Cooperation in Oil-Producing Countries and Expectations of JCCP

■ Second Contributory Article: Cosmo Oil Co., Ltd.

Dr. Hiroaki Hara
Assistant Manager, International Cooperation Center
Cosmo Research Institute

1. History of Technical Cooperation by Cosmo Oil

Cosmo Oil's history of technical cooperation dates back to 1978, even before JCCP's founding (Nov. 1981). It was a time when the world had finally begun recovering from the first oil crisis of 1973. Oil refineries and petrochemical plants were being built throughout the world, and Japan's engineering industries had begun to seek what we now refer to as global business expansion. As requested by these engineering industries, the oil industry in Japan provided operational guidance and helped optimize the operations of full turnkey construction facilities. It also provided assistance in designing facilities and in constructing grass-roots refineries based on its refinery operation technologies, and significantly expanded its scope of business. Maruzen Oil Co., Ltd., one of the precursors of Cosmo Oil, led the industry in establishing an international cooperation department, and actively engaged in the designing of refineries and petrochemical plants throughout the world, including Nigeria (Warri Refinery), East Germany (PCK Schwedt Refinery) and Iran (IJPC, (then) Bandar Shahpur), providing operational support, and receiving foreign trainees. Such advanced initiatives were implemented by three companies at the time, with the addition of then-Showa Oil Co., Ltd. and then-Kashima Oil Co., Ltd. It was the international technical cooperation initiatives of these companies that eventually led to JCCP's founding, as described in detail in 20-Year History of JCCP (in Japanese; published March 2002 by JCCP). As if to coincide with JCCP's founding, oil-related projects were launched in Mexico, Thailand, Bahrain and various other countries around the world. These projects included the construction of facilities and operational guidance in a single package. Then as now, there was the understanding that the construction of facilities does not end with the construction itself, but involves many other aspects, such as establishing operations and operating conditions suited to the situation in the country. Thus, the number of participants to training programs related to operational guidance soared, and JCCP's activities expanded.

Group photo taken at the PCK Schwedt Refinery in East Germany

2. Participation in JCCP Activities

Cosmo Oil took the occasion of its founding in April 1986 to commence technical guidance to major state-run oil companies through JCCP's expert service and training programs. The first two years consisted of cooperation offered to Indonesia only, but dedicated efforts were made to strengthen relations with various state-run oil companies and to uncover business opportunities.

Providing operational support at the PCK Schwedt Refinery in East Germany

Thereafter, training programs were also offered to Middle East oil-producing countries, but the largest number of projects and programs was implemented for organizations in Southeast Asia and China.

During the several years following the commencement of JCCP activities, Cosmo Oil sent some 50 to 60 Japanese experts to oil-producing countries, and received as many as 170 to 200 foreign participants annually to training courses in Japan. Compared with the situation today, the programs then were considerably larger in scope. A larger number of experts were able to be sent, and a larger number of participants were able to be received, as there were approximately four times more staff members, when combining both international cooperation staff and their assistants. The dispatch of experts was not only appreciated by oil-producing countries, but was also well regarded by Cosmo Oil Group's departments and refineries as an effective means for invigorating employees. In fact, internal materials from back then reveal that more than 70% of refinery operators at Cosmo Oil who were dispatched overseas expressed a desire to engage in overseas operations again. The materials also show that training programs were highly rated for their effectiveness by oil-producing countries. In these ways, Cosmo Oil's cooperative relationship with oil-producing countries deepened rapidly after JCCP's founding.

Meanwhile, the advancing ages of people engaged in international cooperation had been a concern since then, and there were expectations for the recruitment of young employees. Unfortunately, however, the collapse of the bubble economy thereafter prompted the downsizing of refineries, and along with an increase in the mandatory retirement of members of the international cooperation department, the number of experts sent overseas and participants received from overseas has steadily declined to this day.

Cosmo Research Institute first participated in a JCCP technical cooperation project in fiscal 2001, and played a role in a study on environmental conservation at the Bandar Abbas Refinery in Iran.

Thereafter, the Cosmo Oil Group formed a consortium with Toyo Engineering Corporation and launched a project for introduction of a flare gas recovery facility to the Ruwais Refinery, operated by Abu Dhabi Oil Refining Company (TAKREER), from fiscal 2005 to 2008. Cosmo Oil Co., Ltd. also owns a flare gas recovery facility, and knew that it requires the installation of a large gas holder, but the Ruwais Refinery did not have sufficient area on its site. Thus, after repeated discussions with the refinery staff, a different type of compressor was employed as a new system that forgoes a gas holder, and by also making some adjustments to the control system, a flare gas recovery unit was successfully installed within the limited area of the Ruwais Refinery site.

