

**BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL  
SOUTHERN ZONE BENCH AT CHENNAI**

**OA No. 279 of 2024**

**In**

**OA No. 1097 of 2024 (PB)**

**IN THE MATTER OF:**

**NEWS ITEM TITLED 17 KILLED 20 INJURED IN REACTOR BLAST AT  
PHARMA COMPANY IN ANDHRA PRADESH S ANAKAPALLI APPEARING  
IN THE HINDU DATED 22.08.2024**

**..... APPLICANT**

**VERSUS**

**CENTRAL POLLUTION CONTROL BOARD THROUGH ITS MEMBER  
SECRETARY AND OTHERS**

**..... RESPONDENTS**

**REPORT FILED BY DIRECTORATE OF INDUSTRIAL  
SAFETY AND HEALTH 5<sup>TH</sup> RESPONDENT**

DATE: 28.06.2025



**M/s MADHURI DONTI REDDY**

**ADVOCATE**

**STANDING COUNSEL FOR GOVERNMENT OF ANDHRA PRADESH**

**A.P. POLLUTION CONTROL BOARD**

**#26, S2, Royal Castle, Gill Nagar Extension, Choolaimedu, Chennai – 600 094.**

**Mobile: 98407 98460 / 63831 21322,**

**Email: [reddymadhuri09@gmail.com](mailto:reddymadhuri09@gmail.com)**

**BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL  
SOUTHERN ZONE: CHENNAI  
ORIGINAL APPLICATION NO. 279 OF 2024 (SZ)**

**IN THE MATTER OF:**

Tribunal on its own motion In Re:

**" 17 killed 20 injured in reactor blast at M/s Escientia Sciences Private Limited, Plot No: 11,11A,12 &12, APSEZ, Atchutapuram, Anakapalli District pharma company in Andhra Pradesh's Anakapalli" published in The Hindu News Paper dated 22.08.2024.**

With

Andhra Pradesh Pollution Control Board

Andhra Pradesh and Ors

...Respondent(s)

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It is certified that all the documents contained in the above annexure are true copies.

**Place: Vijayawada,  
Dt. 30.05.2025.**

*S. Usha S.* 12/06/2025  
**Director of Factories,  
Andhra Pradesh,  
Vijayawada.**

**Report filed by the A.P. Factories Department in compliance with the Hon'ble NGT, Chennai order dated 29.04.2025 in O.A No. 279 of 2024 (SZ) suo-motu case taken up by Hon'ble Tribunal in the matter of " 17 killed 20 injured in reactor blast at pharma company in Andhra Pradesh's Anakapalli" published in The Hindu News Paper dated 22.08.2024."**

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It is respectfully submitted that, the National Green Tribunal, New Delhi has registered suo-motu case based on the News Item titled "17 killed 20 injured in reactor blast at pharma company in Andhra Pradesh's Anakapalli" published in The Hindu News Paper dated 22.08.2024, which caused, due to the eruption of a major fire reportedly after a reactor blast at Escientia pharmaceutical company, Anakapalli, Visakhapatnam.

It is submitted that, the Hon'ble NGT, Delhi has issued orders on 22.08.2024 in Original Application No. 1097/2024(PB), transferring the matter to the Southern Zonal Bench at Chennai and impleaded the District Magistrate, Anakapalli as respondent No.4 and posted the matter to 30-09 2024".

It is submitted that, the case has been Suo Motu registered by the Principal Bench of the National Green Tribunal, New Delhi as Original Application No.1097 of 2024 (PB) based on the news item published in 'The Hindu' dated 22.08.2024 titled, "17 killed 20 injured in reactor blast at pharma company in Andhra Pradesh's Anakapalli", which has been transferred to this Bench and renumbered as Original Application No.279 of 2024 (SZ) on 22.10.2024.

It is submitted that the Hon'ble Tribunal as directed in OA No 279 of 2024 (SZ) on 22.10.2024 as follows

- 1. The above case has been Suo Motu registered by the Principal Bench of the National Green Tribunal, New Delhi as Original Application No.1097 of 2024 (PB) based on the news item published in 'The Hindu' dated 22.08.2024 titled, "17 killed 20 injured in reactor blast at pharma*

*company in Andhra Pradesh's Anakapalli", which has been transferred to this Bench and renumbered as Original Application No.279 of 2024 (SZ).*

2. *Let notice be issued to the respondents through the Tribunal.*
3. *The learned counsel Mr. R. Thirunavukarasu accepts notice on behalf of Respondent No.1 and Mrs. Madhuri Donti Reddy accepts notice on behalf of Respondents No.2 and 4.*
4. *Post the matter on 07.01.2025. Meanwhile, the respondents are directed to file their respective replies/reports. (Annexure -1)*

In this regard, it is submitted that the Factories department works for Occupational safety, health and welfare of the workers employed in the registered factories by implementing following legislations.

- Factories Act.1948 & Rules made there under 1950.
- Manufacturing, storage and import of Hazardous chemicals rules,1989
- Chemical accident Emergency (Planning, Preparedness & Response) Rules.1996
- Payment of Wages Act & Rules
- Maternity Benefit Act & Rules.

It is submitted that on 21.08.2024 at about 02.20 PM, During transferring of the distillate from vacuum receiver to the storage tank through one and half inch SS pipe line by applying nitrogen pressure there was a leak of solvent (MTBE) was observed in the 1st floor technical area in suit-II, near the flange joint, the flange joint is 3 m away from the 1st floor (1st floor flooring to leakage flange height) adjoining south side wall of the production block. The leaked solvent which was leaking from the flange joint was fell on the 1st floor and on electrical panel board directly which was located on the ground floor, meanwhile MTBE solvent vapours are sucked into the entire air handling unit (AHU) duct system in first floor, and ground floor, the AHU was installed on the ground floor. When the leaked solvent

fell on the electrical panel board either friction while falling solvent on the electrical panel board or due to heat on the electrical panel board , or due to static spark was generated and electrical panel board blasted with big sound, simultaneously the solvent vapours which was accumulated in the duct in the first floor and ground floor also cached the spark and exploded with big sound, due to vapour cloud formed in the ducts in ground floor and in first floor, in this blast the brick walls were collapsed and the false ceiling was collapsed and fell down on the ground floor, due to this explosion some of the workers were trapped in the fire, brick walls , smoke, and 17 workers were died ,and 39 workers were injured due to fire, broken of window glasses, smoke and breaking of brick walls and were admitted in different hospitals i.e., 1) Usha Prime Hospital, Anakapalli, 2) Pawan Sai Hospital, Vadlapudi, Visakhapatnam. 3) KIMS Icon Hospital, Sheela Nagar, Visakhapatnam. 4) Medicovert Hospital, Venkojipalem, Visakhapatnam, and 5) Arka hospital Gajuwaka, Visakhapatnam, and were undergoing treatment.Immediately firefighting was commenced and the neighboring factories have also swung into action to fight with the fire. The fire tenders(12 Nos) from M/s. Asian Paints, Atchuthapuram APIIC Fire station, NTPC, JNPC Parawada, ATC Tyres , and Anakapalli fire station, Yalamanchili Fire station, Subbarao Fire station , etc.,bronto sky lift have rushed to the spot and joined the fire-fighting. The fire was completely extinguished by 4:30PM on that day. (Photos pertaining to accident are in **Annexure 2**).

**Details of Deceased Workers:**

S. No	Employee Name	Date of Birth	Age	Fathers Name	Department	Designation	Qualification	Gross Salary	Date Of Joining in to service	ESIC Number	PF Number
1	RAMI REDDY NEELAPU	20-08-1975	49	Narasimha Rerddy	R&D-(PD Lab)	Associate General Manager/ Associate Director	Ph.D.,	2,02,458	04-07-2018	NA	1000 3672 528

2	PRASANTH HAMSA	22-08- 1990	34	Satyanaray ana,	Product ion	Senior executive	B.Sc.,	39,819	05-11-2018	NA	1000 1598 7392 4
3	NARAYANA RAO MAHANTI	25-06- 1990	34	Satyam,	R&D- (PD Lab)	Assistant manager/ Team leader	M.Sc.,	62,023	28-08-2020	NA	1005 8566 4834
4	GANESH KUMAR KOPPARTI	20-08- 1991	33	Satyanaraya na	Product ion	Assistant manager/ Team leader	M.Sc.,	65,290	26-05- 2021	NA	1001 0216 28
5	HARIKA CHALLAPAL LI	14-12- 2002	21	Eswararao Late	R&D- (PD Lab)	Trainee Engineer	B.TE CH.	19,033	04-09-2023	7011 4492 72	1019 8764 0522
6	RAJASEKHA R PAIDI	7-08- 2001	23	Dharamarao	Proces s Engine ering	Trainee Process Engineer	B.TE CH.	15,008	15-07-2024	NA	1020 6741 6466
7	SATISH MARISSETTI	3-12- 1993	30	Srinu	Product ion	Senior Executriv e	B.Sc.,	68,227	24-07-2024	NA	1007 3726 5225
8	NAGABABU MONDI	20-02- 1988	36	Satyanaray ana	Product ion	Asst Manager	B.Sc.,	60,583	04-10-2023	NA	1007 8005 1691
9	NAGESWAR ARAMACHA NDRAR	2-12- 1977	46	Satyam	Product ion	Assistant manager/ Team leader	M.Sc.,	65,290	26-05-2021	NA	1001 0216 2898
10	SANYASI NAIDU VEGI	1-01- 1971	53	Pydithalli,	Engine er	HK Boy	8 <sup>th</sup> cla ss	13,308	15-07- 2019	7010 7049 74	1015 0960 0623
11	CHINNARAO YALLABILLI	3-10- 1990	33	Durgarao.	Engine er	painter	Inter	23,500	13-11-2018	7010 4934 74	1014 7142 3308
12	PARDASARA DI JAWADI	23-03- 1997	27	Koteswararao	Engine er	Fitter	ITI	23,000	21-09- 2022	NA	1011 8096 7963
13	MOHAN DURGA PRASAD PUDI	29-08- 2005	19	Suryarao	PD Lab	HK boy	ITI	13,308	08-06-2024	7011 5886 72	1020 8174 0295
14	ANANDA RAO BAMMIDI	1-02- 1988	36	B.Pothayya	Product ion	Asst Manager	B.Sc.,	64,369	21-10-2023	NA	1000 9919 9636
15	SURENDRA MARNI	24-12- 1987	36	Krishna Rao,	Product ion	Asst Manager/ Team leader	B.Sc.,	69,613	08-12-2016	NA	1006 2905 8939
16	VENKATA SAI PUSARLA	5-07- 1997	27	P.M.V.Nagaa ppalaSetti	Product ion	Senior Executive	B.VO C	41,376	07-10- 2020	NA	1006 4307 2830
17	CHIRANJEE VIJAVVADI	4-01- 2000	24	Satyanarayan a,	Engine ering	Fitter	ITI	17,500	20-11- 2023	7011 2126 44	1016 2157 3413

**Details of Injured workers :-**

Sr.No	EmpNo	Name	Designation	Department	Injured Status	Hospital Name	Discharged on	ESIC/ MEDICLAIM	ESIC Number	Shift	Contact Number	Compensation paidRs in lakhs
1	E0269	GANGADHART AMARANA	Junior Chemist- Analytical	Quality Control	Injured	PawanSai - Vadlapudi	29-08- 2024	ESIC	701095 5761	AShift	950208 0412	25,00,0 00
2	E0528	SASHIKANTHB ANDI	Execu tive	Quality Control	Injured	PawanSai - Vadlapudi	26-08- 2024	Medicclaim		BShift	809676 5757	25,00,0 00
3	E0284	SAIKUMARGUD ISA	Execu tive	Produ ction	Injured	PawanSai - Vadlapudi	24-08- 2024	Medicclaim		GEN	949179 8690	25,00,0 00

