



Sui Northern Gas Pipelines Limited

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Editorial Board

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Ceremony for Award of Cash Prizes & Distribution of Appreciation Certificates to UFG-C Special Task Force

On special directive of the Managing Director, Unaccounted For Gas-Control (UFG-C) Special Task Force was established in June 2010. HSE engineers with special training from Central Metering Shop and maximum departmental resources has been utilized for this challenging task.

Task Force identified the root causes of UFG losses, which are:

- Direct By-Passes (Consumers/Non-Consumers)
- Meter Tempering
- Pressure Enhancement
- Load Enhancement

As a result of surgical operations carried out by Special Task Force at Lahore, Sheikhupura, Sahiwal and Gujranwala Regions, 839 cases have been identified out of which 280 cases have been processed so far by Head Office/Regional Detection & Evaluation Committees. A volume of 3.30 BCF gas amounting to Rs.1.779 billion has been booked while the remaining cases are under process.

Board of Directors invited all the members of Task Force in Board Room during its 370th Meeting held on July 21, 2010 for acknowledging their brave efforts in minimizing UFG losses. Board also advised the Management to arrange a function to honour the members of the Task Force in order to motivate all the employees for their sincere contribution in the betterment and growth of the Company.

Managing Director and CBA provided remarkable support on the sad incident occurred at M/s. Buraq Poly Industry, 11-KM Sheikhpura Road, Kot Abdul Malik, Shahdara, on July 6, 2010 in which SNGPL's executives & staff were seriously injured and hospitalized.

The said ceremony for award of cash prizes amounting to Rs.37,00,000/- and distribution of Appreciation Certificates was held on 10-02-2011 at SNGPL Head Office. Chairman Board of Directors, Mian Misbah-ur-Rehman and Managing Director, Mr. A. Rashid Lone graced the occasion and distributed the awards. This ceremony has boosted the morale of the committed and dedicated members of the Task Force.



Pictorial presentation of the ceremony

List of UFG-C Special Task Force Members, who received certificates and cash prizes

Sr.No.	Name	Remarks	Cash / Cert
Executives			
1	Najeeb ul Hassan GM (HSE)		Certificate
2	M. Ashraf Nadeem CE (HSE)	Moderately Injured	Rs.100,000 & Certificate
3	Farrukh Majeed Bala CE (HSE)		Certificate
4	Major Asjad Nawaz Cheema * SAO	Moderately Injured	Rs.100,000 & Certificate
5	"S. Moazzam Ali Hamdani Ex. Engr HSE"	Seriously Injured/ Hospitalized	Rs.200,000 & Certificate
6	"Hafiz Muhammad Tariq Ex. Engr HSE"		Certificate
7	"Faisal Rizwan Durrani E (HSE)"		Certificate
8	Muhammad Qasim E (HSE)		Certificate
9	Atif Anjum E (HSE)	Moderately Injured	Rs.100,000 & Certificate
10	M. Sanaullah Tarrar E (HSE)	Moderately Injured	Rs.100,000 & Certificate
11	"Waheeb Iftikhar E (HSE)"		Certificate
Subordinates			
1	"Khalid Mehmood Pal Dy. Foreman Fitter"	Seriously Injured/ Hospitalized	Rs.200,000 & Certificate
2	"Fida Hussain Dy. Foreman (D)"		Rs.50,000 & Certificate
3	"M. Arshad Dy. Foreman (D)"		Rs.50,000 & Certificate
4	"Mansoor Ali Shah Sr. Sup. Fitter"		Rs.50,000 & Certificate
5	"Zulfiqar Saddique Sup. C&W (D)"	Seriously Injured/ Hospitalized	Rs.200,000 & Certificate
6	"Shakeel Ahmad Sr. Sup. Welder"		Rs.50,000 & Certificate
7	"Ishtiaq Ahmad Sup. (D)"		Rs.50,000 & Certificate
8	"Noman Nasar Sup. Fitter"	Moderately Injured	Rs.100,000 & Certificate
9	"Basharat Ali Shah Driver (HSE)"		Rs.50,000 & Certificate
10	"M. Asif Tufail Meter Reader"	Moderately Injured	Rs.100,000 & Certificate
11	"Muhammad Rasheed Dy. Foreman (D)"		Certificate
12	"Muhammad Rashid Ali Sup. Fitter"		Certificate
13	"Muhammad Yameen Sup. Fitter"		Certificate
14	"Muhammad Naeem Sadiq Sr. Sup. PLA"		Certificate
15	"Shahid Iqbal Asstt. Billing"		Certificate
16	"Waheed Ahmad Sub. Engineer"		Certificate
Casual			
1	M. Shafiq (Fitter)	Seriously Injured/ Hospitalized	Rs.200,000
2	Farhan Ali Siddiqui (Fitter)	Seriously Injured/ Hospitalized	Rs.200,000
3	Wasim Ahmad (Fitter)	Seriously Injured/ Hospitalized	Rs.200,000
4	M. Iqbal (Fitter)		Rs.50,000
5	Abdul Sattar (Helper)		Rs.50,000
6	M. Tanvir (Helper)		Rs.50,000
7	Rauf Ahmad (Camera Operator)		Rs.50,000
8	M. Rafique(Driver)		Rs.50,000
9	Abdul Majeed (Driver)		Rs.50,000
10	Ghulam Abbas (Driver)		Rs.50,000
11	Shahid Hussain(Driver)		Rs.50,000
12	Liaquat Ali (Driver)		Rs.50,000
13	M. Aslam (Staff Attendant)		Rs.50,000
14	M. Nasir (Staff Attendant)		Rs.50,000
Guards			
1	M. Aslam (Supervisor)	Seriously Injured/ Hospitalized	Rs.200,000
2	Nasir Hussain (Guard)	Seriously Injured/ Hospitalized	Rs.200,000
3	M. Ashraf (Guard)	Seriously Injured/ Hospitalized	Rs.200,000
4	Allah Yar (Guard)	Seriously Injured/ Hospitalized	Rs.200,000
5	Bashir Ahmad (Guard)	Moderately Injured	Rs.100,000
6	Rashid Iqbal (Guard)		Rs.50,000
7	Haq Nawaz (Guard)	Moderately Injured	Rs.100,000

