Apett Chemical Engineering Newsletter

Issue 3,
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INSIDE

Editorial

"*The true wealth of a nation lies not in its gold or silver, but in its learning, wisdom, and the uprightness of its sons (and daughters)*" [Gibran].

Well, maybe Gibran has a point. But the fact is that "gold" has new meaning to us in T&T. Firstly, this issue of the Newsletter coincides with the 50th Anniversary of Independence of the Republic of Trinidad and Tobago. Secondly, the country secured its second Olympic Gold Medal in London 2012 by one of the Nation's sons, Mr. Keshorn Walcott. This and the other successes of our athletes have lifted the spirit of the Nation at a most opportune time. This Golden period is time for measured celebration and introspection.

Not many would know that APETT has been in existence even longer than this - 53 years, and still growing. How can we, as engineers and related professionals, carry the "baton" that would advance the Profession and indeed the Nation to an even better position?

In this issue we recognize the contribution of our Engineering "Olympians" who were recognized at the 2012 APETT Awards Ceremony in June. The newly constituted Board of Engineering also addresses us with its activities and plans. We report on the resumption of the Chemical Division Seminar Series. From industry, we are apprised of NGC's new gas management system, and we have a feature on process safety. T&T EITI has a follow-up piece on its work to advance transparency and good governance.

For our regular readers, you would have noticed that we have coined this publication "ACE Newsletter", acronym for APETT Chemical Engineering Newsletter. Welcome to our new readers. Once again, we invite all to join us on this drive. Keep up-to-date with what's going on by visiting www.apett.org, joining our LinkedIn Group or send us an email to join our distribution list.

Eng. Haydn I. Furlonge (MAPETT)

ACE Newsletter Editor

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APETT Chemical Division Steering Committee:
Eng. Lydia Lee Chong; Eng. Neil Bujun; Eng. Farad Boochoon; Eng. Sheldon Bucher; Eng. Imtiaz Easahak; Eng. Canute Hudson; Eng. Ria McLeod; Eng. Dr. Marian Watson; Eng. Dr. David Alexander; Eng. Maria Mahabir; Eng. Dr. Haydn I. Furlonge (Chair)

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Message from BOETT Chairman, Eng. Prof. Winston Mellowes (FAPETT)

Board of Engineering of Trinidad & Tobago - Structure and Initiatives

The Board of Engineering of Trinidad and Tobago (BOETT) was established by the Engineering Profession Act, No. 34 of 1985 as an Act respecting the registration of engineers and regulating the practice of engineering. The Act is supplemented by the Engineering Profession (Registration) Regulations, 1994. Regulation of the practice of engineering is included in the Schedule to the Act as a Code of Ethics.

The Board appoints a Registered Engineer as a Registrar/Secretary whose functions are to:

a) maintain the Register of Registered Engineers and to keep the Register open for public scrutiny at such fee as may be prescribed;
b) endorse in the Register such particulars of a Registered Engineer as may be prescribed;
c) collect all fees;
d) publish at least once in every year in the Gazette, the Register and a list of those persons whose Certificates of Registration have been suspended or cancelled; and
e) perform such other functions as the Board may prescribe.

The Status of the Board

By instruments of appointment dated December 5th, 2011 from the Minister (of Works), the following have been appointed to serve on the Board of Engineering of Trinidad and Tobago for a period of three (3) years with effect from December 5th, 2011:

- Eng. Prof. Winston Mellowes - nominated by and holding Membership in APETT: Eng. Ahmin Baksh; Eng. Vaughn Lezama; Eng. Mark Francois
- Mr. Michael McKenzie - a Public Officer who is registered or is eligible to be registered as a Registered Engineer
- Mr. Rudin Austin and Mr. Madan Ramnarine - to represent the public interest.

In accordance with the Act Clause 11(2), Eng. Prof Winston Mellowes was appointed by the Board as Chairman from among its Members. Mr. Madan Ramnarine resigned in February due to personal commitments. Mr Baksh has been appointed interim Treasurer and Eng. Jerry Medford a Registered Engineer, has been appointed to perform the functions of Registrar/Secretary from July 1st 2012 upon the resignation of Eng. Derek M. Comissiong who served this Board from January until June 30th 2012. A person appointed to the Board holds office for a term of three years but is eligible for reappointment for a maximum of two further consecutive terms.

Mrs. Jameela Bynoe was employed as an Administrative Assistant in October 1986, later to become Office Manager, a position she still holds, to administer the day-to-day functioning of the office. In October 2011, Mrs. Nisha Lopez, who had earlier assisted as Recording Secretary, was re-hired as the Board's Senior Administrative Assistant.