4	E0014	JAGADEESHPO NNADA	Manager/Group leader	Production	Injured	PawanSai - Vadlapudi	31-08- 2024	Medicclaim		GEN	984900 0682	50,00,0 00
5	E0109	SRINIVASARAO PANGA	Deputy Manager/ Sr Team leader	Production	Injured	PawanSai - Vadlapudi	31-08- 2024	Medicclaim		GEN	967661 9970	50,00,0 00
6	E0433	PRAKASHJAGA RAPU	Executive	Production	Injured	PawanSai - Vadlapudi	24-08- 2024	Medicclaim		GEN	897886 4827	25,00,0 00
7	E0216	KASINAIDUJEE REDDI	Senior Executive	R&D-(PDLab)	Injured	PawanSai - Vadlapudi	28-08- 2024	Medicclaim		AShift	789336 6832	25,00,0 00
8	E0314	SANTHOSHGE DDA	Executive	R&D-(PDLab)	Injured	PawanSai - Vadlapudi	28-08- 2024	Medicclaim		BShift	991213 8425	50,00,0 00
9	E0166	SATYANARAYA NAVARAPRAS ADRAJUGAND RAJU	Senior Manager/ Sr Group leader	Quality Assurance	Injured	KIMSICO N-Sheelana gar	26-08- 2024	Medicclaim		GEN	900039 2223	25,00,0 00
10	E0500	ARUNAKUMAR POTTASIRI	Manager	Quality Assurance	Injured	KIMSICO N-Sheelana gar	26-08- 2024	Medicclaim		GEN	701340 7930	25,00,0 00
11	E0567	BABASRINIVAS AVARMADAND U	Senior Executive	Production	Injured	KIMSICO N-Sheelana gar	29-08- 2024	Medicclaim		BShift	997994 9428	50,00,0 00
12	E0037	JAGADEESWA RARAOPASUP UREDDI	Deputy Manager/ Sr. Team leader	Production	Injured	Medicover -MVP	4-09-2024	Medicclaim		GEN	944194 1325	50,00,0 00
13	IFS	BSivaVenkataRa tnam	HKHelper	Production	Injured	Medicover -MVP	28-08- 2024	ESIC	701118 0979	GEN	789324 3166	50,00,0 00
14	E0570	RAMBABUKON DRU	Senior Executive	Production	Injured	Medicover -MVP	2-09-2024	Medicclaim		GEN	630244 6064	50,00,0 00
15	Charan	KChandraSekha r	Utility Opera tor	ESD	Injured	Medicover -MVP	2-09-2024	ESIC	701123 0721	GEN	910003 8769	50,00,0 00
16	Charan	YMaheshBabu	ESD	ESD	Injured	Medicover -MVP	5-09-2024	ESIC	701064 9893	BShift	965248 7225	50,00,0 00
17	E0234	NARAYANARA OKONDALA	Asst. Mana ger/TeamLe ader	R&D-(PDLab)	Injured	Medicover -MVP	29-08- 2024	Medicclaim		GEN	701368 8706	50,00,0 00
18	E0227	DEMUDUPIKKI	Senior Engin eer	Engin eering	Injured	Medicover -MVP	Undergoi ng treatment	Medicclaim		GEN	897840 8511	50,00,0 00
19	IFS	NPYDIKALYAN	HK	PD Kalya n	Injured	Medicover -MVP	2-09-2024	ESIC	701150 0657	GEN	951502 7074	50,00,0 00
20	Kapston	BSuribabu	HKBo y	Produ ction	Injured	Medicover -MVP	4-09-2024	ESIC	701122 3048	GEN	810691 4564	50,00,0 00
21	E0364	KIRANSATYAN ARAYANA MANDAPATI	Senior Execu tive	Produ ction	Injured	Medicover -MVP	2-09-2024	Medicclaim		BShift	833199 5134	50,00,0 00
22	E0250	VVLAKSHMICH AITANYAGAND RETI	Senior Execu tive	Produ ction	Injured	RKHospit al- Ghajuwak a	28-08- 2024	Medicclaim		BShift	911072 8489	25,00,0 00
23	E0415	SHANMUKHAR AOKELLA	Chemi st	Qualit y Contr ol	Injured	UshaPrim e- Anakapalli	26-08- 2024	ESIC	701099 2048	AShift	901089 1367	25,00,0 00
24	E0535	DHANNJAYABO DALA	TraineeChe mist	Qualit y Contr ol	Injured	UshaPrim e- Anakapalli	26-08- 2024	ESIC	701153 8630	AShift	955012 9249	25,00,0 00
25	E0487	SHANMUKHAR AJUKANCHU	Senior Execu tive	Produ ction	Injured	UshaPrim e- Anakapalli	28-08- 2024	Medicclaim		AShift	949110 6009	25,00,0 00
26	E0464	BANGARINAID UCHANDAKA	Execu tive	Produ ction	Injured	UshaPrim e- Anakapalli	24-08- 2024	Medicclaim		BShift	949343 6518	25,00,0 00
27	Kapston	ChApparao	HKBo y	Produ ction	Injured	UshaPrim e- Anakapalli	30-08- 2024	ESIC	701087 6274	GEN	814244 5960	25,00,0 00
28	Kapston	GRajarao	HKBo y	Produ ction	Injured	UshaPrim e- Anakapalli	27-08- 2024	ESIC	701092 8442	GEN	957397 0487	50,00,0 00
29	IFS	NApparao	HKHel per	Produ ction	Injured	UshaPrim e- Anakapalli	28-08- 2024	ESIC	701118 0899	GEN	966635 6254	25,00,0 00
30	IFS	JVardhan	HKHel per	Produ ction	Injured	UshaPrim e- Anakapalli	28-08- 2024	ESIC	701123 7576	GEN	939151 8791	50,00,0 00
31	IFS	RSatyanarayana	HKHel per	Produ ction	Injured	UshaPrim e- Anakapalli	2-09-2024	ESIC	701021 5802	GEN	967650 6833	50,00,0 00
32	E0452	YAAMINISARA GADAM	TraineeChe mist	R&D-(PDLab)	Injur ed	UshaPrim e- Anakapalli	26-08- 2024	ESIC	701123 5705	GEN	733720 9643	50,00,0 00

33	E0316	PARAMESWAR RAOALLAKA	Execu tive	R&D- (PDLA b)	Injur ed	UshaPrim e- Anakapalli	28-08- 2024	Mediclaim		BShif t	996655 9215	25,00,0 00
34	Kapston	RamMeharBabu	HKHel per	Pro duction	Injur ed	UshaPrim e- Anakapalli	27-08- 2024	ESIC	701083 3473	GEN	863922 1871	25,00,0 00
35	E0355	VAMSISARAG ADAM	Juni orC hem ist	Pro duct ion	Injur ed	UshaPrim e- Anakapalli	26-08- 2024	ESIC	7011 1888 28	BS hif t	917780 4774	50,00,0 00
36	EBP	PrabathYadav	PR E	R& D- (HY D)	Injur ed	UshaPrim e- Anakapalli	28-08- 2024	Mediclaim		GE N	970171 4673	50,00,0 00
37	CSF	DApparao	Sec urity	Ad min	Injur ed	UshaPrim e- Anakapalli	28-08- 2024	ESIC	6207 8798 07	BS hif t	995992 6360	25,00,0 00
38	SVEW	MNagabushan am	Pain ter	ES D	Injur ed	UshaPrim e- Anakapalli	27-08- 2024	ESIC	7010 3429 07	GE N	970355 3893	25,00,0 00
39	E0302	TEJESWARA RAOYANDAV A	Seni orEx ecut ive	Pro duct ion	Injur ed	LVPrasad EyeHospit al	28-08- 2024	Mediclaim		BS hif t	944098 8544	50,00,0 00

**Action Taken by Factories Department - Prior to the Occurrence of the Accident on 21.08.2024:-**

1. It is submitted that the premises of M/S Escientia Advanced Sciences Pvt Ltd., Plot no: 11,11A,12 & 12, APSEZ, Atchutapuram, AnakapalliDt was registered under Factories Act.1948 in the year 2018 with the Registration Number: R. No. 104374. the manufacturing process in the factory is manufacturing of Bulk Drug Intermediates. The licence limits are 2438 HP electrical power and to employee maximum of 500 workers. Sri Kiran Reddy Pendri, age 36 Years, S/o P. Sri. Yadagiri Reddy is the Occupier of the factory and Sri Uppalapati. Appala NarasimhaRaju, Age 52 years, S/o Sri Uppalapati. Satyanarayana Raju is the manager of the factory. Sri Sanjay Kumar Vaishnava s/o Dhan Das Vaishnava is the manager of the factory.
2. It is submitted that this factory was registered under factories Act 1948 on 02-02-2018 by the then Deputy chief inspector of Factories Visakhapatnam and is working regularly up to the date of accident.
3. It is submitted that the license was amended for 500 workers dt 22.12.2020. (Factory licence of M/S Escientia Advanced Sciences Pvt Ltd in **Annexure 3**). The plans of the factory were approved as prescribed under Rule 3(1)(a) of AP Factories Rules,1950 vide Lr no: D.Dis No: A1/VSP-II/03/2018, dt: 02-01-2018 by the Director of Factories, A.P, Vijayawada (**Annexure 4**) and further revised plans were approved for installation of additional machinery and Construction of buildings by the Director of Factories, A.P, Vijayawada

Vide Lr no: LAE05-11021(35)/24/2024-A SEC-DOF, dt:13-03-2024(**Annexure 5**).

4. It is submitted that the above said factory was registered by Dy chief inspector of Factories Visakhapatnam on 02.02.2018 and issued inspection orders dt 26.03.2018 and again inspected by the then I/C Deputy Chief Inspector of Factories, Visakhapatnam on 16-09-2020 and found non-compliance of certain provisions under Factories Act 1948 and AP Factories Rules 1950 thereby issued inspection orders to both the occupier and manager of the factory vide R No 104374 dt 23.09.2020. (**Annexure-6**)
5. It is submitted that the provisions related to Manufacture, Storage, Import of Hazardous Chemicals Rules, 1989 with respect to Off-Site Emergency plans, third party Safety Audits are not applicable to this factory as the inventory of chemicals in the factory is less than the threshold quantity prescribed under the said rules. Therefore, in accordance with decision of the Government of Andhra Pradesh vide G.O.Rt .No.487 LFB & IMS (LAB-II) Department, dated 18-08-2020, the Director of Factories, Andhra Pradesh in exercise of powers vested with under Rule 12-B of AP Factories Rules, 1950, had issued instructions to conduct an expert third party safety audit in this factory vide Memo No.LAE05-14024/17/2020-A SEC-DOF, Dt 27.01.2023 (**Annexure-7**).
6. It is submitted that the Third-Party Safety audit was got performed through wisdom safety in 2020 and the audit report was submitted in the office of Dy Chief Inspector of Factories, Visakhapatnam on 19.01.2021. Again, the Third-Party Safety audit was got performed through Proactioneering consultants – safety in 2023 and the audit report was submitted in the office of Dy Chief Inspector of Factories, Visakhapatnam on 02.11.2023(**Annexure-8**).
7. It is submitted that the joint Chief Inspector of Factories, Visakhapatnam along with the I/C Inspector of Factories, Visakhapatnam-II circle have

inspected this factory on 19.10.2022 and an improvement notice dt 25.03.2023(**Annexure-9**) was served against both the occupier and manager of the factory for the non-compliance noticed.

**Action Taken by Factories Department – After the Occurrence of the**

**Accident on 21.08.2024: -**

1. It is submitted that the Soon after the receipt of the information about the said accident, the Joint Chief Inspector of Factories, the Deputy Chief Inspector of Factories at Vizianagaram along with Inspector of Factories, Visakhapatnam – II circle have immediately rushed to the factory at around 03.20 PM and joined the efforts in addressing the aftermath of the accident and conducted enquiry into the accident.
2. It is submitted that the industry was found engaged in manufacturing the bulk drugs in this factory.
3. It is submitted that there have been certain failures and inadequate safety protocols found like Absence of Risk Assessment for the chemical involved in the accident (MTBE), , absence of condition monitoring to the critical process equipment etc, and the said accident was the outcome of these non-compliances. Hence, there is a reason to believe that there is an imminent danger to the safety of the persons employed therein, if the kettles/reactors are allowed to operate for the manufacturing process without complying the above failures, thereby “prohibitory order” was issued for not carrying the operations until the failures are rectified and orders are revoked. The copy of the said Prohibitory Order (**Annexure-10**) is enclosed herewith.
4. It is submitted that a show cause notice along with the violations noticed in the investigation of the accident was issued to both the occupier and manager of the factory vide Lr.No. A/74939/2024, Dt 16.10.2024 (**Annexure-11**) and the Charge sheet is filed in the Hon’ble additional Judicial first-class Magistrate Court, Yalamanchili on 20.11.2024 (**Annexure -12**)

5. It is submitted that immediately upon receipt of information regarding the accident, the Joint Chief Inspector of Factories, Visakhapatnam, along with the Deputy Chief Inspector of Factories, Vizianagaram and the Inspector of Factories, Visakhapatnam-II Circle, immediately visited the factory on the day of the incident. Further inspections were also carried out on **22.08.2024**, **24.08.2024**, and **28.08.2024**. A detailed enquiry into the causes of the accident was conducted, and the report was subsequently submitted to the District Collector. (**Annexure-13**)

Hence in view of the above circumstances it is humbly prayed that, this Honourable Tribunal may kindly be pleased to record this report in O.A. No.279 of 2024 and pass such order or other orders as this Honourable Tribunal, may deem fit and proper in the facts and circumstances of the case and thus render justice.

*S. Usha S, 12/06/2025*  
**Director of Factories,  
Andhra Pradesh,  
Vijayawada.**



BEFORE THE NATIONAL GREEN TRIBUNAL SITTING AT CHENNAI

[SEE RULE 15]

12/12/24

APPLICATION / APPEAL NO. 279 OF 2024 (S2)  
Earlier OA-1097/2024 (CPB)

Applicant(s)/Appellant(s)

Respondent(s)

Suo Motu

Versus

CPCB, Through its Member Secretary, New Delhi and ors.

Legal Practitioner for Applicant(s)/Appellant(s)

Legal Practitioner for Respondent(s)

R5

To,

Director, Directorate of Industrial Safety and Health,  
Director of factories, D.No.16-72/1, opp. High school,  
Gallapudi, Vijayawada, Krishna Dt, Andhra Pradesh - 521025.

NOTICE AFTER ADMISSION

Whereas an application filed by the above named applicant(s) / appellant(s) under section 14, 15, 16 and 17 read with section 18 of the National Green Tribunal Act, 2010 as in the copy annexed hereunto has been registered and upon preliminary hearing the Tribunal has admitted the application.

through Hybrid option

Notice is hereby given to you to appear before this Tribunal in person or through legal practitioner in this matter on 07/01/25 at 10.30 A.M.; and further you are hereby directed to file reply along with supporting documents, if any, on the said date.

Take notice that, in default the said application / appeal will be heard and determined in your absence.

Given under my hand and the seal of the Tribunal, this the 4 day of December 20 24.

