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saudi aramco

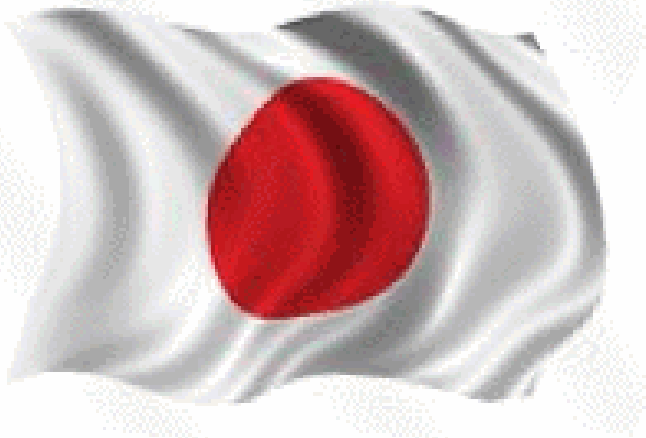
A 2-Pronged Approach to Create New Peaks

JCCP 36th Symposium

Abdulrahman A. Al-Fadhel
Manager of Riyadh Refinery

Jan 25, 2018

where energy is opportunity™



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Riyadh Refinery & Japan Relationship

- Chiyoda Construction
- Yokogawa DCS-ESD
- JGC CAN15 Catalyst
- JSW HCU RX

Japan Cooperation Center Petroleum JCCP

JCCP
Collaboration

Japan Cooperation Center Petroleum

1983

Maintenance Course

TR-6-83: January 31 - March 15, 1984

More than **100** Participants

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saudi aramco

Japan Cooperation Center Petroleum JCCP

JCCP
Collaboration

Japan Cooperation Center Petroleum

Riyadh Refinery, JCCP team up for T&I best practices seminar

ABDULHAMEED AL-ANIZI

RIYADH — In an effort to promote knowledge sharing, Riyadh Refinery in partnership with the Japan Cooperation Center, Petroleum (JCCP) recently held a T&I Best Practices Seminar where 20 subject matter experts (SMEs) from various Saudi Aramco organizations and five JCCP SMEs participated.

Organizers look to maximize the value of the seminar by conducting it immediately after Riyadh Refinery's Testing and Inspection (T&I). The program was comprehensively customized based on a survey done by the JCCP team for Riyadh Refinery during the last total shutdown. The seminar provided many best practices that can be used to increase the efficiency of T&I activities, as well as the use of new inspection technologies.

In his opening remarks, Abdulrahman Al-Subaie, Riyadh Refinery manager, said that he is pleased with the level of collaboration between Saudi Aramco and JCCP, adding that he hopes this partnership will continue to the mutual benefit of both parties.

Hiromitsu Saito from the JCCP Training Department said: "We have learned many things from Saudi Aramco's Riyadh Refinery. We believe that one of the best practices we saw is the check and confirmation by others such as Quality Assurance and Quality Control team members. Also, we shared with the Saudi Aramco team one important best practice that we apply in Japan, which is training the contractors to make them well skilled to carry out the work effectively.

Maintenance specialist Abdulaziz Aal Shugair said, "It was an excellent opportunity in Refining Industry Maintenance and Inspection to share and exchange T&I best practices between Saudi Aramco Refining admin area engineers and inspectors with the Japanese refining and engineering experts, including Chiyoda Corporation, the builder of Riyadh Refinery."

The five-day opportunity not only came right after the Riyadh Refinery T&I, but the materials agenda was used in a critique meeting for the recent T&I discussion. This strengthened and provided a great benefit to future T&I best practices for both Saudi Aramco and Japanese refineries.

Participants and organizers of the recent T&I Best Practices Seminar involving Japan Cooperation Center, Petroleum and Riyadh Refinery pose for a photo after the event.

Japan Cooperation Center Petroleum JCCP

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Japan Cooperation Center Petroleum

My Personal Experience with Japanese Citizens

1996

The Role of the Operation Section Head

TR-20-96: February 19 - March 7, 1997

2000

Personnel Management

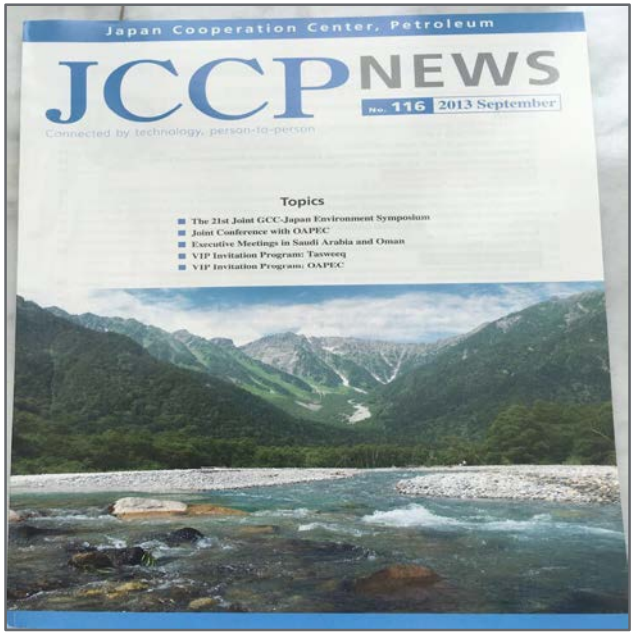
TR-9-00 : June 13 - 30, 2000

2007

Maintenance Management

TR-3-07: April 3 - 18, 2007

My Personal Experience With Japanese Citizens


Japan Cooperation Center, Petroleum

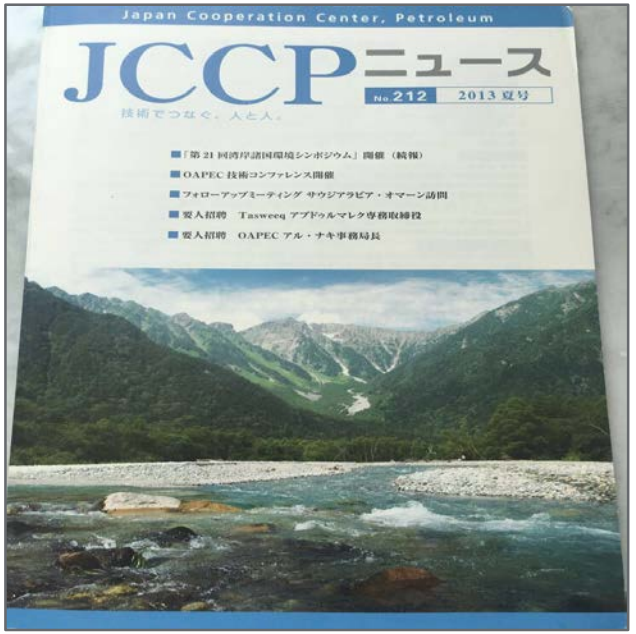
JCCP NEWS

No. 116 2013 September

Connected by technology, person-to-person

Topics

- The 21st Joint GCC-Japan Environment Symposium
- Joint Conference with OAPEC
- Executive Meetings in Saudi Arabia and Oman
- VIP Invitation Program: Tasweeq
- VIP Invitation Program: OAPEC


