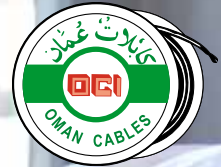


# Life Wire

OMAN CABLES IN-HOUSE PUBLICATION S/No. 14



**Focus on Health and Safety**



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Felicitations and Wishes to  
His Majesty Sultan Qaboos Bin Said  
and all employees of Oman Cables Group companies on the  
occasion of the 41st National Day  
18th November 2011

## Message from VCMD



Hussain Salman Al Lawati  
Vice Chairman & Managing Director

Our main priority is to build our country. It is not just a priority but also our responsibility and not to imitate bad habits. The current situation has brought many good qualities and equally bad experiences and we are in need to create a generation to act responsible, sincere and are obliged to our duties, no matter how insignificant.

A person's duty in the society and your job responsibility has no direct link, but both are necessary and important. The Captain of a sinking ship will remain hopeful until the last minute, he will try and save as many lives and even if only one life jacket remains, it is his duty not to accept

it until the last person is off the ship.

Unfortunately we have seen some of our employees in one of our associated companies in the last two months who has misbehaved and has brought extensive damage to our assets. It is incomprehensible actions, despite all the good investments made in the company. We have developed and trained Omani's in all fields of the operations. Management has done extensive work to secure jobs and build careers in the company, in the interest of our Country Oman. We are proud of our employees and the Omani's have played an appreciative role in the company as well.

Despite the current global situation which is turbulent, the economy in our region gives us hope and we see positive growth in the future, as we build and develop infrastructure in our region.

It is in all of our interest to further maintain and enhance production at all levels and to cooperate between Oman Cables and OAPIL to achieve the best possible results and avoid future situations which we have experienced earlier in this year.

I look forward to cooperation from all employees in building our companies for the future.

Wishing all the families of OCI Eid Al Adha.

## Message from CEO



Hans Meiring  
Chief Executive Officer

In today's uncertain Global political and economic climate, world trade is becoming more interwoven by region and country, it is inevitable that competition will also increase. In our specific business, we along with our competitors make use of the same materials, manufacturing technology and operating systems driven by common product specifications. We have witnessed a 3-fold increase in competitors in our traditional regional market which has brought tremendous pressure on operating margins.

Two of the main criteria that OCI has embarked on as defined in our mission statement is to deliver in both quality and service beyond our customers and stakeholders expectation, as all the other parameters are

defined by standards. "We have excelled in delivering what OCI stands for". We must henceforth excel in further differentiating OCI from our competitors in building sustainability in our commitments to all our stakeholders by ensuring that we live up to our credentials defined in our operating systems to further enhance our already established low cost base.

The emphasis will be on shop floor management, shop floor interaction systems, connecting live manpower, machines, materials and methods. By focusing and refining the 4 x M's will ensure that OCI remains at the forefront of effective production management and control systems flowing through to 100% on time delivery and outstanding quality in our products that will secure our

customer base despite intense international competition. The Management has allocated and the Board has approved substantial funds for these initiatives and we must "ALL" embrace the changes that these systems will bring in ensuring OCI remains a global leader in the cable industry.

The tough tasks ahead to implement these systems comes on top of our daily tasks, and I thank both Management and staff for their dedication already displayed in pursuing excellence. The results are already evident, and I believe that in 2012, when all the systems are implemented will ensure OCI's continued future growth.

Wishing all the families of OCI Eid Al Adha.

## Manufacturing Execution System training

OCI has started the implementation of MES, with the goal of high transparency in the manufacturing procedures and new possibilities and options for Planning and Shop-floor Control.

The MES project includes the rework of our cable design and the restructuring of the time and material management system.

The software is specialized for cable manufacturers and includes all usual procedures.

The training workshops are conducted in the areas of cable design and manufacturing master-data, planning and production order management as well as for the shop-floor control. The workshops content is to learn how the software works and to implement OCI's specifics in the software.

After each training workshop a certain back-office work is needed, to build up OCI's cables, machines and procedures in the system.



