INDOSHNEWS

Vol.8 No.1
January-March 2003

Published by the Directorate General Factory Advice Service & Labour Institutes, N.S. Mankikar Marg. Sion, Mumbai 400 022. INDIA

Editor-in-Chief
Shri S.K. Saxena

Executive Editor
Shri D.B. Deb

Assistant Editors
Shri T.K. Biswas
Shri J. Sankar

Editorial Board Members

Shri Moinul Haque
Shri S.G. Darvhekar
Shri V.L. Kathane
Shri M.M. Alam Khan
Shri A.K. Dubey
Dr. A.K. Majumdar
Shri V.B.Sant
Shri E.Laxminarayana
Shri S.N.Borkar
Dr. R.Iqbal

Cover page designed by
Shri S.N.Borkar

Judgements made opinions expressed in the Newsletter do not necessarily reflect the views of DGFASLI

The electronic version of the Indoshnews on the Internet can be accessed at the following address:
www.dgfasli.nic.in

CONTENTS

FROM THE DESK

COVER FEATURE

ARTICLE .....…. 5

CONSULTANCY/RESEARCH..... 11

FATAL ACCIDENTS IN PORTS… 13

EDUCATION & TRAINING 14

CIS .....… 15

DATA SHEET 16

INSTITUTE NEWS…….. 18

ANNOUNCEMENTS .....… 19

ABOUT DGFASLI 27-28

DGFASLI
Visit us at:www.dgfasli.nic.in
Telephone : PABX 91-22-4092203
Fax : 91-22-4071986

ANNUAL SUBSCRIPTION
Rs. 100 (India)
Rs. 200 (Foreign)

FROM THE DESK

This issue deals with the subject of Health Audit in industry. The present level of occupational health management at work places calls for substantial improvement. As is the procedure in any other management activity, the occupational health management should also have the basic steps of identification of the problems, setting standard, measuring performance, evaluating performance against the standard and taking corrective measures. I am sorry to say that in the field of occupational health management, we have possibly failed at some or all of these steps. I cannot say that there is no valid reason for this failure. But the thing that we should keep in mind is that of maintenance of healthful environment at work place is the responsibility of the management and they should make constant efforts to achieve this objective.

Vigilance and sustained action is essential for having a satisfactory level of health management. Health audit is a tool which will help the management to find out what needs to be done and also where to make improvement in an ongoing programme. The audit need not be a very elaborate in-depth exercise; nonetheless, it should be done in a professional manner. Again, I would say that the extent of knowledge and competence in the area of occupational health management is limited. As long as this expertise is not easily available to the industry, the DGFASLI will be glad to conduct health audits and also to train people who can do health audits subsequently.

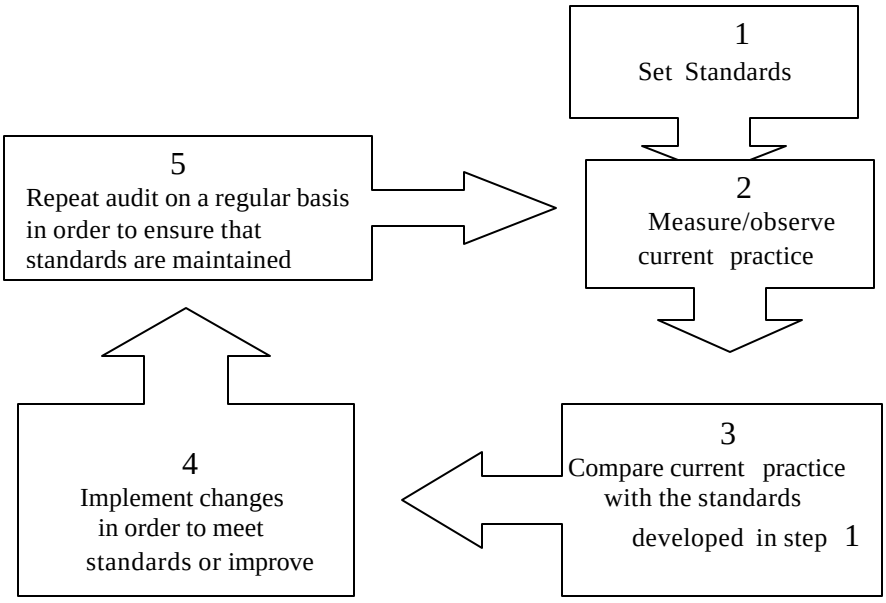
The present article will help the readers to know the basics of health audit and also the benefits to be expected from the exercise.

(S.K. SAXENA)
EDITOR-IN-CHIEF

OCCUPATIONAL HEALTH AUDIT

DR.S.K.HALDAR

The most common approach to clinical audit in Occupational health is based on Donabedian's "structure, process and outcome" model (U.K.Model) which uses techniques such as the "audit spiral" to help set standards, observe practice and compare current practice against the identified standard. In this model, changes can be introduced to ensure that the consistency of practice is maintained or to further improve the quality of practice. The standards set should be subjected to a rigorous process of continuous review, which takes account of new research and information generated from the audit process.



The common model for audit

The audit procedure described here is the most common approach used in clinical audit in occupational health departments. While clinical audit can be used as a powerful tool to focus the professional's attention on what they are doing and can help to identify areas for improvement, each stage of the audit process can raise complex issues. Where a strong research basis for setting standards does not exist, an inherent weakness of the process is that practice is directed towards and measured against activities which have little or no evidence base to support them. Where standards for a particular activity have been set, it can be difficult for individuals to challenge them. There is danger that rigid standards might stifle new developments, unless those involved are prepared constantly to review their practices against new research findings and open to change.

The process of managing change can be time-consuming and difficult. Where there is little appreciation among the professionals involved for the need to change, or willingness to abandon traditional practices in favour of new or more efficient methods this stage of the audit process can fail. Ensuring that there is an awareness of the need for change, fostering the willingness to consider new approaches

and maintaining the motivation of staff are important factors to consider when planning an audit. Otherwise, valuable time and resources may be wasted.

Another factor to consider is that where audit findings identify gaps in knowledge, it is important to distinguish between quality assurance techniques, of which audit is one, and research. Quality assurance – those techniques which compare the actual product or service delivered against an agreed standard - helps to ensure that a consistent approach adopted over the time can help to improve the delivery of services. Where new questions need to be answered, a well constructed and performed research project is required. The two activities should not be confused.

There are many potential overlaps between research and audit. Research can be used as the basis for setting standards against which practice can be audited. Audit might utilize research techniques in observing current practices, by developing sampling strategies to ensure representativeness, statistical analysis of audit data, objective measurement, etc. Research can be performed to evaluate the effectiveness of audit, and finally the data generated through repeated audits can provide the data for research to be performed.

The difference between the two is principally in approach and in the skills required to perform each activity. Where a professional or a group of professionals possess the skills to undertake both research and audit, there is a great potential for high quality health services research and evaluation to be performed.

SOME OCCUPATIONAL HEALTH AUDIT QUESTIONNAIRES (CHECKLIST)

Occupational Health & Safety Administration

A. Whether there is any clearly defined administrative programme to manage health & safety , including the following :

1. A clearly defined role for each level of management in administration
2. A clearly defined role for the health &safety professionals responsible for the area
3. A clearly defined expectation for action to resolve health & safety issues
4. A clearly established preference for proactive, preventive Programme
5. A clear understanding among all levels of management and by health & safety professionals of the priorities of the programme and the expectations placed to its successful implementation

B. Whether qualified resource personnel are available in :

1. Safety & Ergonomics
2. Occupational Medicine
3. Occupational Hygiene
4. Occupational Health Nursing

C. Whether there is any clearly defined :

1. Safe work practices
2. Work place standard
3. PPE standard

Occupational Hygiene Programme

Whether there is any programme in place to identify all existing potential chemical, physical and biological hazards, including the following :

1. Identification of hazards associated with raw materials and their location

2. Identification of hazards associated with process chemicals and additives and their location

3. Identification of process by-products and their location

4. Identification of equipment and activities that can give rise to such physical hazards as heat, noise, radiation, etc.