This project was highly evaluated by both Japan and UAE, and received the Japan Petroleum Institute Award for Technological Progress. The consortium invited Mr. Fareed Mohamed Al Jaberi from TAKREER to the award ceremony and celebrated the achievement of the project, which made it possible to reduce approximately 7,000 tons of carbon dioxide per year by allowing gas that had conventionally been treated as flare stack to be used effectively as fuel.

In February 2011, Abu Dhabi Oil Co., Ltd., a subsidiary of Cosmo Oil, signed a new concession agreement for renewal of the concession for the three oil fields that it was operating in UAE and for acquisition of an additional concession area. We believe the acquisition of such a large-scale concession was made possible in part by the steady establishment of cooperative ties through JCCP activities.

In addition to the above, more than a dozen Cosmo Oil employees have participated in JCCP's expert training program and resided long-term at an overseas research institution to improve their language skills and further their specialized knowledge. After returning to Japan, these employees have assumed active roles in training programs both overseas and in Japan.

3. Current Initiatives by the Cosmo Oil Group

Today, the Cosmo Oil Group implements technical cooperation projects, expert dispatch programs and

training programs in Japan mainly in partnership with Middle East oil-producing countries. The Group not only has interests in UAE, as discussed in the previous section, but also engages in oil development in Qatar, based on the belief that interpersonal ties are just as important as technologies to maintaining friendly relations with these countries. In this respect, JCCP activities are extremely advantageous in establishing personal connections, as they provide opportunities for direct interaction with people in oil-producing countries. Furthermore, since the number of employees who can engage in international technical cooperation is limited, we will continue to maintain our friendly relationships with these countries as priority partners, and contribute to securing stable supplies of crude oil for Japan.

The Cosmo Oil Group is also an active participant in JCCP's international cooperation activities. In particular, Cosmo Research Institute has had the honor of serving as chairman of the survey committee for the Survey on Downstream Trends in Oil-producing Countries over the past several years. In this capacity, we have surveyed technical issues and cooperation needs in various countries, with the aim of discovering seeds of future activities that JCCP might pursue in its efforts to contribute to Japan's oil and engineering industries. The focus of the survey varies by fiscal year, but surveys of emerging nations provide us with important reference for investigating new crude oil suppliers and export destinations for oil products.

4. The Cosmo Oil Group's Future Direction and Expectations of JCCP

According to results of the above-mentioned Survey on Downstream Trends in Oil-producing Countries, some countries in the Middle East are considering making a transition from exporting crude oil to exporting oil products by upgrading their refineries, while others are pursuing plans for the construction of oil and petrochemical refineries and petrochemical complexes. Therefore, with respect to facilities and other hardware, the Middle East can be said to be making steadier progress than Japan in incorporating the latest cutting-edge technologies. Under this situation, an important issue lies in what type of technical cooperation Japan can provide, or is expected to provide.

Gas flaring eliminated from the flare stack at the Ruwais Refinery in Abu Dhabi (central stack)

One expectation is promotion of Japan's cooperation in addressing environmental impacts that have already begun to appear in the Middle East region accompanying the increase in environmental load brought about by large investments. Many state-run oil companies in the Middle East use their abundant funds to perform environment assessments through the services of Western consultation companies, but as these consultation companies naturally seek profit, they frequently tend to propose new investment opportunities. In contrast, JCCP member companies may not be able to provide hardware cooperation such as for the introduction of large facilities through JCCP projects, but we believe we have large potential to provide software cooperation in the form of operational support and inspection and maintenance technologies following the introduction of such large facilities. As many Japanese companies have their own voluntary regulations in addition to legal regulations, this type of environmental management framework has also captured the interest of state-run oil companies in the Middle East. In addition to the above, we hope to introduce and transfer environmental and energy-saving technologies that have been cultivated by the Cosmo Oil Group over many years.

Another expectation of JCCP is for business expansion in emerging oil-producing countries. In recent years following the Arab Spring, unstable political situations are constantly ongoing somewhere in the Middle East, including the aggravation of the Iraqi situation. As a result, the diversification of crude oil procurement has become a serious concern to the Cosmo Oil Group, which has largely depended on Middle East crude oil. Through JCCP activities, we wish to strengthen relations with countries that have potential to become new crude oil suppliers or export destinations of oil products. The Survey on Downstream Trends in Oil-producing Countries targets countries other than Middle East countries depending on fiscal year, and conducts hearings

of present situations and technical issues in those countries, thereby providing extremely helpful reference for cultivating new counterparts. Since JCCP already has a high profile in many oil-producing countries, we hope it will turn its attention to strengthening relations with emerging oil-producing countries in the future.