DOH: 07.01.2025  
Time: 10.30 A.M



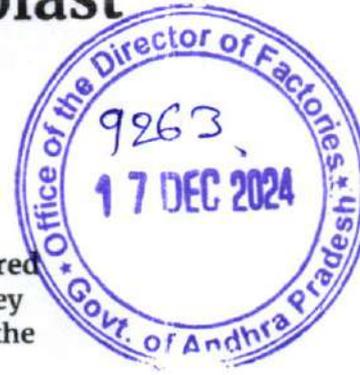
A.J. 12/12/24

By the order of the Tribunal

for Registrar

b  
12/12/2024

# 17 killed, 20 injured in reactor blast at pharma company in Andhra Pradesh's Anakapalli



The death toll is likely to go up, as bodies of several workers were feared trapped under the rubble of the slab of the first floor of the four-storey building; as many as 381 workers have been working in two shifts in the company and the accident occurred during shift change.

Updated - August 22, 2024 08:12 am IST Published - August 21, 2024 09:40 pm IST - ANAKAPALLI

HARISH GILAI



People outside the reactor pharma unit of pharmaceutical company Escientia where a fire broke out following an explosion, in Anakapalle, Andhra Pradesh, on August 21, 2024. | Photo Credit: PTI

At least 17 workers were killed and 20 others sustained burns in a major fire that broke out reportedly after a reactor blast in Escientia Advanced Sciences Private Ltd. in the Special Economic Zone at Atchutapuram in Anakapalli of Andhra Pradesh on Wednesday. The company manufactures intermediate chemicals and pharmaceutical ingredients.

**ALSO READ: MTBE solvent leak triggered accident, says Andhra Home Minister; PM Modi expresses shock and announces relief**

The death toll is likely to go up as bodies of several workers were feared trapped under the rubble of the slab of the first floor of the four-storey building. The impact of the blast was so strong that the severed body parts of some workers were thrown to some distance on the company premises. Thick flames and smoke engulfed the area.

Ten fire tenders from Anakapalli and Visakhapatnam, apart from a few from the pharma units, rushed to the spot. Two teams of the National Disaster Response Force (NDRF) were pressed into action. The personnel safely shifted a number of workers stuck on the third floor.

A worker who was injured in the fire accident in a pharma company at AP SEZ at a hospital at Anakapalli on August 21, 2024. | Photo Credit: Special Arrangement

As many as 381 workers have been working in two shifts in the company. The accident occurred around 2.15 p.m., during shift change.

Chief Minister N. Chandrababu Naidu ordered a high-level inquiry into the incident.

### **Slam management**

A large number of workers from surrounding pharma companies, residents from Lalam Koduru, Maturu, SEZ Colony, members from various workers' unions, leaders from the CITU, CPI(M) and other parties reached the factory and expressed their anger at the management for its alleged violation of safety norms. Family members of the workers were seen weeping inconsolably.

Spread across 40 acres, Escientia Advanced Sciences Private Limited was set up at Atchutapuram SEZ in 2019 with a budget of around ₹200 crore. The company manufactures Active Pharmaceutical Ingredients (API).

### **Minister expresses grief**

IT Minister Nara Lokesh expressed grief over the incident and assured complete support to the family members of the victims.

Former Chief Minister Y.S. Jagan Mohan Reddy expressed shock and grief over the incident. Extending his condolences to the bereaved families, the YSRCP president urged the government to ensure that the injured received the best possible medical treatment. He called upon the authorities to take immediate steps to prevent such incidents in future.

Police teams with forensic experts were at the site and an investigation is on.

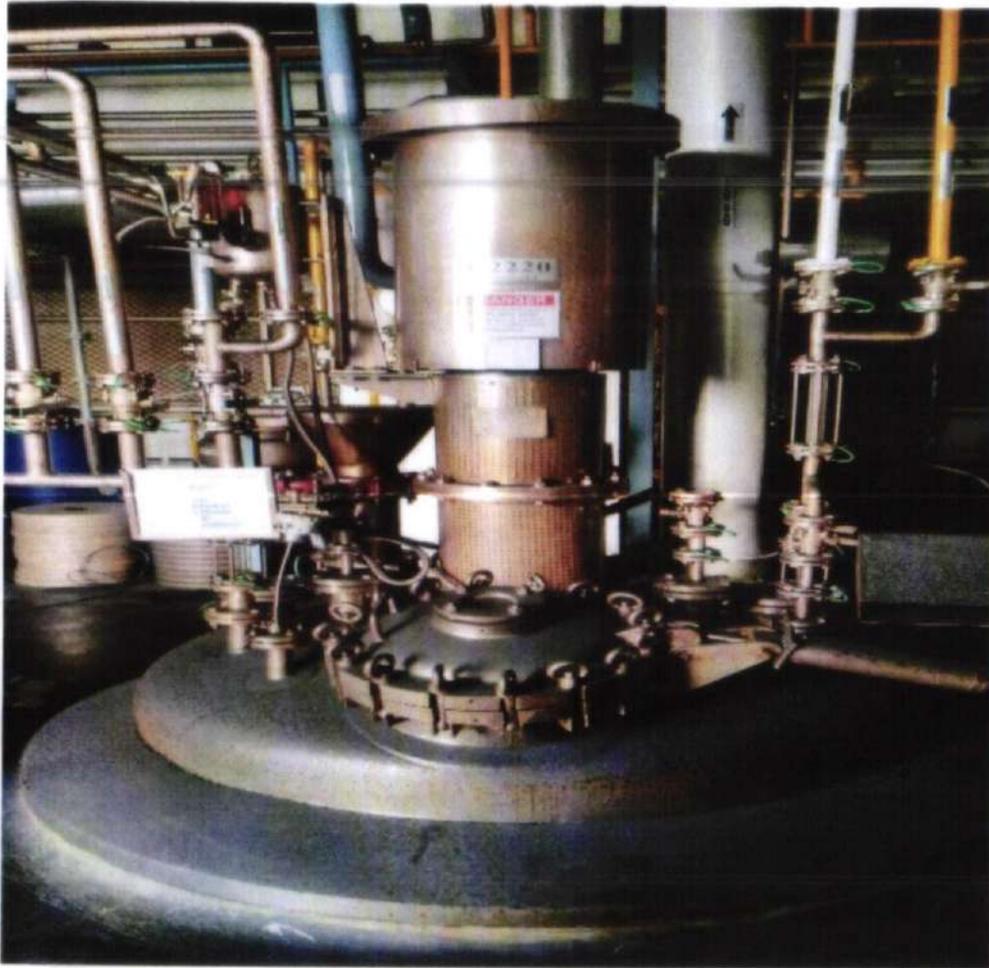
"It has been over six hours since the accident occurred, but till now there is no clarity regarding the death toll and injured workers. Though such accidents have been occurring frequently, no measures have been taken. Do our lives matter," a furious pharma worker asked.

An ambulance coming out of the pharma company to shift the injured workers to a hospital at Achutapuram SEZ in Anakapalli on August 21, 2024. | Photo Credit:

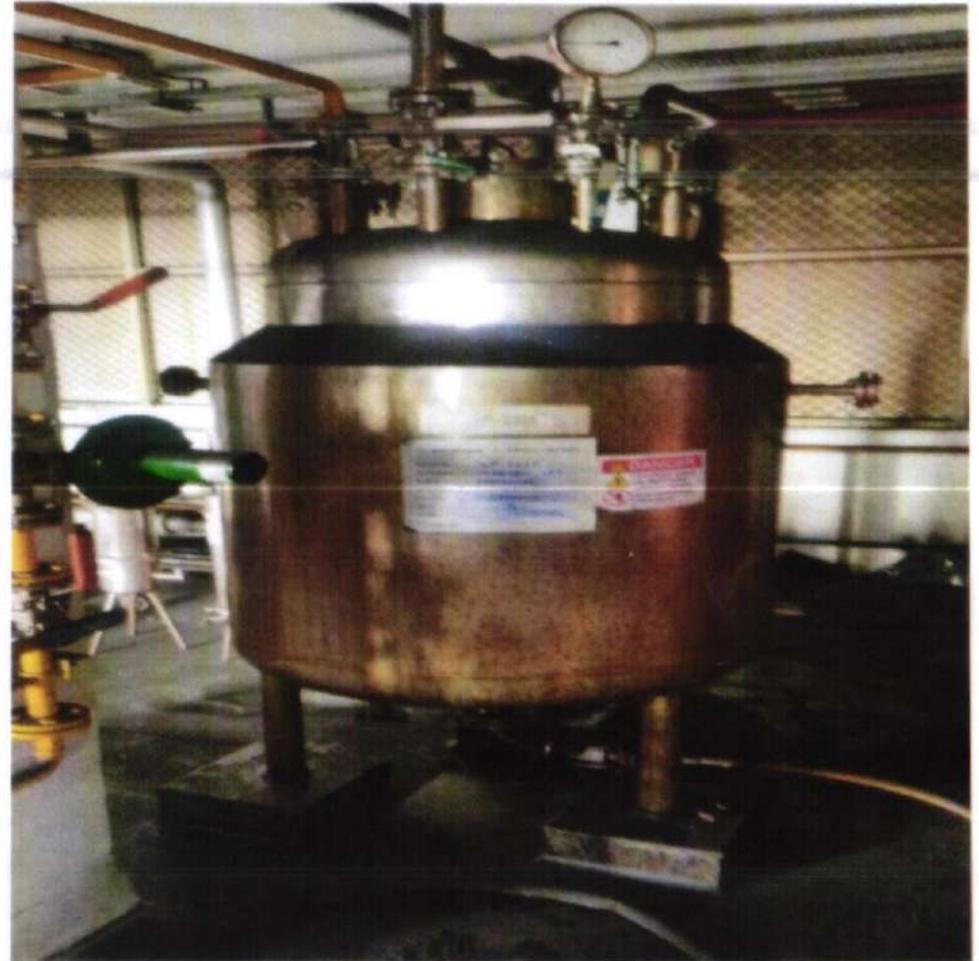
CITU district vice-president Ganiseti Satyanarayana said such a major accident had not occurred in recent times. He said 12 fire tenders were engaged in dousing the fire for over six hours, but still the firemen were not able to bring the situation under control.

CPI(M) Anakapalli district secretary K. Lokanadham said repeated accidents had been occurring due to alleged negligence and apathy of the managements. The previous governments had not bothered and failed to take stringent measures. It had been several years since a safety audit was conducted.

"Only during such accidents, the authorities form committees. Later the reports of the committees are ignored," he alleged.