Japan Cooperation Center, Petroleum

JCCP ニュース

No. 212 2013 夏号

技術でつなぐ、人と人。

- 「第 21 回湾岸諸国環境シンポジウム」開催（続報）
- OAPEC 技術コンファレンス開催
- フォローアップミーティング サウジアラビア・オマーン訪問
- 要人招聘　Tasweeq アブドゥルマレク専務取締役
- 要人招聘　OAPEC アル・ナキ事務局長


Participants' Voices

Human Resource Management

(TR-4-13: May 7 – May 24, 2013)

Mr. Abdulrehman A. Al-Sebaie (Superintendent, Riyadh Refinery Operation, Saudi Aramco)

I am honored and pleased to contribute a message to *JCCP NEWS* on behalf of 17 members from 13 great nations.

During the opening ceremony when I introduced myself, I mentioned that 18 Japanese members from Japan Steel Works, Ltd. (JSW) conducted inspection and maintenance work on hydrocracker unit reactors at Riyadh Refinery over a period of 20 days. All refinery employees were amazed at the quality and excellent execution of the critical job. Personally, I was eager to know the secret to their outstanding work, so I invited them to my house for dinner. However, wanting to know even more, I decided to attend this HR course.

Now, after attending this course, I can confidently say that I know the secret. It is because Japanese-style management differs from that of other nations. It is based on team and group contribution, rather than on individuals. I felt this from all companies we visited, which included JX Nippon, Uyeno Kosan, Idemitsu Kosan, Cosmo Oil and Shirashima National Stockpiling Base. We acquired many examples of HR programs at these companies, but here I shall cite the example at Idemitsu Kosan.

Idemitsu Kosan was founded by Sazo Idemitsu more than 100 years ago. It grew from a small store to a large corporation that now has 8,700 employees, 32 domestic offices, 34 overseas offices, and 4.5 trillion yen in sales. The most important factor of this success lies in the founder himself. He firmly stood by the concept of "respect for human beings," based on the following principles:

- Human beings are the main actors in economy and society, not materials and money.
- Discipline and education are important to make employees worthy of respect from society.
- Human power is gained through total cooperation.
- Do not be slave to money.

Did he mention anything about profit? Absolutely not. That is the secret. Idemitsu's management style completely differed from that in Western society, which tends to focus mainly on achieving profit.

To maximize the benefit of the course, the weekends were spent on gaining exposure to Japanese culture. We had the opportunity to visit many historic places, such as Hiroshima and a number of shrines and castles, and to have a taste of various Japanese delicacies.

On behalf of the course participants, I would like to thank JCCP management for its outstanding organization of the course, from the first minutes of arriving at Narita Airport to the end of this course. We especially appreciated the orientation on how to use the public transportation system, which allowed us to visit many places of interest independently, and are grateful for the JCCP members' detailed response to each and every one of our questions.

I can confidently say that the course objective was met 100%, and assure you that we will take all that we learned back to our countries.

It is rare to have a course that is both practically meaningful and enjoyable, but it was achieved in this course by the outstanding efforts of our three lecturers, Mr. Shoji, Mr. Okuyama and Mr. Jimbo. They spent day and night developing the course program, and dedicated their full attention to our group over the entire duration of the course. They accompanied us throughout the course, but worked so seamlessly as a team that we completely gave ourselves over to enjoying the program without a clue as to who was in charge of what. This, precisely, was a real demonstration of Japanese HR management. Can you imagine managing a group of 20 individuals travelling a total distance of around 2,500 kilometers by foot, bus, taxi, train, boat and airplane, and checking in and checking out of 10 hotels, all smoothly and in an enjoyable atmosphere? I must say they were amazing.

Thank you, Arigato Gozaimas.

With 18 Japanese members of JSW and my family at my house in Saudi Arabia


研修生の声

アブドララハマン アブドルアジーズ アル・スベイ氏
サウジアラムコ　リヤド製油所
オペレーション　スーパーインテンデント
Mr. Abdulrehman A. Al-Sebaie, Superintendent
Riyadh Refinery Operation
人事管理コース（TR-4-13; 2013 年 5 月 7 日～ 24 日）

13 ヵ国 17 名の研修参加者を代表し、JCCP ニュースに寄稿できることを大変光栄にまた嬉しく思います。

開講式での自己紹介の折、私は、日本製鋼所（JSW）から 18 名の技術者が 20 日間にわたってリヤド製油所の水素化分解装置（Riyadh Refinery Hydrocracker Unit Reactors）の点検・保守整備作業に携わったときの様子をお話しました。リヤド製油所の従業員は皆、この重要な作業を行う日本人技師の優れた仕事ぶりに感嘆し、私はその秘訣を是非知りたいと思いました。そのため彼らを自宅に食事に招きましたが（次頁の写真）、それだけでは十分ではなく、私はこの人事管理の研修への参加を決めたのです。

今研修を終えてようやく秘訣が分かったと、確信をもって言えます。

それは他国とはまったく違う日本の経営スタイルにあると思います。個人ではなく、チームやグループの貢献に基盤を置くものです。

このことは、JX 日鉱日石エネルギー、上野興産、出光興産、コスモ石油、JOGMEC（石油天然ガス・金属鉱物資源機構）など、私たちが訪れたすべての企業で感じたことです。どの企業でも、それぞれの人事管理プログラムを説明いただきました。数多くの事例を学ぶことができましたが、紙面の都合上ここでは出光興産の例を取り上げたいと思います。

出光興産は 100 年以上も前、小さな小売商として出光佐三氏によって創業されました。現在では、従業員 8,700 名、売上高 45 億円、国内事業所 32、海外事業所 34 を数えるまでになりました。この成功の最も重要な要素は創業者自身にあります。彼は、次の理念を基盤とする「人間尊重」を経営の原点に掲げました。

- 人間こそ経済と社会の主体であり、物質や金銭ではない。
- すべての社員が社会に尊重される存在となるような、社員の奨励と教育。
- 一致団結を通じた人的資源の力。
- 金銭の奴隷にはならない。