PROGRESS REPORT - GAS THEFT CASES															
From 01.06.2010 to 31.01.2011															
UFG-C Special Task Force HSE Department															
Months	Total No of Cases	No. of Cases Calculated By Lahore Region	Break-up of Processed Cases								Reconnaissance Survey before Surgical Operation	Service Line Removed	Volume Booked (HM ³)	Amount To be Recovered (Rs)	Pending Cases
			By- Pass Consumers	By Pass Non- Consumers	Gas Volume Booked FPR	Pressure Enhancement	Above 2000 HM3	Below 2000 HM3	Booking Not Rq.	Pilferage not Estab					
June	188	138	23	28	44	1	40	56	33	9	14		711,480.66	1,020,384,730.61	39
July	56	47	2	16	21	0	11	28	3	5	17		103,352.60	556,250,474.62	9
August	114	33	10	8	13	2	12	21			11		9,519.39	17,266,231.00	25
September	41	21	2	8	8	3	4	17			6		24,296.84	37,420,998.00	20
October	119	23	2	12	6	3	12	11			4	17	61,780.05	111,670,738.00	65
November	120	17	4	13	0	0	1	16			12	6	21,026.86	36,133,643.00	94
December	68	1	0	0	0	1	1	0			8		193.52	341,761.00	67
January	133	0	0	0	0	0	0	0			12				133
Total	839	280	43	85	92	10	81	149	36	14	84	23	931,649.92	1,779,468,576.23	452

By: Najeeb ul Hassan GM(HSE/UFG-C Special Task Force)

Inauguration of Sub Regional Office at Sundar

Sub Regional Office at Sundar Industrial Estate was Inaugurated by Mian Misbah-ur-Rehman, Chairman Board of Directors on January 31,2011 in the presence of Mr. Abdul Rashid Lone, Managing Director SNGPL along with Senior Management of the Company. Chief Engineer (Civil) briefed about the facilities provided in the building. General Manager (Lahore) apprized the audience about the "One Window" Operation to be provided for facilitating the Industrial consumers at Sundar Industrial Estate. This office will work under the control of Lahore Region.



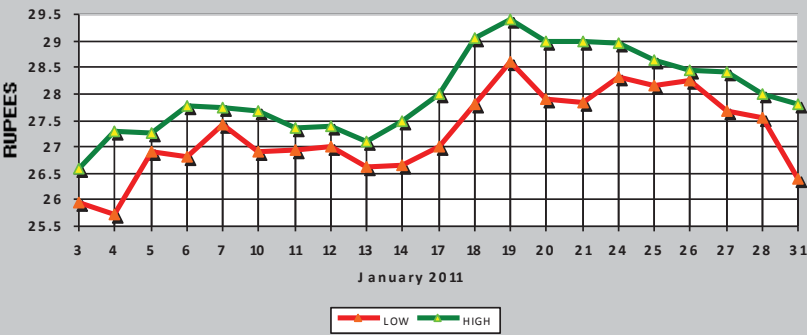
Mian Misbah-ur-Rehman Chairman & Mr. Abdul Rashid Lone MD (SNGPL)
Jointly Inaugurated SNGPL Sub Regional Office at Sundar

By: Qaiser Masood CE (Civil)