BOARD OPERATIONS

The Board continued its operations as in previous years through the following Committees:

(a) The Accreditation Committee – chaired by Eng. Prof. Winston Mellowes and comprising Eng. Eng. Leopold Martin, Eng. Prof. Clement Imbert and Eng. Amin Baksh.

The Accreditation Committee assists the Board in the preparation and conduct of such examinations as the Board may deem necessary, the preparation of the list of qualifications and institutions required for acceptance as Registered Engineers, and advises the Board on the acceptability or otherwise of applicants for registration.

(b) The Assessment Committee chaired by Eng. Mark Hosein and Eng. Vaughn Lezama.

The Assessment Committee reviews the engineering work done by applicants seeking to qualify for registration and makes recommendations in this regard to the Board. The total number of engineers registered with/by the Board at the end of 2011 stood at eight hundred and eighty three (883). The Board maintains the Register of Registered Engineers as required by the Act and keeps the Register available for public scrutiny. The list is published annually in the Trinidad and Tobago Gazette. Additionally, Certificates of Registration and Registration Stamps are issued to all Registered Engineers.

Photograph (Left to Right): Eng. Mark Francois; Mr. Rudin Austin, Eng. Prof. Winston Mellowes; His Excellency Eng. Prof. George Maxwell Richards; Eng. Ahmin Baksh; Mr. Michael Mc Kenzie; Eng. Derek Comissiong

New Board Initiatives

Revised Engineering Act

The Board has been mandated to do all within its remit to ensure the passage of a new Revised Act. One of the provisions of the new Act is mandatory registration. In accordance with this remit, the board paid a courtesy call on the then Minister of Works and Infrastructure, the Honourable Mr. Austin Warner to update him on matters relevant to APETT. The Minister of State in the Ministry was also present at the Meeting.

The Board Members present were able to clarify the differences between APETT and the Board. APETT is a learned Society, while BOETT is a Registration and licencing Body established to protect the Public interest. The Board was asked to review the Policy Document that has to accompany the new Act. This review work is now complete and will be forwarded to the new Minister before the end of July. A meeting with the new Minister should take place in the near future to update him. The Board intends to follow up this with intensity.

Accreditation and Assessment Procedures

In 2010 the Board identified the need to review, redesign where necessary and document its policies and procedures for accrediting and assessing applications for registration. A Committee was set up to do this bearing in mind the changes made to the Accreditation status of Degrees offered locally. They were asked to consider the Academic Education need to be considered a Registered Engineer in Trinidad and Tobago and the rest of the Caribbean in general. A report on this is expected shortly from Eng. Prof. Clement Imbert.

BOETT through its Assessment Committee is examining its procedures to consider more stringent criteria for acceptance of Registered Engineers. It is

hoped that at the end of this exercise, the value of a Registered Engineer will increase as the entry requirements would be higher and the standard of engineering would be raised. This may entail reducing and streamlining the Categories of Engineering disciplines recognised.

Continuing Professional Development (CPD) is also an essential ingredient in ensuring that our Registered Engineers keep up to date with what is going on in their professions. There is a joint APETT/ BOETT Committee set up and currently headed by Eng. Fasil Muddeen. It is hope that as soon as possible that CPD's would be made compulsory if one is to retain one's membership in APETT and/or BOETT. The Board has already agreed to assist with the Secretariat. An Assessment Committee has to be set up soon. Meanwhile it is expected that the Joint Committee would fulfil this role.

Marketing and Public Relations

BOETT has recognised that to many persons, the functions of the Board needed clarifying. It also noted that there are many large State and Private Engineering Companies whose engineers were not registered. The Board is seeking to discover why, and to take the necessary action, some of which is noted in the above section. A series of visits have been planned and have indeed already taken place.

APETT's Mission

The Association of Professional Engineers of Trinidad and Tobago is a learned society of professional Engineers dedicated to the development of Engineers and the Engineering Profession. The association promotes the highest standards of professional practice and stimulates awareness of technology and the role of the Engineer in society.

The Functions of the Board were outlined and its role in ensuring that all of its Registered Engineers have been trained and pursued Engineering works to the highest standards. Another responsibility of the Board would continue to recommend Registered Engineers to serve on National and other relevant Engineering and Professional Committees when asked.

In 2002, the Board established a Bursary Fund, funded entirely by Registered Engineers and business entities associated with engineering matters. The Fund is for assisting Trinidad and Tobago nationals with the cost of engineering courses undertaken at The University of the West Indies, Faculty of Engineering, St. Augustine Campus, Trinidad. This initiative continues and could be extended to The University of Trinidad & Tobago eventually as funds allow.