Occupational Health Service Policy and Procedures

1. Whether the medical staff has direct access to the general manager of the plant

2. Whether regular staff meetings are held (frequency & the date of last meeting)

3. Whether staff members have job description that are current

4. Whether staff members work from annual goals/objective (the person responsible for setting goals)

5. Whether staff members are given the opportunity to attend professional courses, conferences and seminars

Health Service Resources Facilities

1. Whether the facilities are accessible to workers:

2. Whether the facilities are accessible to the handicapped

3. Whether the facilities ensure the privacy of workers who come for care

4. Whether the facilities are quiet

5. Whether the facilities are well maintained and clean

Health Service Programmes and Activities

A. Whether the evaluation of services provided have demonstrated satisfactory performance of the following :

1. Acute injury and illness management

2. Fitness-to-work evaluation

    a) Pre-employment medical examination

    b) Pre-placement medical examination

    c) Periodic medical examination

    d) Return-to-work examination :

3. Job transfer

4. Continuing education

5. Changes in health conditions

6. Changes in work conditions

7. Performance-initiated examination

8. Voluntary periodic health evaluation

Training Programme

Whether all (new & old) employees are given a health & safety orientation covering the following :

1. Job hazards

2. Health Hazards

3. Use of protective equipment

4. Proper work procedure

5. Work restriction

6. Health & safety regulations

7. Hazard reporting

8. First aid resources

First-aid & Medical Programme

1. Whether medical & hospital service are readily available

2. Whether OHS is readily available

3. Whether dispensary facilities are available on premises

4. Whether this dispensary service is open on every shift

5. Whether there are any trained plant Doctors or nurses are available in this dispensary

6. Whether there is any facility of first - aid in this dispensary or whether there are first-aid centres available in the premises

7. Whether first-aid boxes are available in the plant

8. Whether the first-aid box contains the appropriate materials as per law

9. Whether there is any trained first-aid people available

10. Whether first-aid leaflets are available

Records and Forms

1. Whether access to confidential records are controlled in a satisfactory manner

2. Whether occupational history records are maintained for each worker

3. Whether hazard exposure records are maintained for each worker
4. Whether consultation and treatment records are maintained for each worker

5. Whether periodic health evaluation records are maintained for each worker

Identification and Assessment of Occupational Diseases

1. Whether there is any occupational health service available
2. Whether there is any occupational health specialist
3. Whether the OHS is well equipped
4. Whether the OHS staffs are well trained
5. Whether the employees are aware of the purpose of OHS
6. Whether any occupational disease is diagnosed

Health Surveillance & Health Monitoring

1. Whether environmental health hazards are being monitored
2. Whether the hospital records keeping are satisfactory
3. Whether disease registers are being maintained
4. Whether morbidity & mortality data are being maintained
5. Whether nutritional status of the employees are being surveyed

References

1. Evaluation in Occupational Health Practice by Menckel & Westerholm
2. Occupational Health Audit Questionnaire from DGFASLI

Dr. S.K. Haldar, Deputy Director(Med.), Regional Labour Institute, DGFASLI, Kolkata 700089

SAFETY IN USE OF CNG IN NGVs & FACILITIES

S. P. RANA

INTRODUCTION

The origin of natural gas derives from the decomposition of plants and animals over a long period of time and under tremendous heat and pressure. When natural gas comes out of the ground, it is commonly mixed with water, liquefied hydrocarbons, hydrogen sulfide and other solid matter. The gas is cleaned of the water and solid matter, and then the other gases and liquids are stripped away because water content in natural gas would cause formation of ice or hydrates in the pipeline. The amount of available hydrocarbons heavier than ethane should also be taken into account to reduce the risk of blockage in the pipeline due to accumulation of condensable liquids.

Natural gas is used extensively in residential, commercial and industrial applications. The use of natural gas is also rapidly increasing in electric power generation and cooling, and as a transportation fuel. Natural gas is the cleanest burning fossil fuel, producing primarily carbon dioxide, water vapor and small amounts of nitrogen oxides. When burned, natural gas emits 45 percent less CO_2 than coal and 30 percent less CO_2 than oil on an energy equivalent basis. Increased use of clean natural gas helps to reduce the level of greenhouse gas emissions. The benefits of using natural gas outweigh the increased methane emissions from the natural gas industry. Specifically, it is found that using oil has at least 1.4 times more impact on the potential for global warming than natural gas and using coal has at least 1.5 times the impact.

Natural gas has a number of advantages over other transportation fuels: it burns more cleanly; it costs less; it has a proven safety record and it is an abundant and secure energy source. The use of natural gas is ideal for the nation's large fleet vehicles. The main component of natural gas is methane (CH_4) with minor amounts of heavier hydrocarbons and some non-hydrocarbons.

The main factors which stimulate interest in natural gas vehicles (NGVs) are:

Government of India encourages use of alternative transportation fuels in order to decrease national dependence on volatile foreign oil markets.

1. Environmental pollution in urban areas calls for the use of cleaner-burning fuels.
2. Countries with abundant supplies of natural gas find the use of NGVs in order to reduce trade imbalances due to oil imports.

The use of natural gas as a transportation fuel reduces operating cost and emissions. It is very accessible in countries where distribution infrastructure exists.

FUEL COMPONENTS OF CNG

CNG is a mixture of several gases. Methane is the dominant component, but ethane and "heavier hydrocarbons" such as propane, butanes, etc. are in natural gas up to a maximum of their equilibrium vapor pressure. Only saturated hydrocarbons (alkane, in other word paraffins) are found in natural gas. The general formula for this series is CnH2n+2.
Alkenes (olefins) and alkynes are not normally present in natural gas. Olefins are among the most photochemical reactive components of automotive hydrocarbon emissions. Other

compounds present in natural gas include: nitrogen (N2), sulfur (H_2S), and odorants such as ethyl mercaptan (C_2 H_5 SH), carbon dioxide (CO_2) and water (H_2O).

Natural Gas Components in mass and volume percent.

`

Component	Volume (percent)	Mass (percent)
Methane	92.29	84.37
Ethane	3.6	6.23
Propane	0.8	2.06
Butanes	0.29	0.99
Pentanes	0.13	0.53
Hexanes	0.08	0.39
CO2	1	2.52
Nitrogen	1.8	2.89
Water	0.01	0.01
Total	100	100

The composition of natural gas has impact on emission, performance and safety. In terms of this issue, the effect of gas composition can be outlined as follows:

- Corrosion occurrence due to impurities in the fuel.
- Fuel stratification in the storage cylinder
- Fuel metering which has primary effect on engine performance and emissions.
- Knock tendency of the fuel

Water, sulfur compounds, carbon dioxide, oxygen and other impurities in natural gas cause storage tank and fuel system corrosion and corrosion-fatigue cracking of the materials. The limitations of this impurity are important in terms of minimizing of corrosion and acceptable service life of the storage tank. Ice occurrence in regulators and lines due to condensation of water content in natural gas should be considered. Besides this, clogging in fuel injectors and fuel filters cause rough engine operation.

When the natural gas is compressed from pipeline pressure of approximately 3.5 kgf/cm^2 to tank pressure of 250 kgf/cm^2, this increase causes higher dew point which is a function of pressure. Liquid water would precipitate out of the gas in consequence of this increase. Dryers or desiccants are used to remove the water. Another method is the methanol injection in order to decrease the freezing point of the gas. Pipeline quality natural gas has a dew point of

-33^0 C at 3.5 kgf/cm^2 which corresponds to 11^0 C at 250 kgf/cm^2. In order to prevent occurrence of corrosion problems in vehicles, natural gas must be dried to a dew point under the minimum ambient temperature in which the vehicle s run.

Fuel stratification in the cylinder should be considered when the natural gas contains

heavy hydrocarbons. At low ambient temperatures, as fuel draws from the storage tank, the pressure decreases. This decrease changes the composition of liquid and vapor states. For instance, propane/air gas mixture is not suitable for natural gas vehicles due to the variation of propane concentration more than 10 percent during the operation. Obviously, the variation of the fuel composition has a primary impact on engine performance, knock tendency, emissions and fuel economy. In order to handle the variation of fuel composition,

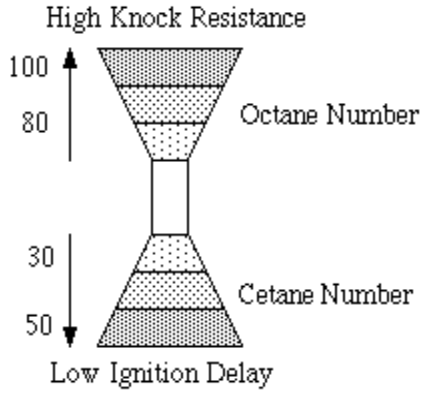
- Combustion systems
- Exhaust catalysts; and
- Engine controls

can be taken into consideration for natural gas vehicles.

The high octane number of natural gas allows high compression ratio in optimized natural gas engine which means an increase in power and efficiency. However, antiknock rating higher than that required for knock-free operation does not improve performance.

Cetane number is of primary importance in overall efficiency of diesel engine. For a given diesel engine, a fuel with higher cetane number provides shorter ignition delay period and smaller amount of fuel is collected in the combustion chamber when ignition occurs. As a result, high cetane number fuels generally provide lower rates of pressure rise and lower peak pressure which mean less combustion noise and more control in combustion. In other word, this characteristic defines engine efficiency and power output. In addition, easier starting especially in cold weather and faster warm-up are realized with high cetane number fuel. CNG has a very poor cetane number. Because of this, some modifications are necessary in diesel engine for CNG applications.

EFFECT OF OCTANE AND CETANE NUMBERS



Comparison of Octane and Cetane properties.

COMPRESSED GAS CYLINDERS

Compressed natural gas in cylinders represents a real safety risk. The NGV cylinders are designed to contain natural gas at 200-250 bars plus a prudent safety margin. If a compressed gas cylinder ruptures, an extremely powerful jet of gas is released which is likely to result in significant vehicle damage. Debris from the ruptured cylinder or damaged vehicle may be sent flying at high speeds, presenting a serious safety risk to those in the surrounding area. Individuals in close proximity may also suffer temporary or permanent hearing damage. Further damage may occur if the leaking gas is ignited.