SNGPL Share Price Watch January - February 2011

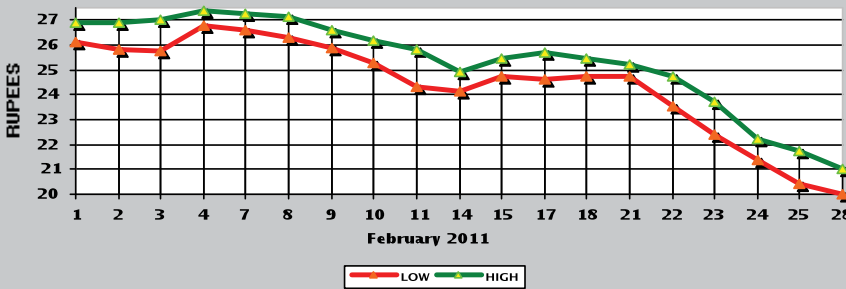
January 2011

Rate / Rs				
Period	Opening	Closing	High	Low
1st WEEK	26.74	27.48	27.78	26.71
2nd WEEK	27.48	26.90	27.68	26.63
3rd WEEK	26.90	28.51	29.39	27.00
4th & 5th WEEK	28.51	26.63	28.95	26.41



February 2011

Rate / Rs				
Period	Opening	Closing	High	Low
1st WEEK	26.63	26.90	27.35	25.75
2nd WEEK	26.90	24.56	27.25	24.30
3rd WEEK	24.56	25.18	25.69	24.15
4th & 5th WEEK	25.18	20.23	25.25	20.00



Distinguished Lecture Series arranged by SNGTI

Mr. Asad Umar, President ENGRO Pakistan delivers a talk on Management in 21st Century



As part of our Distinguished Lecture Series, SNGTI arranged a talk by Mr. Asad Umar, President ENGRO Pakistan, on January 27, 2011. The talk was attended by the Managing Director and the Management. Mr. Asad Umar is the youngest serving CEO of a multinational corporation of Pakistan. He has risen to the top of the corporate ladder with his professional and leadership qualities. The proceedings started with opening remarks by the Managing Director in which he highlighted the professional achievements of Mr. Asad Umar. This was followed by the talk of Mr. Asad Umar. He deliberated on various aspects of management and answered the pertinent questions of the audience.

He highlighted the modern day challenges and informed the audience that this is the century of Intangibles: Knowledge, Brands and Relationships, and emphasized that the human resource of a Company is its ONLY source of value creation. The role of leadership is to create opportunities that allow its people to maximize their potential. The essential conditions for maximizing potential of employees is through the use of the Pygmalion effect; people are encouraged to believe that they can achieve a certain target until they start believing in themselves to produce results. Employee potential is also increased by providing learning opportunities that take people outside their comfort zones. In this regard he stated that his greatest learning experience was during his two year stay at the Engro plant.

Leadership is not a popularity contest and we need to have recognition and reward system that separates the achievers from the non-achievers. He explained the importance of having a sense of mission and a shared value system for maximizing corporate potential. The audience took keen interest in the talk which was apparent from the question answer session. To a query, he replied that his mentor was Mr. Shaukat Mirza. On goal setting and delegation his spontaneous response was full autonomy and free flow of communication. To a remark about growth and development of organizations he reiterated that Human Resource Training and Development are the essential ingredients of corporate development.

In the end, the Managing Director thanked Mr. Asad Umar for sharing his thoughts and experiences with SNGPL Management and presented him with a shield.

By: Sajjad A. Minhas, GM(T&D)

MOU Signed between SNGPL and Director General Project Management Unit Walled City

An MOU signing ceremony was held on 31st January 2011 in SNGPL Head Office with Director General Project Management Unit- (Sustainable Development of Lahore Walled City Project). The objective of this project is rehabilitation, conservation and up-gradation of Lahore Walled City, being undertaken by the Government of Punjab with the financial assistance of the World Bank and technical collaboration of Agha Khan Trust for culture. This project will be helpful in preservation of cultural heritage and for promotion of tourism in the Walled City. Moreover; this project will also be helpful in social and economic uplift and creation of jobs for the residents of Walled City.

The gas distribution system of SNGPL is already available in the Walled City. For improvement of this infrastructure, different meetings were held between Project Team and SNGPL Management. Different suggestions from both sides were taken into consideration. After mutual understanding on different issues; this MOU was signed. The Management of SNGPL assured cooperation at all stages during execution of the project and the availability of maintenance, development and operation teams and cooperate for the completion of this project. SNGPL expects that after completion of the project, this area will become a Model City which will result in the promotion of national and international tourism and subsequent improvement in image of Lahore and Pakistan.



MD SNGPL & Mr. Auria Maqbool Jaan, DG(PMU) inking the MOU.



A PILLAR OF THE COMMUNITY

Sui Northern Gas Pipelines Ltd. (SNGPL) is the largest integrated natural gas utility company in Pakistan, serving more than three million consumers through an extensive gas pipeline network in two provinces of Pakistan, namely Punjab and Khyber Pakhtoon Khwa (KPK). Simon Davies caught up with Mr Hasnat Aziz – Deputy Managing Director-Operations, to find out more about this dynamic organization. Written by Laurie Cuthbert.



