



SNF India Private Limited
Visakhapatnam
SAFETY AUDIT REPORT-2019



PREAMBLE



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**“Safety is, without doubt, the most crucial investment we make.
And the question is Not what it costs us, but what it saves”**

Robert E. Mackee CMD

Conoco (UK) ltd

“A health & safety problem can be described by statistics but cannot be understood by statistics. It can only be understood by knowing and feeling the pain, anguish, and depression and shattered hopes of the victim and of wives, husbands, parents, children, grandparents and friends, and the hope, struggle and triumph of recovery and rehabilitation in a world often unsympathetic, ignorant, unfriendly and unsupportive, only those with close experience of life altering personal damage have this understanding”

M/s. **SNF INDIA Private Limited (SNF)** a manufacturing unit for a range of specialty polymers products and is a unit of the renowned subsidiary company of SNF - Floerger, France. The plant is located at Jawaharlal Nehru Pharma city - Parawada area of Visakhapatnam.

The management of SNF India believes in the systematic approach in effective controlling of their activities as well their responsibility for the protection of environment, health and safety of its work force and to the local community.



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Good safety practices of the organization are a very visible way of showing that the organization does value the people working with them; so also, it will be rewarded by a workplace that's not only safer but more productive as well. Apart from implementing good safety practices, periodical checking of the performance of the practices or the systems is also required. Conducting safety audit is one such requirement.

Safety audits are intended to promote, improve and then maintain good safety performance.

Audits review safety programs, policies, and procedures to check that they cover employee job tasks and hazards. They are a structured and effective way of preventing incidents and controlling safety hazards.

Though several audits are being conducted by the organization, including internal audits of the systems being implemented, one of the requirements is conducting of the safety audit as per the statutory requirement.

SNF manufactures water soluble polymers and production of Acrylamide also and for its production, SNF importing, storing and processing the raw material Acrylonitrile, which is a hazardous chemical under schedule 2 of Manufacture, Storage and Importing of Hazardous Chemicals (MSIHC) rules 1989 and amendments there on.

Under sub rules 4,5 & 6 of Rule 10 of MSIHC rules and the statutory regulations under Factories Act, it is the requirement that the organization need to conduct Safety Audits by a reputed external agency, followed by compliance of recommendations. Accordingly, the task of conducting the audit for the year 2019, has been entrusted to **Lumen** Engineering Associates.



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Lumen Engineering Associates feels it as an honor for getting the above assignment. Lumen Engineering Associates took this opportunity and carried out the audit, with an objective to review the various work practices and activities of the organization, such that the Occupational Health and Safety functioning of the organization is in line with the regulatory and other OHS system requirements.

Audit not only looks into the deviations or lacunae but also focuses on the best practices implemented by the organization. The recommendations given in the report are to be viewed as an aid to Management, for continual improvement and not as any faultfinding exercise.

Lumen Engineering Associates offers it's sincere thanks to the top management for providing the opportunity to Lumen in conducting the audit. Lumen extends its sincere thanks to all the HODs & other Plant Personnel for their co operation to the audit team in carrying the audit successfully.

12th July 2019,
Parawada

for **Lumen Engineering Associates**

D.A.Narasimha Raju
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EXECUTIVE SUMMARY



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- The organization has implemented and maintaining various systems such as QMS and EMS. Frequent audits of these systems are being carried out which gives the organization an opportunity in identifying the lapses there by correcting them and continually improving them and the work environment.
- Periodical review, compliance of legal requirements, ensuring continual improvement; imparting education and training on OHS issues are found satisfactory.
- Employee participation in the functioning of OH&S system seems to be good. Participation of workmen representatives and officers in periodical safety meetings, prestart up safety reviews are some of the areas of participation.
- First Aid facilities provided at all sections of the plant were found adequate. Provision of PPE both general and respiratory is in place.
- Quality, Environment, Occupational Health and Safety Policy signed by Chairman cum Managing Director was displayed at all required locations.
- Company got certified and maintaining Quality and Environmental Management systems ISO-9001-2015 and ISO 14001:2015.
- It was observed that a Visual Induction program for Visitors is being conducted without fail.
- As on 30-06-2019, recorded Safe man hours are 1809544 and also Man Hours Safety Training are also recorded as 7296.
- Site specific observations and recommendations are given in detail in this report for implementations as per the priority of SNF.



