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INDIAN SAFETY ENGINEER

QUARTERLY JOURNAL OF SAFETY ENGINEERS ASSOCIATION

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Thirteenth Anniversary of SEA (India)



The Thirteenth Anniversary of SEA India was celebrated on Saturday, June 28th 2014 at J P Hotel, Koyambedu, Chennai. Special Address was given by Dr. Vijayalakshmi Thanasekaran, Controller of Examinations, Sri Ramachandra University, Chennai Mr S. Srinageswar, Executive Director, Simpson & Group Companies, Chennai delivered keynote address.

Mr. S. Ismail, Officer on special duty, Directorate of Industrial Safety & Health, Govt of Tamilnadu was the chief guest on that occasion.

Mr. Sathish Murugan, Advanced NDT Lecturer, TWI Chennai gave a technical talk on “Advanced N D T Techniques & Enhanced Safety” and Mr. V. Janardhanam, Chief OHSE Manager, Gammon India Ltd gave a technical talk on “OSHE Management System followed in Metro Tunneling Project”.

Mr. S. Ismail, Chief Guest presented Certificate of Merit & Shield to Mr Premkumar Devaraj, who scored the highest mark in October 2013 batch of International General Certificate course of NEBOSH, UK conducted by SEA India.

Large number of SEA India members and invitees attended the function.



Mr. Premkumar Devaraj is receiving certificate of Merrit & Shield from Chief guest Mr. S. Ismail

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NEBOSH Course Update

June 2014 batch NEBOSH, IGC course was conducted from 16th June to 27th June 2014 at Sri Ramachandra University Porur, Chennai as usual. The exams were conducted on Monday, 30th June 2014 by British Council, Chennai. The candidates expressed satisfaction about the course, the results are expected to be announced by first week of September 2014.

Further details about the future programmes will shortly be available in our website info@seaindia.org



June 2014 NEBOSH candidates

FROM THE DESK OF PRESIDENT



Dear Members,

SEA is now thirteen years young! Thirteenth Anniversary Celebrations and Annual General Body Meeting were held on 28th Jun 2014. Dignitaries from DISH, Sri Ramachandra University and Simpson Group Companies participated in the

anniversary celebrations and offered their facilitations to SEA. As is our practice there were two special Technical Presentations on the day which were attended by many of our members and invitees.

As an agenda item for the AGM, Election for a new Executive Committee for the next term was held and a new team is now formed to hold the office for next two years. I am personally thankful to the General Body for reposing their confidence in me and electing me once again to lead the Executive Committee as their President for one more term. Members are requested to extend their full support and offer their valuable ideas and suggestions to the new Committee.

Sixty ninth Executive Committee meeting of SEA was held on 17th May 2014 and a special EC Meeting was held on 14th Jun 2014 to review the arrangements for the 13th Anniversary celebrations and AGM. Our quarterly journal, "Indian Safety Engineer" and the Monthly 'Safety Alerts' (on important case studies) are brought out and distributed to Members periodically. Factory visit programme was organized to "Chennai Metro Rail - Underground Tunneling System" on 10th May 2014 but was limited to 25 participants only as per host authorities. But they agreed to receive one or two more batches of visitors if required. Members who missed the opportunity will get more chances to visit the rare work activities in tunneling operations and learn the

appropriate nature of safety management system.

MOU was signed with Sri Ramachandra University for another term of three years for conducting NEBOSH courses at their premises. 14th Batch of NEBOSH IGC course was conducted during 16th - 28th June 2014 and Exams were held on 30th June 2014. Topper of 13th Batch of Nebosh course was presented with a trophy and certificate during the Anniversary celebrations, as per our practice.

SEA had extended support to ASSE in their organizing the "Safety India -2014" at Chennai during 26th - 27th May 2014. Organizers offered a complementary stall for SEA for both the days and many delegates visited our stall with interest. SEA has also extended support for M/s. Reed International in their organizing safety conference and exhibition called "SafetyEx 2014", at Pragathi Maidan New Delhi during 14th - 16th July 2014. M/s. UBM and their subsidiaries OSH India have requested SEA to support their safety conference and exhibition at Chennai Trade Center during 17th and 18th July 2014. SEA has also agreed to their request of conducting two certified safety workshops for about 2 hours on each day. Many senior members of SEA are expected to present technical papers during the conference.

Mumbai Chapter of SEA and Students Chapter at Anna University, Chennai are active.

Membership directory is now getting ready and new Members are requested to fill up the update forms already circulated to members through email and return them to Secretary / SEA office. For fresh forms, if required, please send your request to SEA office.

Best Wishes!

S. Ulaganathan
President, SEA (India)

MINUTES OF 13TH ANNUAL GENERAL BODY MEETING

Thirteenth Annual General Body Meeting was held on 28th June 2014 after the Anniversary Function.

Mr.S.Ulaganathan presided over the meeting and in his Presidential Address, he briefed the important happenings during the year. He further requested the members to give support to improve the activities of the association.

Mr. N. Kumar, Secretary presented the annual report for the year 2013-2014.

Mr. M. Ravichandran Treasurer presented the audited annual accounts for the year 2013-14.

After getting clarifications for few points raised by members, GB passed a resolution to accept the annual audited report.

Annual Budget for the year 2014-15 was also presented by Treasurer as recommended in the last AGM., the annual budget was accepted by the GB.