A cylinder rupture is a highly catastrophic event that must be avoided. All prudent measures should be employed to ensure the safe installation, filling, operation, and maintenance of compressed gas cylinders on NGVs. Research indicates that NGV owner/operators should assess the condition of these onboard cylinders and consider the following:

- Ensure that vehicles conform to the cylinder installation guidelines provided in the National Fire Protection Association (NFPA) 52 and other relevant national standards.
- Use appropriate paints or coatings over fiberglass wraps to minimize damage from ultraviolet light and chemical fluids.
- Take steps to prevent road debris and other objects from impacting the composite wrap materials. Use open, self-draining shielding systems to protect cylinders from physical damage.
- Use only vehicle or cylinder manufacturer- approved cylinder brackets and gaskets to prevent abrading or otherwise damaging the cylinder over wrap and to prevent water or other fluids from seeping under the gaskets and possibly causing unseen environmental damage.
- Use caution when handling cylinders before installation or during maintenance to ensure that they are not dropped or damaged. Only personnel with full knowledge of the care and handling of cylinders should be responsible for handling cylinders.
- Do not, under any circumstances, pressurize cylinders above the temperature-compensated pressure rating of the cylinder (at settled conditions). Over pressurization lowers the margin of safety, decreases cylinder life, and can lead to rupture of a damaged cylinder.
- Conduct periodic general cylinder checking/inspection to look for signs of cylinder damage. Such programmes might include training of vehicle mechanics to look at cylinders for signs of damage when performing other routine vehicle maintenance.
- Conduct examination of cylinders as per the requirement of statutory authority.

REFUELING RECEPTACLE

The refueling receptacle should provide safe and easy using with minimum trapped gas or vapor release when disconnected. It must be a quick disconnect type. They must be constructed of non-sparking material, usually brass with corrosion resistant internal parts. The following things should be kept in mind:

- The nozzle and receptacle shall not be used for any other fuel
- Standards shall be uniform throughout the country
- Receptacles shall be non-sparking
- They should allow interchangeability between different manufacturers.
- They should be designed to prevent the loading of a vehicle with a lower service pressure
- They should have a non-contact integral check valve.

Check valve leakages appear to be the common reason behind the to receptacle problems. Particulate contamination and ice or hydrate build up usually cause problems with receptacles.

APPROVAL FROM STATUTORY AUTHORITY

The systems and components of CNG facility(s) are required to be certified for CNG use and marked accordingly by the concerned statutory authority. The various components like cylinders, pressure relief valves, pressure gauges, regulators, hose and hose connections, vehicle fueling connections, etc. should be approved by the statutory authority.

The safety distance between various equipment, storage cylinders/cascade, etc. should also be approved by statutory authority. Appropriate fencing should also be provided at the facilities.

FIRE PROTECTION AND PREVENTION

The main constituent of CNG is methane which has got the flammable range from 5% to 15%. The fire fighting system for storage and handling system of CNG needs to be carefully planned. DCP fire extinguishers can be used for locations such as dispensing unit, compressor, CNG storage and cascade refilling area. For electrical installations near the CNG facilities, CO_2 fire extinguisher can be used. Any flammable and oxidizing material should not be stored near CNG installation. All approaches at CNG storage facilities should be free from obstacles. The electrical installation should be periodically inspected by competent persons. Flame proof electrical equipment/accessories should be used and checked periodically for gasket condition, glands and other parts. Explosi-meter can be used to ascertain the percentage of natural gas at work place.

EMERGENCY PLANNING

As the Compressed Natural Gas is highly inflammable and hazardous in nature, proper emergency planning and evacuation procedure are required to be developed by the users. The major factors which may lead to a disaster include failure of pipeline, major failure of CNG fitting, over- odorisation of gas and any other possible emergency. The emergency plan should be known to all personnel involved in the use of CNG at facility. Liaison with local authorities is a prime requirement to mitigate any eventuality. Important telephone numbers, site layout, etc. should be displayed at a conspicuous place at the site. The mock drill should be carried out at least once a year.

TRAINING

Improved practices and increased awareness of potential risks can help ensure that NGVs provide reliable and safe service. To achieve this goal, owners/operators of facilities and NGVs are required to undergo formal training and awareness and employ best practices in the installation, filling, operation, and maintenance of compressed gas cylinders.

The personnel involved in handling and use of CNG should be well trained in various activities like operation, procedure, maintenance and other routine activities at the facility. The personnel should also be trained in risk associated with the CNG and mitigating the emergencies. The induction training programme for the new entrant may include topics like CNG hazards, commissioning/decommissioning of facilities and equipments, safe operating procedure, maintenance activities, emergency planning, isolation procedures, fire fighting and various safety regulations related to CNG.

REFERENCES

1. NFPA 52 – Compressed Natural Gas Vehicular Fuel System, 1992
2. Petroleum Rules, Govt. of India
3. Gas Cylinder Rules, 1981, Govt. of India
4. OISD – STD – 179:1998
5. Richard L. Rechfold and Thomas J. Timbaris, Raymont R and Robert J. Spraflin, "The Practical and Economic Considerations of Converting Highway Vehicles to use natural gas as a fuel"
6. A Goetz, D. Petheric and T. Topaloglu, "Performance and Emissions of Propane, Natural Gas and Methanol Fueled Bus Engines"
7. Gas Research Institute, Chicago, "Proper care and handling of compressed natural gas cylinders"
8. American Gas Association, "Overview of natural gas vehicles"

Shri S.P.Rana,
Asstt.Director(Safety),
Central Labour Institute, DGFASLI,
Sion, Mumbai.400022

EVALUATION OF NOISE IN THE WORK ENVIRONMENT IN AN ALUMINIUM PLANT

This Safety Audit was carried out by Regional Labour Institute, Kanpur. The factory is one of the largest integrated aluminium plants in India. The manufacturing capacity of the plant is 247,000 metric ton primary aluminium per annum. The factory employs about 14000 people including contract workers.

OBJECTIVE

The objectives of the study were to evaluate the levels of noise in different work areas of the factory and to recommend measures to reduce the noise exposure to the working population.

MANUFACTURING PROCESS

Bauxite is the main raw material for the manufacture of aluminium metal. The manufacturing process was divided mainly into Alumina Plant and Reduction Plant. Alumina was manufactured in Alumina Plant by conventional Bayer's Process. The reduction plant had eight pot lines having 1468 pre-baked pot cells. Alumina was converted to metallic aluminium in these pot cells by the Hall Heroult' fused salt electrolysis.

OBSERVATIONS

In Fabrication Plant, the levels of noise were higher than 90 dB(A) on Propezi Machines and in the Induction furnace area. In Extrusion press area, the maximum noise was observed near Stretcher, and on Finish Cut Saw, Plate Saw & Hot Mill. In Fabrication Plant No.2, the average levels of noise on caster furnace I & II were observed to be 97dB(A) and 95dB(A) respectively.

Reduction Plant consisted of Pot room, carbon plant, cast house, billet casting and reduction technical. The levels of sound on ball mills exceeded 90dB(A) in carbon plant. There were three ball mills in the carbon plant. Out of them, one 12-T mill was installed in an enclosed room. The maximum noise level was observed to be 101dB(A) on new ball mill. On old mill No.1, high frequency noise ranging from 500 Hz to 8 KHz was present whereas on 12-T mill, low as well high frequencies were found. Vibrations and high speed of ball mill caused excessive sound in the work areas. On Hammer mill, the average sound level was found to be 98dB(A) whereas in Compressor house, the average sound pressure levels were ranging from 91dB(A) to 95dB(A) which were more than 90dB(A) for 8 hour exposure. In Tumbling mills, operation average sound level was found to be 102dB(A) which was more than the recommended exposure.Boiler and Co-generation Plant, the maximum noise of 94db(A) was observed near BFM local panel control-4 whereas noise level of 93db(A) was observed on each location near Boiler Feed Pump-3, De Super Heater Pump, BF Pump-1 and BF Pump-3. In Alumina plant, the average SPL of 96db(A) was observed in Ball Mill area. Slurry Mix Staem Pump was also noisy where noise levels ranged from 96db(A) to 105db(A). On Hammer Mill and Geho Mill, sound pressure levels were exceeded 90db(A). In Diesel Compressor House, the highest average SPL was observed on Chicago Pneumatic i.e. 103db(A) whereas on other compressor it was ranging from 94db(A) to 97bd(A). In the Compressor Room of Gas Suspension Calciner, the sound levels were ranging from 96db(A) to 101db(A) on Compressor No.9 whereas on passage it was varying from 91 to 93db(A), which is exceeded 90db(A) i.e. permissible limit of exposure for 8 hours.

RECOMMENDATIONS

It is recommended that the work areas where sound levels is 90 dB(A) and more should be declared as a 'Noise Hazard Area' and the entry in such areas should be allowed only with ear protector. The factory should

introduce 'Hearing Conservation Programme' to control noise exposure at work place. Suitable engineering control, periodic inspection and maintenance of the noisy machines/equipments, motivation for the use of ear protection and periodic audiometric examination should be carried out to control noise at the workplaces.

FOLLOW UP ENVIRONMENTAL STUDY IN A WHEEL AND AXLE PLANT

This study was carried out by Regional Labour Institute, Chennai in a Production unit of Railways. This Unit was engaged in the production of wheel and axle assembly for locomotives, wagons and passenger coaches. Manufacturing process involved various engineering operations e.g. steel casting, moulding, heat treatment, forging, etc.