出光佐三氏は利益について何か語っているでしょうか。もちろん、それはノーです。この点が経営の極意です。利益重視でどのような代償を払っても利益最優先の西洋社会とはまったく違う点です。

JCCP の研修は、プログラムをさらに有意義なものとするため、週末を最大限利用して日本文化にも触れることができる構成となっています。参加者は、広島をはじめ、神社や城など数多くの史跡を訪ねる機会を持つとともに、日本のさまざまな美味しい食べ物も満喫しました。

私たちが空港に降り立ったときから研修終了に至るまで素晴らしい内容の研修を準備くださった JCCP に、研修参加者を代表し心から感謝申し上げます。初日のオリエンテーションでは、都内を走りながら公共交通機関の利用の仕方や習慣について学びました。すべての参加者一人ひとりの質問にも丁寧に答えてくださり、そのおかげで、私たちは、滞在中、不自由のない生活ができました。また、観光名所などの様々なところにひとりで行くこともできました。

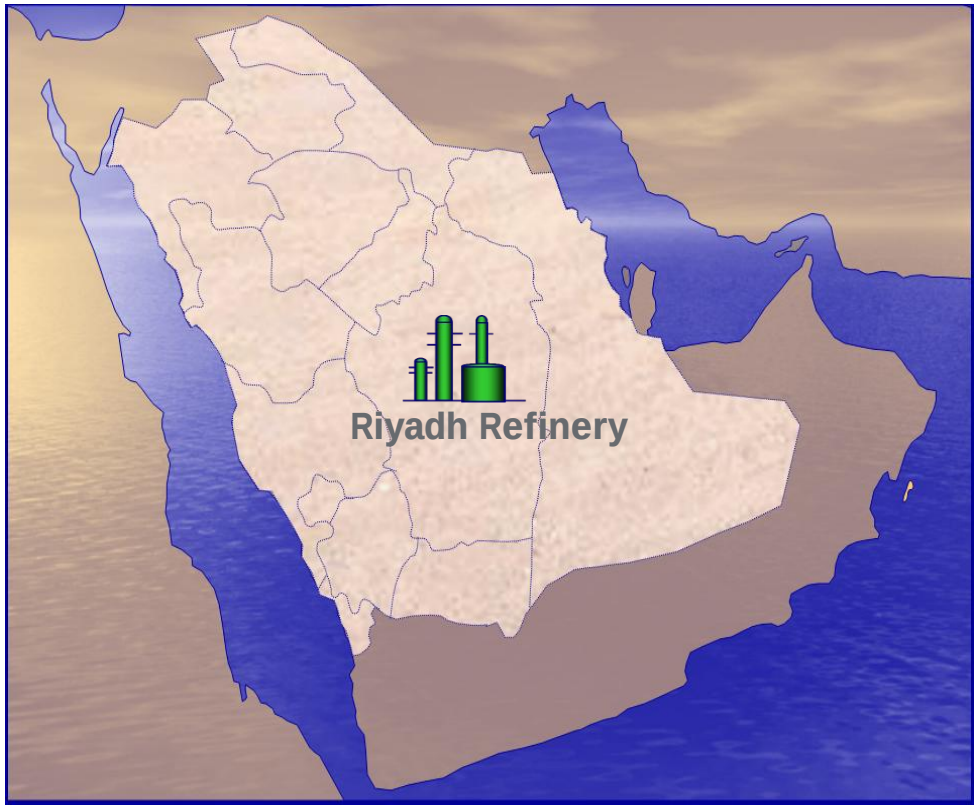
My Personal Experience With Japanese Citizens

