

OCCUPATIONAL HEALTH, SAFETY AND ENVIRONMENTAL CONDITIONS AT FARUKI PULP MILLS PVT LTD.

Zain Abbas¹, Muhammad Qasim² and Aroj Bashir³

¹Institute of Environmental Sciences & Engineering (IESS), School of Civil and
Environmental Engineering (SCEE), NUST, H-12, Islamabad, Pakistan

²Department of Environmental Sciences, University of Gujrat

³Populatin Sciences, University of Gujrat

Email: ¹zain.abbas55@yahoo.com , ²Shazand_qasim@yahoo.com

Abstract: Occupational safety and health is caring to the safety, health and wellbeing of people occupied in work. The study is conducted at Faruki pulp mills (Private) Limited. It is a medium sized company, located on Sargoda Road, Gujrat, 20 Km away from Gujrat city. The aim of the study is to identify risks and hazards associated with each process of Faruki pulp Mills Pvt. Ltd, to evaluate the Health safety and environmental conditions at different sections of Faruki pulp Mills Pvt. Ltd. and to evaluate whether workers are being trained with respect to Health, Safety and Environmental and also to observe whether workers are having any awareness regarding Health, Safety and Environmental or not. The Desk Survey, Meeting And Discussions, Questionnaires, Interviews, Monitoring, Direct reading, Visit of units, Photography, Hazard Identification, Walk Through Survey methods are used to data collection. Direct Reading Instrumentation parameters are measured Noise Level, Illumination level, Temperature level and Relative Humidity level. It is concluded that the prevailing HSE conditions carried out by the researcher at Faruki pulp Mills Pvt. Ltd are mentioned below later on. The overall conditions of occupational health and safety were found to be satisfactory within the workplace and result has shown that noise level was found acceptable in most of the units and departments of the factory except the turbine hall, boiler, and reverse osmoses sections, so there is a need for improvement.

Keywords: Occupational Health, Safety and Environment.

1. INTRODUCTION

1.1 Occupational Health and Safety Management

Occupational Health can be defined as “Occupational health aims at: the promotion and maintenance of the highest degree of physical, mental & social wellbeing of workers in all occupations”. BS OHSAS 18001 is occupational Health and safety management system Specification. The implementation of OHSAS 18001 demonstrates the commitment of an organization to protection of health and safety in workplace. Its key principles includes clear commitment by the top management, setting objectives, continual improvement by

*Received Feb 11, 2014 * Published April 2, 2014 * www.ijset.net*

conducting audit and review to monitor the effectiveness, Hazard identification, risk assessment and control of the risks identified, training and awareness among workers regarding health safety issues, and communication with all stakeholders. OHSAS 18001 can be adopted by any firm. It provides company with many benefits in terms of reduced risks, marketplace position, and reduced costs.

1.1.2 Introduction of Industry

Pulp producing industries play an important role in terms of Pakistan's economy as providing raw material to facilitate paper and other industries consuming pulp and labor force employment. But these are not enough to full fill the requirements.

1.1.3 Overview and History

Faruki pulp mills (Private) Limited was established in 1992. It is a medium sized company, located on Sargoda Road, Gujrat, 20 Km away from Gujrat city, is equipped with most modern machines for manufacturing of high-quality wood pulp. This Manufacturing facility is managed by a dedicated team of over 100 plus 500 workers under the guidance of a qualified Managing Director, Directors and Experienced Managers, it's Production Capacity is about 200 tons/day.

1.1.4 Health, Safety and Environmental Regulations in Pakistan

Followings are various Health, Safety and Environmental regulations in practice at Pakistan.

- Factories Act 1934
- Workmen Compensation Act, 1923
- Workmen Compensation Act, 1923
- Mines act, 1923
- The Fatal Accidents Act, 1855
- Dock Laborers Act, 1934
- The Hazardous Occupations Rules, 1963
- Provincial Employees Social Security Ordinance, 1965
- West Pakistan Shops and Establishments ordinance, 1969
- Punjab Factories Rules, 1978

Boilers and Pressure Vessels ordinance, 2002

1.2 Objectives of the study

- To identify risks and hazards associated with each process of Faruki pulp Mills Pvt. Ltd.