Bye law amendments: President presented the proposed Amendments to Bye laws. After due deliberations they were approved as given below:

Sl.No	EXISTING BY LAW	AMENDED BY LAW
5	<p>Business Hours: 09.00 AM to 06.00 PM From Wednesday to Monday Tuesday - Holiday.</p>	<p>5. Business Hours: 09.00 AM to 06.00 PM From Monday to Saturday Sunday - Holiday</p>
Clause 10 c II B	<p>B. AFFILIATE Member/ Life affiliate Member, SEA(INDIA): This non- corporate grade is open to any person with an interest in safety.</p>	<p>B. AFFILIATE Member/ Life affiliate Member, SEA(INDIA): This non-corporate grade is open to Safety Service Providers, and others who are involved in promoting safety practices.</p>
Clause 10 c II c	<p>c. STUDENT MEMBER: The non-corporate grade is for students undergoing approved safety courses with or without background experience. (A student member can be upgraded to Associate Member or a Member whenever he / she meets the respective criteria.)</p>	<p>c. STUDENT MEMBER: The non-corporate grade is for students undergoing approved Occupational Health & Safety Courses with or without background experience. (A student member can be upgraded to other grades of membership as applicable, at the end of their studies.)</p>
Clause 11 -1	<p>Membership of the association may be withdrawn from the individual membership on disciplinary ground and also on default of subscription for a continuous period of three years.</p>	<p>Membership of the association may be withdrawn from the individual members on disciplinary grounds. Decision taken by the Executive Committee will be final.</p>
13 i.	<p>PRESIDENT: He will represent the association and express the views of the association if required so on various bodies, organisation etc. He may also delegate the powers to any other member of the executive committee.</p>	<p>i) PRESIDENT: He will represent the association and express the views of the association if required so on various bodies, organisation etc. He may also delegate the powers to any other member of the executive committee. In the absence of President for a period exceeding 15 days, Vice President will officiate in his place, till President returns back.</p>
13 ii	<p>ii) SECRETARY: He will assist the President, and keep up office, properties, records and render reports and returns, correspond on behalf of the association and look after the day to day business of the association.</p>	<p>ii) SECRETARY: He will assist the President, and keep up office, properties, records and render reports and returns, correspond on behalf of the association and look after the day to day business of the association. In the absence of Secretary for a period exceeding 15 days, Joint Secretary will officiate in his place, till Secretary returns back.</p>
14 viii	<p>Serving members in the committee may also stand for re-election.</p>	<p>Serving members in the committee may also stand for re-election. <i>However senior</i></p>

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Minutes....

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SI.No	EXISTING BY LAW	AMENDED BY LAW
20 i	The President, Secretary will be responsible to carryout the day to day administration of the association. In case President is unable to attend any administrative work due to sick, or away from Head quarters, the Vice President shall carry out the work, with the assistance of the secretary.	<i>members will encourage and give room for young and active members to find place in the committee.</i> Add: ii) Similarly, in case Secretary is unable to attend any administrative work due to sick, or away from Head quarters, the Joint Secretary shall carry out the work, with the assistance of the President.
Clause 21 i	i) All the members of the association are General Body members and should attend general body meeting with out fail. The annual general body meeting will be conducted before the month of June every year.	All the members of the association are General Body members and should attend general body meeting with out fail. The annual general body meeting will be conducted before September every year.

Election of New Office bearers and EC members

GB requested Mr. R. Thiruvengadam to be Election Officer and Mr. Balakrishna Kemburu to assist him. Election for the post of President, Vice President, Secretary, Jt. Secretary, Treasurer and 10 Executive Committee Members was held and the and the list of new office bearers is given below:

Mr. S. Ulaganathan HSE Advisor Hardy Exploration & Prodn. (I) Ltd. Chennai - 600 004	President	Mr. Perumal Manoharan President-HSE, Sanmar Group, Chennai-86	EC Member
Mr. P. Janardhanam Addl.Chief Inspector of Factories (Rtd), Chennai - 600 087	Vice President	Mr. M. Ravichandran Safety Consultant, Chennai-4	EC Member
Mr. R.Sriram Indian Additives Pvt Ltd., Chennai	Secretary	Mr. P. Rajmohan Sr Manager, H S E Toshiba JSW T&G Ltd., Chennai-68	EC Member
Mr. N. Radhakrishnan EHS Head, L&T, ECC, Chennai	Joint Secretary	Mr. G.S. Swaminathan Corporate HSE Head, Brakes India Ltd. Chennai-50	EC Member
Mr. K.G. Varadarajan E H S Manager (Rtd) Audco India Limited, Chennai-89	Treasurer	Mr. P. Subramani Safety Consultant Sundaram-Clayton Ltd., Chennai-50	EC Member
EC MEMBERS:		Mr. L. Sukumar BHEL, Ranipet-632 406	EC Member
Mr. R. Parameswaran Dy.Chief Inspector of Factories. (Rtd) Chennai-17	EC Member	Mr. K.N. Sen Head - HSE-HCP, Chennai-89	EC Member
Mr. N. Kumar Head - HSE L&T Power, Chennai-89	EC Member	Mr. C.A. Sasi Kumar HSE Officer - Brakes India Ltd Chennai	EC Member

Handing over and Taking over of Office Bearers and Executive Committee members

After handing over of charge by Old Executive Committee Members, Newly elected Executive Committee members took charge and thanked the GB for having elected them to the office and assured them that they will strive to do better in achieving the objectives of the association.