OBJECTIVE

The study was conducted with the objective to evaluate the levels of airborne contaminants such as Silica Dust, Metallic fumes, e.g. Iron and Manganese Fumes, Welding Fumes, Carbon Monoxide etc. in work environment and measure the sound levels in various operations and to suggest remedial measures wherever necessary to improve the environmental conditions.

METHODOLOGY

Air borne samples of dust and metallic fumes were collected on 37 mm glass fiber filter papers whereas the samples for respirable dust and fumes were collected on 25mm cellulose membrane filter papers using cyclone separator. All these samples were analysed by gravimetry. The sound levels were measured with the help of LUTRON sound level meter.

OBSERVATIONS

The concentrations of total and respirable metallic dust at different locations in melting area were found less than 5 mg/m3 except slag off station where the concentration was found exceeding the TLV.

The concentration of siliceous dust at all the locations such as sand coating, core cleaning, riser core baking etc. in moulding room area were found far exceeding the permissible level. Concentration of fused silica dust in spray mixing area was also found very high as compared to the PLE. Concentration of Graphite dust near horizontal and vertical lathe in graphite mould repair shop and welding fumes in scrap pre-conditioning bay were also found exceeding their PLEs.

Noise levels in a number of operations were found exceeding the permissible level for 8 hours exposure i.e. 90dBA.

RECOMMENDATION

Various remedial measures were suggested for improvement of environmental conditions which included closing of openings near the exhaust fans in the sheds, provision of a platform and local exhaust system for transferring the fused silica powder, reducing the excess length of the duct and avoiding sharp bends in the duct of the exhaust system provided with the lathe machines in graphite mould shop, ensuring the use of ear plugs in noisy areas, provision of sound proof cabins for staff in high noise areas, etc. In addition, various general remedial measures such as periodic medical examination of workers, work environment monitoring, audio metric examination of workers engaged in noisy areas etc. have also been suggested.

EVALUATION OF NOISE IN THE WORK ENVIRONMENT IN AN ALUMINIUM PLANT

This Safety Audit was carried out by Regional Labour Institute, Kanpur. The factory is one of the largest integrated aluminium plants in India. The manufacturing capacity of the plant is 247,000 metric ton primary aluminium per annum. The factory employs about 14000 people including contract workers.

OBJECTIVE

The objectives of the study were to evaluate the levels of noise in different work areas of the factory and to recommend measures to reduce the noise exposure to the working population.

MANUFACTURING PROCESS

Bauxite is the main raw material for the manufacture of aluminium metal. The manufacturing process was divided mainly into Alumina Plant and Reduction Plant. Alumina was manufactured in Alumina Plant by conventional Bayer's Process. The reduction plant had eight pot lines having 1468 pre-baked pot cells. Alumina was converted to metallic aluminium in these pot cells by the Hall Heroult' fused salt electrolysis.

OBSERVATIONS

In Fabrication Plant, the levels of noise were higher than 90 dB(A) on Propezi Machines and in the Induction furnace area. In Extrusion press area, the maximum noise was observed near Stretcher, and on Finish Cut Saw, Plate Saw & Hot Mill. In Fabrication Plant No.2, the average levels of noise on caster furnace I & II were observed to be 97dB(A) and 95dB(A) respectively.

Reduction Plant consisted of Pot room, carbon plant, cast house, billet casting and reduction technical. The levels of sound on ball mills exceeded 90dB(A) in carbon plant. There were three ball mills in the carbon plant. Out of them, one 12-T mill was installed in an enclosed room. The maximum noise level was observed to be 101dB(A) on new ball mill. On old mill No.1, high frequency noise ranging from 500 Hz to 8 KHz was present whereas on 12-T mill, low as well high frequencies were found. Vibrations and high speed of ball mill caused excessive sound in the work areas. On Hammer mill, the average sound level was found to be 98dB(A) whereas in Compressor house, the average sound pressure levels were ranging from 91dB(A) to 95dB(A) which were more than 90dB(A) for 8 hour exposure. In Tumbling mills, operation average sound level was found to be 102dB(A) which was more than the recommended exposure.Boiler and Co-generation Plant, the maximum noise of 94db(A) was observed near BFM local panel control-4 whereas noise level of 93db(A) was observed on each location near Boiler Feed Pump-3, De Super Heater Pump, BF Pump-1 and BF Pump-3. In Alumina plant, the average SPL of 96db(A) was observed in Ball Mill area. Slurry Mix Staem Pump was also noisy where noise levels ranged from 96db(A) to 105db(A). On Hammer Mill and Geho Mill, sound pressure levels were exceeded 90db(A). In Diesel Compressor House, the highest average SPL was observed on Chicago Pneumatic i.e. 103db(A) whereas on other compressor it was ranging from 94db(A) to 97bd(A). In the Compressor Room of Gas Suspension Calciner, the sound levels were ranging from 96db(A) to 101db(A) on Compressor No.9 whereas on passage it was varying from 91 to 93db(A), which is exceeded 90db(A) i.e. permissible limit of exposure for 8 hours.

RECOMMENDATIONS

It is recommended that the work areas where sound levels is 90 dB(A) and more should be declared as a 'Noise Hazard Area' and the entry in such areas should be allowed only with ear protector. The factory should

introduce 'Hearing Conservation Programme' to control noise exposure at work place. Suitable engineering control, periodic inspection and maintenance of the noisy machines/equipments, motivation for the use of ear protection and periodic audiometric examination should be carried out to control noise at the workplaces.

FOLLOW UP ENVIRONMENTAL STUDY IN A WHEEL AND AXLE PLANT

This study was carried out by Regional Labour Institute, Chennai in a Production unit of Railways. This Unit was engaged in the production of wheel and axle assembly for locomotives, wagons and passenger coaches. Manufacturing process involved various engineering operations e.g. steel casting, moulding, heat treatment, forging, etc.

OBJECTIVE

The study was conducted with the objective to evaluate the levels of airborne contaminants such as Silica Dust, Metallic fumes, e.g. Iron and Manganese Fumes, Welding Fumes, Carbon Monoxide etc. in work environment and measure the sound levels in various operations and to suggest remedial measures wherever necessary to improve the environmental conditions.

METHODOLOGY

Air borne samples of dust and metallic fumes were collected on 37 mm glass fiber filter papers whereas the samples for respirable dust and fumes were collected on 25mm cellulose membrane filter papers using cyclone separator. All these samples were analysed by gravimetry. The sound levels were measured with the help of LUTRON sound level meter.

OBSERVATIONS

The concentrations of total and respirable metallic dust at different locations in melting area were found less than 5 mg/m3 except slag off station where the concentration was found exceeding the TLV.

The concentration of siliceous dust at all the locations such as sand coating, core cleaning, riser core baking etc. in moulding

room area were found far exceeding the permissible level. Concentration of fused silica dust in spray mixing area was also found very high as compared to the PLE. Concentration of Graphite dust near horizontal and vertical lathe in graphite mould repair shop and welding fumes in scrap pre-conditioning bay were also found exceeding their PLEs.

Noise levels in a number of operations were found exceeding the permissible level for 8 hours exposure i.e. 90dBA.

RECOMMENDATION

Various remedial measures were suggested for improvement of environmental conditions which included closing of openings near the exhaust fans in the sheds, provision of a platform and local exhaust system for transferring the fused silica powder, reducing the excess length of the duct and avoiding sharp bends in the duct of the exhaust system provided with the lathe machines in graphite mould shop, ensuring the use of ear plugs in noisy areas, provision of sound proof cabins for staff in high noise areas, etc. In addition, various general remedial measures such as periodic medical examination of workers, work environment monitoring, audio metric examination of workers engaged in noisy areas etc. have also been suggested.

On 17.5.2002, a gear man in a Port was engaged in unloading the steel rods in bundles using the deck crane. During this process, a bundle of cargo from the sling struck the person. As a result, he was severely injured and taken to a hospital where he was declared dead.

Investigation of the accident revealed that there was a lack of coordination with regard to the discharge of cargo and supply and replacement of slings. This endangered the life of the gear man resulting to death. This is in violation of Regulation 91(1)(b) and 117 of Dock Workers(Safety, Health & Welfare) Regulation, 1990.

On 30.5.2002, a cleaner in a Port was removing the tarpaulin from the top of the stack of SBM in bags loaded on the truck. In the process, he fell down from the top of stack on to the ground . As a result, he received serious injuries in his head and died.

Investigation of the accident revealed that the incident occurred due to lack of safety awareness among the people working inside port.

On 17.4.2002, a person was driving a scooter on the road in front of a port Container Terminal Shift Incharge Office. He was hit by T.T.meeting at right angles to each other. As a result, the person got injured and died.

The port authority was advised to make effective arrangements for regulating road traffic within the port premises.

On 25.4.2002, containers were being unloaded from a Vessel by a crane in a port. In the process of unloading the container, it started coming down and abruptly fell on a the TT toppling the TT and hit the driver of the TT and injured him.

The investigation of the accident revealed that the incident took place due to improper maintenance of the crane. The port authority was warned for breach of certain Safety Regulations under the Dock Workers (Safety, Health & Welfare) Regulations 1990.