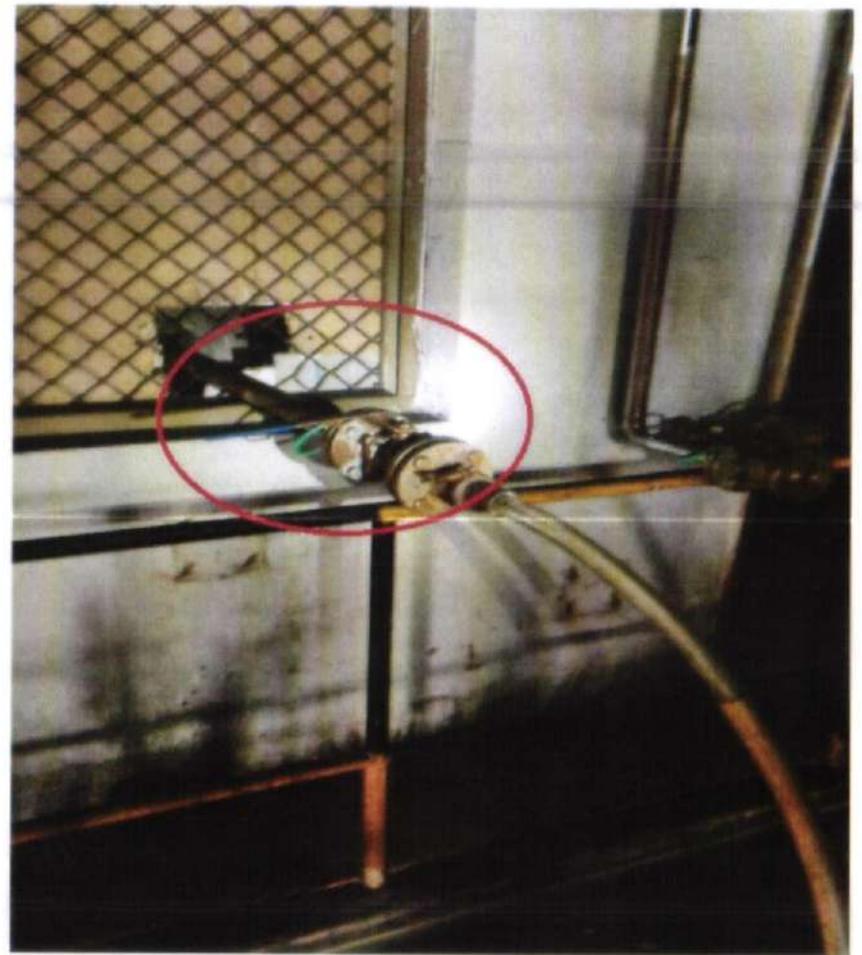
**MTBE Distillation Reactor(R-2220)**



**Distillate MTBE collection Receiver(VR-2225)**



**Connected flexible hose pipe from Vacuum Receiver bottom valve to Storage tank connected transfer line**



**Storage tank connected transfer line**

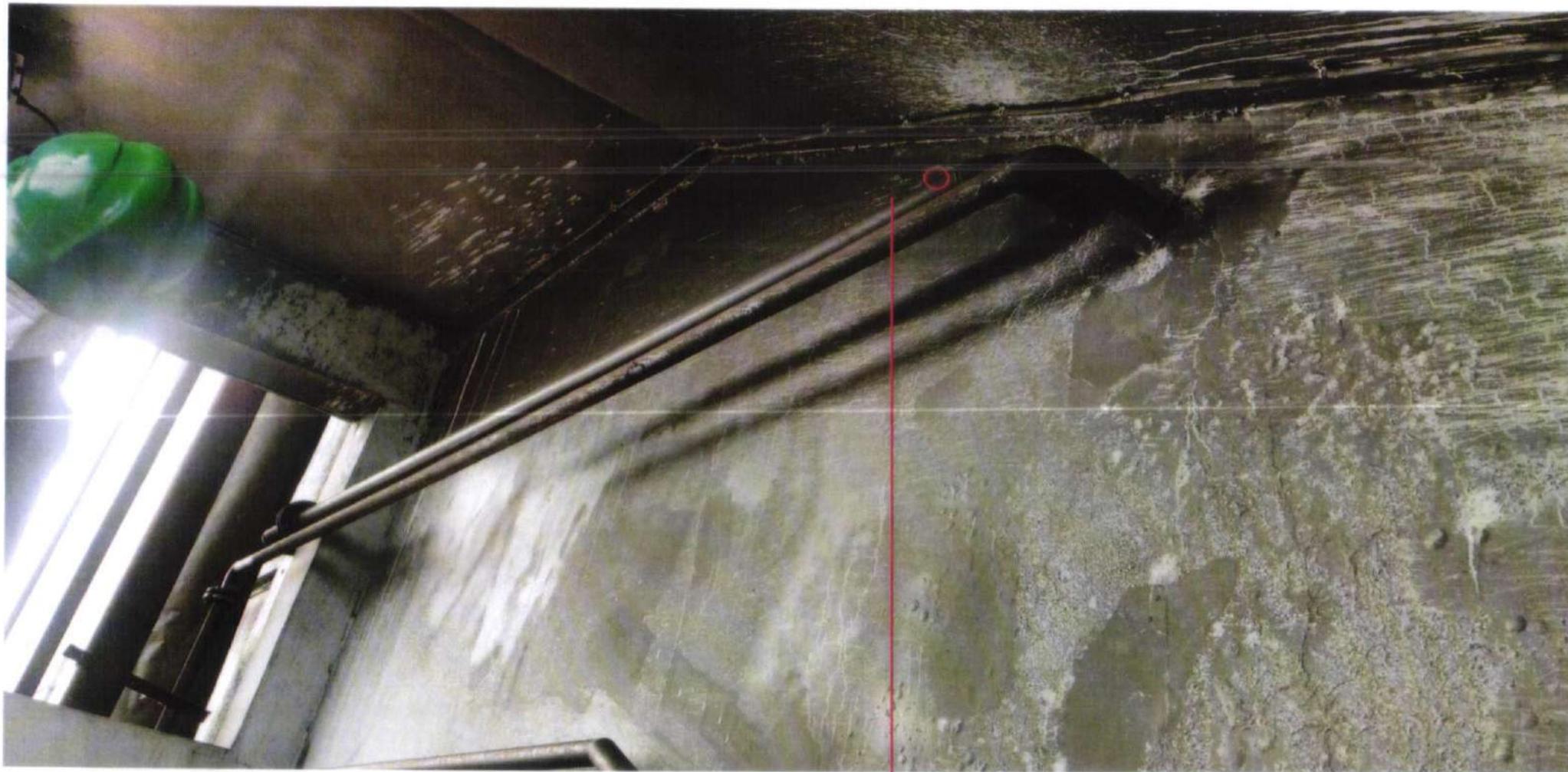


**MTBE Transfer line laying Second floor technical corridor to cable tray passing via first floor**

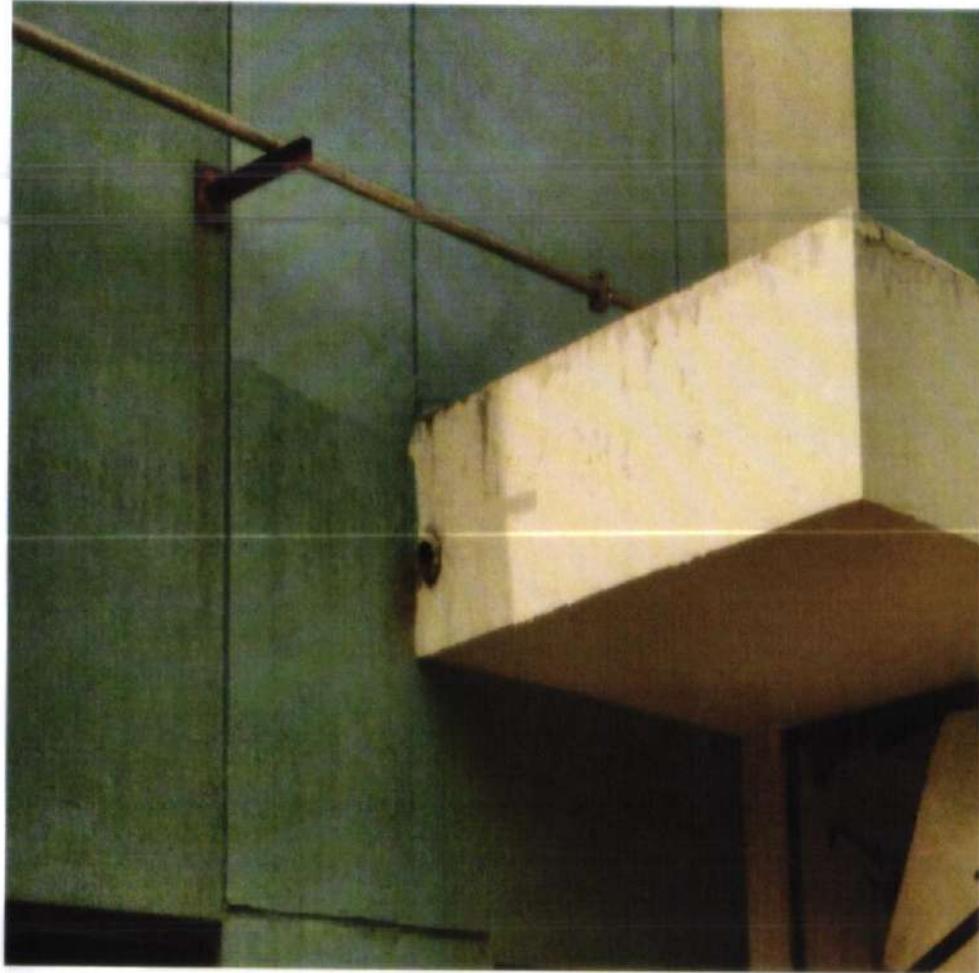


**First floor area leakage observed from this flange**

**This line connected to outside of the block to storage tank**



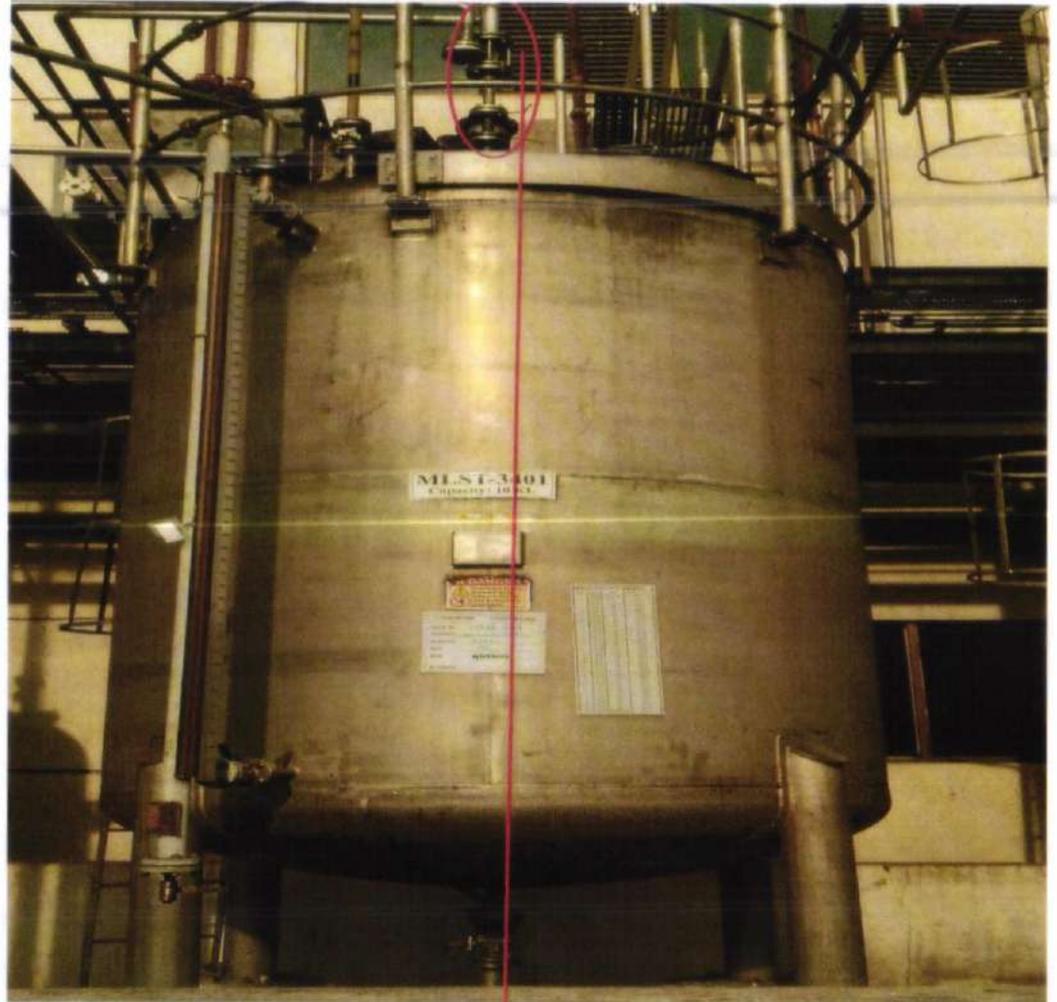
**Above 1 & 1/2" line came from first floor technical area to outside of the block & connected to storage tank**



Line laying to outside of the block supports and pipe line laying rack



**This line is connected to the storage tank**



**Line connected to out side of the storage tank**



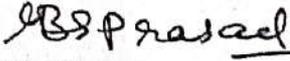
FORM NO.4  
PRESCRIBED UNDER RULE 4(4)  
LICENCE TO WORK A FACTORY

1. Licence Number : 3/2018
2. Registration Number : 104374
3. Full Name of Factory : ESCIENTIA ADVANCED SCIENCES PRIVATE LIMITED.
4. Full Address/Location of factory : Plot.No: 11, 11A, 12, 12 A, APSEZ, Atchuthapuram, Visakhapatnam.
5. Full postal address for communications Relating to the factory : -do-
6. Maximum horse power installed regular/ Stand by : 2438 HP
7. Maximum number of workers to be employed : "100" workers
8. Full name, father's name, age & residential address of the occupier and his position in the company/firm/government factory/local fund factory. : Sri. Kiran Reddy Pendri,  
: Managing Director, Age: 29Yrs,  
: S/o. Yadagiri Reddy Pendri,  
: Inampudi Ashok Kumar,  
: Flat No. 401, Sagariga Residency,  
: Lawsonbay Colony,  
: Visakhapatnam - 530017.

Licence is hereby granted to the factory at 3 above for the premises stated at 4 above for use as a factory within the limits stated in 6 and 7 above subject to the provisions of the Factories Act, 1948 and the rules made there under.

This Licence shall be valid until it has been duly cancelled.

Date: 5-02-2018.

  
Deputy Chief Inspector of Factories,  
Visakhapatnam.

This licence is issued subject to the following conditions:-

1. This licence is issued subject to the condition that compliance report on Condition imposed while approving the plans by Director of Factories, AP, Vijayawada vide Lr. D. Dis. No. A1/ VSP-II/03/2018, Dt.02-01-2018 shall be submitted within one month.

[P.T.O.]

శ్రీ కిరణ్ రెడ్డి పెంద్రి  
మానిజింగ్ డైరెక్టర్  
ఎస్.కె.ఎస్. రెసిడెన్సీ  
లాసన్ బే డివిజన్  
విశాఖపట్నం - 530017

Encl. No A/261181/2020 dt. -12-2020

Amendment of Licence

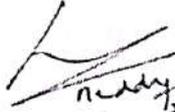
Maximum Number of workers : 500 workers  
to be employed

Licence issued Subject to following Condition

1. Subject to maintain of the Canteen as per the provision of the F. act, if every employment is more than 250 workers.

Remain copy

P. Prasad 22/12/2020

  
22/12/2020  
Deputy Chief Inspector  
of Factories  
Visakhapatnam

**GOVERNMENT OF ANDHRA PRADESH  
 FACTORIES DEPARTMENT**

From,  
 The Director of Factories,  
 ANDHRA PRADESH.

To  
 The Kiran,  
**M/S ESCIENTIA ADVANCED  
 SCIENCES PRIVATE LIMITED,**  
 1-9-815,  
 Adikmet ,  
 Secundrabad,  
 Atchutapuram,  
 Visakhapatnam-500044.