It was approved by G B that Mr.R.Thiruvengadam will continue to be the Advisor for this term (2014-16). Also, General Body approved Mr. G.M.E.K.Raj to be another Advisor for this term (2014- 16).

Both the Patrons, Dr. Lakshmanan and Mr. Balakumaran will continue as Patrons for this term also.

Vote of thanks: Newly elected Treasurer, Mr. K.G .Varadharajan proposed a formal Vote of Thanks and meeting came to an end. ■

ADVANCED NDT TECHNIQUES & ENHANCED SAFETY

Mr Sathish Murugan, *Advanced NDT Lecturer, TWI Chennai delivered a Technical Talk on “Advanced NDT Techniques & Enhanced Safety” during the 13th Anniversary of SEA India held on June 28th 2014 at Chennai.*

The salient features discussed during the programme is given for the benefit of the members who could not participate in the programme.

Phased array UT inspection utilising pulse-echo and / or pitch-catch techniques with volumetric inspection and Time of Flight Diffraction (TOFD) technique. The Ultrasonic sound beams with multiple angles have been generated by phase array time delay concepts along with multiple groups can be used to inspect entire volume of the weld from cap to root with high Probability of Detection (POD).

The system is providing an adequate number of inspection channels for each side of the weld and the inspection shall be designed with sufficient beam overlap to ensure the complete volumetric examination of the weld throughout the thickness in One Line Scan.

Full weld coverage is achieved by placing phased array probe sets on both sides of the Weld, by using multiplexing method each phased array probes generates enough number of appropriate ultrasonic beams for each zone and also the instrument is providing a “A” scan, “B” scan, “C” scan and sectorial scan for defect identification and sizing precision and TOFD presentation with amplitude and transit distance information which gives the detailed analysis of weld. TOFD technique primarily used for High thickness weld and accurate flaw sizing and nowadays clients are replacing RT by TOFD for its fast scanning with precise measurements and not like RT it could not interrupt any work in all trades.

Different scan views, steering and focusing capability will enable the Phased Array Ultrasonic Testing (PAUT), to cover full volume of the weld with POD & Reliability and due to enhanced imaging and compatibility enabled the PAUT & TOFD system to cope with most existing ultrasonic procedures and acceptance criteria, because of its capability to visualise the weld geometry such as root penetration and weld cap reinforcement in order to eliminate the false call rate and to a certain extent quantify volumetric defects.

ASME (American Society for Mechanical Engineers) has long recognised phased array systems as an option for ultrasonic examinations.

ASME Section V recognised phased array UT as an option to single element manual techniques since the December 1992 addendum when it was added as a non-mandatory appendix and identified as one of the “computerised imaging techniques” (CIT’s).

Since then ASME has been developing mandatory appendices to provide more explicit instructions on the proper use and calibration of phased array systems for weld inspections.

Eddy Current Technique (ECT) majorly utilised now for surface crack detection on conducting weldment and Tube Inspection during shutdown period.

The application of ECT widely encompassing all kind of plant sectors (Oil and Gas, Petrochemical and Power plants) for inspecting small bore tubes in Consensers, Feed water heaters, Heat exchangers, Air conditioners, Fin-Fan Coolers and Boilers.

Long Range Guided Wave Ultrasonic (LRGWU) is a newly accepted method for evaluating insulated pipes, cased sections, road crossing, compressor station piping, buried pipelines, tank dike piping and most piping systems which are difficult to access and which in the past could not be inspected economically.

Guided waves are ultrasonic waves that propagate along with the length of a structure, guided by and confined in geometric boundaries of the structure. Long range ultrasonic techniques have been proven for use in pipes with diameters from 1.5” to 48”. However, the methods and equipment have been adapted for further applications, including:

- * Chemical plant: heat exchangers, embedded and cased pipes, storage tanks
- * Oil and gas: offshore structures, risers, flow lines
- * Automotive and aerospace: oil tanks
- * Constructions: bridges, ropes, jetty, sheet piling, rails, chains.

CARBON MONOXIDE HAZARDS FROM SMALL GASOLINE POWERED ENGINES

Many people using gasoline-powered tools such as high-pressure washers, concrete cutting saws (walk-behind/hand-held), power trowels, floor buffers, welders, pumps, compressors, and generators in buildings or semi enclosed spaces have been poisoned by carbon monoxide (CO). CO can rapidly accumulate (even in areas that appear to be well ventilated) and build up to dangerous or fatal concentrations within minutes. Examples of such poisonings include the following:

* A farm owner died of CO poisoning while using an 11-horsepower, gasoline-powered pressure washer to clean his barn. He had worked about 30 minutes before being overcome.

* A municipal employee at an indoor water treatment plant lost consciousness while trying to exit from a 59,000-cubic-foot room where he had been working with an 8-horse-power, gasoline-powered pump. Doors adjacent to the work area were open while he worked. His hospital diagnosis was CO poisoning.

* Five workers were treated for CO poisoning after using two 8 horse-power, gasoline-powered, pressure washers in a poorly ventilated underground parking garage.

* A plumber used a gasoline-powered concrete saw in a basement with open doors and windows and a cooling fan. He experienced a severe headache and dizziness and began to act in a paranoid manner. His symptoms were related to CO poisoning.

These examples show a range of effects caused by CO poisoning in a variety of work settings with exposures that occurred over different time periods and with

different types of ventilation. Workers in areas with closed doors and windows were incapacitated within minutes. Opening doors and windows or operating fans does NOT guarantee safety. CO is a dangerous poison. Operating gasoline-powered engines and tools indoors is RISKY BUSINESS.