On 24.6.2002, a private labour had fallen into sea water from a barge anchored at mid stream while he was going for passing urine after waking from sleep.

Investigation of this accident had revealed that the accident had occurred primarily due to lack of fencing/guard rails on the barge and the employer not making prompt arrangements for transport of dock workers back to the shore after completion of their work in midstream.

The owner of the barge was warned for violation of regulations 29(1) and 117 of the Dock Workers(Safety, Health & Welfare) Regulation, 1990.

On 29.5.2002, in the 1st shift, while lifting the log from a hatch a worker had been directly hit on his lower abdominal region by a swinging log leading to bleeding. The worker was taken to hospital immediately where he was declared dead.

Investigation of the accident revealed that the accident occurred due to lack of supervision and lack of safety training of the deceased.

SPECIALISED TRAINING PROGRAMME ON OCCUPATIONAL HEALTH AND ENVIRONMENTAL MEDICINE FOR MEDICAL COLLEGE TEACHERS

PROGRAMME PERSPECTIVE

Productivity in industry is the need of the day and much of it depends on the total health status of the workers employed, which is influenced by occupational as well as non-occupational factors. The interaction of worker's health with these factors may result in ill health, termed as work related or occupational diseases.

Following liberalization of economy, the industrial scenario in our country is undergoing rapid transformation. For protection from adverse health effects in industrial workers, the relationship between occupation and health must be understood. This is helpful in taking preventive and control measures. The facet of occupational health is essentially a multi-disciplinary approach, Medical professionals have a very important role to play in these areas.

In the developed countries, the field of Occupational and Environmental Medicine (OEM) became a distinct speciality for over half a century. In addition, the occupational health care has been integrated with primary health care of the community. Such a well deserved change in approach has yet to take place in India. The teachers in the medical colleges responsible for grooming the future generation of doctors who provide health care to the workforce play a vital role in this regards. As such upgrading the technical competence of the medical teachers in the field of occupational health and professional interaction with experts in allied fields is urgently needed.

OBJECTIVE

The course is exclusively designed for experts from Medical institutions and those connected with teaching of OEM. It provides knowledge on different facets of occupational health problems arising out of exposure of the workers to industrial hazards and helps in identifying the occupational diseases and taking preventive measures. It is useful to the Medical Professionals engaged in providing health care to the workers in identification, prevention and management of occupational health disorders and in organizing Occupational Health Services at the work place effectively.

HIGHLIGHTS

- Challenges of Occupational health in the new millennium
- Occupational Health Management
- Occupational diseases due to physical, chemical and biological agents.
- Occupational lung diseases
- Cardiac cases in industry
- Medico legal aspects in Occupational health
- Women at work
- Medical emergency response planning
- Organisation of Occupational Health Services
- Recent advances in occupational medicine
- Occupational Dermatoses
- Occupational Cancers
- Ergonomics and cumulative trauma disorders

PARTICIPANTS

Teachers from Medical Colleges from various departments like General Medicine, Community Medicine, Orthopaedics, Dermatology, ENT,Chest & TB,Radiology, etc.The minimum qualification for the participants is M.B.B.S with post-graduation in the related speciality. However, preference will be given to the medical teachers who have minimum of two years teaching experience.

Duration – one month

Conducted by: Industrial Medicine Division,Central Labour Institute,Sion, Mumbai.400022

INTERNATIONAL OCCUPATIONAL SAFETY AND HEALTH INFORMATION CENTRE (CIS)

CIS (from the French name, Centre international d'Information de securite et d'hygiene du travail) i.e. International Occupational Safety and Health Information Centre, is a part of the International Labour Office, Geneva, Switzerland. The mission of CIS is to collect world literature that can contribute to the prevention of occupational hazards and to disseminate this information at an international level. CIS imparts to its users the most comprehensive and up-to-date information in the field of Occupational safety and health. The work of CIS is supported by a worldwide Safety and Health information exchange network which includes over 91 affiliated National Centres and 38 CIS collaborating Centres. Central Labour Institute, Mumbai has been designated as the CIS National Centre of India.

CIS can offer you rapid access to comprehensive information on occupational safety and health through:

- Microfiches on original documents abstracted in CIS DOC (CISILO)
- ILO CIS Bulletin "Safety and Health at Work"
- Annual and 5-year indexes
- The CIS Thesaurus
- The list of periodicals abstracted by CIS

EXCERPT FROM CIS DOC

Title: Silica, Silicosis, and lung cancer. A response to a recent working group report.

CIS ACCESSION NUMBER
CIS 01-1459

ABSTRACT

On the basis of numerous studies on crystalline silica and lung cancer, IARC has determined that there was sufficient evidence to conclude that quartz and cristobalite were carcinogenic in humans. However, the results of these studies are inconsistent and, when positive, only weakly positive. Other, methodologically strong, negative studies have not been considered. Several studies viewed as providing evidence supporting the carcinogenicity of silica have significant methodological weaknesses. Silica is not directly genotoxic and is a pulmonary carcinogen only in the rat, a species inappropriate for assessing carcinogenesis in humans. Data on humans show lack of association between lung cancer and exposure to crystalline silica. Studies in which silicotic patients were not identified from compensation registries, and in which enumeration was complete, did not support a casual association between silicosis and lung cancer, which further argues against the carcinogenicity of crystalline silica.

Note:

For details write to CIS National Centre for India, Central Labour Institute, Sion, Mumbai 400 022.

The Library & Information Centre of Central Labour Institute has unique collection of Material Safety Data Sheet of about 1,20,000 chemicals/materials taken from Canadian Centre for Occupational Health & Safety. MSDS provides extensive coverage over safety perspective with detailed evaluation of health, fire and reactivity hazards. It also provides precaution as well as recommendation on handling, storage, personal protective equipment, accidental release, etc.

IDENTIFICATION
PRODUCT NAME(S) : UREA GRANULES

HAZARDS IDENTIFICATION

Route of entry:
Skin contact: Prolonged or repeated exposure may cause skin irritation. May cause rash. Skin absorption: N.av.
Eye contact: May cause local transient irritation. Causes redness, pain, blurred vision. Inhalation: Dust may irritate the nose and throat. Airborne material may cause coughing and sneezing. Breathing difficulty. Ingestion may cause sore throat, abdominal pain, and diarrhea. Not a probable route of exposure.
Effects of acute exposure: Refer to route of entry.
Effects of chronic exposure: Prolonged or repeated inhalation may lead to respiratory system injury. Chronic respiratory disease, eg. bronchitis, emphysema.

FIRST AID MEASURES

Instructions: Call a physician or poison control center immediately. In case of inhalation, remove to fresh air. If irritation develops, consult a physician. In case of skin contact. Remove contaminated clothing and rinse with water for 15 minutes. Seek medical attention if irritation occurs. Wash contaminated clothing thoroughly before re-use. Discard contaminated shoes. Flush eyes with large amounts of running water for at least 15 minutes. Hold eyelids apart to ensure rinsing of the entire surface of the eye and lids with water. Seek medical attention urgently, preferably from an ophthalmologist. In case of ingestion: Never give anything by mouth if the victim is unconscious. Rinse mouth with water. Do not induce vomiting. If vomiting occurs, give fluids again. Get immediate medical attention.
Notes to physician: Supportive care.

FIRE FIGHTING MEASURES

T.D.G. flam. Class Not regulated. Flammability: Not flammable.
If yes, under which conditions?
Extinguishing media: All extinguishing media. Special procedures: Firefighters should wear the usual protective gear; self-contained breathing apparatus.
Flash point (c), method.: Non-flammable.
Auto ignition temperature: N.av.
Upper flammable limit (% by. N.ap. vol.)
Lower flammable limit (% by..... N.ap.vol.)
Explosion data:
Explosive power: N.av.
Rate of burning :n.av.
Sensitivity to static: Will not explode.Discharge sensitivity to impact: Will not explode.
Unusual fire and explosion hazards: Dust will burn but probably will not explode.
Hazardous combustion products: Biuret. Ammonia. cyanuric acid. Oxides of nitrogen.

ACCIDENTAL RELEASE MEASURES

Leak/spill: Isolate hazard area and restrict access. Only trained and properly protected personnel should be involved in spill cleanup operations. Wear appropriate breathing apparatus (if applicable) and protective clothing. Ventilate. Eliminate all sources of ignition. Avoid direct contact with material. Stop leak only if safe to do so. Contain spills immediately with inert materials (e.g., sand, earth). For small spills:

Sweep or shovel material into waste container. Flush area with water; prevent washings from entering waterways.
Solution: Soak up with an absorbant material. Scoop up used absorbent into drums. Flush area with water; prevent washings from entering waterways. For large quantities, refer to the environmental ministry.

HANDLING AND STORAGE

Handling procedures and equipment :Avoid creating mists. Avoid dust cloud formation. Use adequate ventilation. Avoid smoking, drinking or eating in use. Avoid contamination from any source including metals, dust and organic materials. This product will absorb water if exposed to air (hydroscopic). Use adequate ventilation. Keep containers closed or sealed. Wash thoroughly after handling. Maintain a good personal hygiene.
Storage needs: Store in a cool, dry, well ventilated area, away from heat and ignition sources. Protect container from physical damage. To maintain product quality, do not store in heat or direct sunlight. Keep the container tightly closed when not in use.