With more than 47 years of experience in the operations and maintenance of high-pressure gas transmission and distribution systems, SNGPL has expanded its activities to undertake the planning, designing and construction of pipelines, both for itself and other organizations. The company operates in a region that has a rapidly growing demand for natural gas and for power generation due to significant industrialization in recent years. After being incorporated as a private company in 1963, SNGPL was converted into a public limited company in January 1964 and is listed on all the three stock exchanges of Pakistan.

Timeline of a lifeline

With a transmission system spanning from Sui in Baluchistan province to Peshawar in KPK province comprising over 7,500 Km of Transmission system ranging from 6" to 36" diameter pipeline and 75,000 Km Distribution gas main network diameter ranging from 1" to 24", SNGPL covers over 1,780 towns and villages. Mr Aziz begins: "Since its inception in 1963, SNGPL has grown manifold as a result of sustained efforts, progressive thinking and a dynamic approach to business. In 1984, we were registered on all three of the Pakistani stock exchanges – our basic strategy was, and remains, to provide low-cost, environment friendly fuel to our people. At present, we are the largest integrated gas company of Pakistan, serving more than 3.7 million consumers in north central part of the country."

"When we started our commercial operations, we were selling around 47 million cubic feet of gas per day, to a total of 67 consumers," he continues. "This was way back in 1964 and now we sell around 1,900 million cubic feet of gas on daily basis. So, in 46 years, we have managed to dramatically increase our capacity. There was a massive natural gas found in 1952 at Sui in Baluchistan and, in order to exploit this opportunity, Government established the gas transmission company to implement the systems required to distribute this fuel in the country in the safest and most efficient manner."

"The gas which we buy from 29 different sources, enters into our Transmission system and ultimately reaches the end user after passing through a Distribution system" Mr Aziz clarifies. "We are involved in the whole process right from picking the gas from sources and delivering it to the consumer's doorstep." "SNGPL generates annual revenue of Rs. 169 billion with the total asset value at Rs. 122 billion. Around 7,000 workers with various know how breath life in to this extensive system. At present, the value of its authorized capital is Rs. 15 billion with Government holding of 55 % and 45% shares are owned by private sector. The Company is run by a Managing Director who is also Chief Executive Officer of the Company, appointed by Board of Directors who have vested the powers and functions in relation to the management and administration of the affairs of the Company. The Company's Board consists of 13 directors of which one is an executive member and twelve are non executive members. The Chairman of the Board is also a non executive member. The objective of the Board of Director is to ensure low risk and high returns to its share holders. "Indeed, as a fully-integrated gas utility company, SNGPL takes pride itself of never resorting to outsource any of its construction activities – a feature that contributes to net profit. "We are currently laying around 300 to 500 kilometres of high pressure transmission pipelines each year and, lately, we have completed the erection of 14 gas compressors at Qadirpur site which manifests its ability to handle huge projects," Mr Aziz tells us. "Despite significant increase in gas network each year, alongside the provision of more than 0.2 million gas connections, only 22 percent of the total population could be covered by piped gas, which indicates the enormity of our target for the future. A lot of gas exploration work is going on in Pakistan at the moment and we are confident that the situation will improve a lot in the foreseeable future." manner.



Meeting two spheres of demand

Unlike many integrated gas companies, SNGPL serves both the domestic and industrial customers, as Mr Aziz elucidates. "For the Domestic Market, we have a long list of applicants who are on waiting list for their gas connections" he reflects, "Around 750,000 people are on this list, so this represents a huge market for us going forward. We provide gas to power companies and the fertilizer industry where it is used as feed gas. Then, there is the mechanical and textile industry, which obviously requires gas to power their factories. In addition, 12 percent of our total gas is used in CNG (compressed natural gas) to fuel vehicles – a market that is growing very rapidly in Pakistan. Indeed, we are currently providing natural gas to around 2,600 fuelling stations around the country, making Pakistan the largest consumer of CNG in the world." Looking more generally at our sources, we have fields in Qadirpur, Rehmat, Sawan, Zamzama, Salsabil, Dhodak, Mela, Chanda, Gurguri and Makori. Changing track somewhat, I would say that one of our key strengths is our gas network of transmission and distribution systems." Carrying on in this vein, Mr Aziz continues, "We also have a three layer polyethylene coating plant that coats around 1.2 million square metres of pipeline every year. Other companies in the industry actually use our coating plant as well, which emphasises the quality of the factory, and gives us a way to add value to our operations. By providing these ancillary services to other businesses in our sector, we are able to increase revenues without compromising any of our needs and this certainly is an excellent position to be in. Ultimately though, it is our quality and reliability that differentiates us from the competition."