Recommendations

It is not widely known that small gasoline-powered engines and tools present a serious health hazard. They produce high concentrations of CO—a poisonous gas that can cause illness, permanent neurological damage, and death. Because it is colorless, odorless, and nonirritating, CO can overcome exposed persons without warning. Often there is little time before they experience symptoms that inhibit their ability to seek safety. Prior use of equipment without incident has sometimes given users a false sense of safety; such users have been poisoned on subsequent occasions. Recommendations for preventing CO poisoning are provided below for employers, equipment users, tool rental agencies, and tool manufacturers.

All Employers and Equipment Users Should:

* NOT allow the use of or operate gasoline-powered engines or tools inside buildings or in partially enclosed areas unless gasoline engines can be located outside away from air intakes. Use of gasoline-powered tools indoors where CO from the engine can accumulate can be fatal.

* An exception to this rule might be an emergency rescue situation in which other options are not

available—and then only when equipment operators, assisting personnel, and the victim are provided with supplied-air respirators.

* Learn to recognize the symptoms and signs of CO overexposure: headache, nausea, weakness, dizziness, visual disturbances, changes in personality, and loss of consciousness. Any of these symptoms and signs can occur within minutes of usage.

* Always place the pump and power unit of high-pressure washers outdoors and away from air intakes so that engine exhaust is not drawn indoors where the work is being done. Run only the high-pressure wash line inside.

* Consider the use of tools powered by electricity or compressed air if they are available and can be used safely. For example, electric-powered tools present an electrocution hazard and require specific precautions for safety.

* If compressed air is used, place the gasoline-powered compressor outdoors and away from air intakes so that engine exhaust is not drawn indoors where the work is being done.

* Use personal CO monitors where potential sources of CO exist. These monitors should be equipped with audible alarms to warn workers when CO concentrations are too high or when exceeding the NIOSH Ceiling limit for CO of 200 parts per million.

Employers Should Also:

* Conduct a workplace survey to identify all potential sources of CO exposure.

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HEALTH EFFECTS OF OVEREXPOSURE TO THE SUN

Ozone layer depletion decreases our atmosphere's natural protection from the sun's harmful ultraviolet (UV) rays. This fact sheet provides a quick overview of the major health problems linked to overexposure to UV radiation:

- * Skin cancer (melanoma and non-melanoma)
- * Premature aging of the skin and other skin problems
- * Cataracts and other eye damage
- * Immune system suppression

Understanding these risks and taking a few sensible precautions will help you enjoy the sun while lowering your chances of sun-

related health problems.

Did You Know?

Skin cancer is the most common form of cancer in the United States.

Ultraviolet (UV) radiation from the sun and from tanning beds is classified as a human carcinogen by the U.S. Department of Health and Human Services and the World Health Organization.

Skin Cancer

Each year, more new cases of skin cancer are diagnosed in the U.S. than new cases of breast, prostate, lung, and colon cancer combined. One in five Americans will develop

skin cancer in their lifetime. One American dies from skin cancer every hour. Unprotected exposure to UV radiation is the most preventable risk factor for skin cancer.

Melanoma

Melanoma, the most serious form of skin cancer, is now one of the most common cancers among adolescents and young adults of age group 15-29. While melanoma accounts for about three percent of skin cancer cases, it causes more than 75 percent of skin cancer deaths. UV exposure and sunburns, particularly during childhood, are

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Carbon....

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- * Educate workers about the sources and conditions that may result in CO poisoning as well as the symptoms and control of CO exposure.
- * Always substitute with less hazardous equipment if possible. Use equipment that allows for the placement of gasoline-powered engines outdoors at a safe distance from air entering the building.
- * Monitor employee CO exposure to determine the extent of the hazard.

Equipment Users Should Also:

- * Substitute with less hazardous equipment whenever possible. Use electric tools or tools with engines that are separate from the tool and can be located outside and away from air intakes.
- * Learn to recognize the warning symptoms of CO poisoning.
- * If you have any symptoms, immediately turn off equipment and

go outdoors or to a place with uncontaminated air.

- * Call local emergency number for medical attention or assistance if symptoms occur. Do NOT drive a motor vehicle—get someone else to drive you to a health care facility.
- * Stay away from the work area until the tool has been deactivated and measured CO concentrations are below accepted guidelines and standards.
- * Watch coworkers for the signs of CO toxicity.

Tool Rental Agencies Should:

- * Put warning labels on gasoline-powered tools. For example:
WARNING—Carbon Monoxide produced during use can kill – Do not use indoors or in other sheltered areas.
- * Tell renters that gasoline-powered tools should NOT be used indoors and explain why.

* Recommend safer tools for the intended use if available.

- * Have portable, audible CO monitors for rent and encourage their use.
- * Provide renters with educational materials like this information sheet.

Tool Manufacturers Should:

- * Design tools that can be used safely indoors.
- * Provide warning labels for existing and new gasoline-powered equipment. For example:
WARNING—Carbon Monoxide produced during the use can kill – Do not use indoors or in other sheltered areas.
- * Provide recommendations for equipment maintenance to reduce CO emissions.
- * Recommend the use of portable, audible CO monitors with small gasoline-powered engines. ■

Health effects....

(Contd. from previous page)

risk factors for the disease. Not all melanomas are exclusively sun-related—other possible influences include genetic factors and immune system deficiencies.