My Personal Experience With Japanese Citizens

Saudi Aramco Riyadh Refinery Overview

Saudi Aramco Riyadh Refinery Overview

130 MBD Operating Capacity



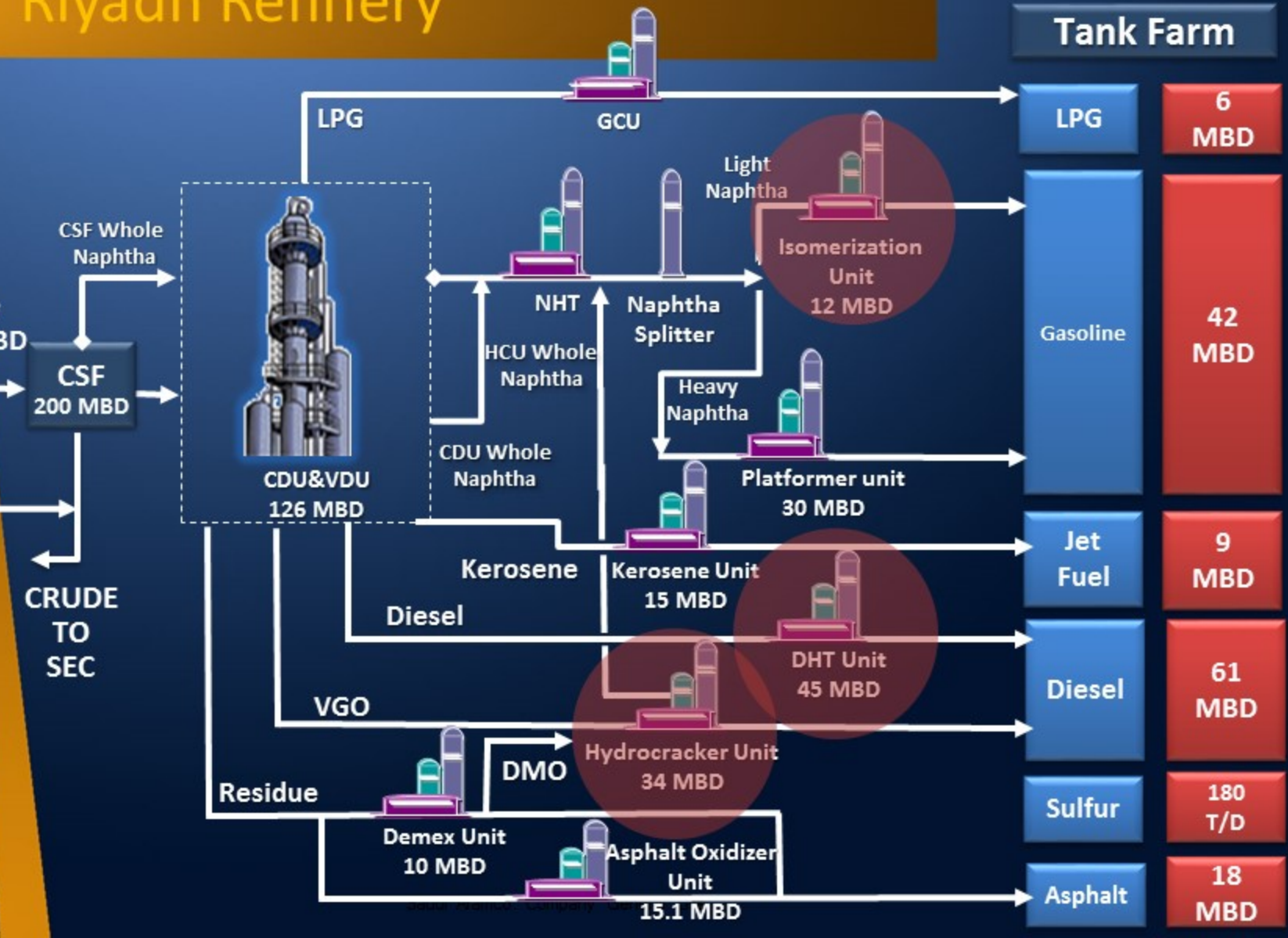
Conversion Refinery

In Land Refinery

Most Complex SA Refinery

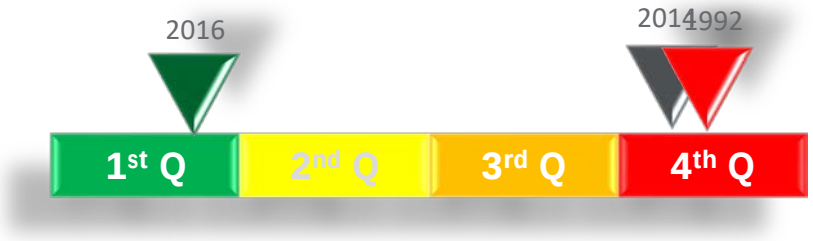
Riyadh Refinery

ارامكو السعودية
Saudi Aramco

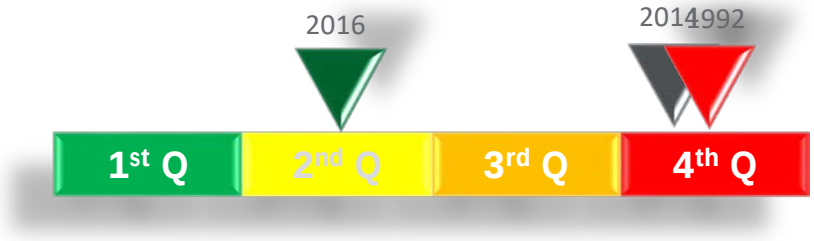


Riyadh Refinery 2016 Solomon Indices

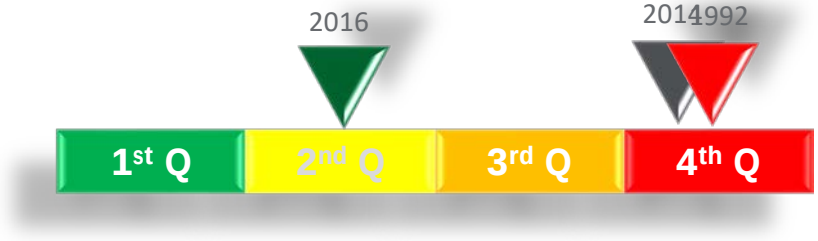
Energy Intensity Index



Net Cash Margin

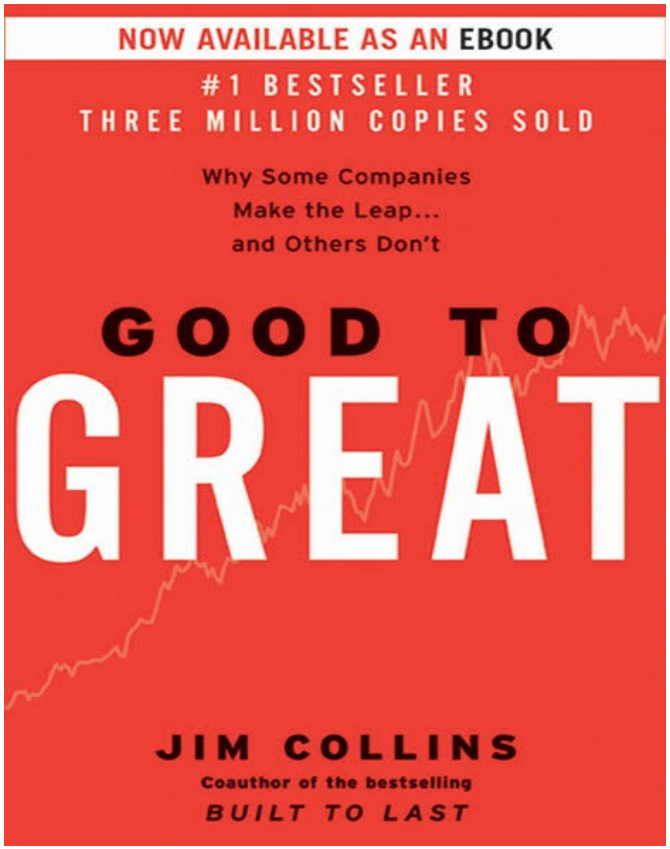


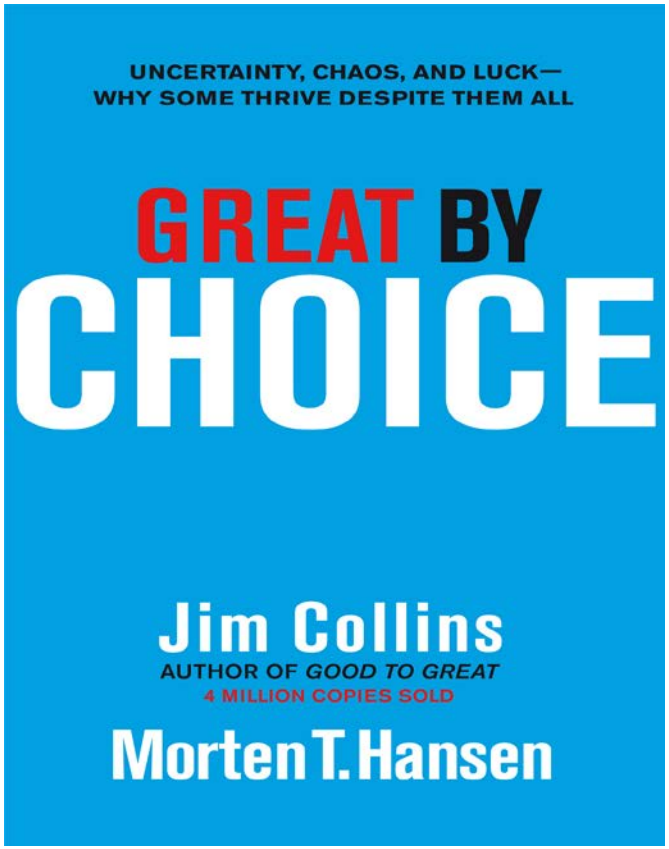
Return on Investment %



How companies move from great to greater?