Summary

The Board of Engineering of Trinidad and Tobago will continue its mandate to register Engineers and to protect the Public by ensuring properly recognised standards are kept. It will continue to maintain its ethics and other committees as mandated by the Act. It will also continue to collaborate with APETT in matters governing the Practice of Engineering in Trinidad and Tobago. The Board has also made an input into the Regional Policy and Regulatory Framework Bill for the Provision of Professional Services in the Caribbean Region. This CARICOM initiative is expected to impact on all of us shortly.

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INDUSTRY NEWS

Design and Implementation of NGC's Gas Management System for the 56 inch Cross Island Pipeline

By Cheryl Thomas (MAPETT), Assistant Manager, Gas Marketing, NGC

The The Cross Island Pipeline (CIP) is owned and operated by the NGC Pipeline Company Limited (NPCL), a fully-owned subsidiary of The National Gas Company of Trinidad and Tobago Limited (NGC). CIP was commissioned in December 2005 to transport natural gas from the south-east coast to facilities on the south-west coast of Trinidad, in particular to Atlantic LNG and Union Industrial Estate. The CIP pipeline network comprises four delivery points which supply gas of differing gas compositions from two gas producers (BPTT and BGTT) and redelivers a commingled gas stream to three redelivery points. CIP is the only 56 inch diameter pipeline in the western hemisphere, and has a free flow capacity of 2.4 bscfd of natural gas.

What is a GMS?

Since CIP transports third party gas, it is managed differently from other pipelines owned by NGC mainly due to the commercial arrangements governing the operation of this pipeline. A system therefore had to be developed that manages the flow of gas on the pipeline, caters for the differing composition of gas being delivered, and accounts for the receipt and redelivery of gas on a timely basis.

The NPCL Gas Management System (GMS) integrates the commercial and operating functions of CIP to ensure the provision of contracted transportation services. On a daily basis, NPCL customers/shippers (NGC, TTLNG, BP, BG) issue nominations, which are instructions to the transporter detailing the volume of gas intended to be delivered. During a gas day, GMS uses this data together with metering data from SCADA at each of the metering points to manage flow. After each gas day, the gas volumes are allocated to each shipper and an imbalance statement is issued. Shippers can use the information to monitor their imbalances on the pipeline and change their nominations for the following day.

Inputs and Outputs

The data inputs into GMS are:

1. Daily measurement data from each metering point
2. C9+ gas composition data
3. Last confirmed nomination for previous day.

GMS was developed by a multi-disciplinary team in two phases. Early in the project development phase, the team recognized that a totally automated web-based system could not be designed, developed and tested prior to start-up of the pipeline. It was therefore decided that the initial system, i.e. Phase 1 GMS would be developed using in-house resources and expertise. A series of MS Excel models (see Table 1) were created to perform the calculations required to inform the functions performed during the gas day, including nominations, allocations and billing. A database was developed by NGC's IT Department using an MS Access platform to store the data generated from the models, enable easy retrieval and to generate reports.