**D.Dis.A1 /VSP II/03/2018, dated: 02/01/2018.**

Sir,

**Sub:** Factories Act, 1948 - Plans - **M/S ESCIENTIA ADVANCED SCIENCES PRIVATE LIMITED** , APSEZ ,Atchutapuram, Visakhapatnam, **APPROVED** -- Regarding

**Ref:** Application No : CAE1602038 of the Single Desk, received on 24/08/2016.

Plans of the factory received in the above references are **APPROVED** under Factories Act, 1948 subject to following conditions.

1. Safety reports, HARA report, on-site emergency plans, inventories of hazardous substances stored/ used etc shall be sent before taking up the facilities into use. 2. Compliance of provisions under Rule 61I & Rule 61O of AP Factories Rules, 1950 w.r.t. reactors and driers respectively shall be ensured. 3. Adequate fire fighting arrangements as per the standards prescribed under Rule 61 of AP Factories Rules, 1950 shall be provided. 4. Necessary clearances/approvals from other concerned statutory authorities shall also be obtained. .

Your's faithfully,

Director of Factories  
 ANDHRA PRADESH.

**Note:**

1. In respect of new factories, manufacturing Activity shall not be commenced unless a notice of Occupation (Licence application) in CAF- 2 Part- B accompanied by challan for requisite fee, etc. are submitted under Section-7 with section 4(1) & (6) to the Inspector of Factories concerned.

2. All constructions/ installations shall be strictly in accordance with the plans approved and as per the standards mentioned in the annexure enclosed (Page- 2).

Validity unknown

Digitally Signed By Subbala Dala Kishore  
 (Labour Employment Training and Factories)  
 Date : 03-Jan-2018 16:43:09 IST

Single Desk Approval Ref Id : SDDDF004170991



GOVERNMENT OF ANDHRA PRADESH  
FACORIES DEPARTMENT



**From,**  
The Director of Factories  
ANDHRA PRADESH

**To,**  
Kiran ,  
ESCIENTIA ADVANCED SCIENCES PRIVATE  
LIMITED,  
Sy NO: PLOT11,11A,12,12A,  
APSEZ,  
APSEZ (V),  
Atchutapuram (M),  
Anakapalli (Dist) - 531011

LAE05-11021(35)/24/2024-A SEC-DOF - DOF dt 13/03/2024

Sir,

**Sub:** Factories Act, 1948 - Plans - ESCIENTIA ADVANCED SCIENCES PRIVATE LIMITED, Sy NO:  
PLOT11,11A,12,12A, APSEZ, APSEZ (V), Atchutapuram (M), Anakapalli (Dist)- **APPROVED** -- Regarding

**Ref:** Application No : RVP2300406 (SDP Ref. CAF Application ID: CAE1602038) of the Single Desk, received on  
26/08/2023.

Plans of the factory received in the above references are **APPROVED** under Factories Act, 1948 subject to following conditions.

Signature Not Verified

Digitally Signed,  
Name: CHANDRASEKAR  
VARMA DANTUURI  
Date: 13-Mar-2024 15:44:24

1. The proposed additions shown in red are only approved. 2. Hazard analysis & Risk assessment study, HAZOP study shall be conducted for the additions and submitted along with the compliance reports for the recommendations if any to the concerned Dy Chief Inspector of Factories at least 15 days before the proposed date of commencement of operations even for trail purpose. The risk characteristics of raw materials, residues and other hazardous materials participating in the chemical processing shall be ascertained by carrying out the tests like DSC, RC, TGA etc and shall be made available for HAZOP Studies 3. Onsite Emergency plan shall be revised based on the findings in the HARA & HAZOP studies and submitted to the concerned Dy Chief Inspector of Factories at least 15 days before the proposed date of commencement of operations even for trail purpose. 4. Fire detection & suppression systems as prescribed under Rule 61 of AP Factories rules and applicable standards namely Fire Hydrant System, Water Sprinklers, DCP flooding, Foam Tenders, Smoke/Heat detection Systems coupled with audio visual alarms etc, based on their applicability, shall be installed and made functional at least 15 days before the proposed date of commencement of operations even for trail purpose 5. The design of tank farm shall be suitably revised by incorporating the risk mitigation measures in order to avoid the damage to neighbouring tanks and consequent spread of fire in case of a fire in one tank. 6. Second staircase shall be provided for SRS plant 7. Automation of the process control parameters like pressure, temperature, flow, weight etc shall be arranged for all critical processes. The auto activation of emergency mitigation measures like pressure relief, heating cut off, flow cut off, cooling, flooding, reaction inhibition etc shall also be arranged for such processes. 8. Balconies shall be provided for all the elevated floors of the Process buildings where hazardous chemicals are being used/processed / handled in the factory connected to an external staircase. 9. All the kettles / reactors shall be provided with suitable rupture disc and safety valve of adequate capacity and size derived based on the vent size calculations in order to prevent the pressure being built up in the reaction vessels/ kettles beyond safe limit. 10. The cooling system to all the Kettles and reactors shall be designed adequately based on the scientific study of evaluation of heat in the process in order to withstand the possible deviations of parameters beyond the operational limits.

Your's faithfully,  
For Director of Factories,  
ANDHRA PRADESH

**Note:**

1. In respect of new factories, manufacturing Activity shall not be Commenced unless a notice of Occupation (Licence application) in CAF- 2 Part- B accompanied by challan for requisite fee, etc. are submitted under Section-7 with section 4(1) & (6) to the Inspector of Factories concerned.

2. All constructions/ installations shall be strictly in accordance with the plans approved and as per the standards mentioned in the annexure enclosed (Page- 2).

**Copy to:** The Inspector of Factories , - Circle with one copy of approved plans for his Office record.

**Copy to:** The Deputy Chief Inspector of Factories, Anakapalli along with xerox copy of cyber challan

Signature Not Verified

Digitally Signed,

Name: CHANDRASEKAR

VENKATARAMA PRINTING PRESS  
Date: 13-Mar-2024 15:44:24

**Copy to:** The Director of Industries, Government of Andhra Pradesh, First Floor, Government Buildings, Mutyalampadu, Vijayawada-520011.

OFFICE OF THE DEPUTY CHIEF INSPECTOR OF FACTORIES: VISAKHAPATNAM.

R. No. New/ FIR/2018

Date: - 03- 2018.

## INSPECTION ORDER (OR) NOTICE

Factories Act, 1948 and A.P. Factories Rules, 1950 and the Government notification issued thereon.

Sir,

Upon a recent Inspection of your factory by the Deputy Chief Inspector of Factories, Visakhapatnam along with Inspector of Factories, Visakhapatnam -II on 2-02-2018 it was found to the extent indicated below that certain provisions of the Act and Rules were not being carried out.

The orders below are issued or repeated from previous order, without prejudice to any action that the office may take for non-compliance with the provisions of the act and rules there under.



(K.B.S Prasad)  
Deputy Chief Inspector of Factories,  
Visakhapatnam.

To,  
Sri. Kiran Reddy Pendri,  
Occupier,  
Sri. Natwaz Panchal,  
Manager,  
Escientia Advanced Sciences Pvt. Ltd.,  
Plot No. 11, 11 A, 12, 12 A, APSEZ,  
Atchutapuram (V), Visakhapatnam.

Section 2m(i):- Your premises known as " Escientia Advanced Sciences Pvt. Ltd.," Situated at Plot No.11, 11A, 12, 12 A, APSEZ, Atchutapuram (v), Visakhapatnam – Dist. is a factory within the meaning of Section 2m(i) of the Factories Act, 1948 as the manufacturing process of "**Bulk Drug and Intermediates**" is being carried on in the premises with the aid of "2438" HP Installed Machinery and by employing "98" workers on 2-02-2018.

Hence all the provisions of the Factories Act, 1948 and the rules made there under A.P. Factory Rules, 1950 are applicable to your premises.

1. Section 7-A (2) :- Get all the workers adequately trained in the basic concepts of industrial safety, accident prevention, and job specific safety training programs. Record with reference to each worker shall be maintained furnishing the date of training, topic & contents exposed, duration of training etc.. and shall be produced for verification.
2. Section 7A(2):- i) Carry out Job Safety Analysis and evolve safe job procedures in respect of every job involving hazardous process and they shall be made familiar to all workers by publishing in Telugu and Circulating the same among the workers in each Department.

Contd. 2/-

3. Section 7-A(2) read with Section 41 Rule 61-F(3):
  - i) Use wedges or provide stoppers to the vehicles (trucks, lorries and tractors) which are being used for loading and unloading operations and being kept in the premises after parking and don't park the vehicles on an even floors or slopes or ramps.
  - ii) Train the drivers in driving especially in reversing of vehicles.
  - iii) Provide concave mirrors in the corners of the roads for better watching or Preview of vehicles.
  
4. Section 7-A (2) Read with Section 87 and Rule 95 schedule XV:-
  - (i) Develop and follow preventive maintenance schedules for all equipments in general and critical equipments, instruments whose failure shall have a bearing on safety in particular, duly considering the makers recommendation and follow them scrupulously.
  - (ii) Follow the permit to work system for all critical works like Confined space entry, working at height, hot works, unloading of solvents, line breaking etc.. immediately and report the compliance.
  
  - (iii) All parts of plant, equipment and machinery used in the process like reactors, condenser, centrifuges etc... shall be got tested by the competent person immediately after identifying suitable testing procedures by him. Record of such tests shall be maintained.
  
  - (iv) Get at least 10% of the total workers trained on first aid. (P.I.O, dt: 05-08-2010)
  
  - (v) Provide emergency power back up for all critical equipments, floors, staircase, fire hydrant system etc.,
  
5. Section 7-A (2)(c):-
  - a. Training needs on occupational health and safety to the workers shall be critically analyzed based on the level of awareness among the workers being employed. The syllabus for each topic shall be prepared covering the subject in depth, which can be validated by a third party if there is no qualified safety officer approved by Director of Factories, AP employed and the course of lectures shall be accordingly finalized.
  - b. The internal trainers if any, dealing with training of workers shall have to be trained based on the syllabus to a satisfactory level before they are permitted for taking up the training sessions to the workers.
  
  - c. Develop tools for measuring the effectiveness of the training and decide the criteria for retraining immediately and refresher training later with a predetermined frequency.
  
6. Section 13 Rule 17-A:- Ensure sufficient air changes per hour for ensuring comfortable working conditions inside the production blocks.
  
7. Section 28 & 29 and Rule 55 & 55-A:- All parts of hoists and lifting machinery including their lifting tackles shall be properly maintained and thoroughly examined by a competent person at least once in every period of 12 months. A register containing the prescribed particulars of every such examination in Form No. 38 shall be kept readily available for inspection.
  
8. Section 31 Rule 56 :- Air compressor are pressure vessels. Every pressure vessel shall be thoroughly tested by competent person externally once in every period of 6 months, internally once in 12 months and hydrostatically once in 4 years and details of examination shall be recorded in Form.8 and a copy of it shall be submitted to this office.

Contd. 3/-

9. Section 33:  
Open drains to be securely covered.
10. Section 38 Rule 61 :- (a). Metallic pipes should be used for transferring chemicals from reactors to centrifuges etc..  
(b). Ensure the provision of fire exits and fire fighting facilities as per the provisions.
11. Section 38 Rule 61 (1):- All the reactors in which exothermic / runaway / distillations reactions are carried on shall be isolated and installed in separate sheds.
12. Section 38 Rule 61 (4):- (i) Ensure interlocking to covers of centrifuges with their power supply  
(ii) Extend the vent of catch pot of centrifuges and reactors, condenser vents to Outside the building.  
(iii) Provide a common duct for connecting vents of centrifuges, reactors, SRVS etc.. and arrange for safe disposal of vapour based on the property of vapors.  
(iv) Ensure earthing to GLRs by using tantalum plugs.  
(v) Centrifuges shall be operated in closed condition and the mother liquor shall be discharged in closed condition at a safe distance.  
(vi) Examine the possibility of providing a over head water tank with non return valve to flood the condensers in case of power failure or pump failure.  
(vii) Ensure spark arresters to all vehicles entering premises.  
(viii) Ensure earthing facility with crocodile clamp for tankers coming with material, before they are taken for unloading.  
(ix) Provide Anti – static pads at the entrance to the each production block and also periodically measure the static charges levels at the operations of solvent handlings.  
(x) Ensure flame proof characteristics of the fittings, lights, motors etc.. are restored whenever they are taken for repair through a competent person before it is taken back into use.  
(xi) Ensure earthing and bonding for all solvent lines, vessels and tanks.  
(xii) Provide earthing and bonding for solvent drums/ barrels etc. while the solvent is under transfer, including the piping system in use for the transfer.  
(xiii) Use suitable metal storage tank to store solvents instead of using drums.  
(xiv) Provide and ensure Nitrogen blanketing for solvent storage tanks, reactors where flammable solvents are used. The joint connecting nitrogen shall be diagonally opposite to the manhole for effective blanketing efficiency.  
(xv) Provide for vacuum breaking with nitrogen only for those operations carried under vacuum.  
(xvi) Provide suitable and electrically conductive piping arrangements from reactors drain to centrifuges with proper earthing & bonding, to replace the existing manual handling.  
(xvii) Take all steps like earthing & bonding, flow regulation of materials, wearing cotton cloths by the workers, avoiding the free fall of materials into reactors, tanks etc.. immediately.  
(xviii) Provide flash back arresters to the vents.  
(xix) Avoid free flow of materials in to reactors where in solvents are pre-charged. Arrange suitable facilities like feeding hopper with rotary valves etc.. to avoid the need for keeping the manholes open.  
(xx) All the vents of centrifuges, tray driers, reactor condensers etc.. are to be terminated to the outside the blocks & provide with flash back arresters.
13. Section 38 and Rule 61 (9):- Provide glow sign exit boards to ensure their visibility during Night time, even in case of power failures.