Responsive and flexible

At present, the Government of Pakistan has been considering two gas projects in the hope of augmenting the country's access to natural gas as a way of shoring up its energy generation capacity. Mr Aziz explains how this move has affected SNGPL: "There is a mega project currently underway involving the laying of a gas pipeline from Iran that will ultimately supply gas to millions of homes around the country. The other programme involves buying LNG (liquefied natural gas) from overseas and transporting it to the port city of Karachi, from where it will be distributed into the southern part of the country. Indeed, such supplies are a necessity, as Pakistan is currently facing a shortfall of around one billion cubic feet of gas per day." Other trends or changes in the market dictate increasing our supply of natural gas to cater for more industrial projects, as natural gas is a far more environment friendly fuel than coal or oil," he asserts. "This will involve constructing more pipelines to connect our network to their plants – the industrial arena is one that is growing quite rapidly in Pakistan at the moment. In response to this demand, the government is asserting considerable pressure on the drilling industry to move forward with their development and exploration of existing and new wells. Recently, we were able to add two new wells in the north of the country that are now producing enough gas to supplement depleting fields that are reaching the end of their lives." "We, at SNGPL, have a strong understanding of the impact/ responsibility the organization owes to the society. By bringing natural gas to the doorsteps of people means saving the environment, as this lessens the burden on the forests and trees, which would otherwise be used as fuel in the rural areas. This also reduces the amount of carbon emissions into the environment, as compared to carbon emission produced if alternative fuels like oil or coal were used as a source of energy. The same understanding prevails in the day-to-day business of the company as human life and Environment is highly valued by SNGPL. This very understanding resulted into formation of very strong HSE Department". As Mr Aziz confirms, "We have a very strong Health and Safety department that was established about eight years ago and we have since matured into an ISO 9001, ISO 14001 and OHSAS 18001-accredited organization. The HSE department at SNGPL takes a proactive approach and continuously analyzes and evaluates any potentially unwanted conditions that may arise as a result of the operations and designs remedial actions. However, when any near-miss or accident happens, the HSE Department analyzes the situation and reaches the root cause of the accident to eliminate the possibility of recurrence in future. Having created such a stringent policy, we are very much eager to keep it that way. Much the same rule applies to our environmental policy. CNG is a low-pollutant fuel – markedly better than coal or petrol – so, in this sense, it is an environmental choice." Based on its low-carbon qualities, the Government of Pakistan is currently in the process of converting all of its public buses to CNG, which is good news for both SNGPL and the country's carbon emissions. "We have implemented a very robust leakage and maintenance division to ensure that any problems and potential risks to the environment due to gas leakages are sorted out as a matter of urgency." Having installed the latest leak prevention technology in many of its networks, the company is further confident of completely eradicating large-scale leaks across majority of its transmission and distribution system in the coming years.

Building for a brighter future

When quizzed about SNGPL's plans for the future, Mr Aziz was quick to underline the company's commitment to ensuring a safe, reliable and guaranteed supply of natural gas to its consumers for the coming years. "One of our plans is to modernize our complete network in order to eliminate leakages, as well as increasing efficiency across the board. In this sense, we are hopeful of reducing the amount of unaccounted for gas. This programme is already underway, which is highlighted by our target of installing 230,000 new gas-line connections every year. On the industrial front, we are connecting around 500 businesses to our network on an annual basis." "From a safety point-of-view, we have already taken giant steps to alleviate many of the problems with leakages and this is something we will be pursuing going forwards," he notes. "In terms of new markets, we have participated in a tender in Algeria, where we almost managed to secure an EPC (Engineering, Procurement Construction) contract for the laying of gas pipeline. In addition to this, we are also interested in entering the Libyan market, as well as the Middle Eastern sector for securing business in pipeline construction projects on EPC basis. We are proud to have very strong capabilities for undertaking cross country pipeline projects on EPC basis, which, when coupled with expertise in industry, means we are ideally suited to capitalize on the African market's need for a more robust transmission and distribution network."



PCP Corporate Philanthropy Award

Pakistan Centre for Philanthropy (PCP) arranged an award ceremony on Monday, December 06, 2010 at Karachi, which was attended by prominent stakeholders from the corporate world. SNGPL was one of the top 5 corporate entities in the category of highest volume of donation and ranked fourth for the year 2008. Mr. A. Rashid Lone, MD was invited to collect the corporate Philanthropy award. However due to pre-occupation the MD could not attend the ceremony.

Thereafter an exclusive award distribution ceremony was held at the conference room of the office of Pakistan Centre of Philanthropy, Islamabad on 2nd February 2011. Mr. Aamir Naseem, General Manager Islamabad received the PCP Philanthropy award on behalf of the Managing Director, from Dr. Anjum R. Haque, Executive Director, PCP.

By: Imtiaz Mehmood (DCS)



Mr. Aamir Naseem GM (ISL) receiving PCP Award from Dr. Anjum R. Haque Executive Director PCP.