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1.0. INTRODUCTION



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1.1. LOCATION:

SNF India Private Limited located at

1.2. ABOUT THE PLANT:

SNF (India) Pvt. Ltd is a 100% subsidiary company of SNF - Floerger, France and manufactures a range of specialty polymers. SNF - Floerger is diversified multinational company and is the leading producer of synthetic water soluble polymers with close to 50% of the world market producing over 3, 10,000 MT of various grades.

The polymers are based on acrylate and acrylamide chemistry both homo and copolymers. SNF products find application in water, waste water treatment, ceramics, pharma, oil recovery, mineral processing, textiles, sugar, paints, cosmetics cement, leather, detergent etc.

SNF Floerger is also a leading manufacturer of monomers (Acrylamide liquid & Dadmac) and coagulants (both Poly dadmac and Polyamine) to serve various industries. SNF (India) Pvt. Ltd. have a manufacturing unit at Patancheru, near Hyderabad for emulsion and solution grade polymers. SNF SAS the parent company of SNF India has built most modern plant with capacity to produce 35,000 TPA water soluble polymers in the pharma city in Parawada, Visakhapatnam. SNF – Floerger collaborates with industry specialists in the development of its product range to ensure that the products meet industry's specific requirements. These water-soluble polymers include binders/DSR, Dispersing agents, Coagulant, Flocculants in powder, emulsion and liquid forms. SNF (India) Pvt. Ltd, Unit: Visakhapatnam has been certified for its Quality Management and Environment Management



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systems ISO 9001 & ISO 14001: 2015. which reflects the tireless dedication and ongoing pursuit of quality excellence of the company and for the environment protection.

1.3. BRIEF PROCESS DESCRIPTION OF THE PLANT:

Production is the department responsible for producing the above Products as per the formulation and specification as per internal standard. Production receives production plan from marketing depending upon the requirement, it plans the activities and produces in given time. The raw materials are mixed in specified quantities and mixed in reactors / blenders, after the reaction is completed the material is shifted and then packed in different containers as per the customer requirement as per standard packing.

Quality Control:

SNF (India) Pvt. Limited has predefined specifications for raw material, packing material and final product. Quality control works in hand in hand with production department to achieve good quality product as per the in-house specification. Quality control is equipped with latest equipment to carry all types of tests those are required to obtain a good quality product. The Quality Control department is ultimate department to ensure the product quality and calibration of measuring equipment in QC from time to time.

Product Development:

This department is under QC is responsible for developing different water soluble polymers and binders depending upon the customer requirement. It is having all the required machinery and testing equipment to verify each process, thereby ensuring the constant product



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quality. It also helps production and marketing department as and when there is a requirement and to satisfy the customer requirements in full.

PRINCIPAL OPERATIONS OF SNF (INDIA) Pvt. Ltd.:

Main raw materials of SNF Company are Acrylonitrile, Acrylic acid, Caustic soda, etc. Acrylamide is produced by SNF Company. Acrylonitrile, acrylic acid delivered to Visakhapatnam port by shipping then to SNF Company by ISO-tanks. Caustic soda, are delivered to SNF Company by mobile tankers and transferred to storage tanks by piping. Consumption of acrylamide is divided into two parts: consuming by SNF Company and sales to customers in tots or ISO tank.

Manufacturing capacity:

S.No.	Product.	Capacity.
Existing products		
	Water soluble polymers	
1.	Emulsions	200 tpd
2.	Liquids	400 tpd
3.	Powders	33 tpd
4.	Acrylamide 100%	66 tpd

ANCILLARY OPERATIONS OF SNF:

Utility services:

- Steam generation.



