

INSPECTION TEAM

2nd Exchange Meeting Western Region

Hosted by Petro Rabigh
December 23, 2009
7:00 am

MEMBERS:

Petro Rabigh
YANSAB
YANPET
Ibn Rushid
Yanbu Refinery
Yanbu RLPG
Jiddah Refinery
SAMREF
Luberef
Cristal
Gas
NATPET

INVITED:

PP Simtech
Rawabi
GQCCO



Agenda:

07:30 - 07:50	Assembly at Security Visitor's Office
08:00	Bus will move to Bldg. 552 Room 39
08:15	Opening Speech
08:30	Stress Cracking Corrosion
09:00	Risk Based Inspection
09:30	Tube Inspection
10:00	Tea Break
10:15	Utilization of Digital RT in Refinery
10:40	Inspection for Corrosion under insulation
11:10	Open Discussion on: <ol style="list-style-type: none">1. Protocol of Exchanging Personal and Inspection Tools2. Next Year Sponsor for the meeting3. Topic for Next Year Meeting
12:00	Lunch Break
1:00	Closing Speech
2:00-3:00	Site Visit

Technical Presentations

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Introduction

Yansab Company initiated and hosted the first Inspection Team Exchange Meeting on December 24, 2008.

That valuable gathering and well organized meeting was the driven force for the second meeting on December 23, 2009 at Petro Rabigh Company. The Meeting aims to promote a professional identity among the team by improving our means of and number of communications, by encouraging experience sharing, and to develop a spirit of cooperation within the team with common interests and concerns.

As agreed on 1st meeting, Technical presentations shall be delivered at this 2nd exchange meeting. The selected topic was "Corrosion" as Corrosion is the primary cause of failure of components in the oil, gas, petrochemical industrial. Moreover, Corrosion represents a tremendous economic loss and much can be done to reduce it. Although corrosion is inevitable, its cost can be considerably reduced. For example proper selection of materials and good design reduce costs of corrosion and exchanging the knowledge among the concern persons.

These types of presentations will offer a good opportunity to share practical experience and highlight lesson learnt.

Petro Rabigh invited some of NDT companies to participate by delivering technical presentations too.

One presentation will cover Risk Base inspection as one of the famous tool for focusing the inspection effort on the most critical areas.

Hope all the schedule events will add value to the attendees and enhance the good relation among the team.

Petro Rabigh at a glance

Petro Rabigh's red-and-green, contemporary palm tree logo is designed to reflect: prosperity, natural resources and the environment, forward-thinking, optimism, traditional Saudi culture, expansion, transparency, sophistication and the Japanese and Saudi flags.

It currently employs around 2,000 people, of which over 80 per cent are Saudi, with other employees representing 22 nations from around the globe; the plant is expected to almost double in size in the next few years.

A proposed conversion park nearby will provide up to 5,000 additional jobs.

Petro Rabigh has an on-site R&D facility, and continuously sends employees around the world to keep up with the latest innovations, including the US, Europe, South America and Asia.

The Rabigh plant has its own self-contained city, complete with medical facilities, schools, a shopping mall, sports and recreational facilities, a beachfront and a park.

A joint venture between Saudi Aramco and Sumitomo Chemical, the plant is valued at over US\$10 billion, making Sumitomo's 50 per cent share the largest foreign investment ever in Saudi Arabia.

Financing for the development featured the largest Islamic facility of any project finance transaction to date.

Saudi Aramco supplies the operation with 400,000 barrels per day of crude oil, 95 million cubic feet per day of ethane and about 15,000 barrels per day of butane.

This feedstock is processed by a state-of-the-art plant that includes the world's largest and most sophisticated High Olefins Fluid Catalytic Cracker (HOFCC) and Ethane Cracker.

The HOFCC uses high temperatures and catalysts to convert heavy oil into gasoline, naphtha and, finally, propylene, used to make everything from insulation to durable goods.

The Ethane Cracker uses similar "cracking" processes to convert ethane into polymer grade ethylene, used in the manufacture of lubricants, detergents and other products.

Petro Rabigh comprises 23 plants producing 18.4 million tons per annum (mpta) of petroleum-based products and 2.4 mpta of ethylene and propylene-based derivatives.

These products will be further processed, then distributed domestically and exported to Europe and Asia via the plant's deep-water port; China is the plant's largest single client.