"to move to greater you should know how did you make it great"





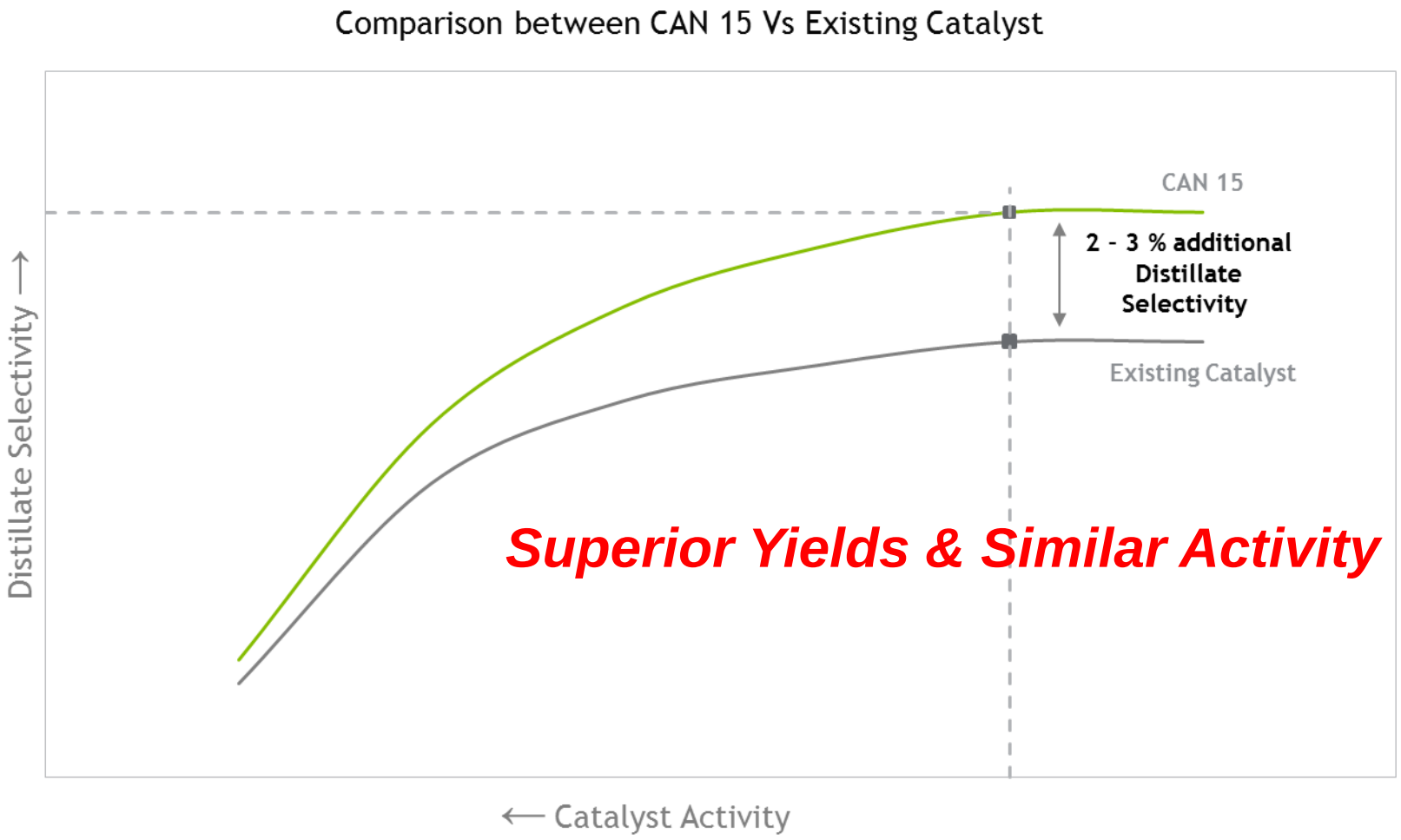
If reaching the top is easy, The challenge is to … **sustain it**

Technology Drivers

Collaboration

Adaption

CAN-15 Hydrocracking Catalyst –JGC-



CAN-15 Hydrocracking Catalyst –JGC-

Saudi Aramco's CAN-15 wins prestigious Japan Petroleum Institute Award

Ahmad O. Al Khowaiter, on behalf of Saudi Aramco, receives the International Technology Exchange Award from Japan Petroleum Institute officials. Al Khowaiter said he was pleased with the results of deploying the Novel Heavy Oil Hydrocracking Catalyst at the hydrocracking unit in the Riyadh Refinery.

Saudi Aramco and its Research and Development (R&D) collaboration partner, JGC Catalysts and Chemicals — a leading catalyst developer and manufacturer in Japan — have been awarded the 2015 International Technology Exchange Award by the Japan Petroleum Institute (JPI).

Each year, JPI honors the best scientists, projects and institutions. Recognized in Japan and worldwide for the quality they represent, the JPI awards, including Best Society, Best Paper, Best Technology Progress, Best Incentive Project, and International Technology Exchange Awards, appreciate the scientific contributions made in petroleum and relevant fields.

The winning technology "Hydrocracking Catalyst for Heavy Oil Mixed with Deasphalted Oil" was developed jointly between Saudi Aramco R&DC (Oil Upgrading R&D Division) and JGC Catalysts and Chemicals Ltd., with the support of Japan Cooperation Center Petroleum (JCCP).