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- Plant air & instrument air supply
- Substation & D G operations.
- Water supply for steam generation and other utility
- Maintenance activities.
- Effluent treatment

1.4. OBJECTIVE OF SAFETY AUDIT.

The objective of the safety audit is to evaluate the effectiveness of the company's safety effort and make recommendations which lead to a reduction in accidents and minimization of loss potential.

Safety audits are an important part of a company's control system and these checks ensure that deteriorating standards are detected. Examination of the defects exposed in this review results in hazardous conditions and potential accidents being avoided.

Regular audits should be based on the premise that resources should be made available to identify and eliminate hazards before accidents occur, rather than use the resource of manpower and materials only after injuries and damage to equipment have resulted in human suffering, significant monetary loss which, in certain circumstances, affect the profitability severely.

In order to meet the statutory requirement under sub rules 4,5,& 6 of rule 10 of MSIHC rules 1989, SNF entrusted an external agency, for conducting Safety Audit covering all the Departments as scheduled.



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2.0 METHODOLOGY



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Auditing is a process of evaluating the functioning of Occupational Health and Safety system.

Auditing examines each stage in the OH&S management system by measuring compliance with the controls the organization has developed, with the ultimate aim of assessing their effectiveness and their validity, for the future.

This site safety audit was conducted referencing to BIS: 14489:1998 and discussions with plant officials, perusal of documents and records submitted by the company. Walk thro' field inspection, information data, clarifications & inputs provided by the company officials, etc.

Auditors walk through the workplace focusing on given job tasks and observe employee behaviors, observations of employee working habits doing a variety of job tasks, regarding safe work practices, such as follow up of safety regulations, usage of PPE and following good ergonomics.

Audit also focuses on safe work behaviors and good work practices

An illustrative list of documents perused during the safety audit is given below:

- ◆ EQHS Policy
- ◆ Safety Organization Chart
- ◆ Training records on safety, fire and first aid
- ◆ Record of plant safety inspections
- ◆ Record of tests and examinations of equipment and structures as per statutes
- ◆ Standard Operating Procedures for various operations
- ◆ Record of Work Permits
- ◆ Maintenance and testing records of fire detection and firefighting equipment
- ◆ Approval of layouts and other approval from Statutory authorities
- ◆ Maintenance inspection records
- ◆ Calibration and testing records
- ◆ Shut down maintenance procedures
- ◆ Records of previous audits
- ◆ Safety checklist for transportation of hazardous substances



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The following elements of safety management system are elaborated in this report.

- ◆ Occupational Safety & Health Policy
- ◆ EHS Organizational setup
- ◆ Education & training
- ◆ Employees participation in OS & H Management
- ◆ Motivational and promotional measures
- ◆ Safety manual and rules
- ◆ Compliance with statutory requirements
- ◆ Hazardous area classification
- ◆ Accident reporting, analysis, investigation & implementation of recommendations
- ◆ Risk Assessment including hazard identification
- ◆ Safety Inspections
- ◆ Health and Safety improvement plans / targets
- ◆ First aid facilities – Occupational health Center
- ◆ Personal Protective equipment
- ◆ Housekeeping
- ◆ Material handling equipment
- ◆ Electrical and Personal safeguarding
- ◆ Ventilation, Illumination and Noise
- ◆ Work environment monitoring system
- ◆ Fire prevention, protection and fighting systems
- ◆ Emergency Preparedness Plans
- ◆ Process / Plant modification procedure
- ◆ Transportation of Hazardous Substances
- ◆ Contractor Safety System
- ◆ Budget provision for safety



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2.1 SCOPE OF AUDIT:

To evaluate the OHS system performance of SNF India Private Limited basing on BIS 14489 -1998 at the following areas:

a) Operational units:

1. Tank farm, 2. Production blocks, 3. Ware house, 4. Packing sections. 5. Acrylonitrile unloading area

b) Service Units:

1) Mechanical maintenance, 2) Electrical & Instrument maintenance, 3) Stores
4) work shop 5) Fire & safety 6) Occupational Health Center, 7) Security, 8) Safety 9) Canteen.