Non-melanoma Skin Cancers

Non-melanoma skin cancers are less deadly than melanomas. Nevertheless, they can spread if left untreated, causing disfigurement and more serious health problems. There are two primary types of non-melanoma skin cancers: basal cell and squamous cell carcinomas. If caught and treated early, these two cancers are rarely fatal.

Basal Cell Carcinomas are the most common type of skin cancer tumors. They usually appear as small, fleshy bumps or nodules on the head and neck, but can occur on other skin areas. Basal cell carcinoma grows slowly, and it rarely spreads to other parts of the body. It can, however, penetrate to the bone and cause considerable damage.

Squamous Cell Carcinomas are tumors that may appear as nodules or as red, scaly patches. This cancer can develop into large masses, and unlike basal cell carcinoma, it can spread to other parts of the body.

Other Skin Damage

Other UV-related skin disorders include actinic keratoses and premature aging of the skin. Actinic keratoses are skin growths that occur on body areas exposed to the sun. The face, hands, forearms, and the “V” of the neck are especially susceptible to this type of lesion. Although premalignant, actinic keratoses are a risk factor for squamous cell carcinoma. Look for raised, reddish, rough-textured growths and seek prompt medical attention if you discover them.

Chronic exposure to the sun also causes premature aging, which over time can make the skin become thick, wrinkled, and leathery. Since it occurs gradually, often manifesting itself many years after the majority of a person’s sun exposure, premature aging is often regarded as an unavoidable, normal part of growing older. However, up to 90 percent of the visible skin changes commonly attributed to aging are caused by the sun. With proper protection from UV radiation, most premature aging of the skin can be avoided.

Immune Suppression

Scientists have found that overexposure to UV radiation may

suppress proper functioning of the body’s immune system and the skin’s natural defenses. For example, the skin normally mounts a defense against foreign invaders such as cancers and infections. But overexposure to UV radiation can weaken the immune system, reducing the skin’s ability to protect against these invaders.

Cataracts and Other Eye Damage

Cataracts are a form of eye damage in which a loss of transparency in the lens of the eye clouds vision. If left untreated, cataracts can lead to blindness. Research has shown that UV radiation increases the likelihood of certain cataracts. Although curable with modern eye surgery, cataracts diminish the eyesight of millions of Americans and cost billions of dollars in medical care each year.

Other kinds of eye damage include pterygium (tissue growth that can block vision), skin cancer around the eyes, and degeneration of the macula (the part of the retina where visual perception is most acute). All of these problems can be lessened with proper eye protection. Look for sunglasses, glasses or contact lenses if you wear them, that offer 99 to 100 percent UV protection. ■

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CELLPHONE - CERTAIN FACTS

A cell phone is a portable phone that uses a network of “base stations” or fixed antennas, that allow users to call from almost any location. The phones send and receive radiofrequency signals to and from the base station. Base station antennas often are mounted on towers, but can also sit on rooftops, water towers, power poles, and other tall structures. All cell phones are tested according to government standards and cannot be marketed or sold unless they have passed these standards. More information about these standards and test information for specific phone models is available at the Federal Communications Commission Web site: <http://ftp.fcc.gov/marketsense/cellphone-health.html>.

What is RF?

Electromagnetic radiation consists of waves of electric and magnetic energy moving together (radiating) through space. Radio waves and microwaves released by transmitting antennas are one form of electromagnetic energy. They are called “radiofrequency” or “RF” energy or radiation. Often the term “electromagnetic field” or “radiofrequency field” is used to indicate the presence of electromagnetic or RF energy.

RF radiation should not be confused with ionizing radiation, such as x-rays or gamma rays. RF fields have lower energy and therefore cannot cause ionization (potentially resulting in chemical changes) in the body. RF fields are non ionizing radiation.

What is non ionizing radiation?

Non ionizing radiation has lower energy and longer wavelength than ionizing radiation. It is not strong enough to change the structure of atoms it contacts but may be strong enough to heat tissue. Examples include radio waves, microwaves, visible light, and infrared.

What is ELF?

Another type of non ionizing electromagnetic radiation is emitted by electric current (such as overhead power lines or anything else with electricity flowing through it). This type of electromagnetic radiation is extremely low frequency (ELF). RF radiation is much higher frequency than ELF radiation, even though they are both non ionizing.

Does using a cell phone cause health problems? Can using one cause cancer?

The possible health effects of RF radiation have been studied for many decades, mostly in laboratory research with animals or cell samples. Most of these studies did not consider the types of exposure people experience when using cell phones because that technology did not exist. In the last 10 years, hundreds of new research studies have been done to more directly study possible effects of cell phone use. Although some studies have raised concerns, the scientific research, when taken together, does not indicate a significant association between cell phone use and health effects.

Since the public continues to be concerned; there are ongoing studies being conducted by many researchers including the World Health Organization, WHO. In addition to investigating the association of cell phone use and cancer, other health effects are being studied, including effects on the eyes, sleep and memory problems, and headaches. The study results should be complete in the next 3-4 years and can be accessed at the following Web site: <http://www.who.int/peh-emf/research/rf03/en/>.

Studies have shown that when some cellular phones are placed very close to implanted cardiac pacemakers, interference with the pacemaker’s normal delivery of pulses can occur. For most digital phones, and for most pacemakers now in use, this does not have an effect if the phone is more than about six inches from the implanted pacemaker. Thus the operation of these pacemakers would not be disturbed with the phone used in the normal talking position.

