Safe Operating Procedure for Furnace Operation and Noise Control in Foundry Industry

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Abstract: The ultimate aim of an industry is to create a work place safe for their workers. One of the important ways to achieve a safe working place is a safe working procedure. The aim of my project is to observe and analyze all unsafe working procedure in all fettling operations and then prepare a Safe operating procedure in each operation in fettling area. Noise is a serious hazard in many workplaces over time. If exposure to noise are not properly eliminated or controlled. It may cause permanent hearing loss and fatigue in workers the foundry industry involves in the process like mould making castings, fettling, grinding and CNC. In all these process and sub process noise is the important pollution which lead to create problems to the workers and environment in a foundry enormous amount of noise will be generated. This may leads to employee hearing aids in a long run. The aim of project is to perform Source noise monitoring and ambient noise monitoring and compare with IS regulations and Control them with proper control measures where the noise limit is exceeds.

Keywords: Safe Operating Procedure, Furnace, Noise Control.

I. INTRODUCTION

A standard operating procedure is “an industrial directive that establishes a standard course of action.” In other words, SOPs are written guidelines that explain what is expected and required for operating personnel in performing their jobs. A comprehensive set of SOPs defines in significant detail how the department intends to operate. Stated differently, SOPs don’t describe how to do the job (technical skills), they describe the department’s rules for doing the job (procedural guidance). An example might help to clarify this point. Operating an emergency vehicle requires both technical skills and procedural guidance. At present industrial organizations face an insurmountable array of challenges in modern society. In an era of shrinking resources, departments must contend with: Expanding organizational missions emergency medical care, hazardous materials response, technical rescue, fire prevention/public education, and terrorism incidents. Increasing legal and regulatory requirements safe work practices, public and employee right-to-know, equal opportunity (race, gender, age, disability), performance standards, employee relations, and much more. Thus SOP for industries intended to serve as a planning guide and reference document for industries in developing, implementing, and maintaining SOPs. It describes general concepts, related legal authorities, specific steps, and resource requirements for managing the SOP process.

A. SOP Management Program

• The Role and function of SOPs describes the use and content of SOPs in a typical foundry operation. Sample SOP categories are presented, and the relationship between SOPs and other foundry documents is explored.

• Conducting a Needs Assessment, describes elements for an industrial process to examine existing SOPs, identify shortfalls, and develop an action plan. Processes for assessing the current operating environment, standard of practice, and local needs are discussed.

• Developing standard operating procedure describes generic steps and requirements for preparing a comprehensive set of SOPs. Related considerations include the use of committees or teams, staffing, mechanisms for gathering input, document formats, and review and approval processes.

• Implementing standard operating procedures discusses the requirements and systems needed to ensure that new SOPs are understood and used correctly. Subjects include planning, notification, distribution, accessibility, training, and performance monitoring.

Evaluating standard operating procedure defines the purpose and types of formal processes that departments can use to analyze the effectiveness of existing SOPs. General steps and a detailed case study are presented. At present industrial organizations face an insurmountable array of challenges in modern society. In an era of shrinking resources, departments must contend with: Expanding organizational missions—emergency medical care, hazardous materials response, technical rescue, fire prevention/public education, and terrorism incidents. Increasing legal and regulatory requirements safe work practices, public and employee right-to-know, equal opportunity (race, gender, age, disability), performance standards, employee relations, and much more. Increasing complexity in emergency response techniques and equipment-personal protective
measures, chemical safety, infection control, building and industrial codes, information management, training systems, and so forth. Increasing coordination and reporting requirements with other groups-emergency response agencies, community managers and planners, mutual aid organizations, federal and state governments, member associations, and others.

Fig1. Process Flow In Foundry

Industries must meet these growing requirements in an environment that it is a challenge. Budgets are tight and personnel are stretched thin. The experience of the workforce may be declining due to a decrease in the number of structural personalities and the retirement of more experienced personnel. As a result, the decisions that personnel face are more complex and controversial. Mistakes have greater repercussions and costs. Emergency service providers need help understanding and navigating the maze of regulatory and administrative requirements. Managers, on the other hand, need a mechanism to convey operational guidance to the members and ensure departmental compliance with laws, regulations and standards. They need tools to direct and control the rapid pace of change. Noise is unwanted sound. It can cause hearing loss disturb verbal communication or cause nuisance.

The most common sources and industrial noise can cause damage to assets radiate noise or cause discomfort to people. Industrial noise is often a term used in relation to environmental health and safety, rather than nuisance, as sustained exposure can cause permanent hearing damage.

Traditionally, Occupational noise has been a hazard linked to heavy industries such as ship-building and associated only with noise-induced hearing loss (NIHL). Modern thinking in occupational safety and health identifies noise as hazardous to worker safety and health in many places of employment and by a variety of means. Noise can not only cause hearing impairment (at long-term exposures of over 85 decibels (dB), known as an exposure action value), but it also acts as a causal factor for stress and raises systolic blood pressure. Additionally, it can be a causal factor in work accidents, both by masking hazards and warning signals, and by impeding concentration. Noise also acts synergistically with other hazards to increase the risk of harm to workers. In particular, noise and dangerous substances (e.g. some solvents) that have some tendencies towards ototoxicity may give rise to rapid ear damage.

II. METHODOLOGY

A. SOP for Furnace Operations

- Observing and analyzing all operations in Furnace operations.
- Analyzing the unsafe working procedures in each operation in furnace.
- Preparing the SAFE OPERATING PROCEDURE for each operation in furnace.
- Implementing SOP in each operation in furnace.

B. Noise Management System

- Measure of Noise level In Different Exposure and Sections of Industry.
- Complying with the OSHA regulations.
- Control of Noise Level.

C. SOP for Furnace Operations

- Metal charging EOT
- Vibration feeder
- Slag removing operation
- Supervisor
- Metal transporting EOT
- Tractor operator
- Forklift operator

III. RESULT

A. Sop for Furnace

Safe operating procedure has been created for all furnace operations and verified with safety officer. Then made some modifications and recommendations in the sop has suggested my him and was approved. Soon it will be implemented has a safe working procedure which will result in reduction of accident.

B. Noise pollution control in foundry

By implementing noise management system in foundry industry all source and ambient noise level have been measured recommendation are provided to reduce the noise level for both source and ambient soon all the recommended solution will be implemented resulting in reduction of noise level up to 15 dB until.
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IV. CONCLUSION

Thus by analyzing all procedures, the unsafe actions in all work procedure are identified and by implementing safe operating procedure in all operations they are eliminated. Thus by implementing a noise management system the noise pollution level will be reduced 15dB more by the recommended control measures.

V. REFERENCES


[8] Oyedepo sunday olayinka “noise map: tool for abating noise pollution in urban Mechanical Engineering Department, Covenant University, Ota, Nigeria.


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