Upon conversion, Petro Rabigh's products will be used in such end products as: plastics, detergents, lubricants, resins, coolants, anti-freeze, paint, carpets, rope, clothing, shampoo, auto interiors, epoxy glue, insulation, film, fibres, household appliances, packaging, candles, film, pipes and thousands of other applications

SAMREF

SAMREF is an equally owned joint venture between Saudi Arabian Oil Company (Saudi Aramco) and Mobil Yanbu Refining Company Inc. (a wholly owned subsidiary of Exxon Mobil Corporation).

Saudi Arabian Oil Company (Saudi Aramco) is the world's largest oil producing and exporting company and was established by Royal Decree in 1988 to assume the responsibilities of its predecessor, Aramco that has a history dating back more than 70 years.

Exxon Mobil Corporation is a global energy company with a history dating back more than 132 years and which conducts business in 140 countries on every continent throughout the world.

SAMREF is a complex refinery which was formed for the development, construction, ownership and operation of crude oil refining facilities in Yanbu, Saudi Arabia. Following the construction and start-up of the facilities, it commenced operations on November 15, 1984.

In 1395 (H) and within the Kingdom of Saudi Arabia's Second Five Year Plan, the General Petroleum and Mineral Organization (Petromin) discussed with Mobil Oil Corporation the possibility of constructing a refinery on the West coast of Saudi Arabia. The purpose of this refinery is to export finished products to Europe, North America and Far East within the framework of broad-based strategy for an integrated petroleum industry. After thorough studies, the city of Yanbu was chosen as the best location for the new refinery.

Thus, approval was given to form a joint venture under the name of Petromin Mobil Yanbu Refinery Company Ltd. (PEMREF) as a state of the art refinery. The refinery construction was completed in 1984 and operations began smoothly.

On 11/1/1414 (H) (July 01 1993G) the Royal Decree #M/1 was issued whereby all oil refineries, petroleum products, distribution facilities and Petromin shares in the joint venture refineries were merged into the Saudi Arabian Oil Company (Saudi Aramco). Accordingly, Saudi Aramco Company took over all Petromin rights and obligations for these refineries and facilities. As a result of this Royal Decree, the name of the Company was changed to Saudi Aramco Mobil Refinery Company Ltd. (SAMREF)

All the Company's refined products are marketed through the Shareholders.

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Saudi Yanbu Petrochemical Company (Yanpet)

Since completing an expansion in 2000, the ExxonMobil joint-venture petrochemicals complex at Yanbu, Saudi Arabia, is one of the world's largest petrochemical facilities.

The Saudi Yanbu Petrochemical Company (Yanpet) facility, a 50/50-joint venture with Saudi Arabia Basic Industries Corporation (SABIC), produces more than 1.6 million metric tons of ethylene and more than two million metric tons of derivative products annually.

The original ethylene cracker at Yanbu came on stream in 1985.

Products:

Olefins: Ethylene
Polyethylene: ExxonMobil HDPE
Polypropylene: ExxonMobil PP
Ethylene Glycol

Yansab

Yanbu National Petrochemical Company (Yansab) is a Saudi Joint Stock Company registered in the Kingdom of Saudi Arabia under Commercial Registration number 4700009432 dated 14 Muharram 1427H corresponding to 13 February 2006.

Yansab has obtained Industrial License number S/1367 dated 18 Rajab 1426H corresponding to 1 September 2005.

Yansab capital stake is Saudi Riyals 5,625 million of which 51% owned by Saudi Basic Industries Corporation (SABIC), 4% owned by Saudi Industrial Investment Company (an affiliate wholly owned by SABIC) for the benefits of SABIC employees under an option scheme, 10% of the equity owned by 17 private companies and the remaining 35% of the equity was offered to Saudi citizens under an initial public offering (IPO) that was closed on January 5th 2006. Yansab IPO was 2.8 over subscribed and nearly 50% of the Saudi population participated in the IPO.

Yansab first phase capital investment is Saudi Riyals 18,750 million. Financing of Yansab is structured based on 30% (SAR 5,625 million) equity and 70% (SAR 13,125 million) financing. The Financing deal was closed on June 18, 2006 with 19 local, regional and international banks participating along with 2 export credit agencies (ECA) and Public Investment Fund (PIF). The Financing deal of Yansab includes the biggest ever Islamic Financing in SABIC's history for grass root integrated complex.