Hussain Salman Al Lawati (Vice Chairman & Managing Director) attended the 7th Arab Cable Manufacturers Association conference in Spain during September 2011

## Corporate Social Responsibility

## Breast Cancer Awareness



Hans Meiring (CEO) handing over a donation to Mrs Yuthar Al Rawahy (Founder and Chairperson, The National Association for Cancer Awareness)



Hundreds of people supported the Breast Cancer Awareness Walk held in Al Khuwair in October

## HR for Non-HR Training

HR for Non HR Mangers was designed for Managers whose main specialism is not in HR and development, but who have responsibility for the management of people. The two days workshop run by Europe’s largest professional institute for people management and development, institute: **The Chartered Institute of Personnel and Development (CIPD)**

The workshop covered HR-related activities and it is critical to line managers to understand, discussed, HR best practice and comply with legislation. The two-day HR course export the line manager through the complete employee life-cycle from pre-recruitment to post- termination as well as pervasive coverage of key employment legislation affecting the employer-employee relationship.

14 OCI none HR Managers attended this course.



## Oman Cables supports Muscat Star



Oman Cables supports Muscat Star who won the “City World Cup”. The Football tournament was held from 21st June to 26th July 2011.

Mr. Fahad Mohammed Al Raisi, Administration Department is the Team Manager.

## Training and Development Program

Training Course	Institute	No of employees attended
HR for Non-HR	Meirc Training & Consulting	17
Internal Auditor Forum	Marcus Evans	1
LME Metals	London Metal Exchange	4
Microsoft Office & Business Correspondence	Polyglot Institute Oman	20
Total Employees		42

## Promotions

Name	Current Job	Promoted to
Benny George	Sr.Customer Service Officer	Asst Customer Service Manager
M K Suresh	Electrical Engineer	Senior Engineer- Electronics
Khalid Sulaiman Al Nadabi	Q A Technician	Asst QA Inspector
Jayant Padwal	Electrical Supervisor	Electrical Engineer
Mubarak Musallam Nasiir Al Rahbi	Q A Technician	Asst QA Inspector
Eimad Abdullah Ali Al Qassabi	Q A Technician	Asst QA Inspector
Mohd Ahmed Al-Balushi	Q A Technician	Asst QA Inspector
Khalil Hashil Said Al Shukaili	Sales Engineer	Key Account Manager-Utilities
Moosa Khamis Hamood Al Siyabi	Stranding/Bunching Operator	Production Supervisor
Abdul Hamid Sulaiman Al Rahbi	Stenciller	Q A Technician
Duggal Vikram	GM - Works	Technical Advisor
Shalkh Aziz Salim	Electrician	Electrical Supervisor
Talal Ibrahim Doshambah Al Bulushi	Sales Engineer	Key Account Manager
Matta John Joel Roy	Sr.Sales Engineer	Key Account Manager
Petrus Jacob Theron	Factory Manager	Deputy GM - Works
Jaber Salim Harib Al Hattali	Crane Operator	Forklift Operator
Rahul Anand Agarwal	Sr.Sales Engineer	Asst. Regional Manager-UAE
Abeer Saleh Juma Al-Balushi	Sales Co-Ordinator	Senior Sales Co-Ordinator
Asma Abdullah Hamood Al-Shaqsi	Customer Service Officer	Senior Sales Co-Ordinator
Suhaila Al Nabhani	Sales Co-Ordinator	Customer Service Officer
Moosa Sulaiman	Material Handler	Forklift Operator
Nawal Saif Salam Al Qarawashi	IT Co-Ordinator	Systems Administrator
Issa Khamis	Security Guard	Light Duty Driver
Malallah Salim Al Shabili Al Sulaimi	Accounts Assistant	Accountant
Younis Saif Mubarak Al Muharbi	Helper	Stranding Operator
Ashok Kitta Pujari	Deputy Maintenance Manager	Procurement Manager
Anwar Basha Zaheer Hussain	Senior Sales Coordinator-1	Senior Sales Coordinator-2

## Eid at Al Sawadi Beach



150 staff members attended the Eid celebration at Al Sawadi beach

## Aspects of single-core MV XLPE cable application

Use of single-core MV XLPE-insulated power cable in place of three-core cable is a cost effective and reliable solution particularly when conductor size exceeds 300 mm. Because of its reduced diameter, single-core can be manufactured in longer lengths and is easier to transport and install. However, system reliability is influenced by cable accessories as well - in particular joints. Unlike modern XLPE cable which is made in automated controlled environments, jointing is performed by semi-skilled people in relatively uncontrolled environments. A marked benefit of single-core cable use is improved system reliability through reduced jointing.

