Safety Audit

INTRODUCTION

Audits are very important to know, the strength and weaknesses of any managerial systems and are being successfully used for manufacturing, marketing, financing, etc. Safety is an important aspect where audit is now-a-days considered as an important tool for accident prevention and loss control. Safety audits provides effectiveness of the existing safety program and also identifies the area needing more attention.

The primary objective of safety audit can be defined as "Systematic Process of Scrutiny of an ongoing safety program by experts"' Safety Audits are use and serve as a "THIRD EYE" and also it is the need of statutory requirement which has come recently in Amended STATE factories Rules.

Advantages of Safety Audit

Safety audit is an important part of a company's control system. It ensures that deteriorating standards are detected and the entire organization is in good spirit - Safety Audit is also an important tool intended to assist management in its basic aim, to achieve highly efficient and profitable operations. Safety Audit provides an overall comprehensive study of the management and operational safety system, practices and policies and examines their effectiveness against identified hazards.

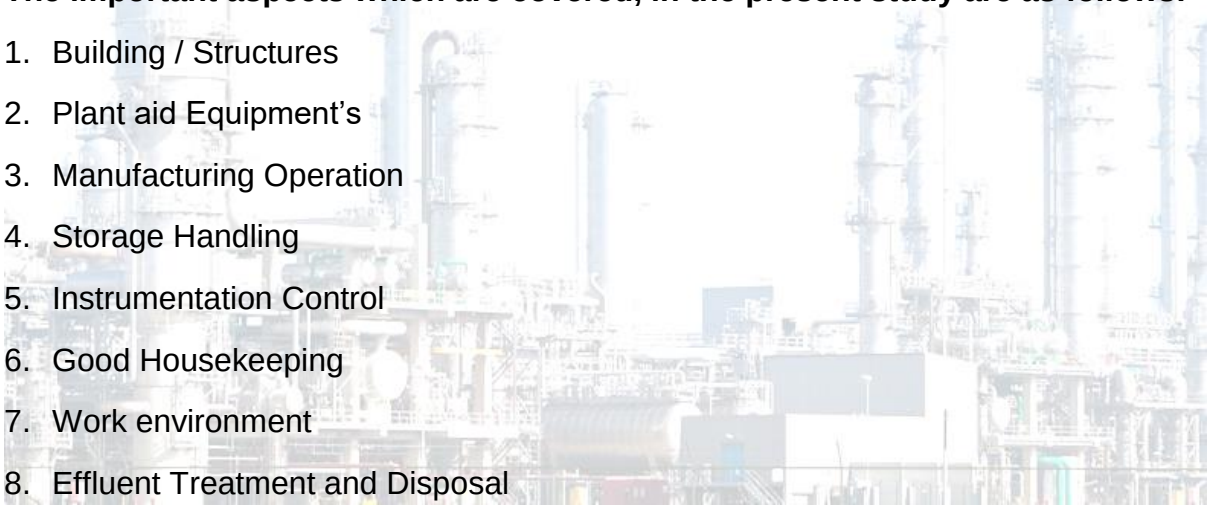
Safety Audit are a form of Risk analysis and evaluation in which a systematic investigation. is carried out in order to determine the extent to which the conditions are present that provide for the development and implementation of an effective and efficient safety policy.

Following are the advantages of carrying out the Safety Audit:

- Identifies potential areas of risk and gives suggestions to make necessary rectification for the overall improvement of the plant.
- Identifies specific deficiencies in the safety program.

- Strengthens the Safety Standards of an organization.
- Increases management participation in the safety program.
- Improves the skill and performance of workers and managers.
- Helps to create group and self-awareness and provides motivation.
- Reducing losses by providing timely information before any loss-producing incident occurs.
- Acts as an important means, for the management to have an effective safety program.
- Helps in evaluating feasibility of standard operating instructions, manual and procedures.

The important aspects which are covered, in the present study are as follows:



1. Building / Structures
2. Plant aid Equipment's
3. Manufacturing Operation
4. Storage Handling
5. Instrumentation Control
6. Good Housekeeping
7. Work environment
8. Effluent Treatment and Disposal
9. Availability / Usage of personal protective appliances.
10. Fire Preventive / protection
11. Employees Discipline - compliance of duty alertness,
12. Training / Development
13. Emergency Planning / Preparedness
14. Safety / Health Policy dissemination
15. Communication/displays/promotional Activities including motivational techniques being used.

BASIS AND METHODOLOGY

BASIS:

The Safety Audit is based on the data, information and documents provided by M/s. XYZ Chemicals Ltd. on the plant visits and inspection of the plant and detailed discussion with the technical staff of the plant.

METHODOLOGY:

The Safety Audit objectives are to identify probable hazards and risks. Prevailing in the facility with existing operating practice, study adequacy of safety systems provided and recommended modifications to eliminate and reduce the risks to an acceptable level. The areas audited include main plants, storage area, electrification area, Boiler & Utility.

Building & Structure: Building was inspected visually for particularly RCC framework where the load concentration and distribution takes place. Visual inspection for the cracks / breakage's separations of plasters and opening of the steel structures of the RCC was done. Observations of the above are given in respective sections.

PROCESS:

Process was discussed with plant persons. Process flow diagrams, temperature, pressure and the safety aspect were checked with respect to the equipment installed and our observations are in respective sections.

ELECTRICALS:

Electrical was checked mainly for loose connection and tapings given and provision of the earthing as per electrical rule, which is given under electrical sections.