Contd. 4/-

14. Section 38 Rule 61 (10):-

- (i) Ensure the extinguishers are installed with a height not more than 750 mm from the floor to its bottom.
- (ii) All firefighting equipment and all the locations identified for the fire fighting appliances based on the class of fire, shall be allotted a serial No. by which it shall be referred to the records and it shall be painted legibly.
- (iii) Draw the prevention maintenance schedules for fire extinguishers and follow them. Maintain the record for the same.

15. Section 38 Rule 61 (12):-

- (i) Provide suitable fire fighting personal protective appliances like gumboots, helmets, respiratory protection etc... for use in case of fire.
- (ii) Get all the workers trained in fire fighting.
- (iii) Conduct the fire mock drills once in every period of 2 months.

16. Section 41 and Rule 61 – I:-

**Para-(4):-** Provide suitable safety valve or rupture disc of adequate size and capacity to the reactors to effectively prevent the pressure being built-up in the reaction vessel beyond the safety limit and disposed of through suitable pipes without causing any hazard.

**Para – (5):-** All the reaction vessel shall be provided with a pressure gauge having the appropriate range.

**Para - (7):-** Provide water tanks on the top of production blocks, distillation column etc and it is so arranged that during power failure, the discharge valve of the water tank opens automatically and supply of water tube condenser for short time to protect from fire hazards.

**Para – (9):-** Display conspicuously the precautions to be taken at the vessel, during building up of un due pressure inside the Reactor.

**Para (3):-** Provide independent safety relief valve to each reactor with jacket for heating through steam, to prevent steam entry with excess pressure.

17. Section 41 and Rule 61 (O):- Ensure the driers in the factory are provided and maintained with following measures.

**Para 4:- (b):-** No oven or drier shall be taken into use for the first time unless a competent person has thoroughly examined all its parts and carried out the test as are required to establish that necessary safe systems and controls provided for safety in operation for the process for which it is to be used.

**Para 5: (i) :-** Pre ventilation of at least 3 air changes shall be ensured before commencement of heating in the drier.

(ii) Provide a positive and effective safety ventilation systems so as to dilute any mixture of air and flammable substance that may be formed within the drier and maintain concentration of flammable substances in the air at a safe level of dilution which shall be to achieve a concentration of the concerned flammable substance in air of not more than 25 percent of its lower explosive limit. It should also ensure that an alarm shall come when the concentration of flammable mixtures exceed 50% of lower explosive limit and stops the heating automatically at 60% of LEL.

Contd. 5/-

(iii) Provide suitable interlocking arrangement between the ventilation system and heating system so that in the absence of ventilation system functioning, the heating shall not continue.

**Para 8:-** Provide suitably designed explosion panels so as to allow release of pressure of any possible explosion within the drier through explosion vents.

**Para 12:-** Get the driers tested and examined by a responsible person at frequent intervals and record shall be maintained in this regard.

18. **Section 41-B (4):-**

- i) on-site emergency plan has to be prepared including all possible scenarios.
- ii) Make known the on-site Emergency plan to all the employees.
- iii) Organize a mock drill of the said plan twice a year.

19. **Section 41- C and Rule 61 – (SC) A:-**

1. Carry out pre – employment medical examination, periodical medical examination once in 6 months and also post employment medical examination, of all the workers employed in the factory by a factory medical officer and the results of such examination shall be recorded and also obtain fitness certificate
2. The health hazard associated with each work in the factory varies widely with the nature of each work. Therefore, the medical examination of the workers in the factory shall be designed keeping the track of such potential hazards for each worker based on nature of his work rather than limiting it for checking the general fitness of a worker. A matrix between the nature of work Vs suggested medical examinations based on this scientific approach, shall be developed as a ready reckoner and the same shall be submitted to this office.

20. **Section 41C and Rule 61 (SC) B:-** Provide and maintain occupational health center with the services and facilities as per scale laid down.

- i) An occupation health center having a room with a minimum floor area of 15 sq.m with floors and walls made of smooth and impervious surface and with adequate illumination and ventilations as well as equipment as per schedule annexed to the said rule.
- ii) Appoint part time medical officer shall be in over all charge of the center who shall visit factory at least twice in a week and whose services shall be readily available during medical emergencies.
- iii) Appoint one qualified and trained dresser-cum-compounder on duty throughout the working period.
- iv) A fully equipped first aid box in all the departments.

21. **Section 41 Rule 61 F(4):-** Develop a matrix of compatibility of chemicals and get it displayed in the warehouse.

22. **Section 41 – B :**

1. Submit the compliance report on the recommendations made in the HARA Report.
2. Get the HAZOP done for all products in CFO of APPCB and submit the compliance Report on the recommendations given

Contd. 6/-

23. Section 41(G) Rule 61 (SG) A:- Constitute a safety committee in the factory as provided in these rules with equal representation from management, as well as workers side said the list of safety committee members to the undersigned, conduct periodical meetings of the safety committee (at least once in a quarter) and send copies of minutes of meeting to this office.
24. Section 41 Rule 61-I Read with Section 87 Rule 95 Schedule XV Part – II Para 14:-  
a. Provide DUMP TANK of twice the volume of the biggest reactor to the GLRRE 514,515 of MB—5 production block in order to ensure the release of excess pressure from the reactor before it exceeds the safe limit.
25. Section 87 and Rule 95 Schedule XV Para-III:-  
**Para 5:** Provide bund walls around all in process storage tanks containing flammable materials.
26. Section 87 and Rule 95 Schedule XV Part-II  
**Para 4:-** Instruct and educate all workers including illiterate workers about the hazards in the process including the specific hazards and also to deal with the hazards involved including properties of substances used in process to which they may be exposed to, in the normal course of work.  
**Para- 5:** Take all possible steps to ascertain definitely all the hazards involved both from the actual operations and the chemical reactions including the dangerous chemical reactions before commencing any process or any experimental work, or any new manufacture. carefully study the properties of the raw materials used, the final products to be made, and any by-products derived during manufacture and make provisions for dealing with any hazards including effects on workers, which may occur during manufacture. Send the information in writing giving all the above details and the steps taken or proposed to be taken from the design stage to disposal stage for ensuring the safety, at the earliest but in no case less than 15 days before commencing manufacture, handling, or storage of any of items whether on experimental basis, or as pilot plant or as trial production, or as large scale manufacture.  
**Para 7:** 1) All instruments and safety devices used in the process shall be tested before taking into use and after carrying out any repair to them and examined once in a month, by a competent person. Records of such tests and examinations shall be maintained in a register.  
(2) All instruments and safety devices used in the process shall be operated daily or as often as it is necessary, to ensure its effective and efficient working at all times.  
**Para 9:** i) The containers for handling storage of chemicals shall be of adequate strength, with adequate labeling and colour coding arrangements indicating the contents and their hazards and safe handling methods.  
ii) Storage of chemicals and intermediate products, which are highly unstable or reactive or explosive shall be limited the quantities required for two moths use.  
iii) Standby arrangements equal to biggest container shall always be available to transfer the toxic substances if any defect develops in any of the container.

Contd. 7/-

iv) PFRP and HDPE storage tanks (non-metallic material) shall have adequate strength and properly anchored. Working platforms, access ladders, pipeline shall not have any support on the structure of storage tank and shall be independently supported.

**Para 11:** Ensure wearing of appropriate and approved type of personnel protective wear by all the workers while at work.

**Para 13:** Effective arrangements such as enclosure, efficient exhaust draught, shall be provided to all reactors to control the escape and spread of substances in the work atmosphere.

**Para 14:** Suitable provisions such as automatic and remote control arrangements shall be made for the controlling the effects of dangerous chemical reactions. In the event failure of control arrangements automatic flooding or blanketing or other effective arrangements shall come into operation.

**Para 15:** All parts of plant and equipment including reactors and centrifuges in use are to be periodically examined and tested by a competent person for mechanical integrity to ensure safe works.

**Para 19:** All the work connected with maintenance of plants and equipment including cleaning of empty containers shall be carried out under permit to work system.

**Para 20:** The permit to work system shall be followed while working in confined space, unloading of solvents, working at heights and other specified works following precautions stipulated in the said rule.

**Para 21:** Provide proper instructions and PPE to the persons assigned for collecting of samples.

**Para 22:** Adequate ventilation arrangements shall be provided and maintained at all times in the process area where dangerous or toxic or flammable or explosive substances could be evolved.

**Para- 23(7):-** Train All the employees about the actions to be taken by them including evacuation procedures during emergencies.

**Para- 23(8):** The mock drill for all the emergency procedures shall be conducted once in every three months.

**Para- 23(9):** Train at least 10% of the workers in handling the first - aid firefighting equipments.

**Para 23(5):** Ensure working of all scrubbers and other critical equipment are connected emergency power supply and inter connected to normal power supply.

**Para 24:-** Adequate precautions shall be taken to prevent the mixing of effluent from different process and operators, which may cause dangerous or poisonous gasses to be evolved.

Contd. 8/-

27. Section 87 and Rule 95 Schedule XV Part – II Para (24):  
No new process & experimental work, or manufacture of new product whether on experimental basis or pilot scale, trial production or as large scale production shall be done unless the written information on identification of hazards with new materials, by products, operations, reactions etc... and steps taken to tackle them, is given 15 days in advance.
28. Section 87 Rule 95 Schedule XV Part III-Para 1(5) & Para 2(1):  
i. Provide non sparking tools wherever solvents are used.  
ii. Prevent accumulation of static charge by providing suitable metallic connections / Crocodile clips specially to pipe lines, belt drives, reactors etc.

29. Section 87 and Rule 95 SCH XX:-

**Para 10 (d):** - every container having a capacity of 20 liters or more and every pipeline valve and fitting used for storage or carrying corrosive substances shall be thoroughly examined every year to find out any defects and the defects found shall be rectified forthwith. A register shall be maintained for each examination made and shall be produced on demand.

1. Para 2:- Made the flooring of the anti corrosive, impervious and it shall be so constructed to prevent the collection or accumulation of any corrosive substance.
2. Par 3:- Provide suitable aprons; face shields; chemical safety goggles, respirations hand gloves and shoes to the handling workers.
3. Para 4:- Provide emergency body shower and eye wash fountain near corrosive chemical handling area.
4. Para 5:- Display the following notice near handling area in red colour, in a language under stood by the majority of the workers.

**DANGER**

Corrosive substances cause severe burns and vapours there of may be extremely hazardous. In case of contact, immediately flood the part affected with plenty of water for at least fifteen minutes, and get medical attention quickly.

30. Section 87 Rule 95 Schedule XXVII:
- a) Presently noise levels are high at utility block area, so effective engineering controls shall be taken to reduce noise levels and also provide Acoustic sound proof chambers to the workers working in the above area.
  - b) Workers shall be provided with ear plugs / muffs and ensure usage while in work.
  - c) Ensure Periodical medical examination of workers shall be conducted for their hearing sensitivity.
31. Section 41 and Rule 61-J:- Eye sight and color vision examinations to be conducted to Fork lift operators by ophthalmologist and obtain report and submit a copy of the such report to this office.

Contd. 9/-

**Note:** You are therefore advised to send a rectification report on points raised above within a fortnight.

- Notes:**
1. On 2-2-2018 by the Deputy Chief Inspector of Factories, Visakhapatnam along with Inspector of Factories, Visakhapatnam-II.
  2. Working 2m(i), Mfg process of Bilk drug & Intermediates"
  3. " 98 " workers on 2-2-2018.
  4. ---
  5. ---
  6. ---
  7. Issued Inspection orders to the Occupier & Manager.
  8. No claim.

Copy submitted to the Joint Chief Inspector of Factories, Visakhapatnam for kind information.

**OFFICE OF THE DEPUTY CHIEF INSPECTOR OF FACTORIES: VISAKHAPATNAM.**

R. No. 104374

Date: 23/09-2020.

**INSPECTION ORDER (OR) NOTICE**

Factories Act, 1948 and A.P. Factories Rules, 1950 and the Government notification issued thereon.

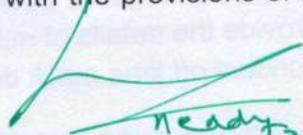
Sir,

Upon a recent Joint Inspection of your factory by the following team constituted by the Govt. of Andhra Pradesh, Industries and Commerce Department vide G.O. RT. No. 156, dated 04.08.2020.

Sri. J. Siva Sankara Reddy,  
I/c. Deputy Chief Inspector of Factories, Visakhapatnam.  
Sri. Shaik Meera Subhan, I/c. R.O, APPCB,  
Sri. ~~Martin Luther King~~ Visakhapatnam, ADFO,  
Sri. B. Surya Prakasha Rao, DCIB, Visakhapatnam.  
Sri. Ch. Satyanarayana, Deputy Electrical Inspector

on **16-09-2020 at 09:00 AM** it was found to the extent indicated below that certain provisions of the Act and Rules were not being carried out.

The orders below are issued or repeated from previous order, without prejudice to any action that the office may take for non-compliance with the provisions of the act and rules there under.

  
(J. Siva Sankara Reddy)  
I/c. Deputy Chief Inspector of Factories,  
Visakhapatnam.