However, in opting for single-core cables, users may experience cable and accessory problems and early network failures. This unfortunate experience often results from inadequate engineering of electromagnetic field effects associated with single-core cables which do not have the inherent symmetry of three-core cable. Use of single-core use results in significant mechanical and electrical benefits but ignorance of associated electromagnetic field effects can negate these.

A time varying steady-state current flowing in a conductor produces both electric and magnetic fields around the conductor. In both single and three-core cable, the electric field is contained within the dielectric system. However, the magnetic field enters the space beyond the core and interacts with overlying metallic components. Because of its symmetry, three-phase magnetic fields emanating from a three-core cable quickly sum to zero but not so with single-core cable.

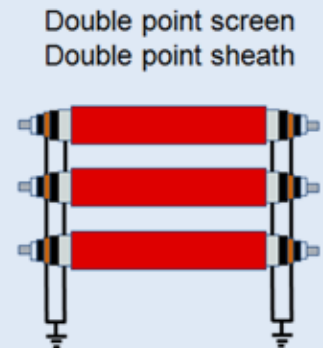
In single-core cable, metallic screens and wire armour completely encapsulate the conductor magnetic field. A time varying conductor current will induce a voltage in these components and if the cable is bonded to earth at both ends, a so-called 'circulating' current will flow. The

magnitude of this current is a function of loop impedance and if low enough can approach that of the conductor current. As the impedance of the metallic screen is relatively high, associated currents are usually not significant. However, the relatively low amount impedance will allow significant currents to flow. These create additional heat loss and reduce cable current rating. If the cable is not bonded at both ends, this current is replaced by a standing voltage which if high enough can pose a safety risk and also breakdown polymeric bedding and sheathing. It should be noted that for reasons of safety, all screened and armoured cable should be bonded to earth at some point along its length.

Single-core cable systems can be configured in two broad ways, namely fully-bonded or specially-bonded. As a rule of thumb, special bonding techniques are regarded as economic for conductor currents in excess of 500 A.

The simplest, most cost effective and robust bonding method is full-bonding. Each core is bonded and connected to earth at each end allowing the flow of induced current. The magnitude of this current is independent of route length i.e. that same current will flow in short and long circuits. Voltage across the outer sheath at each end is near zero but increases towards circuit mid-point. The optimum configuration for fully-bonded systems is a symmetrical trefoil arrangement which results in the lowest induced currents. Increased core separation will increase induced current magnitudes but will decrease core mutual heating. With asymmetric spaced flat-formation, increased core spacing results in added reduction of mutual core heating, but induced currents increase sharply particularly in the outer two cores. Optimum core spacing can be ascertained from the current rating calculation using methods described in IEC 60287. Bonding tails must be engineered to accommodate steady-state sheath as well as transient

fault currents. Being fully bonded at both ends, the system is not subjected to added voltage differences during through-faults.



Single-point bonding is the simplest special bonding technique and requires cable to be bonded to earth at one point only. The benefit of this bonding technique is that induced currents are eliminated with a gain in current rating particularly with increased core spacing. However, it is accompanied by a standing voltage on metallic cable layers of magnitude in direct proportion to conductor current and cable length. This voltage creates both sheath breakdown and touch-potential risks and must be included in system insulation review. No common limits exist for this voltage but steady-state values of 60-300 V are commonly imposed. With modern sheathing materials, voltages of up to 600 V are possible. Lightning or switching transients can increase induced voltages by at least a factor of 10. Consideration of these voltages sets the maximum length of single-point bonded cable. As through faults can cause additional voltage rises, a separate earth conductor should be laid in close proximity to the cable system and transposed at mid-point to reduce induced currents. Should single-point bonding not offer sufficient route range, the bonding can be moved to the cable mid-point, effectively doubling the range for the same voltage. Sheath voltage limiters (SVLs) can be installed at open ends to clamp the maximum steady-state voltage. One risk of single-point bonded systems is that sheath damage could cause local current loops and inadvertent cable overloading. Magnetic field

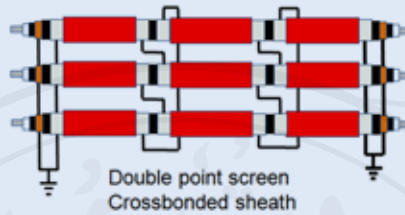
strength about single-point bonded systems is relatively high and may require attention in countries where limits are imposed.