SAFETY EQUIPMENTS & SAFETY PROCEDURES:

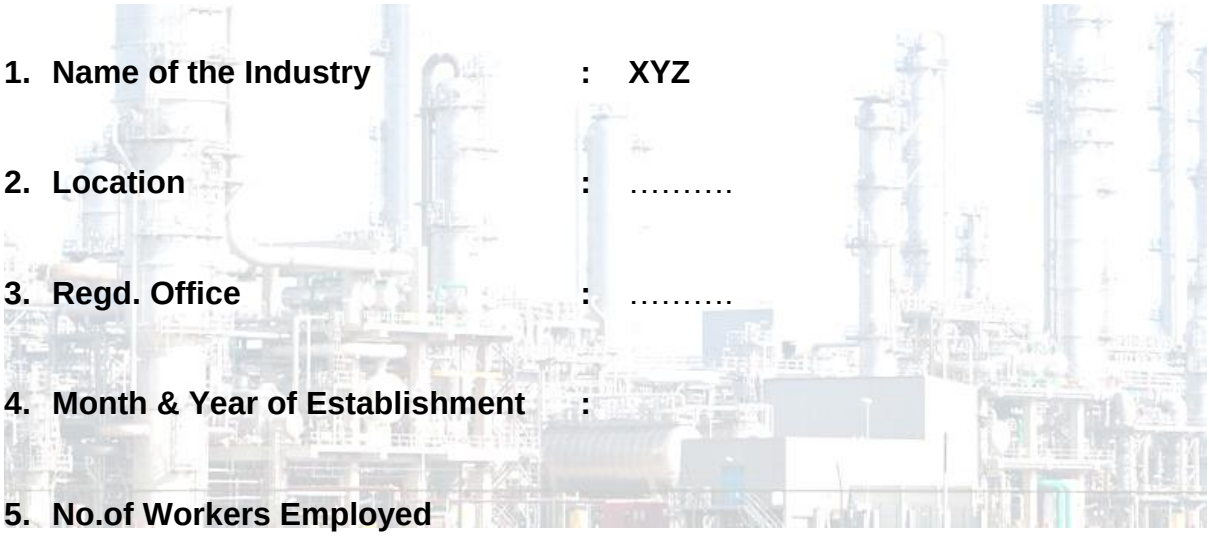
The above was inspected and discussion held with the Plant Personnel’s and inventory of the safety kits and tools, firefighting system etc. were checked and the same is given in respective section.

3.00 THE COMPANY

XYZ Company is situated at abc is engaged in the manufacturing of different types of chemicals a,b,c……...

ABOUT THE COMPANY

GENERAL:



1. Name of the Industry	**:**	**XYZ**
2. Location	**:**	…….
3. Regd. Office	**:**	…….
4. Month & Year of Establishment	**:**	
5. No.of Workers Employed		
Male / Female	**:**	Male - Female - Total -
6. (a) No. of Elect. Connections	**:**	
(b) Total Connected Load	**:**	360 KW
7. No. of D.G. Sets & Capacity	**:**	01 No., 285 KVA
8. Factory License & Detail	**:**	License No. …… Renewed till December 2021

9. Have fire hydrant system installed? **:** Yes with Hydrant points, Water Monitors, Hose Reel & Water Sprinkler System

RECOMMENDATIONS

During the Safety Audit I found that the management has taken due hazards for safety precautions towards Hydrogen, Sulphur-dioxide, Solvents etc. Many interlocks are provided through control room and manually also. However, I suggest the followings steps to be taken for making system more effective.

1. At least two set of earplug or earmuff must be kept ready near D.G. Set.

2. Dyke wall must be prepared surrounding L.D.O. Tanks.

3. Flexible copper tube connected with hydrogen Quad should be replaced by fix copper pipe / tube.

4. The railing opening in sump (E.T. Plant) must be closed by providing door.

5. Sparkles tools should be used for opening solvent drum.

6. 3 sets of safety belt – should be procured.

7. Safety slogans / pictures should be displayed inside factory building & premises.

8. For controlling SO_2 leakage
   (i) Hood should be provided
   (ii) Pit should be prepared near by SO_2 use place.
   (iii) Board showing action to be taken by workers / supervisors should be displayed.
   (iv) One more S.B.A. set to be procured or old one to be repaired machine.

9. Centrifuge
   (i) Lead interlocking should be repair
   (ii) During loading – unloading SO_2 escape should be controlled or workers should wear airline respirator.

10. Control room is heart of chemical manufacturing industry. In case of fire in control room CO2 flooding system for firefighting to be used for getting the better result.

11. In case of Burn injury for first aid, water jet blankets should be procured.

12. Antidotes for all chemicals used must be kept ready in occupational of Health Center.

13. A Board showing siren code in case of emergency & all clear should be displayed near main gate.

14. Safety & Health policy must be amended as per the State Factories Rules. All workers must be made known to this policy. Board showing Safety Policy must be displayed at different points inside the factory.

15. In jacket of Reactor No.1, pressure gauge should be installed.

16. In jacket of evaporator pressure gauge and safety valve should be installed.

17. To avoid concentration of solvent vapour in capsule department, the return air system must be interlocked with capsule, washing machine.

18. Airline respirator must be provided for workers working inside De-Ammonia room.

19. All loose & non-flameproof electrical connections must be removed from room where Ethylene Oxide is mixed with CO_2. Worker working in this area must know the property & Hazards of E.O.