Do cordless telephones emit radiation?

Cordless telephones work the same as cell phones. The only difference is that the cordless phone is limited to being close to the single base unit to which it belongs, while a cell phone can be carried around all across the country because it can connect to the many base stations that the cell phone system has. ■

SAFETY IN ERECTION AND USE OF SCAFFOLDING

(Continued from the last issue)

Support Structure



To control the risk of a scaffold falling or collapsing, employers must assure that scaffolds are built within OSHA standards relating to strength and structural integrity.

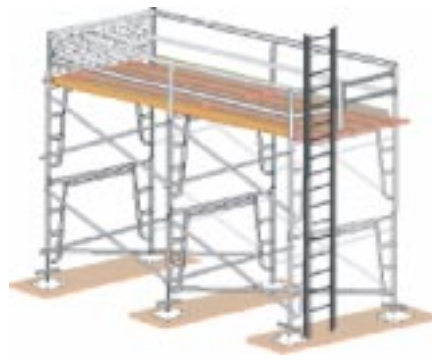
Access



Workers are most vulnerable to fall hazards when climbing on or off a scaffold. Therefore, employers are required to provide safe scaffold access. Erectors and dismantlers face additional access problems due to the incomplete condition of the scaffolding.

Fall Protection

The number one scaffold hazard is worker falls. Fall protection consists of either personal fall-arrest systems or guardrail systems, and must be provided on any scaffold 10 feet or more above a lower level.



Platform

Except when used only as a walkway, the platform is the work area of the scaffold. Therefore, an inspection of a scaffold platform



requires safety checks of both the platform structure and how the platform is used by the workers.

Keeping Upright

Once a scaffold is built, even if it



is compliant with every other standard relating to footings, structure, capacity, etc., it still will not provide a safe work platform if it does not remain upright. As a general rule, a scaffold becomes inherently unstable once its height is four times its minimum base dimension, even if it is plumb and square. Extreme weather or damage to structural components can also affect a scaffold's stability.

Electrical Hazards



Because they may be built in proximity to overhead power lines, and because they are often made of metal, scaffolds can put workers at risk of electrocution. This risk can be removed through proper clearance and maintenance.

Personnel Training and Competent Persons

Critical to scaffolding safety are the use of competent persons for the design, erection/dismantling, and maintenance of scaffolds, and trained workers for their use. Therefore, assessing personnel abilities should be a part of all phases of the scaffolding inspection. ■

OHSE MANAGEMENT SYSTEM FOLLOWED IN METRO TUNNELING PROJECT

Mr V Janardhanam, Chief O H S E Manager, Gammon India Ltd, Chennai delivered a technical talk on “OHSE Management System Followed in Metro Tunneling Project” during the 13th Anniversary of SEA India held on June 28th 2014 at Chennai.

The salient features discussed during the programme is given for the benefit of the members who could not participate in the programme.

Preamble: Construction is a highly hazardous industry that comprises a wide range of activities involving various sectors of economy, which includes industrial and residential construction, bridge and roadway, airport and metros and many more. It includes wide range of activities such as excavations, superstructure erection, demolitions, and tunneling and many more.

Out of all these, underground excavation and tunneling for metro rail project is considered extremely hazardous since most of these projects are carried out in the middle of busy roads.

Well written procedures and requirements, increased awareness, improved partnerships and consultation between owners, consultants and constructors to identify, reduce, and eliminate construction related hazards, results in improved OHS performance in metro rail projects.

Challenges in construction industry, especially in metro projects: Construction projects in India mandate the employment of huge numbers of contractual labour and composition of his team keeps changing.

Especially in underground metro tunnelling projects, the underground excavations near oild buildings, adjacent disturbances of moving traffic, scarcity of space to work freely, round the clock working hours, pressure of completing the work and using of

huge plants and equipment are big challenging and these complex working conditions poses high risks.

All the above high risk activities require stringent safety measures continuously for safe execution. These high risk activities are better controlled by adopting a significant safety standard.

OHSE Mangement System: Well written conditions of contract is the key for developing, implementing, maintaining and monitoring of the OHSE management system. As a first step, project specific OHSE plan, fire plan, traffic management plan, onsite traffic management plan, emergency plan, tunnel safety plan, tunnel contingency plan, waste management plan and lift plan were submitted and got approved by the appointed general consultant.

All the above plans should be reviewed once in six months as the project progresses and are bing submitted for approval.

Appointment of personnel: As a second step, appointment of specified number of safety personnel in each stations and tunnels are required. Their qualifications, experiences are scrutinised by general consultant and to be approved by them before appointment. Thus suitably qualified and appropriately experienced safety personnel are made available at the project sites.

Training: In addition to meeting compliance with legal provisions,

safety depends on effective training for creating required awareness and competency at all levels. Awareness and training together will help percolate safe practices to employees and workers.

General consultant is approving the external training agency by scrutinising their trainers' profiles and the companies experience in training provisions. Only approved external training agencies are engaged to provide any external training.

Regular external trainings are given once in six months for all the machinery operators, lifting supervisors, riggers and signalmen and thus the project ensures competent and qualified operators are employed.

External trainings for management and supervisory staff are being conducted on weekly basis according to the training matrix approved in submitted EHS training plan. Apart from the external trainings, site based internal trainings are also conducted on weekly basis as on date project risk.