Map Showing Route of CIP: Beachfield to Pt. Fortin

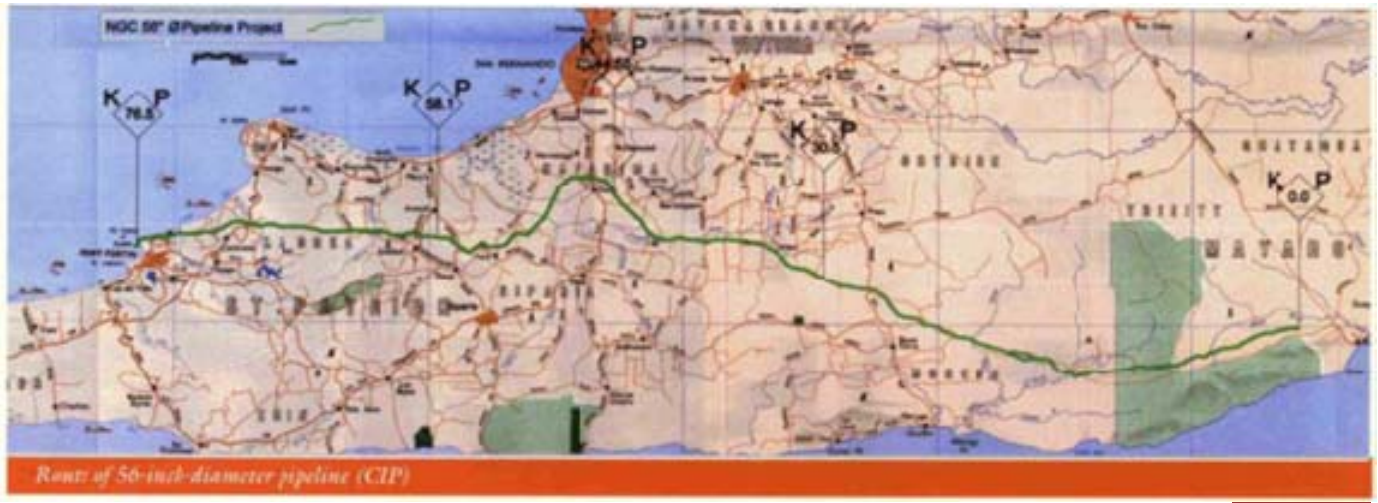

Table 1: MS Excel Models developed during Phase 1

Daily Imbalance Model	a series of excel spreadsheets which calculates the Gross Real Heating Value of delivered gas, allocated delivery and redelivery gas energies and calculated daily energy imbalances
Monthly Imbalance Model	Sums the allocated delivery and redelivery energy and calculates the closing energy imbalances, system losses and condensate drop-out recovered during pigging operations
Gas Curtailment Model	calculates the curtailment volume in accordance with agreed curtailment protocols
Gas Adjustment Model	used by Gas Control Operators to adjust gas flows on CIP during upstream/downstream upsets to ensure that confirmed nominations are achieved during the gas day
Gas Billing Model	calculates gas billing for Shippers based on commercial operations based on allocated volumes delivered to the pipeline

Another component of the GMS also needed to be developed, i.e. the verification of data inputs, in particular the measurement data consisting of volume and gas composition data which requires careful monitoring of the measurement systems to ensure compliance with measurement standards. FlowCal is used to verify measurement volume each month along with an annual measurement audit performed by an independent auditor to monitor compliance with measurement standards. This independent verification process assists with the credibility of the GMS system.

New Technology

After six years of operations, the semi-automated Phase 1 GMS was fully transitioned to an automated web-based system in 2011, for which an external vendor (Amor Real Time) was used. Phase 2 GMS facilitates a totally integrated system to encompass all the information being used to balance the energy profile on the pipeline and account for any imbalance at the end of a gas day. The additional features of the Phase 2 GMS include upload and retrieval of data through the internet. The Phase 2 system has increased the efficiency, accessibility and security of the GMS.

Key to the successful implementation of both phases of this system was co-operation among the Transporter's customers (shippers), gas control operators, meter operators and the commercial analysts. NPCL's GMS allows for seamless access to information by both internal and external parties. Shippers and meter operators can now access reports and imbalance statements as soon as these are generated and on a 24 hour basis. In addition, security is improved since only authorized personnel have access to the system. This makes it easier to audit in cases of discrepancies and improves the effectiveness of the various departments within NGC.

NPCL's GMS has facilitated the smooth transition to an effective system for managing transportation services to third parties and has created a model to be used within NGC for upgrading and expanding the Company's existing network system.

Eng. Cheryl Thomas is a Member of the Association of Professional Engineers of T&T with 28 years post graduate experience. From 1985 to 1994 she worked at CARIRI on numerous projects including LPG Optimisation Study, Downstream Products from Urea Formaldehyde and a UNDP sponsored Country Programme for Ozone Depleting Substances (ODS). In 1994, she joined Arestech Limited with responsibility for the construction and commissioning of a urea formaldehyde spray drying facility. In 1998, she moved to NGC in the Project Planning Division and have been involved in identifying and evaluating several project opportunities. She developed a number of the models being used by the GMS including the main gas allocation model. She is presently the Assistant Manager Market Development at NGC. She has B.Sc. in Chemical Engineering from The University of the West Indies and an IMBA (Finance) from Arthur Lok Jack Graduate School of Business.

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APETT Honours and Awards Ceremony 2012

By Eng. Kevin Granger (MAPETT), APETT Public Relations Officer

On Saturday, 9th June 2012, APETT hosted its 52nd Annual Honours and Awards Ceremony at the Learning Resources Centre, UWI St. Augustine. This event took the form of a formal Awards Ceremony followed by a Cocktail reception at the compound of UWI Principal's Office. This year, no less than 250 persons came out to celebrate the recognition of the Awardees. The night's Feature Speaker, was Chief Justice Ivor Archie, whose first degree is in Mechanical Engineering. He was able to demonstrate how invaluable his training as an Engineer was towards his overall development in the Judiciary. Through a series of stimulating examples, Chief Justice Archie showed how having an eye for detail was able to set him apart.