The objectives of Yansab are to engage in manufacturing of petrochemical products (ethylene, ethylene glycol, high density polyethylene, low linear density polyethylene, polypropylene, butene 1, butene 2, MTBE and BTX) in accordance with its Articles of Association, and other applicable regulations in the Kingdom.

Yansab currently is in the pre-operation stage and has not yet started its operations but expected to come on stream in 2008.

Products

The following Table illustrates the main products of Yansab and plants capacities:

Product Name	Plant Capacity (KTA)
Ethylene	1,300
Propylene	400
Mono Ethylene Glycol	700
Di Ethylene Glycol	65
Tri Ethylene Glycol	5
Polypropylene	400
Low Linear Density Polyethylene	400
High Density Polyethylene	400
Butene 1	65
Butene 2	50
MTBE	20
Benzene	170
TX	70

Arabian Industrial Fibers Company (Ibn Rushd)

Arabian Industrial Fibers Company Complex consists of three integrated plants. Starts with conversion of natural gas into aromatic series is converted to Pure Terephthalic Acid (PTA), which is the basic feedstock for producing polyester. Thus, Ibn Rushd achieved the self-satisfaction of the primary feedstock needed for its various manufacturing processes.

Aromatics Plant

Ibn Rushd produces different types of the aromatic products. Paraxylene and Benzene are the two basic products, in addition to the possibility of producing other series such as Orthoxylene and Metaxylene. The liquidated petroleum gas is used as a primary feedstock in a process that depends on a modern technology called Cyclar owned by Universal Oil Products Co. (U.O.P.) of U.S.A.

Purified Terephthalic Acid (PTA) Plant

In this phase the Purified Terephthalic Acid is manufactured by the reaction of Paraxylene and Air in presence of Acetic Acid as a solvent .

The PTA plant went online in October 1999, and was the last of the plants to be completed. It has a capacity of 350,000 tons/year. Its contract was awarded to Tecnimont, a well-known Italian contractor.

Polyester Plant

Polyester staples are produced by the reaction of PTA with the ethylene glycol through several pro-

duction lines giving way to producing different types of polyester that include:

- Staple fiber for textiles
- Filament yarn
- Carpet fiber
- Bottle grade resin

Products Applications

Ibn Rushd is distinguished of diversified applications of its products as per different nature of these products, e.g., Aromatics series such as Benzene is ingredient of different industries such as Phenol, Nitrochloro Benzene and Polyesterene.

Paraxylene and PTA are basic feedstock of Polyester industries. Polyester staple has a growing human demand for the manufacture of limitless textile and packaging industries such as wearing apparel, carpets, bedspreads, blankets, curtains, towels, napkins, upholstery fabrics, tablecloths, fiberfill for coats, comforters, mattresses, furniture padding, etc.

Fabrics made from polyester are distinguished as long lasting and easy to care for and maintain excellent appearance.

Bottle grade resin enjoys a confirmed superiority in the field of water and soft drinks, milk bottles and others. Generally, the polyester products will give way to many local carpet, textile and bottle industries to grow and flourish.

Yanbu Refinery

The Yanbu' Refinery (YR) on the Red Sea was established in 1979 as part of the Petromin projects (ex-SAMAREC). The plant became operational in 1983. It produces LPG, gasoline, jet fuel, diesel oil, and fuel oil. The refinery was built on 165 hectares in the industrial park, and is a hydro skimming facility with a design capacity of 170,000 barrels per day (BPD), mainly serving the domestic market.

In June 1993, by Royal Decree, Samarec operations were integrated into Saudi Aramco. YR currently operates at a crude processing rate of 225 MBD and is manned by approximately 700 employees; Saudi employees constitute approximately 85 percent of the total work force.

Arabian crude oil is received from the Yanbu' Crude Oil Terminal and stored in YR crude tanks. From the tanks, the crude is heated through exchangers and sent to the distillation column. There are 74 tanks in the tank farm with a capacity of 12 million barrels. The refinery products are distributed through truck loading, interconnecting pipelines and four marine terminal facilities.

Yanbu RLPG

The NGL pipeline and fractionation plant resulted from the construction of the Master Gas System in the oil-producing areas of the Eastern Province. In 1975, the government instructed Aramco (Saudi Aramco's predecessor) to create a system to utilize the gas that was being produced in association with crude oil. The vast majority was being flared. The project, one of the largest and most complex ever undertaken, is responsible for providing Yanbu with its most important and attractive feedstock.