Deployment of Plant and Equipment: All the plant and equipments are to be checked thoroughly for its legal valid documents before deployment. Road tax, Insurance, pollution under control certificate, fitness certificate if any, third party inspection certificates for lifting machines etc are cheked and allowed to work

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OHSE Management....

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after verification and issuance of safe to use tag by both P&M department and EHS department.

One of the important requirements is that all the lifting machines, lifting equipments and lifting gears are certified by third party once in six months. This stringent requirement ensures the safe cranes are being used at project sites.

Deployment of high-risk work force: Workmen involved in high-

Necessary traffic signage, staff, visitor and public instructions are displayed at project entrances to give clear understanding of work areas. Pedestrian accesses are always maintained and necessary sign boards with dedicated traffic marshals are engaged to direct and guide the pedestrians.

General Consultant monthly verification Audit - A Proactive Safety Check Model: The value of benchmarking contractor performance is a key driver of safety improvement efforts. A new

These regular safety measurements will yield proactive safety measures and extensive safety standards.

The “Safe to Use” tag carries the information of plant & equipment certificates and expiry dates of the legal documents. The same will be pasted on all the plant and equipment at site to check by all concerned.

Every month the color of safe to use tag will be changed, so as to ensure it is being checked on monthly basis.



External lifting safety training by EHS solutions to management staff



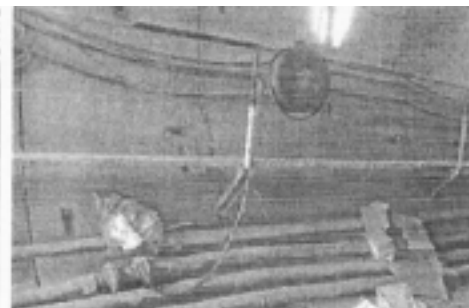
Mass Tool box talks once in a week to discuss the issues on that week



Regular interval training by EHS personnel at site.



Entrance gate at tunnel section with safety information



Installing water hose reels in tunnel as per requirements of regulation



Maintaining waste bins with suitable instructions in Tunnel access areas

risk work, such as operators, drivers, welders, scaffolders, etc. are subjected to standard medical tests including eye test as per requirement of regulation. Specific operators induction are given to these workers and specialized authorised operator cards are also being given before deploy them in work.

Public Safety: Specified barricade with the provision of gates are installed all around work areas to prevent unauthorised entries.

proactive monthly OHSE audit model for measuring the safety performance is providing essential feedback on performance of each contractor.

Before each monthly audit, weekly EHS inspections are carried out jointly by general consultant and contractors’ safety personnel and by thus continuously eliminating unsafe conditions and acts are the upbeat preventive measures beyond legislation.

“Operator Card”: Before allowing people to undertake high risk activities like operating machineries in the workplace, they must obtain “Operator Card” issued jointly from the P&M and EHS department.

The “Operator Card” will be issued after verifying the valid documents like licence, certificate of competency, third party training and result of eye test.

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CASE STUDY: GAS LEAK IN A STEEL PLANT

Gas Leak in a Steel plant involving death of two Deputy General Managers and six staff members.

WHAT HAPPENED?

A small fault was noticed in the pump house of a steel plant. Such small jobs were used to be given only to small contractors in view of the nature of the job. This time the management took a policy decision to give all the jobs irrespective of the nature of the job only to big contractors and they waited for approval for this decision. The result was that maintenance work had been adversely affected.

The header of the pump house that supplied water to the gas cleaning plant of the blast furnaces had ruptured. As the water supply to the gas Cleaning Plant was stopped, there was a sudden drop in water pressure to the GCP and

the blast furnace gas from the scrubbers entered the water pipe line. The gas reported to be a combination of methane and carbon monoxide, started leaking from the ruptured part of the pipeline. The leakage caused the death of six staff members and two Dy General managers who were attending the breakdown.

CAUSE FOR THE ACCIDENT:

1. No immediate step has been taken to replace the ruptured header considering the serious consequential impacts.
2. No suitable gas monitoring alarm device has been installed in the killer gas area.
3. Permit to work system has not been followed before attending breakdown in the killer gas area.

REMEDIAL ACTION SUGGESTED:

1. The seriousness of safety related maintenance work should be made known to the top management.
2. For attending safety related jobs, procedural delays need to be dispensed off and the job has to be carried at once.
3. Scientific study of hazards like HAZOP may be introduced & control action may be taken
4. Preventive maintenance should be adopted in all the accident prone areas.
5. Effective and suitable gas monitor with alarm system should be installed in the killer gas area.
6. Permit to work system should be implemented before undertaking breakdown in accident prone environment.

OHSE Management....

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This initiative helps site personnel to ensure only authorised operators are operating the machineries.

“Permit to Work Display”: Highly hazardous activities are controlled by permit to work system. In construction work site this highly hazardous like hot work, lifting, excavation often mixed up with all other works. Sometimes the construction teams take this work lightly and carryout works without applying work permit.

To overcome this issue and confirm the permits being applied, an initiative of display of work permit nearby work area is followed in the project sites.



The number of unsafe acts like working without permit will be reduced by this initiative.

IN THE NEWS

ISO 9000, ISO 14000 and OHSAS 18000 specifications (OHSAS 18000 is going to become ISO 18000) are under revision.

The key changes:

The introduction of Annex SL, which establishes a consistent structure featuring 10 clauses as well as common terminology and definitions applicable to all ISO Management System Standards (MSS), is the biggest change to the ISO/DIS 9001:2014 document.