EXPOSURE CONTROLS/PERSONAL PROTECTION

Gloves/ type: Wear impervious gloves. Chemical-resistant nitrile, neoprene or rubber. Respiratory/type: NIOSH/MSHA jointly approved respirator is advised in the absence of proper environmental controls. For emergency and other conditions where the exposure guideline may be greatly exceeded, use an approved positive pressure self-contained breathing apparatus.
Eye/type: Chemical safety goggles. Footwear/type: Boots.
Clothing/type: Wear impervious protective clothing. Full cover clothing.
Other/type: Eye bath and safety shower. Engineering controls: Control airborne concentrations below the exposure guideline.
Good general ventilation should be sufficient for most conditions. Local exhaust:
In all areas where dusty or misty conditions prevail.

TOXICOLOGICAL INFORMATION

Exposure limit of material:10 mg/m3/LC 50 of material, species & Route: N.av/LD 50 of material, species & Route : Route 14300-15000 mg/kg. (oral-rat). >20 g/kg. (dermal-rabbit).
Carcinogenicity of material: N.av.
Reproductive effects: N.av.
Sensitizing capability of material: Skin contact may cause sensitization and an allergic skin reaction in a small proportion of individuals. Synergistic materials:N.av.

DISPOSAL CONSIDERATIONS

Waste disposal: In accordance with municipal, provincial and federal regulations.

TRANSPORT INFORMATION

UN number: N.ap.
TDG classification:Not regulated.
Packing group: N.ap.
Special shipping instructions: N.ap.

REGULATORY INFORMATION

WHM15 classification:This is not a controlled product.
CPR compliance:This product has been classified in accordance with the hazard criteria of the CPR and the MSDS contains all the information required by the CPR.
NOTE:
The above details constitute part information of MSDS taken from Canadian Centre for Occupational Health and Safety. For complete MSDS write to MIS division, Central Labour Institute, Sion, Mumbai.400022. MSDS on about 1,20,000 chemicals/materials are available with Central Labour Institute. Computer printout will be supplied on nominal charge basis.

डीजीफ़ासली में मुज्य ज्ारजा-ाा न्िरीजज्ों ज्ा ४५वां सम्मेल-ा

मुंबई । सम्मेल-ा ज्ा उद्घाट-ा ज्रते हुए, श्रम राज्य मंत्री, मा-ा-ीय श्री अशोज् प्रधा-ा -ने ज्हा ज्ि ज्ामज्ारों ज्े बि-ाा ज्ारजा-ाों ज्ी ज्ल्प-ाा -हीं ज्ी जा सज्ती है । उ-ाज्ी सुरज्ा तथा स्वास्थ्य हमारी सर्वोपरि प्राथमिज्ता है । सरज्ार ज्े वल संज्ठित जेत्र में ज्ार्यरत ज्ामज्ारों ज्े बारे में ही -हीं बल्ज्ि असंज्ठित जेत्र ज्े ज्ामज्ारों ज्े बारे में भी चिन्ति है । उ-होंने आज्े ज्हा ज्ि जब तज् हमारे ज्ामज्ार स्वस्थ और सुरज्ित -हीं होंज्े, उत्पादज्ता में वृद्धि -हीं ज्ी जा सज्ती है । उ-होंने आशा व्यक्त ज्ी ज्ि इस सम्मेल-ा में विचार-विमर्श ज्े पश्चात ज्िए ज्ए न्िज्र्य ज्ामज्ार ज्े हित में और ज्ुल मिलाज्र देश ज्े हित में होंज्े ।

मुज्य ज्ारजा-ाा न्िरीजज्ों ज्े ४५वें ती-ा दिवसीय अज्िल भारतीय सम्मेल-ा ज्े उद्घाट-ा समारोह ज्े आरम्भ में ज्जमा-य अतिथियों, सम्मेल-ा ज्े प्रतिन्िधियों तथा सभी आमंत्रितों ज्ा स्वाज्त ज्रते हुए डीजीफ़ासली ज्े महान्िदेशज्, श्री सुधीर ज्ुमार सक्से-ाा -ने सम्मेल-ा ज्े औचित्य और आवश्यज्ता पर प्रज्ाश डाला ।

अप-ने अध्यजीय भाषज् में महाराष्ट्र राज्य सरज्ार ज्े श्रम एवं वस्त्र मंत्री, मा-ा-ीय श्री सतीश चतुर्वेदी -ने ज्हा ज्ि ज्ामज्ारों ज्े मामले में, दुर्घट-ाा होने ज्ी स्थिति में यह ध्या-ा दे-ाा आवश्यज् है ज्ि उ-हें तत्ज्ाल राहत ज्ी सुविधा उपलब्ध हो और दुर्भाज्यवश ज्ामज्ार ज्ी मृत्यु होने पर उसज्े परिवार ज्ो तत्ज्ाल राहत और आर्थिज् सहायता मिले ।

समारोह ज्े दौरा-ा अप-ने प्रमुज् भाषज् में, श्रम मंत्रालय में भारत सरज्ार ज्े सचिव, डॉ. पी.डी. शेजॉय -ने ज्ामज्ारों ज्े ज्ल्याज् ज्े संबंध में विचार प्रस्तुत ज्िए । ज्ारजा-ाों में न्िरीजज् ज्े संबंध में अप-ाी राय व्यक्त ज्रते हुए ज्हा ज्ि न्िरीजज् सूज्म और ऐसे हो-ने चाहिए जो प्रभावी हों और उससे उत्पादज्ता में वृद्धि हो ।

समारोह ज्ी यह उपलब्धि रही ज्ि सभी वक्ता और प्रतिन्िधि भी इस तथ्य से सहमत थे ज्ि ज्ामज्ारों ज्ो सुरज्ित, स्वस्थ और सज्म ब-ाए बि-ाा उत्पादज्ता में वृद्धि हो-ाा संभव -हीं है और उत्पादज्ता में वद्धि से ही राष्ट्र उन्नति ज्र सज्ता है और इसज्े लिए ज्े-द्र सरज्ार और राज्य सरज्ारों ज्े बीच अटूट सम-वय आवश्यज् है ।

45TH CONFERENCE OF CHIEF INSPECTORS OF FACTORIES

The 45th Conference of Chief Inspector of Factories was held at Central Labour Institute, Mumbai from 8th to 10th January, 2003. The Conference was inaugurated by Shri Ashok Pradhan, Hon'ble Minister of State for Labour. Shri S.K.Saxena, Director General, DGFASLI welcomed the dignitaries Dr.P.D. Shenoy, IAS, Secretary, Government of India, Ministry of Labour delivered the key note address. Shri Satish Chaturvedi, Hon'ble Minister for Labour & Textiles, Government of Maharashtra gave the presidential address. Shri Ashok Pradhan, Hon'ble Minister of State for Labour, Govt. of India while inaugurating the Conference hoped that the 45th Conference will bring out important recommendations and suggestions that will help in promoting safety of workers in manufacturing sector. Shri D.B. Deb, Deputy Director General, DGFASLI extended a vote of thanks to all dignitaries, guests, delegates and others.

TRAINING PROGRAMMES
APRIL-JUNE 2003
CENTRAL LABOUR INSTITUTE ,SION,
MUMBAI-400 022

Programme title	Contact person
Industrial Fatigue- Its evaluation & management for ensuring Safety, Health & Productivity at Work.	Director (Safety) & Incharge Indl. Safety Division
Selection & Quality Assurance for effective use of PPE.	Director (Indl.Hygiene)&Incharge Indl.Hygiene Division
Workshop on Anthropometry - Its application in Industry for Ideal Workstation Design for Safety ,Health & Productivity.	Director (Physiology) & Incharge Indl.Ergonomics Division
Effective Supervision for results	Director (Staff Trg.) & Incharge Staff Training Division
Associate Fellowship of Industrial Health	Director (Medical) & Incharge Indl. Medicine Division
Workshop for Safety Committee Members	Director (Safety) & Incharge Indl. Safety Division
Industrial Hygiene Techniques	Director (Indl.Hygiene) & Incharge Indl.Hygiene Division
Techniques of Hazard Assessment and its Control in Major Accident Hazard Installation	Director (Indl.Hygiene) & Incharge Major Accident Hazard Control Advisory Division
Training Workshop on Team Building for Safety, Health & Welfare at Work	Director (Staff Trg.) & Incharge Staff Training Division
Industrial Ergonomics – Its application in Industries for Promotion of Safety, Health & Increased Productivity at Work	Director (Physiology) & Incharge Indl.Ergonomics Division

Programme title	Contact person
Management of Occupational Stress for ensuring Safety, Health & Productivity at Shop Floor	Director (Physiology) & Incharge Indl. Physiology Division
Training Programme on Industrial Safety for National Safety Council-Maharashtra Chapter	Director (Safety) & Incharge Indl.Safety Division
Refresher Course for Senior Inspectors of Factories	Director (Safety) & Incharge Indl.Safety Division
Industrial Heat Stress & Heat Disorders – Its evaluation & management for ensuring Safety, Health & Productivity at Work	Director (Physiology) & Incharge Indl.Ergonomics Division
Management of Occupational Stress for ensuring Safety, Health & Productivity at Shop Floor	Director (Physiology) & Incharge Indl. Physiology Division
Motivation for Safety, Health and Productivity	Director (Indl.Psychology) & Incharge Indl.Psychology Division
Total Quality Management & ISO-9000-QMS:2000	Director (Productivity) & Incharge Productivity Division