To,  
Mr. P. Kiran Reddy,  
Occupier,  
Sri. Ch. Subramanyam,  
Manager,  
M/s. Escientia Advanced Sciences Pvt. Ltd.,  
Sy. No. 11, 11A & 12, 12A, APSEZ,  
Atchuthapuram (M), Visakhapatnam - 531 011.

**1. Section 7A(2):-**

1. Take all safety precautions in construction activity as on now in Production Block-II is under construction.
2. Provide cautionary boards in local telugu language at the entrance of the solvent storage area.

**2. Section 7A(2) read with MSIHC Rules 1989:-**

1. Display names of the hazardous chemicals; its quantities; its hazards; and the precautions to be taken by the public at the entrance of the factory main gate.

Contd..2/-

-:2:-

**3. Section 38 & Rule 61:-**

1. Provide Water Sprinkler system or DCP fire modules in temporary ML storage tank.

**4. Section 41 & Rule 61 F (3):-**

1. Remove the Grass inside the factory there is a chance of to catch fire.
2. Provide iron grill below the transparent sheets on the roof of production block-III in order to arrest fall of workers when ever maintenance works are going on the roof.

**5. Section 41 & Rule 61-I, Read with Section - 87 & Rule – 95, Schedule-XV-Part – II, Para – 14:**

1. Provide Applicability of site notification/ safety report.
2. Create community awareness around the factory.

**6. Section 41 – B (4) & Rule 61 SB (D) 13:-**

1. Arrange for the display of organogram of OSEP at the entrance of the factory as well as inside the factory.
2. Provide emergency siren outside the plant.
3. Provide the details of mock drills attended by outside observers.
4. Conduct off time mock drills ie., during Night time; holidays.

**7. Section 87 & Rule 95, Schedule-XV-Part – II, Para-4:-**

1. Display necessary safety information or instructions and also display MSDS instructions at different locations in the factory.

**Note:** You are therefore advised to send a rectification report on points raised above within a fortnight.

**OFFICE OF THE DIRECTOR OF FACTORIES: A.P., VIJAYAWADA****Memo No. LAE05-14024/17/2020-ASEC-DOF****Dt: 27.01.2023**

**Sub:** Safety Audits – Phase IV- Conducting third party safety audits by certain factories -instructions issued under Rule 12-B of A.P Factories Rules, 1950- Reg.

**Ref:** 1.G.O.Rt.No.487LFB&IMS(Lab-II) Department, Dt:18.08.2020  
2.Memo No.LAE05-14024/17/2020-ASEC-DOF, Dt:18.06.2021  
3. Proc No LAE05-14024/17/2020-ASEC-DOF, Dt 27.01.2023

\*\*\*\*\*

The attention of the Deputy Chief Inspectors of Factories in the state except Guntur, YSR Kadapa and Kurnool is drawn to the instructions issued to Director of Factories, Andhra Pradesh by the Government vide reference 1<sup>st</sup> cited above in connection with conducting third party Safety Audits in factories in accordance with Indian standards.

Vide reference 2<sup>nd</sup> cited, the Director of Factories has issued instructions and guidelines for conducting third party safety audits as per the list given (Phase-1).

In accordance with the instructions, the respective managements have selected the eligible auditors for conducting safety audit in their factories and got the safety audit done. The reports of said safety audits have also been submitted to the concern authorities. The improvement notices are also issued by the respective authorities for compliance of the recommendations of the audits.

Now, duly considering the need and importance of repeating the TP safety audit in factories covered in Phase-I, the necessary orders were issued to Occupiers / managers of the factories listed therein vide ref 3<sup>rd</sup> cited for conducting the TP safety audits in the year 2023 also (Copy Enclosed).

The occupiers of these factories shall have to submit the Safety Audit report immediately after the receipt of the report from the auditor to the concerned Dy. Chief Inspector of Factories.

The Dy. Chief Inspectors of Factories shall have to scrutinize the audit reports within 15 days from the date of receipt of the report and issue improvement notice along with any other relevant comments on the audit report to the occupier of the factory. If no remarks are communicated by the Dy.Chief Inspector of Factories

concerned within the stipulated time of 15 days, the audit report shall be deemed to the have been accepted by him.

Please note that these instructions are applicable for those factories listed and enclosed herewith and valid for the year 2023 only or till they are cancelled whichever is earlier.

The Dy. Chief Inspectors of Factories concerned shall submit a fortnightly progress report by 5<sup>th</sup> and 20<sup>th</sup> of every month duly furnishing the relevant information of safety audits like name of the factory, Licence limits, Dates of Audits, names of the selected audit team, date of submission of Audit report, remarks on the audit report etc in format enclosed herewith.

  
**DIRECTOR OF FACTORIES**

**Encl:** As Above

**To:**

All the Deputy Chief Inspectors of the Factories in the State except Guntur, YSR Kadapa and Kurnool.

## Proceedings of Director of Factories: A.P., Vijayawada

**Present: D. Chandrasekhar Varma**  
**Station: Vijayawada**

**Proc. No. LAE05-14024/17/2020-ASEC-DOF**

**Dt: 27.01.2023**

**Sub:** Safety Audits – Phase- IV-Conducting third party safety audits by certain factories -instructions issued under Rule 12-B of A.P Factories Rules, 1950-Reg.

**Ref:** 1.G.O.Rt.No.487LFB&IMS(Lab-II) Department, Dt:18.08.2020.  
2.Memo No.LAE05-14024/17/2020-ASEC-DOF, Dt:18.06.2021.

\*\*\*\*\*

### **ORDER:**

The Government have issued instructions to Director of Factories, Andhra Pradesh vide reference 1<sup>st</sup> cited above in connection with conducting third party Safety Audits in factories in accordance with Indian standards.

2. Vide reference 2<sup>nd</sup> cited, the Director of Factories, Andhra Pradesh has issued instructions and guidelines for conducting third party safety audits as per the list enclosed therein (Phase-1). According to these instructions the respective occupiers / Managers have selected the eligible third party auditors for conducting safety audit in their factories and got the safety audit done. The reports of said safety audit have also been submitted to the concern authorities, who in turn, issued improvement notices for compliance of the recommendations of the said safety audits.

3. After successful completion of this Phase-I safety audits, it is felt appropriate to get the subsequent safety audits done in all the factories covered in phase – I safety audits in accordance with the Indian standards, which shall also help in Third Party expert review of the status of improvements in response to previous audits.

4. Therefore the following instructions and guidelines are issued to the Occupiers / Managers under Factories Act, 1948 of the factories listed in the annexure enclosed herewith under Section 7A(1) of the Factories Act, 1948 and Rule 12-B of the AP Factories Rules,1950 for conducting third party expert Safety audit of their factories in the year 2023.

- a. The Occupier / Manager shall select a Lead Auditor for conducting the Safety Audit who possess a recognised degree in chemistry or a degree/Diploma in chemical, mechanical or electrical engineering.
- b. Such Lead Auditor shall also have not less than 20 years of operational/ maintenance experience in any of the reputed chemical process industries, out of which at least 15 years shall necessarily be in reputed API manufacturing industries.
- c. In case of the said Lead Auditor being a qualified Safety officer in accordance with under Factories Act & AP Factories Rules, 15 years of industrial experience as an approved safety officer in safety department of any reputed API manufacturing industry shall be sufficient for this purpose.
- d. Based on his own field of industrial experience, the selected Lead Auditor shall be required to make his own arrangements to draw the missing industrial experience among the different fields namely Operations, maintenance, EHS, which are required in order to represent complete cross section of expertise in the audit team necessary to conduct a comprehensive safety audit of the factory.
- e. It shall be the responsibility of the occupier/Manager of the factory to ensure the suitability of the third party expert audit team based on the above eligibility criteria of the auditors. Any conflicts if aroused in deciding suitability of an auditor in this regard, the decision of Chief Inspector of Factories shall be final.
- f. No two consecutive third party safety audits shall be carried on by the same third party safety lead auditor. The Occupier/Manager of a factory, which had been subjected to third party safety audit in phase – I safety audits ordered vide reference 2<sup>nd</sup> cited above, shall ensure the compliance of this norm while selecting the lead auditor now. This is essential to break the possible monotony and to facilitate the fresh approach into the safety issues while conducting the safety audits.
- g. The occupier / Manager shall have to ensure that the Safety Audit is carried on duly conforming to, but not limiting to, Indian Standard for safety audits –IS14489; 2018 before accepting the audit report which shall be required to be submitted by the Lead Auditor along with his team to the occupier within 30 days from the date of completion of the audit duly furnishing all the relevant information about the auditors, dates of audits, process adopted and comments on adequacy/availability of each of safety management systems as per standard.

- h. The occupiers/Managers of these factories shall have to submit the Safety Audit report immediately after the receipt of the report from the Lead Auditor to the concerned Dy. Chief Inspector of Factories.
  - i. The Occupier/Manager shall submit the compliance report on the recommendations to the concerned Dy. Chief Inspector of Factories, within 30 days from date of receipt of audit report from the auditor.
  - j. The entire process of identifying a suitable third party audit team, carrying out the safety audit and submission of the report shall be completed within four months from date of these instructions or such other time as extended by Director of Factories on application in writing by Occupier / Manager of a factory.
5. Please note that these instructions are applicable for those factories listed and enclosed herewith and valid for the year 2023 only or till they are cancelled whichever is earlier. Any non-compliance in this regard shall be viewed seriously and thereby attract penal action as per law.

*Kan*  
*20.11.2023*

**DIRECTOR OF FACTORIES**

**To**

Occupier / Manager of the factories as per the list enclosed

Copy to the Deputy Chief Inspectors of the Factories concerned

# List of API Manufacturing Factories for TP Safety Audit

Proc.No.LAE05-14024/17/2020-ASEC-DOF,

Dt: 27.01.2023

Sl.No.	R.No	Name & Address of Factory	H.P	Workers
<b>Srikakulam District</b>				
1.	478	Dr.Reddy's Laboratories Limited, CTO VI, Pydibhimavaram, Ranasthalam Mandal	25335.56	3000
2.	677	Andhra Organics Limited, Pydibhimavaram, Ranasthalam Mandal	7557	1000
3.	917	Aurobindo pharma Limited, Pydibhimavaram, Ranasthalam Mandal	69881	10000
4.	92285	M/s Lantech Pharmaceuticals Limited, Chittivalasa, Ranasthalam Mandal	1517	500
5.	92393	Dr.Reddy's Laboratories Limited, CTO SEZ, Pydibhimavaram, Ranasthalam Mandal	19267	1500
<b>Vizianagaram District</b>				
6.	1485	Mylan Laboratories Limited, G.Chodavaram,	27605.40	3000
7.	1775	SMS Pharmaceuticals Limited, Pusapatirega	11883	1000
<b>Visakhapatnam District</b>				
8.	54667	Divis Laboratories Limited, Unit-II, Chippada, Bheemili, Visakhapatnam	109938.7	10000
9.	54492	Krebs Bio-Chemicals (I) Ltd, Kothapalli,. Kasimkota	10300	500
10.	54743	Torrent Pharmaceuticals Limited,Plot No.77, JNPharma city,Parwada	4384.95	500
11.	54745	Vijayasri Organics Limited, Plot No.9, JN Pharma city, Parawada	6130.5	500
12.	54747	Granules India Limited, Plot No.8, JN Pharma city, Tadi (V),Parawada	6339	500
13.	54751	Vasudha Pharmachem Limited, Unit-2, Plot No.79, JN Pharma city, Parwada	4145	1000
14.	54773	Laurus Labs Limited, Plot No.21, JN Pharma city, Parwada	23064	3000
15.	54782	Hetero Labs Limited, Unit-III, N.Narsapuram,Nakkapalli	25000	3000
16.	54787	Chemca Drugs Private Limited, Plot No.7, JN Pharma city,Parawada	3259.4	500
17.	54792	Biocon Limited, Plot No.2 JN Pharma city, Road No.21, Parwada	4941.28	500
18.	54795	Pharamzell (Vizag), Private Limited, Plot No.115, JNPC,Parwada	6588.83	500
19.	54842	Rakshit Pharmaceuticals Limited, Plot No.68 A, JNPC, Parwada	1899	500
20.	54892	Similax Laboratories Limited, Unit-4, JNPC, Parwada	5577	500
21.	54901	Viyash Life Sciences Pvt Limited, Plot No.28, JNPC, Parwada,	2381.89	500
22.	54915	Mylan Laboratories,Unit-9, Plot No.5, JNPC, Parwada	6945	1000