National Hockey Tournament Abbottabad

Regional Manager Abbottabad Mr. Naseer Feroz was invited on 30th of December, 2010 to attend the event of all Pakistan-National Games Hockey Tournament as Chief Guest. Mr. Gul Khan Jadoon, Law Officer, and Raja Fuad Ahmad, Sales Officer also accompanied the RM on the occasion.



A Group Photo after Hockey match between Punjab vs Pakistan Navy in District Hockey Stadium Abbottabad.

Black powder in gas pipelines

Black powder is a solid contamination in finished product pipelines. The material may be wet and have a tar-like appearance, or dry and be a very fine powder, sometimes like smoke. Black powder can cause a range of problems, including product contamination, erosion wear in compressors, instrument and filter clogging and equipment contamination for product consumer, erosion and sealing problems for valves, and flow reduction.

Cleaning newly installed pipelines to remove mill scale and drying them to remove hydrotest water will delay the formation of black powder. Some water, even at ppm level, exists in the sales gas composition. Therefore, any change in the atmospheric temperature can cause the water vapour to condense in the pipelines. Since water is an important factor in the support of environmental conditions necessary to form black powder, it is expected that the black powder problem in sales gas pipelines is not going to be a one-time occurrence, but it is likely to be cyclic.

Accurate water monitoring devices can help to monitor the water dew point at strategic locations on the system to provide an alert when corrective action is required. Water used to hydrotest pipelines will contribute in the formation of black powder in the long run. Oxygen scavengers are always added to this water; however, no corrosion inhibitors are added. Adding corrosion inhibitors will definitely reduce the chance of forming black powder; however, due to the unavailability of environmentally friendly corrosion inhibitors, the hydrotest water is not treated with corrosion inhibitors. Treating the hydrotest water with corrosion inhibitor will introduce a major environmental concern, especially with this large amount of water.

Contents

The source of black powder is far from clear, with several possibilities existing. Black powder could be generated from the following sources:

- Mill scale (iron (II,III) oxide - Fe_3O_4) that comes from pipe manufacturing process through high temperature oxidation of steel. These types of solids are very persistent and strongly adhere to pipe wall and are not easily removed.
- Flash rust (Fe_2O_3) from hydrotest water corrosion.
- Internal pipelines corrosion (microbiological influenced corrosion (MIC) or H_2S reaction with steel).
- Carryover from gas gathering systems.

Black powder may be mechanically mixed or chemically combined with any number of contaminants such as water, liquid hydrocarbons, salts, chlorides, sand, or dirt. Chemical analyses of the material have revealed that it consists mainly of a mixture of iron oxides and iron sulfides.

Sour gas pipelines are always treated with corrosion inhibitors, while sweet gas pipelines are not. In both cases there is a chance of forming black powder at different rates. The rate of inhibition in sour gas lines is designed for normal operation, but there is always a chance of plant upsets that might introduce water to the pipelines. This water is not accounted for and will initiate the formation of black powder. Another source of solids formation in sour gas lines is the mechanical mixing of number of contaminants such as water, liquid hydrocarbons, salts, chlorides, sand, or dirt. If the lines are well inhibited, then the quantity of solids is not significant. Nevertheless, in sweet gas pipelines, which are not inhibited, any water condensation or any plant upset that could introduce water to the line will certain lead to the formation of black powder.

The most common and historical means of dealing with black powder is to filter it just before it enters a compressor, station, or processing plant. Filters need to be installed in clean pipelines; therefore, newly installed pipelines as well as existing ones need to be cleaned prior and dried completely to filters installation.

Although sandblasting pipe internals to remove mill scale is one way to remove mill scale, but it will expose the line surface to the atmosphere, and that will increase the corrosion rate during the initial hydrotest. Therefore, chemical or mechanical cleaning, after the initial hydrotesting, might be the best choice and time to remove mill scale and any corrosion products. However and as an alternative, an internal coating system could be utilised after sandblasting.

- Install end caps on the pipe after each day's construction.
- Enhance hydrotest drying operations and dew point monitoring.
- Chemically clean pipelines, using inhibited water, right after the initial hydrotesting.
- Run scrapers as proof of pipeline cleanliness prior to commissioning.

Once a line is affected by black powder contamination, its removal becomes a real challenge. Black powder in natural gas pipelines becomes extremely hard and thus difficult to remove from the pipeline inner wall. Current scraping technology can reduce the formation of black powder, but there are no documented cases where, once discovered, scraping has been successful in completely removing black powder from a line. Various companies offer methods for removing black powder, including gel scraping, chemical cleaning using diesel/surfactant mixtures/chelants, in-situ chemical cleaning and coating.