Single point screen  
Single point sheath



Another more complex special bonding technique is cross-bonding which requires the circuit to be divided into major segments which in turn are divided

into three minor sections. In these minor sections, armouring is interconnected by transposing conductors enabling induced three-phase voltages sum to near zero. For asymmetric flat-formation cables, the cables can be physically transposed to promote added voltage summation. The benefit of cross-bonding is that induced current is reduced and link rating and range increased. However, the downside is more complex accessories, added system cost and lower reliability.



Depending on the particular cable installation, any or all of the above bonding methods can be used in different combinations. Cable links of In any of these, it is essential that cable system design reflects electromagnetic field effects briefly outlined above. Well engineered MV cable networks comprising of modern single-core XLPE-insulated cable, appropriate accessories and installed by approved methods provide a means of safe, cost effective, environmentally compliant and reliable bulk energy distribution.

**JW Yuill Pr. Eng.**  
Oman Cable Industries (SAOG)

## What's in the box ?

Observant OCI employees will have noticed a new structure in Hall 1 Factory 1 but might not know or understand its purpose. The bright shiny box houses equipment to detect and measure events so small that they might be overlooked as being insignificant. The event is called a partial discharge and is measured in 'pCs' or one million-millionth of a Coulomb – the unit of electrical charge. But don't be fooled - if small is deemed insignificant reflect on how a tiny mosquito can destroy a good night's sleep.

Partial discharges occur in the insulation of MV XLPE-insulated cables. Why the term partial? – it's because the discharge does not occur across the entire insulation system but only partially across tiny gas-filled voids than can be barely seen. These discharges create ions - atoms stripped of electrons

- and accelerate these across the void with sufficient energy to damage the opposite surface on impact. Many such discharges occur every 50 Hz half-cycle or 10 thousandths of a second. If uncontrolled, the insulation will slowly deteriorate to a point where the cable will fail prematurely after a few years.

These tiny electric events must be detected and measured. The real world is filled with stray electrical noise that unaided human senses cannot detect. This noise emanates from many sources including computers, air-conditioners, and vacuum-cleaners, speed control of AC machines, transformers, radio stations, mains supply and factory earthing. Sensitive partial discharge test equipment has to be housed in a special enclosure which attenuates a wide frequency range of so-called air-borne and conducted electrical noise.

Stray electric and magnetic fields are attenuated by the large laminated steel box, incorrectly referred to as a 'Faraday Cage', so that they cannot interfere with the detection equipment. To reduce conducted noise, the box or 'screened room' is mounted on a polymer film thereby ensuring factory earth separation. All incoming power supplies pass through filters and the HV power supply passes through a special high-voltage filter.

Drums of freshly manufactured MV XLPE cable are moved into the screened room and connected to the HV transformer by special noise-free terminations. No sharp objects are allowed in the screened room because these can cause the air to ionize and create unwanted sources of electrical noise. Looking into the test area, one will notice that all HV connections are



rounded and smooth. With the cable installed in the screened room and suitably terminated, the special sliding door is closed and voltage applied to the cable. This voltage is much higher than the cables normal working voltage. With all external sources of noise sufficiently attenuated, the only remaining noise source is the cable itself – from partial discharges in the insulation. These discharges are detected, measured and displayed on a computer screen. Typically, in a well manufactured XLPE cable, with a detection sensitivity of better than 5 pC, no partial discharges above this value

should be detected in cable under test.

Although XLPE is an outstanding insulation material, it is susceptible to partial discharge damage. However, if these discharges are controlled, it is not unrealistic to expect 50 year life spans from modern MV XLPE-insulated cable provided its designed performance envelope is adhered to. Partial discharge testing is so important that every single drum of MV XLPE cable will pass through OCI's partial discharge test facilities.

Extended application of this state-of-the-art technology reinforces OCI's

mission of engineering excellence and expanding international acceptance as a leading manufacturer of modern MV XLPE-insulated power cable.

It's important to pause and reflect on this exciting business journey. Should you desire to escape to a quiet noise-free space where cell phones cease functioning, OCI's partial discharge screened rooms are the places to go. But first make sure that testing is not held up, the high voltage transformer is switched 'off' and your boss knows where you are.

## Why Recycle matters



There are three key factors when thinking about how to recycle - The 3 R's:



Not only can recycling help the environment, but we can all benefit from recycling things from around the house, at work and during our leisure time.