Other elements that are new in this version of ISO 9001 include:

- * organisational context (clause 4),
- * knowledge (clause 7),
- * the control of externally provided products and services (outsourcing, clause 8) and
- * the formal introduction of risk-based approach (several clauses), among others.

What does this mean to your organisation?

The potential organisational impact of ISO/DIS 9001:2014 is dependent upon your organisation and your individual QMS. Factors such as the maturity and complexity of the existing ISO 9001:2008 management system, the existence of other management systems (such as ISO 14001 or OHSAS 18001) and the organisation's current evaluation and management of risk will all heavily influence the degree of change that your organisation will need to undertake in order to meet these future requirements of ISO 9001:2015.

Mile stones:

ISO/FDIS 9001: 2015 expected to be published in March 2015

ISO 9001: 2005 expected to be published in Sep 2015. (A three year transition period is expected)

ISO has now officially published the Draft International Standard (DIS) for ISO 14001, signalling the next stage of the revision process for the world's most widely adopted international Environment Management System (EMS) Standard.

As well as the incorporation of Annex SL, which is the high level structure and common text for all new and revised ISO management system standards, some of the main new requirements relate to the life cycle perspective and the management of outsourced processes.

ISO Technical Committee ISO/TC207/SC1/WG5, which is responsible for the revision of ISO 14001. "ISO 14001 was last revised back in 2004, so we need to future proof it for at least the next 10 years. Some of the main areas that the Technical Committee has been looking at include taking a broader view on supply and outsourced processes through a life cycle perspective.

ISO/DIS 14001:2014 introduces users to the control of outsourced processes, which relates to the environmental aspects and risks and opportunities that can be controlled or influenced using a life cycle perspective. The requirements cover supplier and contractor communications, the design of products and services, and during use and end of life treatment.

There will now be a three month period for public comment on the DIS, followed by a vote on the proposed changes. The revised ISO 14001 is due to be published by the end of 2015 and organisations will have a three-year transition period from that point to migrate their Environmental Management System to the new version on the Standard.

OHSAS 18001 starts journey to become an ISO standard

Since its launch in 1999, OHSAS 18001 - the internationally developed and accepted guidance for Occupational Health & Safety Management Systems - has enjoyed worldwide adoption and growth, whilst maintaining its independence from the International Standardisation Organisation (ISO).

The lack of a Health & Safety Standard from ISO themselves has often triggered the question 'why?' given that organisations embarking on triple certification do so primarily to Quality, Environmental and Health and Safety.

However, this is now all set to change: On June 11th 2013 the countries represented in ISO voted to accept a new work item proposal for the development of a new international management systems standard (MSS) for Health & Safety. As a result a new Technical Committee (TC) for developing this new MSS will be formed with the structure of OHSAS 18001 forming the basis for this new ISO standard.

FACTORY VISIT

Factories visit to Chennai Metro Rail - Tunneling & Station, Saidapet, Chennai was arranged by SEA (India) on Saturday, 10th May 2014. Large number of SEA (India) members participated in the visit. The members were taken all round the tunneling site and the safety management system followed at the work site in Tunnel was explained to the members.

SEA (India) members unanimously expressed their satisfaction on visiting such a rare type of site. SEA (India)

thank the management for all the arrangement made and the hospitality shown to us.



Group of SEA (India) members and invitees who visited the site



EARTH DAY - 22nd April 2014 (Global theme: GREEN CITIES)

Every year on April 22, over a billion people in 190 countries take action for Earth Day – all on behalf of the environment.

Nothing is more powerful than the collective action of a billion people. The campaign aims to help cities accelerate their transition to a cleaner, healthier, and more economically viable future through improvements in efficiency, investments in renewable technology, and regulation reform.

What is Green Building? Green building, or sustainable design, is the practice of increasing the efficiency with which buildings and their sites use energy, water, and materials, and reducing building impacts on human health and the environment over the entire life cycle of the building. Green building concepts extend beyond the walls of buildings and can include site planning, community and land use planning issues as well.

International research confirms that green buildings consume less energy, less water and generate less waste, and create a healthy and productive environment.

OFFSHORE WIND, WAVE, AND TIDAL ENERGY: Offshore renewable energy holds great promise, and can be developed in a way that protects our ocean resources.

Approximately 20% of electricity produced globally in 2009 came from renewable sources. Out of this, hydro-power accounted for about 16%.

WIND ENERGY: Wind energy costs about the same as electricity from new coal- and gas-fired power plants. And it's pollution-free.

BIOGAS ENERGY: Farmers can reduce pollution and generate their own heat and electricity by converting animal waste into a clean-burning gas.

SOLAR ENERGY: Inexhaustible and cheaper than ever, solar energy now powers everything from portable radios to homes, stores and neighborhoods.

GEOTHERMAL ENERGY: Reservoirs of steam and hot water beneath the earth's surface hold enormous potential as a renewable energy resource.

HYDROPOWER: Energy from moving water is the largest source of renewable electricity . While water is a renewable resource, rivers themselves are not.

BIOMASS ENERGY AND CELLULOSIC ETHANOL: Plant materials, such as wood, corn, and soy, account for nearly half the renewable energy -- but it's not always sustainable.



FALL PROTECTION

HEAD PROTECTION

FOOT PROTECTION

WELDING PROTECTION

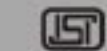
EYE PROTECTION

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