Source: Pipeline Pigging industry newsletter, February 2009:
"Movement of black powder in pipelines - part 2" by Dr John Smart

Divine Mathematics

Masjid-e -Nabwi and Qurtaba Mosque have exceptional aesthetics. Taj Mahal has an arresting beauty. Greek and Ottoman architecture have Majestic appeal. The Pyramids have an imposing look. Spiritual art "Calligraphy" is harmonious with all its finesse. Mona Lisa painting is famous for its smile and serenity. APPLE iPad has an extremely elegant appeal. Microsoft Windows are very fascinating. The Spirals of shells in snails, in the waves of a oceans and in Galaxies in outer space have a striking resemblance. There is life on the third planet (Earth) of the solar system. The flowers have a romantic appeal. WHY ?

DIVINE PROPORTION is the answer. Ancient Greeks were the prime movers of this proportion. They observed that the objects in the universe are extremely pleasing to eyes and this motivated them to find out the mathematical relationship in the structure and form of these natural creations. Greeks with their keen interest in geometry made rectangle shapes by drawing arcs on square. The rectangle so formed was very pleasing to eyes and was named as Golden Rectangle. They called this proportion as "Divine proportion" and geometrically expressed it as Φ (), before Arab numerals were introduced in the west by famous mathematician Fibonacci. This ratio then calculated and was found "1.618" and was named Golden Ratio. Further the golden angle was also calculated in circle and was found 137.5 degrees . The ancient artists, Renaissance and modern architects, Computer hardware designers, software programmers, and top business companies have always observed this divine proportion in their works to make their products look "Aesthetically pleasing" such as we see in the shape of Modern Credit Card.

This numerical divine code (1.618) is a universal way of increasing Quantity without compromising the Quality . The most common pattern of growth all over universe and is numerically expressed in Fibonacci numbers of 0, 1, 1, 2, 3, 5, 8, 13, 21, 34, 55, 89, 144, 233, 377.... and so on. This series made by the illustrious mathematician has a simple but distinctive pattern. Every number in the series adds to its preceding number to generate another succeeding number. Not only that but if you find ratio between any two numbers after 1, and 2, the resulting ratio approaches 1.618 value and then after number 89 it reaches constant value of 1.618 until infinity. Fibonacci numbers are also called as divine series because they remarkably express the growth pattern of natural creations with all their balance and beauty. The Fibonacci spiral is the beauty pattern of the universe which is made by joining squares in length 1, 1, 2, 3, 5, 8 and then making an arc by joining diagonals of each square, the beautiful arc so created is called Golden spiral, as we see in the shape of human ear.

The human body is in golden ratio right from its creation. The DNA molecule, containing program for all life, has measurement of 34 angstroms by 21 angstroms in length and width for each full cycle of its double helix spiral. 34 and 21 are numbers in the Fibonacci series and their ratio reaches 1.618. The human body in all its form and beauty has typical contours. There is also a Golden Ratio in the height to width of the center two teeth. Human hand has 5 fingers, each finger has 3 phalanx joints separated by 2 (numbers in sequence). Average sizes are finger bones 2cm, 3cm, and 5cm. In continuation is a bone of the hand which has an average of 8 cm. If you divide the distance from the belly to your feet, with the distance from the belly to the top of your head, the ratio is 1.618. The proportion of your mouth to base of nose is also in golden proportion of 1.618 mouth and nose which is the theme used in the painting of Mona Lisa by Leonardo Da Vinci.

This golden numerical series is seen in Biological growth of plants where plants stems grow in pattern of 1, 2, 3, 5, 8. Flowers such as Lily, butter cups, and Rose have petal growth are in Fibonacci series of 1, 2, 3, 5 and 8. The sunflower seeds have growth in clock wise and anti clock wise direction is in numbers of 21, 34, 55, and 89 and shows this spectacular growth in form of divine ratio (1.618). There is same symmetry in making and growth of structures in banana, apple, pine apple and many other fruits and vegetables. This Fibonacci progression is the numerical divinity found everywhere in the universe. In the realms of music there are 13 notes in octave. A music scale is composed of 8 notes, of which the 3rd and 5th notes create the basic foundation of all chords. One can clearly see that a piano keyboard scale of C to C above of 13 keys has 8 white keys and 5 black keys, split into groups of 3 and 2. From the symphonies of Beethoven to modern music, all follow golden mean ratio in their bars. Rather, any music in terms of frequency or poetic lyrics follows this pattern of Fibonacci numbers and is very appealing to ears such as of The Beatles, or Michael Jackson's Thriller. The climax of most music is roughly found at Phi point of 61.8% (.618).