Career of Excellence Award

The highly esteemed award of Career of Excellence was presented to Eng. Kenneth Snaggs for the years of invaluable contribution made within the Public Sector, State Enterprise and the Private Sector. Eng. Snaggs graduated with a B.Sc. in Civil Engineering and later completed his M.Sc. in Community and Regional Planning. His career started in the public sector, where he was a Civil Engineer responsible for design, construction and management. After this period, he worked in Ghana, West Africa for three 3 years on various planning projects, and when he returned to Trinidad he continued his professional development as a Planner and was eventually appointed Director at Town and Country Planning Division. In the State Enterprise Sector, he was a member of the Coordinating Task Force for Point Lisas and the CEO of PLIPDECO and, within the Private Sector, he was a Director at Home Construction Limited. Eng. Snaggs was also on the first Board of the Institute of Marine Affairs, a delegate for Trinidad and Tobago at UN Conferences, and the first Chairman of UdeCott.

R.S.V Aleong Award

The R.S.V. Aleong Award was presented to Eng. George Preddie for his outstanding service to the Association. Eng. Preddie started off as a trainee draughtsman at Grant Construction Company and over the course of his career, worked his way up to a Senior Engineer at Trintoplan and eventually moved to T&TEC where he was responsible for the design and project management of several sub-stations. Eng. Preddie is currently working as a consultant to Heritage Limestone. Throughout his career, Eng. Preddie has been actively involved in the Association's work and promoting its objectives.

Young Engineer Award

The Young Engineer Award was presented to Eng. Shawn Bedecee who was a National Scholar and received a B.Sc. in Mechanical Engineering in 2005. Upon graduating he commenced his professional career at Engineering Consultants Limited and since that time he has undertaken over 1.5 million square feet of intricate Mechanical, Electrical, Plumbing (MEP) design and construction administration.

Fellows

Also on the night, 14 members were elevated to the rank of Fellow. The new Fellows are as follows:

- **Chemical Engineering**: Senator Eng. Basharat Ali and Eng. John Camacho
- **Civil Engineering**: Eng. Martin Andrews, Eng. Michael Fortune, Eng. Donald Gibbon, Eng. Timothy Lewis, Eng. Robin Osborne, Eng. Hardutt Punwassee, Eng. Bill Ramrattan, Eng. Simon Westcott
- **Mechanical Engineering**: Eng. Jesse Awai, Eng. Khalid M. Hassanali
- **Electrical Engineering**: Eng. Clarence Harnanan, Eng. Richard Saunders

Eng. Kevin Granger is a Member of the Association of Professional Engineers of T&T. He has an M.Sc. in Earthquake Engineering from Imperial College, London, and a B.Sc. in Civil Engineering from UWI. He is a Senior Structural Engineer specializing in Earthquake Engineering at BBFL Caribbean Limited. Kevin received the APETT 2011 Outstanding Young Engineer. Contact: kevin@bbflcaribbean.com

Photographs at APETT 2012 Awards Ceremony

Clockwise From Top Left:

- Chief Justice Ivor Archie delivering the Feature Address;
- Senator Basharat Ali receives his Award from APETT Honorary Secretary Eng. Danielle Steele;
- Eng. Khalid Hassanali;
- Eng. Kenneth Snaggs being acknowledged upon receipt of his Career of Excellence Award;
- Eng. Clarence Harnanan

INDUSTRY PERSPECTIVE

PROCESS SAFETY

By Eng. Imtiaz Easahak (MAPETT), Process Engineering Manager, Atlantic LNG

Process Safety is a management system implemented to prevent major incidents involving the potential release of hazardous materials or energy that can cause toxic effects, fire or explosion and could ultimately result in serious injuries, property damage, lost production and environmental impact. It is a disciplined framework for managing the integrity of hazardous operating systems and processes by the application of good design principles, engineering and operating practices.

An effective Process Safety Management System focuses on three important aspects of the Business.

A. **Technology** - this entails developing accurate process safety information about the plant equipment and technology, performing process hazard analysis, developing operating procedures and safe work practices, and managing changes as they arise.

B. **Facilities** – this focuses on the mechanical integrity of plant equipment and the software that controls it. This includes Pre-Startup Safety Review (PSSR) maintenance program and alignment with the management of change process.

C. **Personnel** – this focuses on building and maintaining an effective process safety program. Involving employees at all levels is arguably the best way to communicate its ongoing importance throughout the organization. Other process safety elements include training employees in process hazard analysis, determining root causes of failure and implementing actions to prevent reoccurrence, preparing for emergencies and response, managing contractors effectively and self-auditing to gauge performance and to identify opportunities for improvement in all three aspects.

A robust process safety program will help the business reduce risk and avoid loss. Companies that implement effective process safety programs can derive the following benefits;

- Lives are saved and injuries reduced
- Reduction in property damage costs
- Reduction in business interruptions
- Positive impact on Business Reputation
- Reduction in litigation costs
- Reduction in Incident Investigations costs
- Reduction in Regulatory penalties.