- To evaluate the Health safety and environment conditions at different sections of Faruki pulp Mills Pvt. Ltd.
- To evaluate whether workers are being trained with respect to Health, Safety and Environmental and also to observe whether workers are having any awareness regarding Health, Safety and Environmental or not through questionnaires.
- To give suggestions and recommendations to improve occupational health and safety and environmental conditions, which will benefit the workers, organization and also general public health.

1.3 Significance of the study

The study will discuss Safety and encouragement of the health of employees by preventing and scheming occupational sickness and mishaps and by eradicating occupational causes and circumstances risky to health and safety at job. This study gives awareness to worker about their right and Progress and encouragement of healthy and safe work, work environments and work associations. It will help in Improvement of physical, psychological and social comfort of employees and sustain for the progress and preservation of their working ability, in addition to specialized and community enlargement at work the most unbeaten economies have verified that workplaces planned according to good principles of occupational health, safety are also the most sustainable and creative. In addition, extensive knowledge from countries explain that a healthy economy, high value of products or services and long-term productivity are hard to attain in poor working conditions with workers who are showing to health and safety dangers

2. REVIEW OF LITERATURE

The work is considered as basic part of our life. Most adults spend approximately one fourth to one third time at work and often perceive work as part of their self-identity (Rogers, 1994) There are significant disparities in health status and access to health care among people of different social and economic circumstances. In most countries, disadvantaged individuals have higher rates of cardiovascular disease, musculoskeletal disorders, respiratory illness, gastrointestinal disease, and other common medical problems (Dembe 1999).

There is a strong need for training of HSE professionals in the various disciplines like noise exposure & control, industrial ventilation, Industrial Hygiene (IH), chemistry sampling techniques, industrial toxicology, personal protective equipment, hazard communications, hazardous waste management, air pollution, fire prevention & safety, biological safety &

infection control, etc. in addition, hands –on training is needed in the use of IH equipment, exposure monitoring interpretation of results, writing technical reports and record keeping. Monitoring is needed in developing research projects and writing technical manuscripts for publication in international technical journals (Akram, 2002).

A study was carried out at small and medium scale enterprises in which the effectiveness of the application of good health and safety policies in terms of reductions in the cost involved in operation and also compensation cost.(Walker and Tait 2004)

This study emphasizes on the role of the health and safety management policies in terms of the reduction in the workplace injuries and also maintaining better workplace conditions.(Torp and Moen 2006)

There was another study which was carried out to elaborate the ILO perspective about the good health and safety management policies and their role in maintaining the good workplace practices.(Niu 2010)

There was also a study conducted on the factor that only implementing the standards OSHA does not certify that the HSE conditions are reliable in the workplace, conditions may develop that despite of being certified in the various standards of HSE workplace may still prone to injuries and occupational hazards (Hohnen and Hasle 2011).

3. MATERIALS and METHODS

3. Methodology

3.1.1 Desk Survey

First of all desk survey was conducted in which literature was reviewed both on national and international level. In the desk survey different documents were also reviewed which included the followings; Environmental policy, Health and Safety policy, Quality control policy, Risk assessment chart, process description, process flow sheet diagram, SOP's , MSDS of chemicals and some other documents .

3.1.2 Meeting and Discussions

During the visits of the industry meetings were being held with HSE staff of the industry and other workers in which discussions were made upon issues like the hazards with which workers are exposed in the industry and mitigation measures taken by industry.

3.1.3 Walk through Survey

A walk through survey was conducted.

3.1.4 Questionnaires / Interviews

Interviews from different workers and staff were taken.

3.1.5 Visits of units

Different units of the industry were visited for the observation of the different processes occurring over there.

3.1.6 Photography

Photos were being taken of the different processes in industry.

3.1.7 Hazard Identification

Different types of hazards related to machines and also health and safety conditions of work place were studied, for this walk around inspection was carried out.