Similarly, many furniture companies, including IKEA in designing their exotic home and office furniture observe this ratio of 1.618. This divine code (1.618) is found all over the universe in its form and function of everything. The dimension of earth and moon are in Phi relationship forming a golden triangle. The rings of planet Saturn are arranged from inside out in a golden ratio. The CN Tower in Toronto, one of tallest freestanding structure in the world, contains the golden ratio in its design. The ratio of observation deck at 342 meters to the total height of 553.33 is 0.618, the reciprocal of Phi. This golden mean was also used in construction of famous Parthenon in Greece, Taj Mahal in India, United Nations Building In New York, Burujul Dubia, Petronas tower in Malaysia, and many ancient and structures such as Statue of David and Burujul Arab. In field Hockey the Asian hockey style is known for its beauty and splendor is also based on Fibonacci sequence: 1, 2, 3, 5. (One goalie, 2 backs, 3 half backs and 5 forwards). Pakistan victories in field hockey are based on this divine pattern.

This proportion is also found in calligraphic works and was emulated in designing fascinating "Windows" of computers. Many Computer Monitors, Television and cinema screens are golden rectangles in ratio of 1: 1.618. From nature to art, from science to human technological creations 1.618 keeps on showing with all its divine beauty. Scientists and artists are fascinated and shocked to find this golden ration in almost all the fields of knowledge such as Theology, Astronomy, Chemistry, physics, Mathematics, Art and Designing, etc. One of the writers has called 1.618 proportions as the "Measuring stick" of the universe. Mile to Kilometers is also 1:1.6. The leaves and stems of some trees are arranged at 137.5 degrees from each other which is called as Golden angle. This angle lets the sun shine on the greatest number of leaves. When you draw that angle inside a circle, you get two pieces. Divide 137.5° into 222.5° and you get..... 1.618. Earth is 3rd and the only planet of Solar system having life. 3 is a Fibonacci number. It is all Divine Mathematics in action.

One can find this Divine proportion in its spontaneity and growth all over the expressive and harmonious UNIVERSE. The Unfolding beauty of all the objects of universe is and will always be in divine proportion. That is why GOD calls him "Al Musawaro" (The Greatest Artist) and says in Quran. See the wonderful program of His sovereignty in absolute proportion and harmony, and then Have a good look at the Universe around you. You will not find any defect or disproportions in the creation of 'Ar-Rahman'. Not once. But look again and again and reflect deeply over it. You will not see any flaws or fissures anywhere. Everything is in perfect proportion. Have a look again and again and your vision will come back to you in awe. (Surah Mulk , verses 3&4).



By: Mohammad Asim (Corrdinator Training-SNGTI)

Health Safety & Environment

HSE Team Visit to AC-1X (Bhong), AC-IV & Coating Plant Uch Sharif

Site Visits and the interaction with the staff is a key motivational component. It helps to enhance the HSE awareness and culture amongst the employees through out the Company. In this regard, HSE Team from Head Office visited AC-1X (Bhong), AC-IV (Uch Sharif) Compressor Station & Coating Plant (UCH Sharif) from 02.02.11 to 04.02.11.

The basic objective of this visit was to monitor HSE initiatives pertaining to Compression & Coating Plant. Activities performed by the HSE Team at site are enlisted below.

- a) Walk through survey of Compressor Stations / Coating Plant
- b) Noise Monitoring
- c) Waste Water Monitoring
- d) Illumination survey
- e) Fire Drill
- f) Training session on Fire Fighting , PPE's Management, First Aid & SMART
- g) Documentation review / Review of OHS & Environment Risk Assessment
- h) Distribution of Literature / Brochures by CE HSE among the executives & staff at site
- i) Tree Plantation – An effort towards Low Carbon Emissions
- j) Inquiring about the social issues of females in the colonies of AC-1X & AC-IV - an initiative of CSR

HSE Team from Head Office stayed at AC-IV for three days. Housekeeping Inspection of various sites were carried out and the grey areas were highlighted for its further improvement. This housekeeping not only improves the environment but also reduces / eliminates the existing or potential hazards.

It is pertinent to mention that HSE department has taken an initiative of “Tree Plantation” at site.

HSE Focal Points Multan Compression / Coating Plant Uch Sharif and the concerned executives / staff participated in the lectures delivered by HSE Team during their stay.



Farrukh Majeed, CE(HSE), Distributing HSE literature to welding staff at AC1X



Dr. Huma (OH Consultant) conducting First Aid / PPE awareness session at Coating Plant



CE(HSE) and CE(MUL-C) initiated first Tree Plantation initiative at AC-IV



Fire Fighting conducted after awareness session at AC-1X

By: Furrukh Majeed Bala CE (HSE)

Retirements



Mr. Hasnat Aziz Banth DMD (OPS) retirement ceremony at SNGPL (HO)



Mr. Hasnat Aziz Banth (DMD) (OPS) receiving farewell bid from Mr. Abdul Rashid Lone (MD)



Rana Gulzar Hussain (Dy. Sup/Records/Corp Affairs) retirement ceremony at SNGPL (HO)

Do not use crane buckets for working on high pressure transmission line.

09-HSE-SP-19



Health, Safety & Environment Department



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