What does this mean for us? With the wide range of chemical and process plants in Trinidad and Tobago, let's take a critical look at how we can design, maintain and operate these facilities safely. This is really important because process safety events can be very serious indeed for workers and the public. History tells us it costs lives.

How alert are you? Remember- it's the prevention and controls of incidents that have the potential to release hazardous materials and energy!

Here are some suggestions:

- ✓ Ensure that your Facility is designed and constructed to good engineering standards
- ✓ Understand the impact of making changes and use the Management of Change process
- ✓ Ensure that you have a maintenance program for all pieces of equipment and that this program is implemented on time
- ✓ Understand the limits of equipment and always ensure it is operated within these limits

- ✓ Adhere to operating procedures – they are there to ensure we operate the equipment and system according to design
- ✓ Report and analyze any event that indicates equipment may have been outside its operating limits

Reference: CCPS Center for Chemical Process Safety- Business Case for Process Safety, Is the Process Safety Bear Real for you - BP version- 4CSN Jan 7th 2010.

Eng. Imtiaz Easahak is a Member of The Association of Professional Engineers of Trinidad and Tobago (MAPETT) and a Registered Engineer (R.Eng.). He has over 15 years post graduate experience in the chemical and gas processing industries. He has a B.Sc. Degree in Chemical and Process Engineering, Masters in Production Management and is currently pursuing an MBA from Heriot- Watt University. Prior to joining Atlantic, he worked at Nu Iron, International Steel Group, Cliffs and Associates Limited, IPSL and Mittal Steel in Engineering and Managerial positions. Eng. Easahak joined Atlantic in 2007 and held the role of Team Lead in the Process Engineering and Plant Optimization units. In 2009, he lead a Flare Study of Trinidad's LNG Facilities that won the CEO's Sustainability Award in the category of Process Safety. Also, in 2011, he lead a cross functional team to improve the LNG defrosting/deriming operations - a project that won the CEO's Sustainability Award for Production Improvement.
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For those interested in becoming a Member of APETT, please visit www.apett.org for application forms and details.

GOVERNANCE MATTERS

THE TRINIDAD AND TOBAGO EXTRACTIVE INDUSTRIES TRANSPARENCY INITIATIVE (EITI) The benefits, beneficiaries and the implementation process

By Mark Regis, Interim Head TTEITI Secretariat

Introduction

The introductory article on the Extractive Industries Transparency Initiative (EITI) was published in the May issue of this Newsletter. It was noted that EITI is a voluntary international coalition of governments, companies engaged in the extractive industries (oil, gas and mining), civil-society groups, investors, donors and international development agencies. EITI is managed by a stakeholders-elected Board and Secretariat in Norway. 35 countries are currently engaged in EITI implementation, 14 of which have been accorded "Compliant Country" status and 21 "Candidate Country status." Trinidad and Tobago was accepted into membership of the EITI on 1st of March, 2011 as a Candidate Country and is working towards achieving Compliant Country status, the highest level of membership, by 28th of August, 2013.

The core objective of EITI is the support of improved governance in resource-rich countries through the full publication and verification of receipts and payments between governments and companies. The rules require governments to publicly declare the revenue received from companies (national and foreign) and for companies to publicly declare payments made to governments.

Beneficiaries

EITI is a coalition of the three stakeholder groups associated with exploitation of the country's natural resources. These include government, extractive companies (oil, natural gas and mining) and civil society. All decisions are reached by consensus. All three stakeholders benefit from a country's membership of EITI.

The government benefits because of the enhanced image gained from its implementation of a standardized and internationally-recognized procedure for natural resource management. The decision to reconcile company payments and government revenues via a multi-stakeholder process, signals the commitment of government to good governance, improves its international credibility and affirms its commitment to fight corruption. An improved investment climate result from a government's clear signal to investors whom it is committed to strengthening transparency and accountability over natural resources revenues and management. This can ultimately result in an increase in direct foreign investment.

Companies, investors and importing countries benefit from being able to conduct their business on a level playing field with reduced likelihood of corruption and increased political and economic stability - essential ingredients for capital-intensive long-term investments. In such a climate, long-term sources of supplies are more assured.

Citizens benefit from the initiative because their full participation in EITI is a public recognition that the country's natural resources belong to them, and that they have the right to conduct independent assessments and with easy access receive public accounting of the revenues earned. Knowing what companies pay and what government receives for their resources is a critical first step that enables citizens to hold decision-makers accountable.