TRAINING PROGRAMMES
APRIL-JUNE 2003
REGIONAL LABOUR INSTITUTE , LAKE TOWN
KOLKATA-700 089

Programme title	Contact person
Associate Fellow of Industrial Health	Director Incharge
Prevention and Control of Fire In Industry for Worker Members of Safety Committee	Director Incharge
Workshops on Monitoring of Work Environment	Director Incharge

Safety Engineering and Environment Management	Director Incharge
Techniques of Hazards Identification & Assessment	Director Incharge

TRAINING PROGRAMMES
APRIL-JUNE 2003
REGIONAL LABOUR INSTITUTE , NO.1,SARDAR PATEL ROAD
ADYAR, CHENNAI-600 113

Programme title	Contact person
Fire Prevention and Control	Director Incharge
Training Programme on Safety Management in Engineering Industries	Director Incharge
Training Programme on Evaluation and Control of Airborne Contaminants in Work Environment	Director Incharge
Training Programme on Management of Hazardous Substances	Director Incharge

TRAINING PROGRAMMES
APRIL-JUNE 2003
REGIONAL LABOUR INSTITUTE, SARVODAYA NAGAR
KANPUR- 208 005

Programme title	Contact person
Three month course on Occupational Health	Director Incharge
Training programme on Prevention & Control of Fire in Industry	Director Incharge
Workshop on Safety Engineering & Management	Director Incharge
Training programme on Safety & the Law	Director Incharge

Training programme on Testing & Examination of Lifting Machinery and Pressure Vessels.	Director Incharge

TRAINING PROGRAMMES
JANUARY TO DECEMBER 2003 (TENTATIVE)
REGIONAL LABOUR INSTITUTE
S.C.F-46, SECTOR 19, PART-II MARKET, FARIDABAD

Programme title	Contact person
Effective Supervision in Managing Safety, Health and Environment	Deputy Director (Indl.Psy.)
Team Building for Safety, Health and Welfare	Deputy Director (Indl.Psy.)
Personal Growth & Group Dynamics	Deputy Director (Indl.Psy.)
Safety in Engineering Industry	Deputy Director (Indl.Psy.)
Management of Human Factors at Work	Deputy Director (Indl.Psy.)

इंडोश्नेट

भारत सरकार का श्रम मंत्रालय व्यवसायिक सुरक्षा और स्वास्थ्य सूचना प्रणाली पर इंडोश्नेट नामक राष्ट्रीय नेट वर्क का विकास कर रहा है ।श्रम मंत्रालय का एक संबद्ध कार्यालय, कारख़ाना सलाह सेवा एवं श्रम संस्थान महानिदेशालय इस नेट वर्क प्रणाली के सफल कार्यान्वयन में सहायता देता है । इस नेट वर्क का उद्देश्य व्यवसायिक सुरक्षा और स्वास्थ्य संबंधी राष्ट्रीय जानकारी सुदृढ़ करना और लाभहानि रहित आधार पर इसका आदान-प्रदान करना है ताकि हमारे समग्र सूचना स्रोतों का परस्पर लाभ के लिए उपयोग हो सके । आपस में सूचना या जानकारी की यह सहभागिता केवल राष्ट्रीय स्तर तक ही सीमित नहीं होगी बल्कि इसमें अंतर्राष्ट्रीय स्रोत भी शामिल होंगे । इस जानकारी का आदान-प्रदान ई-मेल के साथ-साथ डाक/कुरियर सेवा द्वारा किया जाएगा । यदि औद्योगिक संगठनों, संस्थानों, उद्योग संघों, मज़दूर संघों, व्यवसायिक निकायों और ग़ैरसरकारी संगठनों के पास व्यवसायिक सुरक्षा स्वास्थ्य संबंधी कोई जानकारी हो और वे राष्ट्रीय और अंतर्राष्ट्रीय स्तर पर उक्त जानकारी बाँटना चाहते हों तो कारख़ाना सलाह सेवा एवं श्रम संस्थान महानिदेशालय की ओर से इस नेट वर्क के सदस्य के रूप में भाग लेने के लिए उनका स्वागत है । इच्छुक इकाइयाँ संगठनात्मक रूंपरेखा संबंधी प्रोफार्मा के लिए महानिदेशक, कारख़ाना सलाह सेवा एवं श्रम संस्थान महानिदेशालय, केंद्रीय श्रम संस्थान भवन, एन.एस.मंकीकर मार्ग, सायन, मुम्बई-४०० ०२२ से संपर्क करें ।

टिप्पणी : जिन इकाइयों ने हमारे पहले आग्रह के संदर्भ में संपर्क किया है और निर्धारित प्रोफार्मा में रूपरेखा भेज दी है, वे दुबारा आवेदन न करें ।

नेशनल रेफरल डायग्नोस्टिक सेंटर

भौतिक,रासायनिक,जैविक तथा मनों-सामाजिक जैसे विभिन्न कारणों से कामगारों पर होने वाले विपरीत स्वास्थ्य प्रभावों की रोकथाम और नियंत्रण करने के लिए व्यावसायिक स्वास्थ्य विकार और व्यावसायिक रोगों की शीघ्र पहचान और उसका निदान एक प्रमुख पहलू है ।व्यावसायिक रोगों का शीघ्र पता लगाने और निदान करने के लिए केंद्रीय श्रम संस्थान, मुंबई केऔद्योगिक चिकित्सा प्रभाग के अधीन 'नेशनल रेफरल डायग्नोस्टिक सेंटर' कार्यरत है जो व्यावसायिक स्वास्थ्य समस्याओं /व्यावसायिक रोगों की रोकथाम / नियंत्रण के लिए आवश्यक उपायसुझाता है ।प्रभावित कामगारों की चिकित्सीय जाँच के लिए यह निदान केंद्र पूर्णतया सज्जित हैऔर यहाँ श्व ास/धमनी संबंधी जाँच,श्रव्यता मापन,ई.सी.जी.,टिट्मस दृष्टि जाँच, जैविक निगरानी आदि के लिए सुविधाएँ उपलब्ध हैं।कारख़ाना चिकित्सा अधिकारी, ई.एस.आई. डॉक्टर,कारख़ानों के चिकित्सा निरीक्षक सहित यावसायिक चिकित्सक तथा मेडिकल कॉलेज और अस्पतालों के प्रमाणित शल्य चिकित्सक और डॉक्टर व्यावसायिक रोगों के संदेहास्पद रोगी,निदान और परामर्श के लिए इस केंद्र में भेज सकते हैं । इस मामले में अधिक जानकारी के लिए ।हानिदेशक, कारख़ाना सलाह सेवा एवं श्रम संस्थान महानिदेशालय, केंद्रीय श्रमसंस्थान भवन, एन.एस.मंकीकर मार्ग, सायन, मुंबई-४०० ०२२ से संपर्क करें ।

INDOSHNET

Ministry of Labour, Government of India, is developing a National Network on Occupational Safety and Health information system known as INDOSHNET. Directorate General Factory Advice Service & Labour Institutes (DGFASLI), an attached office of the Ministry of Labour will act as a facilitator of the network system. The objective of the network is reinforcement and sharing of national occupational safety and health (OS &H) information on no-profit no-loss basis with a view to pooling our information resources for mutual benefit. The sharing of information will not only confine to the national level but also includes international sources. The communication of information will be through E-mail as well as postal/courier service. DGFASLI invites industrial organisations, institutions, industry associations, trade unions, professional bodies and non-governmental organisations having information on OS&H and willing to share the same with others at the national and international level to participate as members in the network. Interested agencies may please write for proforma of organisational profile to Director General, DGFASLI, Central Labour Institute Bldg., N.S. Mankikar Marg, Sion, Mumbai 400 022.

Note: Those who have responded to our earlier communication and sent organisation profile in the prescribed format need not write again.

NATIONAL REFERRAL DIAGNOSTIC CENTRE

Early detection and diagnosis of occupational health disorders and occupational diseases is one of the most important factors in the prevention and control of adverse health effects on workers due to various factors - physical, chemical, biological and psycho-social. The Industrial Medicine Division of Central Labour Institute, Mumbai runs a National Referral Diagnostic Centre (N.R.D.C.) for early detection and diagnosis of occupational diseases and recommends necessary measures for prevention/control of occupational health problems/occupational diseases. The diagnostic centre is well equipped for medical examination of the exposed workers and facilities are available for carrying out special investigation, e.g. Pulmonary function tests, Audiometry, ECG, Titmus vision test, Biological monitoring, etc. Medical professionals including Factory Medical Officers, ESI Doctors, Medical Inspectors of Factories and Certifying Surgeons, Doctors from Medical Colleges and Hospitals can refer suspected cases of occupational diseases to N.R.D.C. for diagnosis and advice. The communication should be addressed to the Director General, DGFASLI, Central Labour Institute Bldg., N.S. Mankikar Marg, Sion, Mumbai 400 022 for further details.