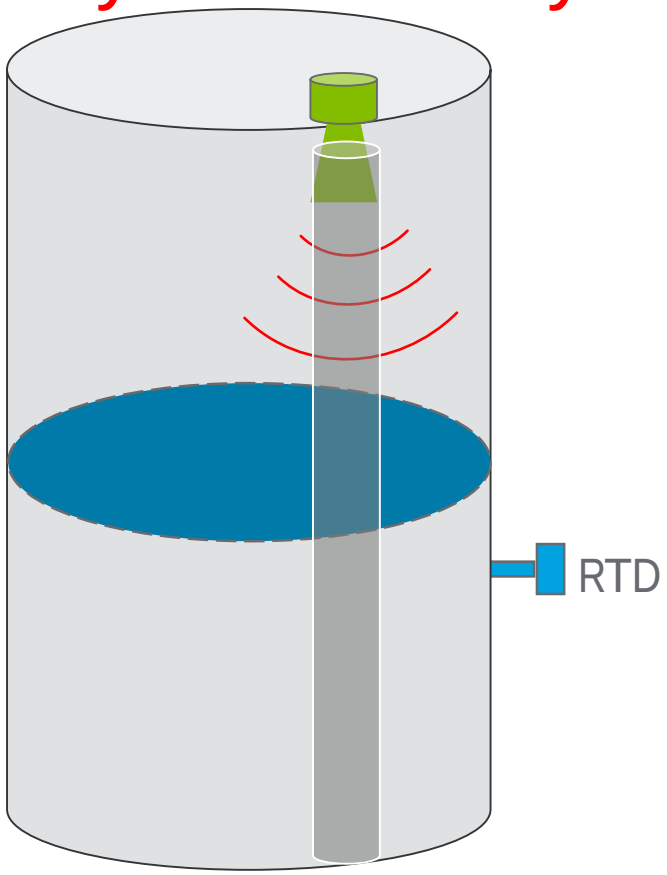
The collaboration began in 2007 to develop a catalyst system for the Riyadh Refinery hydrocracking unit, targeting extended catalyst life while increasing or maintaining distillate yields and quality. The R&D phase of the project was completed in 2010, with four of more than 80 potential catalysts developed and identified for scaleup and commercialization. The developed catalyst, Novel Heavy Oil Hydrocracking Catalyst (CAN-15), was deployed at the Riyadh Refinery hydrocracking unit. The catalyst has been in operation for two years, and its performance exceeded expectations yielding additional valuable distillate volumes.

During a visit to Japan to attend the Saudi Aramco and JCCP joint symposium on "Unlocking the Potential of Fuel to Enable Energy Savings and Emissions Reductions," which was held in Tokyo, Saudi Aramco chief technology officer Ahmad O. Al Khowaiter received the JPI International Technology Exchange Award on behalf of the company.

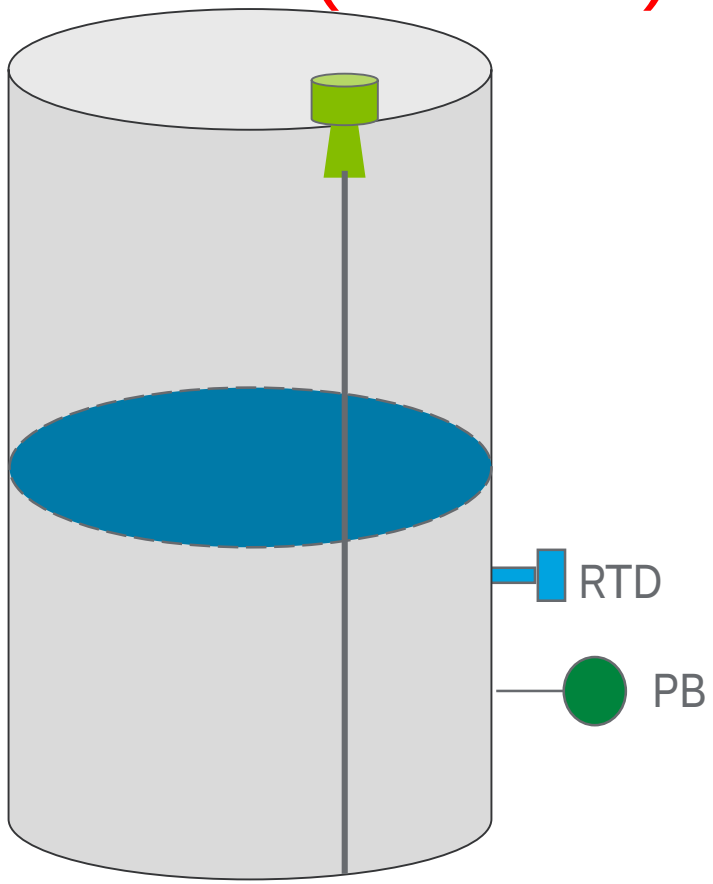
"I am extremely pleased with the work we've done on CAN-15, creating a catalyst that's the first of its kind," said Al Khowaiter. "I look forward to the many commercialization opportunities this technology will avail."

Guided Wave Radar(GWR) Tank Gauging

Riyadh Refinery Saving is $6 MM (40 Tanks)