Audit was conducted as per the schedule prepared by Safety department from 12th July 2019 and 13th July 2019.



3.0 REVIEW OF OHS MANAGEMENT SYSTEMS

The following are the observations and suggestions during the review of OHS management system. Management can prioritize the observations for implementation.

3.1 OCCUPATIONAL SAFETY & HEALTH POLICY:

Observations:

- I. Top Management has published occupational health & Safety Policy. The policy clearly indicates the Management's commitment towards creating a safe work environment. Following are the core objectives of the policy:
 - Periodical review of all the documents and implementation of safety management systems by addressing the safety concerns on priority.
 - Compliance with various legislation, regulations and other legal requirements.
 - Ensuring continual improvement in occupational health & safety performance.
 - Maintaining an encouraging environment for taking all the workers into active involvement.



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- Imparting continuous education & training on occupational health & safety to the employees and contract workers as a whole.
 - Defining clear responsibilities of the contractors for strict compliance with all the relevant legislation's regulations and other requirements as per the safety code prepared by SNF.
- II. This policy is displayed at relevant areas and is communicated to all the employees and contract workers with the intent of making them aware of their individual occupational health and safety obligations and is also made available to interested parties.

3.2 OH&S ORGANISATIONAL SETUP:

OBSERVATIONS:

- I. The Safety department of SNF is headed by Sr. Manager – Safety, who directly reports to the CMD (Chairman cum Managing Director). The safety team also consisting of 4 Safety Officers for carrying out activities in other three shifts.
- II. The existing team of safety personnel against the employment strength is considered adequate to cover all the departments of Company. The main function of the Safety department is offline management and co-ordination with the Operations and other service departments. The safety staff has been empowered to



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stop the work or withdraw a worker from the work spot in case of any safety violations found during their vigilance.

- III. The audit team observed that a healthy co-ordination is prevailing between the safety department and individual production / service departments. The on-going occupational health & safety in the plant is facilitating well for further strengthening the co-ordination and mutual exchanging of various safety development schemes / proposals.
- IV. The safety department conducts safety training programs to regular and contract staff, safety inspections & vigilance regarding safety practices, mock drills, safety committee meetings and incident and investigations. Safety department appraises these particulars on monthly basis to the top management.

3.3 SAFETY EDUCATION AND TRAINING:

Observations:

- Safety department conducts training programs to contract workmen and Safety trainings.
- Training calendar is being prepared basing on the training needs evaluation and programs are being fixed and arranged accordingly which includes induction and refresher training programs on Safety, health and environment, and relevant topics of other departments. Some of the safety training programs include:



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- I. Fire control and prevention
 - II. Operational safety
 - III. First aid
 - IV. Safety in handling of chemicals such as acids and ammonia
 - V. Usage and maintenance of respiratory personal protective equipment.
 - VI. Emergency preparedness
 - VII. Environment related topics
- The aspects like training feedback system, identification of further training needs, to be improved.

3.4 EMPLOYEES CONSULTATION, PARTICIPATION AND COMMUNICATION IN OH&S MANAGEMENT:

Observations:

- Employee participation in OHS & environment issues is found to be satisfactory. The schedule of Safety Committee Meetings and frequency of meetings i.e., once in three months are in practice and found adequate.
- General Safety Committee is found to be functioning as per the statutory requirement, with equal participation from workmen and management staff. Meetings are being convened as per schedule and agenda once every quarter and suggestions / observations are being complied. Communication regarding EHS related



matters to employees is carried out through Department safety committee meetings / circulars etc.,

3.5 MOTIVATIONAL AND PROMOTIONAL MEASURES FOR OH&S:

Observations:

The following motivational and promotional measures are in practice at SNF.

- Publication of Safety Bulletins, Paintings & hoardings.
- Competitions on Safety Debate, Safety Essay, Safety Posters, Safety Slogans, Safety Songs / Poem and Safety Quiz for all the employees.
- Celebrating of National Safety Day on 4th March every year.
- Safety performance competitions and distribution of prizes are given once in a year.