5. Summary

Japan is a country that lacks its own energy resources. Thus, it faces an ongoing challenge in maintaining friendly relations with oil-producing countries. It is also important for Japan to establish relationships with emerging oil-producing countries from the perspective of diversification of energy sources.

During the early years of international technical cooperation by the Cosmo Oil Group, one of the objectives was to uncover new business opportunities. However, given the limited number of technical cooperation personnel today, it has become difficult to acquire large projects that might lead to greater business performance. Under this situation, it is extremely meaningful and we are highly appreciative that there is an increasing number of people who feel friendly toward Japan in state-run oil companies in oil-producing countries owing to JCCP's long years of technical cooperation with these countries. Such interpersonal ties are a product of steady efforts, which private companies seeking direct profit are hardly able to afford.

Visit to the Thanlyin Refinery by the JCCP Oil Downstream Survey Program 2013 in Myanma

Thus, we wish to continue our participation in JCCP activities and take advantage of the opportunities to maintain friendly relations with oil-producing countries and establish personal connections with emerging oil-producing countries.

Graduates' Voices

Ms. Aek-orn Pramotekul
Assistant Manager, Human Resource Development Division,
The Bangchak Petroleum Public Company Limited
Graduate of a regular course on Personnel Management
(Nov. – Dec. 2013)

It is with great honor and pleasure that I contribute this message to *JCCP NEWS*. I had the opportunity to participate in a JCCP course on Human Resource Development. It was one of the best programs that I have ever attended. It enriched my experience and broadened my competencies by studying and sharing perspectives with participants from various countries.

The program has benefited me in fulfilling my job. First, I gained an understanding of the importance of teamwork. At all companies and facilities we visited, I realized that human resource development in Japan is based not only individuals, but also on team and group contribution. I am convinced that this is the most important key to the success of the Japanese people and the country of Japan. The power of teamwork produces better results, and team success equals job success. I try to apply this best practice to my division.

The second best practice I gained is on-the-job training (OJT). OJT emphasizes "learning by doing" under the guidance and instruction of a senior advisor (senior staff with 3 to 5 years' experience). In addition to acquiring knowledge through textbooks, necessary skills and expertise are acquired through hands-on experience.

I also gained an understanding of Japanese culture. I was especially impressed with Japan's culture of working, which gives senior citizens opportunities to engage in light jobs, such as tourist information staff who explains about Japanese history and Japan to young people and tourists. Such opportunities allow senior citizens to take pride in themselves. I did not learn about this in the classroom, but on my own by making trips to museums and other important places during the weekend when we had no class.

I was able to enjoy my stay in Japan, thanks to an introductory session on Japanese culture and lifestyle we received at the very beginning of the course, which broadly introduced us to the Japanese language, various institutions and facilities in Japan, the routes of JR trains, and how to use public transportation.

Another important aspect of the course was that I was able to expand my network of connections with HRD professionals in many countries by sharing case studies and mutually providing job-related advice to each other. As they say, the more you give, the more you gain. I am thankful for the friends I made.

There is one thing I pledged during the course. That is, I pledged to share the benefit that I gained from the course and apply it to my company.

I am certain that everyone who participates in a JCCP program will enhance their knowledge, experience and friendship, as I have.

Lastly, I am sincerely grateful to have had the opportunity to take part in such an invaluable program, and am proud to say that I am a JCCP alumni.

Arigato Gozaimasu.

Materials from a debriefing meeting held after participating in the JCCP regular course

Personnel Changes

	Outgoing Personnel	Incoming Personnel
Special Counselor		 Eiji HIRAOKA (September 1, 2014)
Counselor	 Mitsuyoshi SAITO (June 30, 2014)	
Training Dept.	 Minoru HORIKE (March 31, 2014)	 Toshinobu ISHIKAWA (April 1, 2014)
	 Shintaro MIYAWAKI (March 31, 2014)	 Kunio KAWASHIMA (April 1, 2014)
	 Kazuhiro SUZUKI (June 30, 2014)	 Shinji MARUMO (April 1, 2014)
	 Hiromitsu SAITO (June 30, 2014)	 Kazuhiro WAKAMATSU (April 1, 2014)
	 Eiji TSUKAMOTO (June 30, 2014)	 Eiji IWAMATSU (July 1, 2014)
		 Takaya SUZUKI (July 1, 2014)

	Outgoing Personnel	Incoming Personnel
Technical Cooperation Dept.	 Hideki NOMURA (March 31, 2014)	 Masaya TSUKIDATE (April 1, 2014)
	 Masahiko SHIBATA (March 31, 2014)	 Nobuyuki NAKAJIMA (April 1, 2014)
	 Yukiteru WATANABE (April 30, 2014)	 Osamu NONAKA (April 1, 2014)
		 Tadayuki HATTORI (July 1, 2014)
Administration Dept.		 Yoshishige TSUJIMURA (April 1, 2014)

Please Help Us Update Our Roster

Thank you for reading *JCCP NEWS* as always.