Implementation

Upon admittance to EITI membership process on 1st of March 2011, Trinidad and Tobago entered the EITI implementation phase during which the necessary legal and administrative systems agreed upon by stakeholders will be put in place to satisfy all EITI Principles and Criteria. Thereafter, the first annual EITI Reconciliation Report is to be published. At the end of that period, T&T will have to pass a stringent independent validation test of its EITI systems before being granted EITI Compliant Country status, the highest level of EITI membership.

In all countries, EITI implementation is entrusted to a Multi-stakeholder Steering Committee. In Trinidad and Tobago, the Steering Committee comprises nineteen persons:

- Six government representatives from the Ministries of Energy and Energy Affairs and Finance and State extractive sector companies (NGC, Petrotrin and National Quarries Company Limited);
- One representative each from the four largest private energy companies operating in Trinidad and Tobago (bpTT, BGT&T, BHP Billiton and EOG Resources);
- Eight civil society organizations (Fishermen and Friends of the Sea, Trinidad and Tobago Transparency Institute, the Trinidad and Tobago Chamber of Industry and Commerce, the Energy Chamber of Trinidad and Tobago, the National Youth Council, the Network of NGO's for the Advancement of Women, the Cropper Foundation and the OWTU);
- The Steering Committee is chaired by well-known Transparency advocate Victor Hart.

Successful EITI implementation calls for a collaborative effort and the full support of and participation by all stakeholders. Therefore, opportunities will be provided by the TTEITI Steering Committee via the media, meetings, workshops and conferences for public and private sharing of information, dialogue and feedback.

Without a doubt, membership of the EITI is a "win-win" situation for Trinidad and Tobago and its extractive sector stakeholders.

For more information on the EITI, visit the TTEITI website: www.tteiti.org.tt
Contact: secretariat@tteiti.org.tt

Send your comments to apett.chemical@gmail.com or join the Discussions on our LinkedIn Group.

Launch of APETT Chemical Division Seminar Series

By Eng. Claudius Stewart (MAPETT), Process Engineer, Atlantic LNG, and Eng. Maria Mahabir

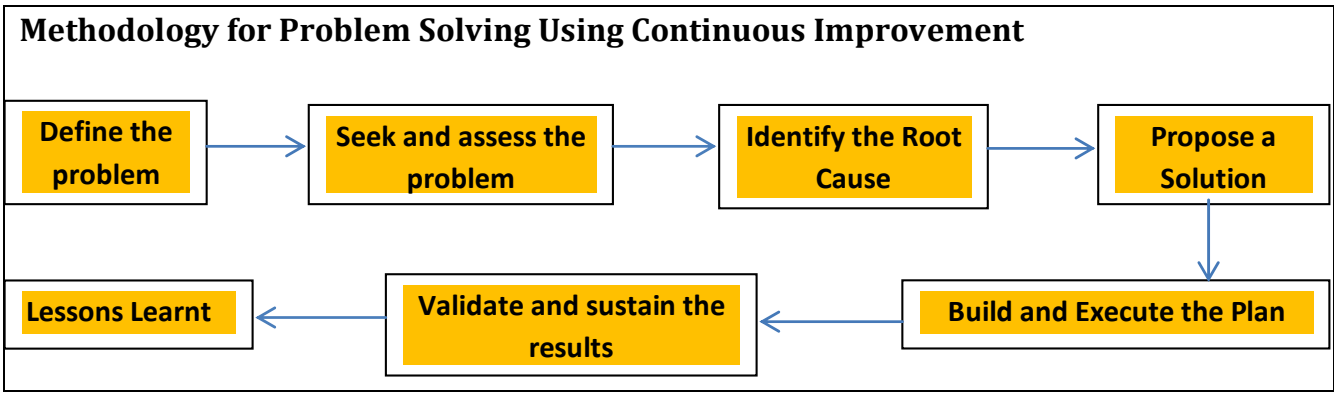
Thursday 21st June, 2012 marked an auspicious date for the Chemical Division of the Association of Professional Engineers of Trinidad and Tobago (APETT). Thanks to the sponsorship of NEC (National Energy Corporation of Trinidad and Tobago), the Chemical Division resumed its Seminar Series. The guest speaker for the seminar was **Eng. Imtiaz Easahak**, Process Engineering Manager at Atlantic LNG. He shared his knowledge and expertise on "***Production Improvement by Reducing Process Plant Scheduled and Unscheduled Downtime***" to a well-represented audience comprising plant engineers and operators, project engineers, business analysts, regulators and academics.