3.6 SAFETY MANUAL AND RULES:

Observations:

- Safety manual integrating all the EHS requirements may be prepared and circulated to all the HODs bringing safety management a line function.



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3.7 COMPLIANCE WITH STATUTORY REQUIREMENTS:

Observations:

- SNF India is found complying with all the required statutory requirements.
- It is learnt that the Fire NOC is obtained and being renewed regularly.
- Factory license found in place and valid, it was learnt that all the plans are getting approved before construction.
- All the lifting tools and tackles are being tested and certified by competent person as per rule 55-A of AP factories rules. Department / section wise list is prepared.

3.8. HAZARDOUS AREA CLASSIFICATION:

Observations:

- SNF has carried out hazardous area classification according to the storage and handling of hazardous chemicals and plotted the same.
- Company has carried out Job Hazard Analysis & Risk Assessment / HAZOP study to evaluate the potential hazards and to ensure the adequacy of the existing controls.



3.9. INCIDENT REPORTING, ANALYSIS, INVESTIGATION AND IMPLEMENTATION OF RECOMMENDATIONS:

Observations:

- Incident Reports in Form No. 16 of ESI Act and Form 18 of AP factories rules are being maintained and perused. It is noted that even near misses or no injury incidences are documented for proactive prevention of serious potential incidents.
- All the required formats for accident reporting are being maintained.
- It was observed that 1809544 accident free man hours have been achieved as on 30.06.2019 and Safety Training Man hours are 7296.

3.10. MECHANICAL MAINTENANCE PRACTICES:

Observations:

- The company has well developed procedure for maintenance planning and breakdown responding system as a part of the maintenance management systems. Comprehensive checks from part of the capital repairs, works undertaken on a plant basis.

3.11 SAFE WORK PRACTICES:

- SNF is having a good permit-to-work system in place, such as hot work, electrical isolation including lock out and tag out, mechanical



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isolation, equipment / pipeline opening, height work, excavation work, work in confined space, Electrical works and cold work. And for works besides work at height special permit for jobs involving high risk in nature are being issued.

- SNF is following a good practice of Pre Startup Safety Review before start up of after modifications, new equipment by preparing a checklist and ensuring the completion of required works.
- SNF is issuing guidelines to visitors regarding safety regulations they need to observe during their entry into plant area.

3.12. HEALTH AND SAFETY IMPROVEMENT PLAN / TARGETS AND SAFETY BUDGET:

Observations:

- Yearly objectives were set up function wise / organizational wise so as to further improve the work environment. These objectives are derived from discussions from safety meetings / safety inspections / employee suggestions / inspection and reports from statutory authorities or from job hazard analysis.
- It was learnt that, there is no restriction regarding budgetary sanctions by the top management towards the improvement of Health, Safety and Environmental as per the HSE requirement.

3.13. FIRST AID FACILITIES – OCCUPATIONAL HEALTH CENTRE:



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Observations:

- The company has a well-equipped Occupational Health Centre. Doctor has been appointed and attends in the general shift and also for any emergency situations during shifts and holidays.
- It is important that injured personnel are given proper medical attention as soon as possible. For this, the plant has provided first aid boxes within the plant premises in various locations.
- First aid boxes are provided at all the required areas and content are checked monthly once.

3.14. MATERIAL HANDLING EQUIPMENT:

Observations:

Material handling contributes to a major portion of the injuries, arising from operation of Hazardous material transportation etc.,

- Lifting and handling of Tools & Tackles, etc.,
- Gas cylinders transportation etc.,
- Bags stacking / de stacking loading in trucks
- Tools and tackles are being maintained in condition and being tested and certified by competent person once in a year.