The first export shipment of LPG from the NGL export terminal occurred in 1982. At the same time, ethane was made available to local customers for use as a fuel. Ethane is also currently used by local manufacturers as a feedstock to produce ethylene and ethylene glycol.

From the terminal's two berths, liquefied propane and butane, which comprise LPG, can be loaded simultaneously at a peak rate of 30,000 barrels an hour. These berths can also handle natural gasoline tankers up to 140,000 DWT at the same 30,000-barrel-per-hour rate. A 1.85-kilometer causeway and a 1.15-kilometer pile-supported trestle connect the shore plant to a two-berth, L-shaped offshore loading facility. The trestle carries a pipeway for the product, bunker and utility lines, and a 1.5-meter-wide pedestrian walkway.

Evaporation of LPG during loading is minimized by a special vapor recovery system, which collects LPG vapors, re-liquefies them and returns the propane and butane to storage.

Stocks of propane, butane, and natural gasoline are stored at the six million barrel tank farm at the NGL fractionation plant. Seven insulated, dome-roof tanks of 600,000 barrels capacity store propane and butane, while three floating-roof tanks of the same size store naphtha.

The Saudi Aramco crude oil terminal and NGL fractionation plant are two of Yanbu's leading industries. They occupy 180 and 725 hectares, respectively, in the industrial park and employ some 900 people, of whom approximately 85% are Saudis.

Jiddah Refinery

Jiddah Refinery (JR), which started operations in 1967, (60 thousand barrels per day (MBD) nominal capacity, 100 MBD utilization capacity) has a 22 MBD vacuum column and a 20 MBD cat cracker, and a 3.0 MBD catalytic reformer. Jiddah Refinery exchanges streams with adjacent Lube Oil Plant - Luberef (sends imported Reduce Crude and receives VGO, FO, and asphalt). It also provides services (Power, Fresh Water and Fire Water) to neighboring facilities (Luberef, Petrolube and SWCC pump station).

Jiddah Refinery handles 350 MBD of hydrocarbon products through its Marine Terminal (8 inner berths 40,000 DWT and 2 outer berths up to 100,000 DWT) and Product Handling Facilities (84 tanks with a total capacity of 8 million barrels). This can reach up to 450 MBD during the high seasons, Ramadan and Hajj periods. This capability highlights the importance of the refinery function in safeguarding and providing critical supplies of fuel to the Makkah Area as well as to local consumers, such as the King Abdulaziz Airport, the Jiddah Islamic Seaport and Power Plants.

Through the Jiddah Refinery Terminal, crude and final products are imported, and petroleum products are exported. The majority of products are transferred to two local bulk plants, SWCC, SEC and the King Faisal Naval Base via pipelines. Refinery sales are LPG, unleaded gasoline, diesel, and asphalt. In addition, the refinery exports naphtha.

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Gas

Gas signed an agreement in 1997 with contractors to erect a separation unit in Yanbu to produce Oxygen and Nitrogen to provide the required quantity of both gases to Yanpet and Ibn Rushd, as well as other private companies in the area. The capacity of this unit which started operation in January 2001 is 1200 tons per day of Oxygen and 170 tons per day of liquid Oxygen, plus 1500 tons per day of Nitrogen and 150 tons per day of liquid nitrogen

NATPET

The National Petrochemical Industrial Co. (NAT-PET) has built a 400,000 MT/Year polypropylene plant in Yanbu Industrial City on the west coast of Saudi Arabia. This Plant is going to produce a wide range of polypropylene product mix of (Homopolymers, Random & Heterophasic Copolymers) that would be suitable for a wide variety of applications.

NATPET has acquired state of the art Spheripol® process to produce Polypropylene from Lyondell-Basell, which is the world leader in polypropylene technology.

NATPET will be targeting customers in different parts of the globe with focus on Saudi Arabia, GCC, Turkey & other Middle East markets.

NATPET is geared to ensure maximum customer satisfaction through a complete offering package including:

- Product quality
- Competitive terms & conditions
- On time delivery
- Technical support
- Wide range of grade mix including premium products
- Outstanding after sales services
- Continuous development

By fulfilling the above commitments towards our business partners, NATPET is targeting to be among global market leaders; essentially in terms of product quality and performance as well as focused integrated services.

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Hotel

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Transportation

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Map