JCCP has reached a significant milestone in its history and celebrated 30 years of operations in 2011. In commemorating this achievement, we extended our deepest appreciation to you all for your support and cooperation in our activities.

All of you who have participated in a JCCP training program in the past (graduates) are a precious asset to JCCP. We therefore wish to take this occasion to confirm your current addresses and update our roster of former participants so that we may reconnect and maintain contact with you into the future.

Our current roster mostly shows information that you provided at the time you participated in a JCCP training program, and could be outdated by now. If there have been any changes in your affiliation (position), email address, or any other contact information, we ask that you provide the latest information on the attached form and return the form to JCCP's Planning & Public Relations Group. Those of you who return the form to us are entitled to receive the latest issues of *JCCP NEWS* and announcements and invitations to exhibitions and reunions.

Also, if you know of anyone who is a former participant but is not receiving copies of *JCCP NEWS*, or anyone who wishes to update his/her contact information, we would appreciate it if you would forward this message and the attached form to that person.

Please Send Us a Message as Alumni

Future issues of *JCCP NEWS* will feature a new section for messages from alumni. Please send us the latest news about what you are up to or photos that you wish to share with others. The Planning & Public Relations Group looks forward to hearing from you.

Thank you for your cooperation.

Registration Form for JCCP Course Graduates

Please fill in the form below and return it to JCCP.
Please contact us if you wish to obtain the form in MS Word format.
E-mail: planning@jccp.or.jp or FAX: 81-3-5396-6006

1. Full Name			
2. Country (Current place of residence)			
3. Nationality			
4. Name of Organization/ Company			
5. Refinery/Department/Section			
6. Title/Position			
7. Mailing Address			
8. Telephone		9. Email	
10. Fax		11. Telephone (mobile)	
12. Date of Birth (This is necessary to eliminate redundant registrations)			
13. JCCP Course you have attended in the past	Course No.: Year: Course Title:		

Signature _____ Date _____

Update or Change of Address
Cancellation of Subscription

If there have been changes in your mailing address, affiliation or any other contact information, or if you wish to cancel your subscription, please fill out the following form and return it by FAX or E-mail to JCCP's planning and Public Relations Group.

Email: planning@jccp.or.jp or Fax: 81-3-5396-6006

Also contact us if you wish to obtain the form in MS Word format.

Date:	Country:
☐ Change of Address ☐ Cancellation of Subscription	
Old Address	
1. Full Name	
2. Title/Position	
3. Affiliation	
4. Telephone/FAX	
5. Mailing Address	
6. E-mail Address	
New Address	
1. Full Name	
2. Title/Position	
3. Affiliation	
4. Telephone/FAX	
5. Mailing Address	
6. E-mail Address	

Thank you for reading *JCCP NEWS*.
If you have any comments or feedback about this newsletter,
please free to contact us by e-mail.
Your feedback is appreciated.

Planning & Public Relations Group, Administration Department
E-mail: planning@jccp.or.jp

Editorial Postscript

I am pleased to bring you our latest issue of *JCCP NEWS*.

In March, the Second JCCP Alumni Meeting (reunion of training course participants) was held in Al-Khobar, Saudi Arabia, with the attendance of more than 200 mainly from Saudi Aramco and other organizations. An article on this lively event is provided in this issue of *JCCP NEWS*, and illustrates a general picture of how JCCP activities have taken root in oil-producing countries, along with other articles featured in this newsletter.

(From the right) Yamanaka, Hagishima, Iwase, Tsujimura

In April and July, there have been changes in full-time board members, as well as changes in personnel, with large numbers both leaving and joining the organization.

Also in April, Masumi Kitahara, who has long been a part of the JCCP NEWS editorial team, has transferred to the Operations Department, and two new members have filled her place. We are a variegated mix of men and women, young and old, but as we will put our heads together to continue to bring you information-filled issues of *JCCP NEWS*, we hope you will favor us with your kind support and guidance.

Yoshishige Tsujimura
Planning and Public Relations Group
Administration Dept.

Japan Cooperation Center, Petroleum (JCCP)

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