3.15. ELECTRICAL & INSTRUMENTATION MAINTENANCE PRACTICES:

Observations:

- Though no values are displayed at the earth pits, register is being maintained for recording of earth pit values. It is required to display earth pit values with due dates at respective earth pits in the field.
- All emergency shutdown devices and safety control are connected to UPS for fail-safe operations in case of any power failure.
- A good system of maintenance and calibration is available for the instruments. The instrumentation section is responsible for maintaining the field instruments like pressure gauges, level indicators, and temperature gauges etc.,
- Regarding Rubber mats, Consider using standard ones as per IS 15652 and ensure the shelf life of the rubber mats is not expired.

3.16. VENTILATION, ILLUMINATION AND NOISE :

Observations :

- By physical observation, it was found that ventilation and illumination at all process areas, warehouse areas are adequate.
- Noise level survey is being conducted periodically at all the potential areas in the plant. Wherever, the noise levels are higher than the prescribed limits, earmuffs / earplugs to be supplied. Pictorial diagrams are displayed to indicate noisy areas.



3.17. ENVIRONMENTAL MONITORING SYSTEM:

Observations:

- The environmental monitoring system is in place as per the standard environmental policy.

3.18. STANDARD OPERATING PROCEDURES:

Observations:

- SOPs are prepared as per the requirement for relevant operations and where required (for Acrylonitrile unloading and handling activities) mandatory checklists are being maintained.

3.19. FIRE PREVENTION, PROTECTION AND FIGHTING SYSTEMS & SECURITY:

Observations:

- Fire Fighting is under the control of Safety Department.
- Fire fighting dept. is equipped with fire trailer pump and portable fire extinguishers Emergency equipment like breathing apparatus, fire suits are also available
- Fire personnel are aware of the Emergency preparedness procedures, and Mutual aid with the neighboring industries



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- Mock drills and review meetings are being conducted, to evaluate the emergency preparedness.
- Fire department and security department are thoroughly trained to fight fire or to mitigate any emergency that may arise. In addition to this the plant operating and maintenance staff is also trained in fire fighting. All the required personnel protective equipment are available for routine use as well as for emergency requirement.
- All the work areas are equipped with fire fighting system and fire hydrant system. Fire water pressure is maintained in auto.
- Head count system by security personnel to be improved.
- Provision of surveillance cameras at strategic locations is note worthy.

3.20. EMERGENCY PREPAREDNESS PLANS (ON-SITE):

Observations:

- SNF has a well prepared On-site Emergency Plan and is being reviewed for its effectiveness by practicing mock drills and basing on the reviews, facility changes, such as, installation of new equipment, implementation of new or change processes and change of personnel is being revised periodically, to keep it update.
- Mock drills are being conducted once in 6 months.



- It is learnt that SNF is having mutual aid agreement with neighboring industries during emergencies.

3.21. TRANSPORTATION OF HAZARDOUS SUBSTANCES:

Observations:

- I. A standard checklist for tank/truck transportation is available for hazardous material transported through such tanks/trucks. The following elements form part of the checklist. Vehicle entering the premises classified as hazardous area are equipped with CCOE.
 - TREM cards availability
 - First Aid box availability
 - PPE availability
 - Is vehicle having required approvals and road worthy.
 - Fire Extinguishers available
 - Leak points verified.

3.22. CONTRACTOR SAFETY SYSTEMS:

Observations:

SNF has well laid out procedure for contractor' evaluation and contractor work men controls. Emphasis is being made during safety orientation,



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training and work site inspection and in the general safety rules on safety aspects.

- Safe Handling of Flammable Chemicals
 - Material handling
 - Electrical work
 - Welding and gas cutting safety
 - Safety at elevated work
 - Material transportation safety
 - Mobile equipment operation safety
 - Safety in the use of hand and power operated tools
 - Safety while working with or near crane / hoist / lifting tackles
 - Personal Protective Equipment
 - Company's emergency plan
- Contract work men are also provided with induction training, tool box talks on relevant topics before taking up operational / maintenance jobs by EHS department.