'इन्डोश्न्यूज़' एक त्रैमासिक समाचार पत्र है जो व्यावसायिक सुरक्षा और स्वास्थ्य के क्षेत्र में अनुसंधान, ध्ययन और सर्वेक्षण के माध्यम से उपलब्ध जानकारी तथा तत्संबंधी विचार विनिमय में अत्यंत सहायक है । कारख़ाना सलाह सेवा एवं श्रम संस्थान उन व्यक्तियों,उद्योगों,औद्योगिक संगठनों,मज़दूर संघों और व्यावसायिक निकायों से लेख आमंत्रित करता है जिनके पास व्यावसायिक सुरक्षा एवं स्वास्थ्य संबंधी जानकारी है तथा जो उसे स्वेच्छा से दूसरों में बाँटना चाहते हैं ।

१. प्रकाशन के लिए पांडुलिपि की दो प्रतियां 'डबल स्पेस' में ए-४ आकार के काग़ज़ पर एक ओर टाइप किए गए लेख जो ३ या ४ पृष्ठ से अधिक न हों, मुख्य संपादक के पास भेजी जानी चाहिए । कोई फ़ोटो छापा नहीं जाएगा ।

२. प्रकाशन के लिए स्वीकृत पांडुलिपियों में प्रकाशन की दृष्टि से आवश्यक संपादकीय परिवर्तन रने का अधिकार प्रकाशक का है । प्रकाशक बिना कोई कारण बताए लेख का प्रकाशन नहीं भी कर सकता है ।

३. लेखक अपने लेख में दिए गए आँकड़े तथा संदर्भ स्वयं सुनिश्चित करने में सावधानी बरतें ।

INDOSHNEWS is a quarterly newsletter that facilitates exchange of ideas and data developed through research, study and surveys in the areas of occupational safety and health. DGFASLI invites articles from individuals, industry, industrial associations, trade unions, professional bodies etc. having information on OS & H and willing to share the same with others at the national and international level.

1. **Manuscripts for publication should be typed in double space within 3 to 4 A4 size sheets only on one side of the paper and sent in duplicate to the Editor-in-Chief. No photographs can be published.**

2. **Once the manuscripts are accepted for publication, publisher reserves the right to make editorial changes as may be necessary to make the article suitable for publication; and publisher reserves the right not to proceed with publication for whatever reason.**

3. **Authors should take care to ensure the accuracy of data and reference.**

भारत सरकार, श्रम मंत्रालय
कारख़ाना सलाह सेवा एवं श्रम संस्थान महानिदेशालय

कारख़ाना सलाह सेवा एवं श्रम संस्थान महानिदेशालय झ्डीजीफासलीट भारत सरकार के श्रम मंत्रालय का एक संबद्ध कार्यालय है । कारख़ानों और गोदी में व्यावसायिक सुरक्षा और स्वास्थ्य संबंधी नीति बनाने के लिए तथा कार्य स्थलों पर कामगारों की सुरक्षा,स्वास्थ्य,दक्षता संबंधी मामलों पर राज्य सरकारों और कारख़ानों को परामर्श देने की दृष्टि से १९४५ में भारत सरकार के श्रम मंत्रालय के अधीन डीजीफासली की स्थापना की गई थी।यह महानिदेशालय देश के प्रमुख पत्तनों में सुरक्षा एवं स्वास्थ्य संबंधी नियम भी लागू कराता है ।

कारख़ाना सलाह सेवा और श्रम मंत्रालय संस्थान महानिदेशालय झ्डीजीफासलीट के निम्नलिखित अंग हैंः

- मुम्बई स्थित मुख्यालय;
- मुम्बई स्थित केंद्रीय श्रम संस्थान और
- कोलकाता,चेन्नई,फरीदाबाद और कानपुर स्थित क्षेत्रीय श्रम संस्थान ।

मुम्बई स्थित केंद्रीय श्रम संस्थान समाजार्थिक प्रयोगशाला के रूप में कार्य करता है और यह मानवीय पहलुओं से संबंधित औद्योगिक विकास के सभी पक्षों के वैज्ञानिक अध्ययन का एक राष्ट्रीय संस्थान है ।

पिछले ३३ वर्षों में केंद्रीय श्रम संस्थान का केवल आकार की दृष्टि से ही नहीं बल्कि महत्ता की दृष्टि से भी विकास हुआ है ओर इसने राष्ट्रीय तथा अंतर्राष्ट्रीय स्तर पर मान्यता प्राप्त की है । एशिया और पैसिफिक क्षेत्र में व्यावसायिक सुरक्षा और स्वास्थ्य पर सर्वोत्कृष्ट प्रशिक्षण केंद्र के रूप में अंतर्राष्ट्रीय श्रम संगठन ने मान्यता प्रदान की है । यह सीआईएस झ्अंतर्राष्ट्रीय व्यावसायिक सुरक्षा और स्वास्थ्य सूचना केंद्र टके राष्ट्रीय केंद्र तथा राष्ट्रीय सुरक्षा एवं स्वास्थ्य जोखिम सतर्कता प्रणाली के केंद्र के रूप में कार्य करता है । राष्ट्रीय स्तर पर सरकार को अनुसंधान और प्रशिक्षण सुविधा उपलब्ध कराने और श्रम मंत्रालय के तकनीकी सहायक के रूप में कार्य करने के अलावा यह संस्थान अध्ययन, तकनीकी परामर्श, प्रशिक्षण और सूचना प्रसार के माध्यम से औद्योगिक पत्तन सेक्टर को गहन और बहु-आयामी सेवा उपलब्ध कराता है । इसके अधीन, व्यावसायिक विकारों की शीघ्र पहचान और उसके नियंत्रण और रोकथाम के लिए रेफरल डायग्नोस्टिक सेंटर कार्यरत है ।सुरक्षा और स्वास्थ्य से संबंधित स्तरीय यू-मैटिक वीडियो फ़िल्मों के निर्माण के लिए परिष्कृत उपकरणों से सज्जित एक आधुनिक ऑडियो विज़ुअल स्टूडियो उपलब्ध है । केंद्रीय श्रम संस्थान के लघु रूप में क्षेत्रीय श्रम संस्थान हैं जो अपने संबद्ध क्षेत्रों की आवश्यकता पूरी करते हैं ।

निरंतर बढ़ती माँग को देखते हुए, इस संगठन का आगे विकास हो रहा है । किसी विकासशील देश में विभिन्न और जटिल प्रकृति के उद्योगों की बड़ी संख्या को देखते हुए, कामगारों की सुरखा और स्वास्थ्य एक चुनौतीपूर्ण कार्य है । तकनीक, औद्योगिक समाज की साख और समर्पित कर्मचरियों से सज्जित यह संगठन भविष्य की चुनौतियों का सामना करने में सक्षम है । कार्य स्थल सुरक्षित बनाने के अपने लक्ष्य के लिए यह संगठन प्रतिबद्ध है ।

Visit us at: www.dgfasli.nic.in

GOVERNMENT OF INDIA, MINISTRY OF LABOUR
DIRECTORATE GENERAL FACTORY ADVICE SERVICE & LABOUR INSTITUTES

The Directorate General Factory Advice Service & Labour Institutes (DGFASLI) is an attached office of the Ministry of Labour, Government of India. DGFASLI organisation was set up in 1945 under the Ministry of Labour, Government of India to serve as a technical arm to assist the Ministry in formulating national policies on occupational safety and health in factories and docks and to advise State Governments and factories on matters concerning safety, health, efficiency and well-being of the persons at workplace. It also enforces safety and health statutes in major ports of the country.

The Directorate General Factory Advice Service & Labour Institutes (DGFASLI) comprises:

* Headquarters situated in Mumbai
* Central Labour Institute in Mumbai
* Regional Labour Institutes in Kolkata, Chennai, Faridabad and Kanpur

The Central Labour Institute in Mumbai functions as a socio-economic laboratory and is a national institute dealing with the scientific study of all aspects of industrial development relating to the human factors.

Over the past 33 years the Central Labour Institute has constantly grown not only in size but also in stature and has earned national and international recognition. It has been recognised by the International Labour Organisation as a Centre of Excellence in training on Occupational Safety and Health in the Asian and Pacific Region. It also functions as a National Centre for CIS (International Occupational Safety and Health Information Centre) and the Centre for National Safety and Health Hazard Alert System. At the national level, apart from providing research and training support to the Government and functioning as a technical arm of the Ministry of Labour, the institute provides comprehensive and multi-disciplinary services to the Industrial Port sector through studies, technical advice, training and dissemination of information. It also runs National Referral Diagnostic Centre for early detection of occupational disorders and thereby controls and prevents them. It has a modern Audio Visual Studio fully equipped with sophisticated video production equipment to produce quality U-matic video films on Safety and Health. The Regional Labour Institutes are a scaled-down version of the Central Labour Institute and cater to the needs of their respective regions.

The organisation is poised to grow further, and meet the increased demands on it. In a developing country with a large number of industries having diverse and complex nature, the task of protecting safety and health of workers is an uphill task. Armed with the technology, good-will of the industrial society and the strength of the dedicated staff, the organisation is well prepared to meet the challenges of tomorrow. It is committed to the goal of making the workplace safer.

Visit us at : www.dgfasli.nic.in