4. Results and Discussions

4.1 Results and Discussions on Walkthrough Survey

Walk through survey was being conducted in which following aspects and their impacts were identified and compliance to various regulations was checked. The overall situation of HSE conditions of factory was found acceptable. Following parameters were checked;

Material handling ,House Keeping ,Solid Waste ,Chemical Hazards ,Health and hygiene ,Medical facility ,First Aid Box ,Health Problems ,Waste Water ,Food Safety and canteen ,Prohibition on use of Drugs/ narcotics/ cigarettes ,Washrooms ,Smoke Detectors ,Administrative controls and Safety trainings ,PPE'S , Fire extinguishers ,Safety Sign boards ,Drinking Water ,Emergency Bath/ Eyewash Bottles

Interviews

Workers Questionnaires

Table: Results of workers questionnaires in terms of percentage

Sr.#	Questions	Yes (%)	No (%)	N/A (%)
1	Are you medically screened by your employer?	10	90	
2	Do you have any health problem?	0	100	
3	Do you have any ergonomics problem?	30	70	
4	Do employers care for your hygienic conditions?	15	85	
5	Are you provided with medical allowance?	9	91	
6	Are you allowed sick leaves?	70	30	
7	Which type of food, you use is hygienic?	55	45	

8	Is there wash basins provided at workplace?	60	40	
9	Are you satisfied with the drinking water facility provided at work?	75	25	
10	Are you satisfied with the latrine facility provided at work?	60	40	
11	Are the toilets and urinals available maintained?	50	50	
12	Do you smoke?	30	70	
13	Is smoking allowed during work?	0	100	
14	Are you satisfied with lighting at workplace?	70	30	
15	Are you satisfied with the temperature at workplace?	80	20	
16	Do you have any break time at work?	100	0	
17	Is there any occupational fatality case yet from start of the project?	0	100	
18	Are there any chances of slips?	40	60	
19	Are there any chances of trips?	45	55	
20	Are there any chances of falls?	55	45	
21	Are you provided with First Aid?	80	20	
22	Are you provided with ambulance in time of emergency?	10	90	
23	Are Fire extinguishers are present in case of fire emergency?	90	10	
24	Do you know how to use fire extinguishers and where they are placed?	65	35	
25	Do you know types of fire extinguishers?	60	40	
26	Are PPEs provided to you?	40	60	
27	Do you like to use PPE?	20	80	
28	Is there any training provided to you regarding to the use of PPEs?	2	98	
29	Are you satisfied with the working posture?	40	60	
30	Is there any lifting provided at the workplace?	100	0	
31	Is there any training conducted regarding	0	100	

	ergonomics?			
32	Is the industry provides you food facility at work?	100	0	
33	Are you satisfied with your working environment?	70	30	
34	Do you take care of proper housekeeping and maintenance?	100	0	
35	Do you think your work is noisy?	60	40	
36	Are there any gaseous emissions?	25	75	
37	Do dust bins provided to you for solid waste management?	45	55	
38	Is there any on source segregation of solid waste in the place?	0	100	
39	Is there any kind of air emission generated at workplace?	70	30	
40	Is there any kind of fumes at workplace?	10	90	

5. CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

Conclusions drawn from the detail study of the prevailing HSE conditions carried out by the researcher at Faruki pulp Mills Pvt. Ltd are mentioned below later on. The overall conditions of occupational health and safety were found to be satisfactory with in the workplace.

As for as the results are concerned noise level was found acceptable in most of the units and departments of the factory except the turbine hall, boiler, and reverse osmoses sections, so there is a need for improvement.

5.1.1 Temperature and humidity

Temperature and Humidity were measured from various areas of industry. Standard used were:

Standard for Temperature: 20-29°C

Standard for Humidity: 40-60%

Temperature levels were exceeding the limit in most of the departments. It was as high as 45°C at the Boiler section and 42°C at machine hall. Work conditions at the work place become harsh at the summer season and heat stress may result. Relative humidity level was found to be within the permissible limits.

Illumination level in most of departments was found adequate or bad. Only some departments were having satisfactory illumination level and some departments were having good, even excellent illumination level. The level of illumination fell down even to 90 at Bleaching Section, and sometimes it even rose above to a level of 353 at machine hall.

5.2 Recommendations

5.2.1 Types of Controls Recommended

Three types of controls are recommended; Engineering controls, Administrative controls, and PPE'.

5.2.2 Noise Levels

Noise generated can be very harmful to the workers and can lead to hear loss in the workers and can be minimized by following steps.