### Recycling Conserves Resources and helps protect the environment

When we recycle, used materials are converted into new products, reducing the need to consume natural resources. If used materials are not recycled, new products are made by extracting fresh, raw material from the Earth, through mining and forestry. Recycling helps conserve important raw materials and protects natural habitats for the future. Recycling reduces the need for extracting (mining, quarrying and logging), refining and processing raw materials all of which create substantial air and water pollution.

As recycling saves energy it also reduces greenhouse gas emissions, which helps to tackle climate change.

### Recycling saves energy and reduces landfill

Using recycled materials in the manufacturing process uses considerably less energy than that required for producing new products from raw materials – even when comparing all associated costs including transport etc. Plus there are extra energy savings because more energy is required to extract, refine, transport and process raw materials ready for industry compared with providing industry-ready materials. When we recycle, recyclable materials are reprocessed into new products, and as a result the amount of rubbish sent to landfill sites reduces. Landfill sites produce emissions of methane, a powerful greenhouse gas.

## Importance of HSE

Health and safety's aim is to promote and maintain the highest degree of physical, mental and social well-being of workers in all occupations. Efforts and procedures are put into place to identify workplace hazards to reduce accidents and exposure to harmful conditions.

Since the year 2010 Oman Cables Industry has made large efforts to improve its Health and Safety culture. As a responsible principled company, we realize that Health and Safety is an important corporate responsibility to achieve a target of zero accident, incident and near miss ratings to be in line with the global best practices.

HSE department would like to highlight a few of the major changes that were implemented during the past two years:

Assigned and developed a competent HSE team, which consist of 83.3% Omanisation;

Installed fire monitoring and fire fighting systems in all plants covering all offices, electrical rooms, including electrical cabinets and stores;

Installed automatic fire extinguishing system for all electrical panels and server rooms in all plants;

Installed signs throughout Oman Cables Industry to improve the overall safety awareness;

OHSAS 18001 Health and Safety Management system completed and implementation has started;

Achieved ISO 14001 accreditation and implemented an Environmental Management System;

Conducted awareness training to all OCI employees;

### What is Eye Wash Stations?

Emergency eye wash stations are required for work place/environments that may expose employees to harmful chemicals. Though all proper precautions may be taken to prevent chemical exposure, accidents can still happen. Eye wash stations are designed to immediately flush contaminants out of the eyes after exposure. They should be located near high-risk areas and should have the ability to be activated immediately.

### Why are emergency eyewash stations important?

The first 10 to 15 seconds after exposure to a hazardous substance, especially a corrosive substance, are critical. Delaying treatment, even for a few seconds, may cause serious injury.

Emergency eyewash stations provide on-the-spot decontamination. They allow workers to flush away hazardous substances that can cause injury.

Accidental chemical exposures can still occur even with good engineering controls and safety precautions. As a result, it is essential to look beyond the use of goggles, face shields, and procedures for using personal protective equipment (PPE). Emergency eyewash stations are a necessary backup to minimize the effects of accident exposure to chemicals.

## High Level Visits



The Premier, Mr David Dabede Mabuza of the Provincial Government of Mpumalanga with the South African Ambassador, Yusuf Salojee visited Rusayl Industrial Estate and Oman Cables – September 2011.

The visit was part of a Government delegation intended to strengthen economic development and agricultural relations between the two countries.



Hussain Al Lawati (Vice Chairman & Managing Director) & Hans Meiring (Chief Executive Officer) visited Brunei on invitation from the Brunei Government to explore business opportunities between the Sultanate of Oman and Oman Cables as the two countries has many similar business interests.

## Customer visits



CLP recently audited Oman Cables for a factory assessment as a future supplier to China Power in Hong Kong. The assessments were based on our ISO Systems and Product Certifications by BASEC and TUV.



Mr. Lentswe Wordsworth Sothoane and Mr. Johannes Lourens Steenberg of SABS did a factory Pre-Permit Inspection on 11th & 12th October 2011 to assess OCI's capability to apply for the South African Bureau of Standards Accreditation as a supplier to Southern African region.



Officials of the Brunei Industrial Development Authority in conjunction with PEIE Rusayl visited our factory in October 2011 as a follow up on the initial visit of Mr Hussain Al Lawati (Vice Chairman & Managing Director) & Mr Hans Meiring (Chief Executive Operator) to Brunei recently.



Officials of A German Business Delegation that visited Oman Cables operation in October as guests of the German Business Forum.