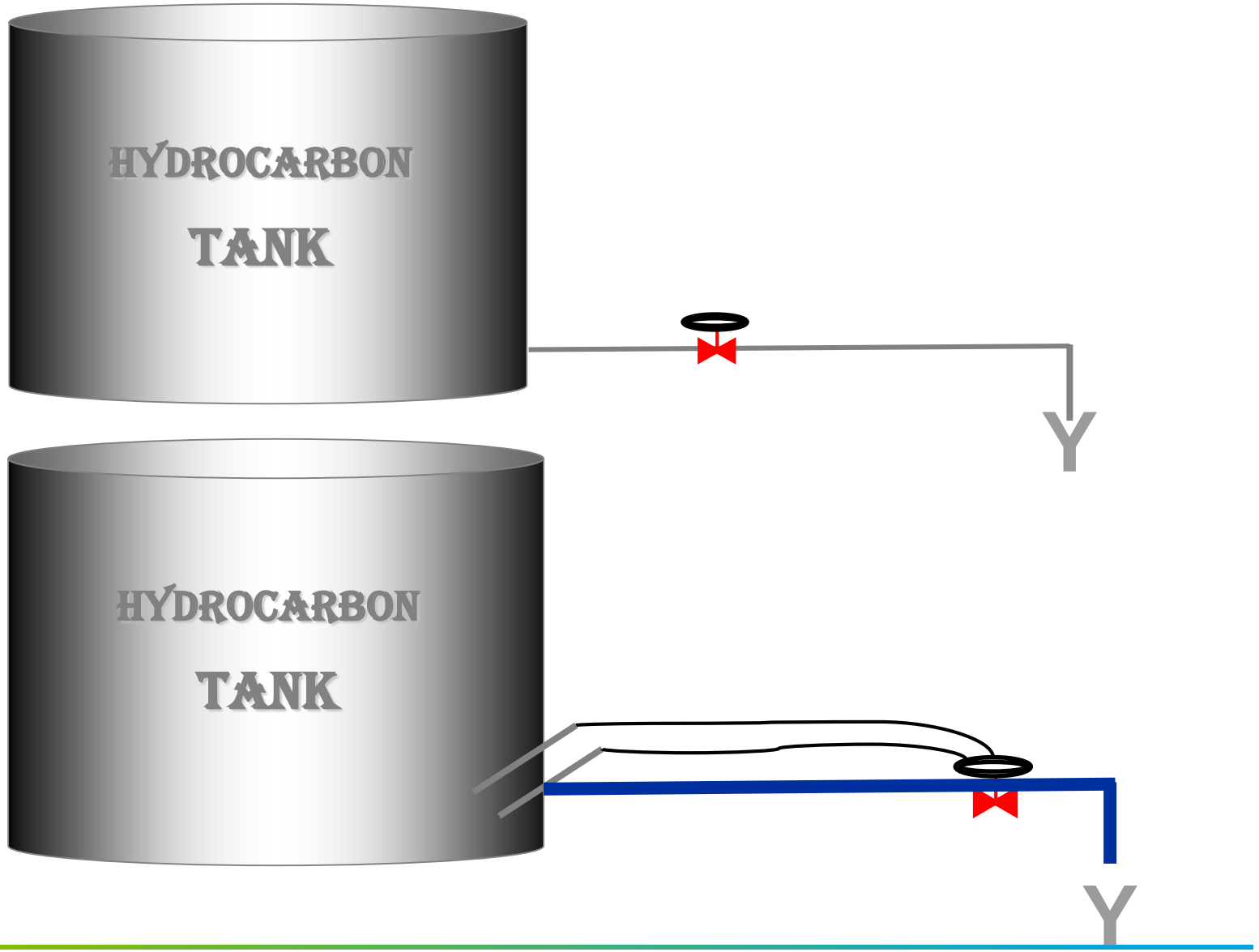


Radar Tank Gauging



Guided Wave Radar Tank Gauging

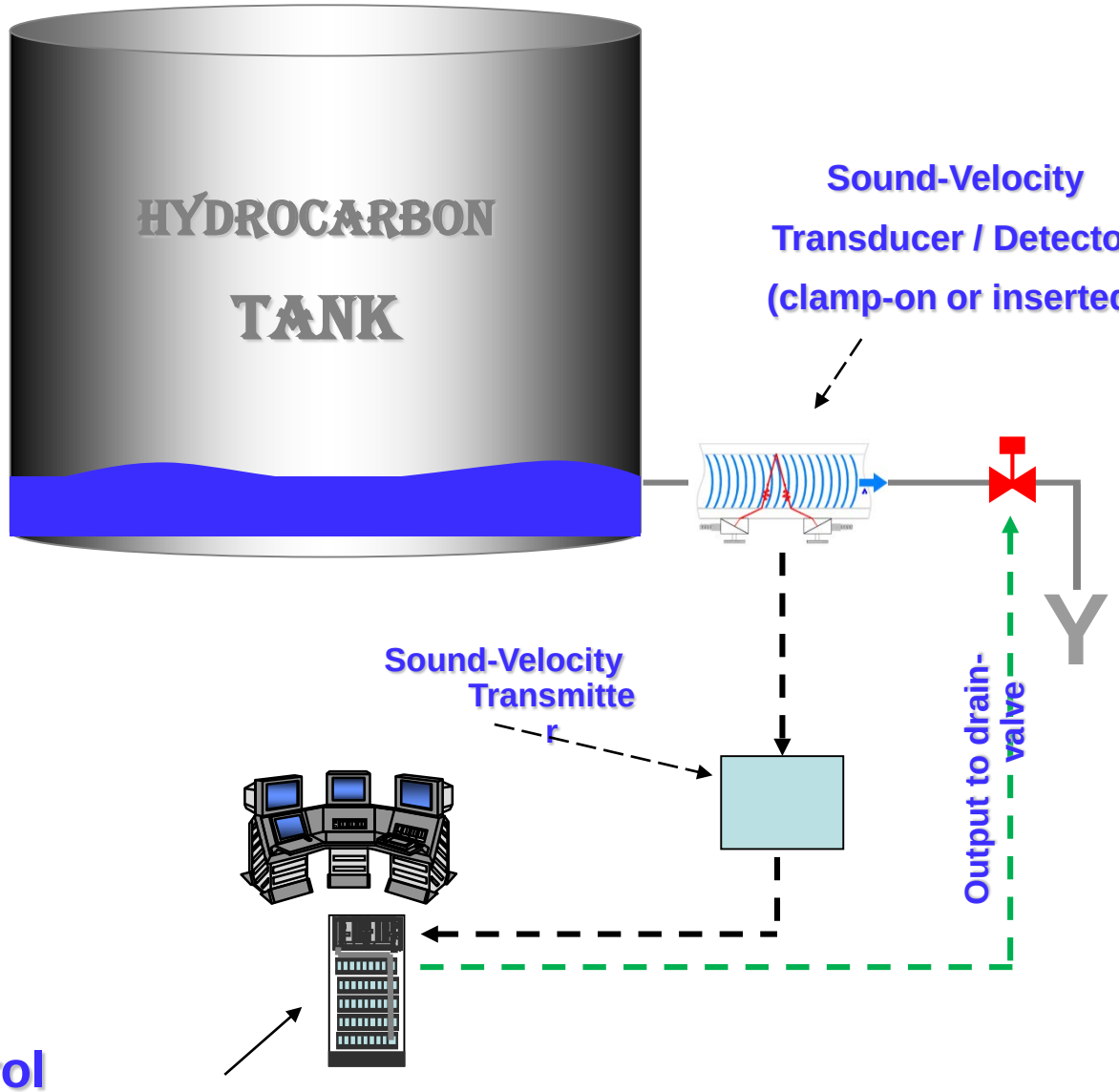
Sound-Velocity Dewatering System



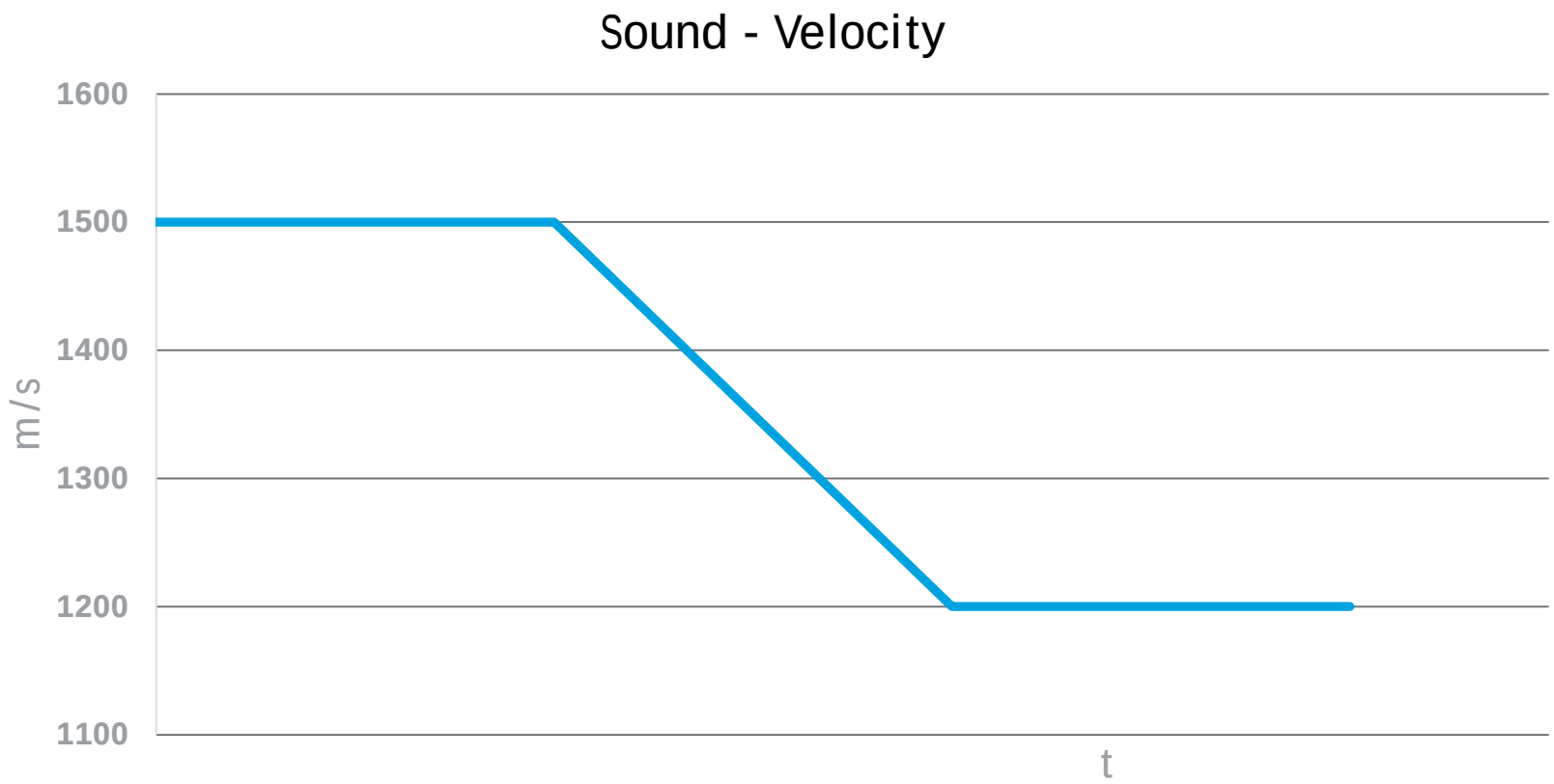
Sound-Velocity Dewatering System

Tank with

1 Drain Line



Sound-Velocity Dewatering System



Tank with 1 drain line

Sound-Velocity Dewatering System

(12) **United States Patent**
AlSahan et al.

(10) **Patent No.: US 9,086,354 B2**
(45) **Date of Patent: Jul. 21, 2015**

(54) **SOUND-VELOCITY DEWATERING SYSTEM**

(75) Inventors: **Fawaz A. AlSahan**, Riyadh (SA); **Omar Z. AlZayed**, Riyadh (SA)

(73) Assignee: **SAUDI ARABIAN OIL COMPANY** (SA)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 83 days.

(21) Appl. No.: **12/841,690**

(22) Filed: **Jul. 22, 2010**

(65) **Prior Publication Data**

US 2012/0017998 A1 Jan. 26, 2012

(51) **Int. Cl.**

F16K 31/12	(2006.01)
G01N 29/024	(2006.01)
B01D 17/02	(2006.01)
C10G 33/06	(2006.01)
C10G 33/08	(2006.01)

(Continued)

(52) **U.S. Cl.**

CPC ***G01N 29/024*** (2013.01); ***B01D 17/0214*** (2013.01); ***C10G 33/06*** (2013.01); ***C10G 33/08*** (2013.01); ***G01N 29/4427*** (2013.01); *C10G 2300/201* (2013.01); *E21B 43/34* (2013.01); *G01N 2291/02836* (2013.01); *G01N 2291/048* (2013.01); *G01N 2291/102* (2013.01)

(58) **Field of Classification Search**

CPC . G05D 7/0617; G05D 7/0623; G05D 7/0629; F16K 37/005; F16K 37/0091; C10G 33/02; C10G 33/08; G01N 29/024; G01N 29/4427; G01N 2291/102; B01D 17/0214; E21B 43/34