Photo: Eng. Imtiaz Easahak at APETT Seminar

According to Eng. Easahak, Atlantic LNG, successfully reduced the downtime required to defrost one of the key cryogenic exchangers on Trains 1 & 4 from 4 - 8 days to less than 24 hours by the use of Continuous Improvement (CI) in problem solving. The main steps involved in this methodology are illustrated in the following below. Eng Easahak explained how his team used each step of the CI methodology to result in the reduction of downtime.

In a synopsis, he indicated that using lessons learnt from past defrosts enabled the team to identify and determine the problem statement successfully. Further to this, effective team work and an innovative and creative environment, enabled the team to work at optimum levels, provide a detailed risk assessment and most importantly satisfy the requirements of the problem statement, thereby achieving Defrost Sustainability.

Furthermore, Eng. Easahak highlighted the fact that the CI methodology did not just achieve defrost sustainability but consequently benefitted Atlantic LNG with three major additional benefits.



Firstly, there was a significant reduction in defrost duration: Train 1 exchanger defrosted in 13.75hrs (0.56days) in February 2011 as opposed to the previous full plant defrost which took 3.1 days, while Train 4 exchanger defrosted in 18hrs (0.75days) in February 2011 versus the previous full plant defrost of 4 days.

Secondly, he noted, that due to this improvement, the exchangers can be defrosted within planned maintenance cycles (quarterly days) instead of being the driver for plant shutdowns. Lastly, the CI Methodology to achieve defrost sustainability also resulted in the reduction of flaring or GHG emission.

Photo of audience at APETT Seminar

In conclusion, the Continuous Improvement (CI) Methodology has definitely assisted Atlantic LNG in achieving benchmark performance in defrost sustainability. This subject matter certainly grasped everyone's attention and lead to various informative discussions at the end of the presentation. Overall the seminar proved to be a success and gave persons in the energy sector, the opportunity to learn, share ideas and develop networks. This was a very commendable initiative of APETT and the members agreed that they are definitely looking forward to similar seminars in the near future.

At the Seminar, the Chair of APETT Chemical Division, Eng. Haydn Furlonge, thanked Eng. Easahak for a very educational and interesting presentation. Further to this he gave a brief update on the plans and activities of the Chemical Division for the year 2012 into 2013. He noted that there has been an increase in membership applications, but more effort is required to achieve the Division's objectives. The LinkedIn Group is now a vibrant and active tool with over 150 members. The Newsletter is has had two issues, and two more are planned for 2012. Eng. Furlonge, encouraged members to continue brainstorming methods to heighten awareness of APETT and also to determine what is further expected of APETT from various stakeholders.

Eng. Claudius Stewart is a Member of The Association of Professional Engineers of Trinidad and Tobago (MAPETT). He has nine years post graduate experience in the Chemical and Gas Processing Industries. He has a B.Sc. in Chemical and Process Engineering and M.Sc. in Production Management, both from UWI. Prior to joining Atlantic, he worked at PCS Nitrogen Trinidad Limited as a Process Engineer. He joined Atlantic in 2008 and provides Process Engineering support to Project-related work. In 2010-2011, he was involved in a cross functional team in leading the risk assessments for Trains 1 & 3 to improve the LNG defrosting/deriming operations. This project won the 2012 CEO's Sustainability Award for Production Improvement.

Eng. Maria Mahabir is a Member of the Steering Committee of the Chemical Division of The Association of Professional Engineers of Trinidad and Tobago. She has two years post graduate experience, with a B.Sc. in Chemical and Process Engineering from UWI. She is presently pursuing certification and experience in Project Management for Professionals (PMP).

APETT Executive Council Members:

- Eng. Narine Singh, President;
- Eng. Margarita Leonard, President Elect;
- Eng. Dr. Haydn Furlonge, Vice President (and Chemical Div. Chair);
- Eng. Neil Dookie, Vice President (and Civil Div. Chair);
- Eng. Danielle Steele, Honorary Secretary;
- Eng. Kala Trebouhansingh, Assistant Secretary (and Mechanical/Industrial Div. Chair);
- Eng. Fazir Khan, Assistant Secretary;
- Eng. Colin Clarke Treasurer;
- Eng. Anderson Ramsubhag, Assistant Treasurer;
- Eng. Kevin Granger, Public Relations Officer;
- Eng. Dr. Rae Furlonge, Immediate Past President;
- Eng. Bernard Mitchell (Electrical Div. Chair);
- Noreen Mitchel (Office Manager).

Upcoming Activities

General Meeting for ALL Members of the APETT Chemical Division
October 2012, Point Lisas
(Details TBC)

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Upcoming Technical Seminar
New Natural Gas Age–Implications for T&T
November, 2012, Point Lisas (TBC)

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APETT 2013 Diary and Directory Launch, December, 2012, UWI St. Augustine Campus

For updates on APETT events, check our website www.apett.org.