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4.0.SUMMARY OF SITE SPECIFIC
OBSERVATIONS &
RECOMMENDATIONS



Positive observations:

1. Quality, Environment, Occupational Health and Safety Policy signed by Chairman cum Managing Director was displayed at all required locations.
2. Company got certified and maintaining Quality and Environmental Management systems ISO-9001-2015 and ISO 14001:2015.
3. It was observed that Visual Induction programme for Visitors is being conducted without fail.
4. As on 30-06-2019, recorded Safe man hours are 1809544 and also Man Hours Safety Training are also recorded as 7296.
5. It is observed night duty schedule is available in NDO room, Night duty officer presence throughout the night and reporting as per standard safety checklist and observations review in daily meeting.
6. It was observed daily MC Management committee members taking safety rounds and reporting the status of PPE compliance and observations under I See ...I Act programme.

4.1. Acrylonitrile Un-loading Bay:

1. Consider avoiding vegetation growth inside the un-loading bay, as dry vegetation could ignites spontaneously during high temperatures (summer).

4.2. Tank Farm:

1. The Safety Relief valve on the Ammonia receiver is having an isolation valve. Suggesting in keeping the isolation valve in “Locked Open” condition or remove the valve handle so that it will not be kept



closed due to human error and thus defeating the purpose of provided SRV.

2. Ammonia and Caustic Pumps to be identified with names for ease of loading.
3. Consider using different size couplers for unloading of Ammonia and Caustic.

4.3. HSD/Class-C Storage:

1. Consider displaying Un-loading procedures, Dos and Don'ts and MSDS in short form of Heavy oil and Diesel in Local languages also.
2. Unloading bay is provided with concrete floor and containment whereas the other area is not concreted (loose soil), to avoid material entering into the ground, the remaining area may be concreted to ease collection and cleaning the spills if any.
3. As vehicle is entering in reverse, recommending stopper at the other end in avoiding vehicle jumping down from the unloading pavement area.
4. Recommending identification with names and colour codes for Heavy oil and Diesel pumps.
5. HSD spillages should be collected into a pit and transferred to ETP for treatment.
6. Recommending in verifying Tanks integrity during preventive maintenance.
7. Corrosion observed with the Pipe rack moving from Tank farm to production block.



8. Consider providing vertical fall arrestor for Diesel Generator stack ladder.
9. Safety relief Valve vent should be directed outside the working area.
10. Noise levels are being monitored and also should be displayed with Ear plugs or Ear defenders if necessary.

4.4. Acrylic Acid Storage:

1. Recommending wearing full body harness before climbing onto the acid tanker as trained personnel are climbing onto the tanker for opening the lids.
2. It was observed that non-sparking tools were not being used during unloading, Consider using only Non sparking tools during acid tanker unloading.
3. Recommending further more training on usage and need of Personal Protective equipment at hazardous areas.
4. Consider verifying Flexible hose integrity at regular intervals.

4.5. Ware House:

1. Recommending in conducting Load tests for all Storage Racks.
2. Rubber hand gloves should be Earth Potential tested every year as per IS-4770.
3. Earth leak rubber mats should be Earth Potential tested every year as per IS-15652.
4. Recommending conducting study on Plant Lightning Arrestors as to know that Total plant area got protected from lightening.
5. Consider providing more number of Spill control kits inside ware house.



6. Pillar Fire Hydrant points should be protected by hard barricading from hitting, as heavy vehicle movement is high.
7. Recommending Smoke detectors installation at Jupiter room in identifying emergencies at the earliest.
8. To know the integrity of Fire hydrant pipe line, Hydro tests could be conducted yearly.
9. Earth pits are identified with numbers and also according to IE rules resistance value and due dates also should be displayed at all earth pits.

4.6. Production Block-BO3-block:

1. Consider fabricating water collection pit for Eye wash and Body shower used water collection.
2. LQ1, LQ2, LQ3 area- Consider securing flexible hoses which were being used for collecting or transferring as they were creating trip hazards.
3. Over all Housekeeping at ground floor need to be improved.
4. Chequer Plate integrity at first floor could be verified as they were laid before 8 years.

4.7. Cold Room:

1. As inflammable liquids are being stored inside cold room, recommending Flame proof electrical fittings to avoid potential hazards.
2. And also consider providing FLP smoke detectors inside cold room.