USPC 137/487.5, 172; 73/61.64, 861.04, 73/861.27

See application file for complete search history.

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(Continued)

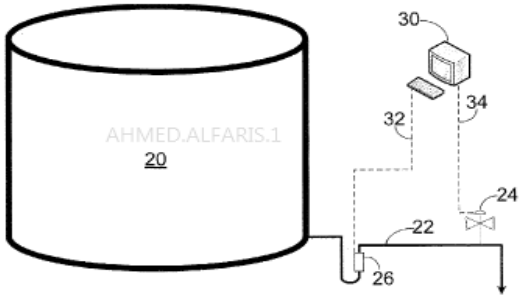
Primary Examiner — Matthew W Jellett

(74) *Attorney, Agent, or Firm* — Bracewell & Giuliani LLP; Constance Gall Rhebergen; Brad Y. Chin

(57) **ABSTRACT**

A method and apparatus for an improved dewatering tank system that allows for safely controlling a water stream exiting the dewatering tank system. The apparatus can include a sound velocity detector, a control system, and a control element. The sound velocity detector can include a transducer, a detector, and a transmitter. The control system can include a computer and a program product. The apparatus can optionally include a dewatering tank, a drain line, and a controllable valve. The apparatus allows for transmitting sound energy through the water stream flowing in the drain lined that is connected to the dewatering tank, calculating the velocity of the sound energy as the sound energy travels through the water stream, monitoring the velocity of the sound energy for a period of time, and controlling the position of the controllable valve depending on the calculated velocity of the sound energy.

18 Claims, 8 Drawing Sheets



Riyadh Refinery Saving is $8 MM (30 Tanks)

If reaching the top is easy, The challenge is to ... Sustain it

... Enjoy Creating New Peaks

أرامكو السعودية
saudi aramco

THANK YOU ..

where energy is opportunity℠