- * There should be proper absorbing materials installed in the noisy areas of the workplace.
- * Engineering controls should be first priority as noise is generated by compression of air.
- * Proper lubrication and maintenance of machines can reduce the level of noise generated.

5.2.3 Temperature and Relative humidity

- * Proper ventilation system should be there to reduce the temperature.
- * Water circulation should be introduced and drinks should be provided to the workers in the summer seasons.
- * Dress should be designed according to the season.
- * General ventilation should be improved.

5.2.4 Illumination level

- * Engineering controls should be adopted and installed first, like natural light can be utilized by designing green buildings having windows.
- * Energy efficient appliances like tube lights and energy saver can be used instead of bulbs and voltage stabilizer can be used where the illumination level is low.

5.2.5 Waste water

- * There is a need of waste water treatment plant.

5.2.6 PPE's

- * The size and quality of the PPE'S should be according to the standards.
- * Use of PPE'S should be encouraged.
- * Proper uniforms should be provided to the workers and there should be check and balance to ensure that workers are using those uniforms.

5.2.7 Storage of Chemicals

It is very important to avoid any hazards.

- * Chemicals should be stored properly.
- * Chemicals should be stored in well-ventilated area.

5.2.8 Chemical handling

- * Workers should be well trained to handle the dyes and chemicals used in the process.
- * MSDS should be posted in local language at the notice board so that every worker can understand them

References

- [1] Akram, M. (2002) A Survey of Environmental Health and Safety Needs of Pakistan, Unpublished Report, pp.2-15.
- [2] Awan, T. (2001) Pakistan Institute of Labour Education and Research (FILER), Occupational Health and Safety in Pakistan, Asian Labour Update (ALU) issue, Nathan Road, Kowloon, Hong Kong, No.39, pp.5-7.
- [3] Dembe, A. (1999). "Social Inequalities in Occupational Health and Health Care for Work-Related Injuries and Illnesses." *International Journal of Law and Psychiatry* 22(5-6): 567-579.
- [4] Hohnen, P. and P. Hasle (2011). "Making work environment auditable – A ‘criticalcase’ study of certified occupational health and safety management systems in Denmark." *Safety Science* 49(7): 1022-1029.
- [5] Niu, S. (2010). "Ergonomics and occupational safety and health: An ILO perspective." *Applied Ergonomics* 41(6): 744-753.
- [6] Rogers, B. (1994) Roles of Occupational Health nurse in Occupational health nursing concepts & practices, W.B. Saunders Co. pp. 48-64.
- [7] Shaikh, G.H. (1999). "Occupational noise exposure limits for developing countries." *Applied Acoustics* 57(1): 89-92.
- [8] Singer, R. M. (1990) *Neuro Toxic Guide Book*. New York. pp. 56-78.
- [9] Torp, S. and B. E. Moen (2006). "The effects of occupational health and safety management on work environment and health: A prospective study." *Applied Ergonomics* 37(6): 775-783.
- [10] The Pakistan Code (1934- 1947), Factories Act (XXV of 1934) Chapter III Health & Safety.

- [11] The Pakistan Code (1934- 1947), The Dock Labourers Act (XIX of 1934).
- [12] The Pakistan Code (1934- 1947), The Employers Liability Act (XXIV of 1938).
- [13] The Pakistan code (1934- 1947), The Employment of Child (XXVI of 1938).
- [14] Walker, D. and R. Tait (2004). "Health and safety management in small enterprises: an effective low cost approach." *Safety Science* 42(1): 69-83.
- [15] WHO. (1995), Hazard prevention and control in the environment. Prevention and Control Exchange (PACE). A document for decision-makers. WHO/OCH/95.3. Geneva: World Health Organization.
- [16] WHO. (1998), Prevention and Control Exchange: PACE, hazard prevention and control in the work environment: occupational exposure to noise, WHO/SDE/OEH/98.14. Geneva: World Health Organization.
- [17] WHO. (1999), Prevention and Control Exchange: PACE, hazard prevention and control in the work environment: airborne dust, WHO/SDE/OEH/99.14. Geneva: World Health Organization.
- [18] WHO (1999), Guideline values for community noise in specific environments, Geneva.