4.8. Security:



1. Recommending in Updating total Man-power (Head count) on a board for every two hours at the security gate in order to get accurate head count at all point of times.
2. Consider allowing 40feet trailers along with a cleaner, who could act as a flag man during reversing these long 40feet vehicles.
3. During Audit rounds it was observed that Electrical Sliding Gate is sliding into the LPG cylinders and Kerosene stoves storage area of Truck drivers which possess a potential hazard, recommending in shifting the storage location.

4.9. Maintenance Building-B13:

1. Recommending marking separate lane for walkway of pedestrians
2. As we are placing heavy weight motors on wooden pallets and stacking them on racks at a height of 3 to 4 meters, recommending in verifying load capacity of wooden pallet.
3. Consider providing water sprinklers in the maintenance building material storage area.

4.10. LVSB-1

1. According to IE-rules, earth discharge rubber mats should be laid on both the sides of the panel.
2. Consider displaying Authorized License holders and Power-aid trained persons Names & Contact numbers list at all panel rooms.

4.11. Scrap Yard:



1. As we are storing highly combustibles, Oxidizers and reducers all under one roof and also it is an unmanned area, installing sprinklers could lend a hand during emergencies.

4.12. Fabrication Shed:

1. Earth leak mats should be laid before all electrical panels to avoid Electrical shocks.
2. It was observed that combustibles and other waste is being stored behind the electrical panels.
3. Recommending Valve caps for all High pressure cylinders (Oxygen and Argon) during storing and usage.

4.13. Oil Store:

1. Recommending Smoke detector with alarm system and Water sprinkler system for Oil store which could lend a hand during emergencies.

4.14. Drum Shed (Packing material Store)

1. It is recommended to provide water sprinklers in empty drums storage shed as per NFPA-13 and 15.

4.15. General:

1. During Audit rounds it was observed that Single Gate is being used for Vehicle Entry and Exit which was creating Traffic jam, Consider using both the gates for vehicle movement or else strict Traffic



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management rules to be implemented like allowing only single vehicle passing from the gate.

2. Recommending in Lane marking with required space at vehicle parking area as long vehicles are being parked very closely to each other, this may crush the driver or co-driver who may walk around during reversing the vehicles.
3. Consider increasing in number Speed limit board's signages at all intersections and at the Entry.



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5.0 CONCLUSION



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SNF India Private Limited has implemented and maintaining good safety health, environment and other management systems. They have developed and implementing safe and environmental friendly practices and gained number of laurels.

Accountability regarding Occupational Health and Safety should be with the area / department in charges, rather than the responsibility of safety department alone.

This audit is conducted based on random sampling only and deviations observed at few areas, are given in this report. Similar deviations / lacunae may arise in other work area, in future.

The recommendations given in this report are to be viewed as an aid to Management, for continual improvement and not as any deficiency detect or fault finding exercise.



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6.0. DISCLAIMER

As mentioned earlier, this audit is based on random sampling only and few of the areas, where hazard potential existed are given in this report. Also the suggestions given in the report are based on the observations made and on the prevailing situations at the time of audit and on the



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interaction with the plant personnel and basing on the professional experience of the auditors.

Users of this report are informed that this report is neither a substitute for qualified engineering analysis, nor to be construed as any rule or regulation of relevant governmental agency. Any changes or modifications carried out basing on the suggestions are to be further reviewed under Management of change, before initiating actual change and expert guidelines are to be sought wherever required.

Lumen Engineering Associates does not hold any legal obligation in case of occurrence of any incident / accident / emergency in the plant, while implementing the recommendations of this report, as, all the views are based on technical expertise and past experience of the auditors.

The validity of this report is one year from concluding date of the audit or next external safety audit, due as per statutory requirements.

12th July 2019,
Parawada

for **Lumen Engineering Associates**

D.A.Narasimha Raju
B.E,M.Tech.,MIE,FIV
Chartered Engineer
Competent Engineer-Safety



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7.0.ANNEXURES