23.	54929	Raks Pharma Pvt Limited, Plot No.68, JNPC, Parwada	2808	500
24.	54960	Eisai Pharmaceuticals India Pvt Limited, Plot No.96, 97,98,124,126, Ramky Pharmacy, Parwada	10133	1000
25.	104006	Vasudha Pharma Chem Limited, Unit-III, Plot No.23 & 24 JNPC, Parawada	4029.3	1000
26.	104017	Hetero Drugs Limited, Unit-IX, Plot No.1, Hetero Infrastructure SEZ limited, N.Narasapuram, Nakkapalli	11512	1000
27.	104018	Hetero Labs Limited, Unit-IX, Plot No.2, Hetero Infrastructure SEZ, N.Narasapuram, Nakkapalli,	35609	2000
28.	104046	Emennar Pharam Pvt Limited, Plot No.15, JNPC, Parawada,	7688	500
29.	104095	Mylan Laboratories Limited, Unit-10, Plot No.86, Ramky Pharma city India Limited, SEZ, JNPC, Parawada	13659	1000
30.	104127	Vasantha Chemicals Pvt Limited, Plot No.10 & 10A, Western Sector, APSEZ, Atchutapuram	3434	500
31.	104158	Aktinos Pharma Pvt Ltd, Unit-II, Road No.20, JNPC, Parawada	3427	500
32.	104171	Silicon Life Sciences Pvt Ltd, Plot No.41, JNPC, Parwada	40325	500
33.	104186	Aurobindo Pharma Limited, Unit-XIV, Plot No.17, JNPC, Parwada	6505	500
34.	104195	Honor Labs Limited, Unit-III, Plot No.125 &138, N.Narasapuram (V), Nakkapalli	3417.1	500
35.	104199	Gland Pharma Limited, Plot No.49 & 50, JNPC, Parawada,	30378	500
36.	104201	AGINO Moto Bio Pharma Services Pvt Limited, Plot No.121, JNPC, Parawada	5189	500
37.	104206	Laurus Labs Limited, Plot No.18, JNPC, Parawada	23072	1500
38.	104207	Alivira Animal Health Limited, SEZ, JNPC, Parawada	4416	500
39.	104237	M/s Metro Chem API Private Limited, Unit-IV, Plot No.34 B, JNPC, Parawada	11350	500
40.	104247	Suven Pharmaceuticals Limited, Plot No.65,66 & 67, JNPC, Parawada	7618	500
41.	104250	Laurus Labs Limited (Unit-II), Plot No.19,20 & 21, Pudimadaka Road, APSEZ, Atchutapuram	10146	1500
42.	104277	Lupin Limited, Plot No.130, Road No.11, JNPC, Parawada	6113	500
43.	104315	Vasudha Pharma Chem Pvt Ltd, Unit-4, Plot No.1, JNPC, Parawada	2327	500
44.	104332	Laurus Labs Limited,Unit-5, Plot No.102,103, Ramky Pharma City India Limited, SEZ, Parawada	2327	500
45.	104367	Laurus Labs Limited, Unit-IV, Plot No.25,25-K, APSEZ, Lalamkoduru, Rambilli (M)	4291.5	1000
46.	104370	Innovare Lab Pvt Ltd Plot No.23, APSEZ,Atchutapuram, VSP	3140.62	500

47.	104374	Escientia Advsciences Pvt Ltd, Sy.No.11,11A, 12,12A, SEZ, Atchutapuram	2438	500
48.	104393	Granuels India Limited, Unit-5, Plot No.30, JNPC, Parawada	5017	500
49.	104405	Porus Laboratories Pvt Limited, Plot No.2-A, APSEZ, Atchutapuram,	5000	500
50.	104435	Vasudha Pharma Chem Limited, Unit-V, Plot No.24,24A,24 B, APSEZ, De-Notified Area, Lalamkoduru, Rambilli (M), Visakhapatnam	8108	1000
51.	104492	Solara Active Pharma Sciences Limited, Plot No.3B,3D,2P & 2AI, APIIC, APSEZ, Atchutapuram, Rambilli	7905.5	500
52.	104530	M/s.Deccan Fine Chemicals (India) Pvt Limited, SEZ, Rajavaram, Kesavaram (V), Payaakaraopeta (M), Visakhapatnam	15466	2000
53.	104564	M/s.Rain CII Carbon (Vizag) Ltd., SEZ Unit, Plot No.46A & 46 B, APSEZ, Atchutapuram	11649.10	500
<b>East Godavari District</b>				
54.	3192	Tyche Industries Limited, Sarpavaram, Kakinada	2924	500
<b>West Godavari District</b>				
55.	70796	Tagoor Chemicals Private Limited, Tupakulagudem, Poocharam Panchayat, Tallapudi (M)	1842	500
56.	70797	Tagoor Laboratories Private Limited, Tupakulagudem, Poocharam Panchayat, Tallapudi (M)	1709	500
57.M	8654	M/s Wanbury Limited, K-Illindalaparru (V), Irgavaram (Dt)	5557	500
<b>Krishna District</b>				
58.	66161	RA-Chem Pharma Limited, Mukteswarapuram, Jaggaiahpet Mandal	5726.75	500
59.	66451	Nifty Labs Pvt Limited, Kondapalli, Ibrahimpatnam Mandal	3698.93	500
60.	9947	Porus Laboratories Pvt Ltd., Akkireddygudem, Musunuru Mandal	4324	500
<b>Prakasam District</b>				
61.	20689	Bhagiratha Chemicals & Industries Limited	5058	500
<b>Nellore District</b>				
62.	22694	M/s Venkata Narayana Active Ingredients Pvt Limited	7455.11	1000
63.	22111	Krebs Bio-Chemicals & Industries Limited	2528.16	500
<b>Chittoor District</b>				
64.		Malladi Drugs & Pharmaceuticals Limited, IDA, Gajulamandyam	5069.10	500
<b>Ananthapuramu District</b>				
65.	49533	R L Fine Chem Pvt Ltd., Hindupur (M), Ananthapuramu	473.75	500

*Dec 2013*  
Director of Factories

**FORTNIGHTLY PROGRESS REPORT ON**  
**TP SAFETY AUDITS IN 2023**

*(To be updated and submitted by Dy.CIFs on 5<sup>th</sup> and 20<sup>th</sup> of a month)*

**PHASE - IV**

<b>Ref</b>	LAE05-14024/17/2020-A SEC-DOF Dt:27.01.2023
<b>Category</b>	API Factories

<b>State</b>	Andhra Pradesh
<b>Date</b>	

S.No.	R.No, Name & Address of the Factory identified for TP Safety Audit	Particulars of Audit Team				Audit Dates	Date of Receipt of the audit report	Whether admitted / whether improvement notice issued
		<i>Lead Auditor</i>		<i>Other Team (Auditors)</i>				
		Name & Qualifications	Qualifying Experience in API Industry	Name & Qualifications	Qualifying Experience in API Industry			

**OCCUPATIONAL SAFETY AND HEALTH AUDIT : IS 14489**

**Year: 2023**



**ESCIENTIA ADVANCED SCIENCES PVT. LTD.**

PLOT NOS. 11, 11A, 12, 12A  
APSEZ, ATCHUTAPURAM,  
ANAKAPALLI, ANDHRA PRADESH



Audited by

**PROACTIONEERING CONSULTANTS – SAFETY**

H.NO.78-4-9, SYAMALA NAGAR, RAJAHMUNDRY

Contact : 9848290978, email: [proaction.in@gmail.com](mailto:proaction.in@gmail.com), [www.proaction.in](http://www.proaction.in)

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## 1. FOREWORD

M/s ESCIENTIA ADVANCED SCIENCES PVT LTD was incorporated in year 2008 by executive from top-tier innovative pharmaceutical companies in USA, its manufacturing unit has been setup at APSEZ, Atchutapuram, Anakapalli District, Andhra Pradesh. This base is situated in the area of same pharma industries has been set up. The plant facilities are in advanced stage of construction and installation of equipment. It is engaged in the manufacturer of Active pharmaceutical Ingredients (APIs). Different chemicals are handled would be and used for the manufacture of the different API products.

Founded in the United States by Dr. Yadagiri Reddy Pendri and Mr. Kiran Reddy Pendri, Escientia has grown to a talented and interdisciplinary team with scientific, engineering, and regulatory expertise in all aspects of drug discovery, development, and manufacturing. Our workplace is defined by a cultural focus on quality, safety, compliance, and the conservation of nature.

In order to A) identify the current status on Safety and Occupational Health. B) Prepare the status report and. C) Identify further improvement plans to bring the plant to the required expectation of the company management, M/s ESCIENTIA ADVANCED SCIENCES PVT LTD, has entrusted the assignment of External Safety Audit for their Plant to M/s PROACTIONEERING CONSULTANTS-SAFETY. In connection with this Audit Proactioneering Consultants-Safety team visited the plant on 05 Jul 2023, studied the plant and plant facilities. This Safety Audit report has been prepared based on certain standard norms and procedures/ particularly code of practices for Safety Audit IS-14489-2018. This Safety Audit report spells out recommendations, which ESCIENTIA ADVANCED SCIENCES PVT LTD, should use as a reference for developing their own policies and guidelines for continual improvement of safe operation of its facilities. Upgrading existing safety systems facilities to comply with these recommendations and also, they may make more stringent company safety rules on the basis of their experience and of legal requirements in their area of operations.

We also appreciate the efforts made by all senior staff of the company for full co-ordination and co-operation with us during fieldwork at site, collection of the input data requiring for this report. All the senior management has extended their co-

operation in all aspects of Safety Audit especially at the time of their personal interviews held; the Auditor is satisfied and thanks to the management.

Date: 05-07-2023

APSEZ - Atchutapuram



B. Ravindra

Proactioneering Consultants-Safety

## 2. ABBREVIATIONS

<b>EASPL</b>	ESCIENTIA ADVANCED SCIENCES PVT LTD.
<b>APPCB</b>	Andhra Pradesh Pollution Control Board
<b>APEPDCL</b>	Andhra Pradesh Electricity Power Distribution Company Limited
<b>API</b>	Active Pharma Ingredients
<b>BOD</b>	Biological Oxygen Demand
<b>CCOE</b>	Chief Controller of Explosives
<b>COD</b>	Chemical Oxygen Demand
<b>DCP</b>	Dry Chemical Powder
<b>DG</b>	Diesel Generator
<b>FA</b>	The Factories Act 1948
<b>HAZOP</b>	Hazard And Operability Study
<b>HARA</b>	Hazard Analysis & Risk Assessment
<b>HR</b>	Human Resources
<b>IS</b>	Indian Standard 14489 -1998.
<b>ISO</b>	International Organization for Standards
<b>KL</b>	Kilo Litres
<b>KV</b>	Kilo Volt
<b>KVA</b>	Kilo Volt Ampere
<b>LP</b>	Low Pressure
<b>LPG</b>	Liquefied Petroleum Gas
<b>MAH</b>	Major Accident Hazard
<b>MSDS</b>	Material Safety Data Sheet

<b>MSIHC</b>	Manufacturing, Storage & Import of Hazardous Chemicals
<b>NOC</b>	No Objection Certificate
<b>OS&amp;H</b>	Occupational Safety and Health
<b>OHC</b>	Occupational Health Centre
<b>PB</b>	Production Block
<b>PCC</b>	Power Control Centre
<b>PESO</b>	Petroleum & Explosive Safety Organization
<b>PLC</b>	Programmable Logic Controls
<b>PPE</b>	Personal Protective Equipment
<b>PROACT</b>	Proactioneering Consultants Safety
<b>PRV</b>	Pressure Relief Valve
<b>RO</b>	Reverse Osmosis
<b>SMPV</b>	Static & Mobile Pressure Vessel Rules
<b>ETP</b>	Effluent Treatment Plant
<b>TDS</b>	Total Dissolved Solids
<b>UPS</b>	Uninterrupted Power Supply
<b>VAM</b>	Vapour Absorption Machine

**2.1 AUDIT TEAM**

Safety Auditor from PROACTIONEERING CONSULTANTS-SAFETY

**Auditors and their Profiles**

<p><b>M SRINIVASA RAO</b>  <b>LEAD AUDITOR</b></p>	<p>Experience: 22 years</p> <p>Qualification: M.Sc (Organic Chemistry)</p> <p>Employers: Divis Laboratories, Nicholas Perumal Ltd., Aurobindo Pharma Ltd., Smilax Labs Ltd., Hetero Labs Ltd., Synergene Active Ingredients Pvt. Ltd., Suven Pharmaceuticals Ltd.</p> <p>Skills: Production Synthesis, New Products Development, Optimization &amp; Yield improvement, FDA documentation.</p>
<p><b>B Ravindra</b>  <b>AUDITOR</b></p>	<p>Experience: 23 years</p> <p>Qualification: B Tech Mechanical Engineering</p> <p>Employers: PROACT SAFETY Consultants</p> <p>Skills: Project Management • Operations Management • Design and Developments • Technical Services • Safety • Troubleshooting • Cross-functional Coordination</p> <p>ISO 45001 Lead Auditor – Occupational Safety &amp; Health Approved Competent Person under as per TS &amp; AP Factories Rules, ASNT Level-II certification in MT, PT, UT Formerly Competent Person under (DGFASLI) the provisions of Dock Workers (Safety, Health and Welfare) Regulations, 1990. Certified for Fall protection and equipment inspection, works at height by DBI SALA, Singapore Certified Trainer program for DROPS by DROPS, UK Certified for Cargo Handling / Material Handling by Lloyds Occupational Safety Course by RLI, Chennai Equipment integration and proficiency training – BIS</p>

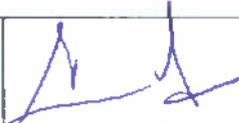
<p><b>CH. KRISHNA KISHORE</b></p> <p><b>AUDITOR</b></p>	<p>Experience: 23 years</p> <p>Qualification: B.Tech- Electrical</p> <p>Employers: Aurobindo, Triveni O &amp; M, Varam Power, NCS Sugars, Mangalam Timber.</p> <p>Skills: Electrical Maintenance, Shift Management, Erection &amp; Commissioning, Trouble shooting, Cross functional Coordination</p>
<p><b>VOLETI. GURU PRATAP</b></p> <p><b>AUDITOR</b></p>	<p>Experience: 34 years.(EHS &amp; Production)</p> <p>Qualification: B.Sc (Chemistry), P.G. Dip. In Environmental Studies(A.U), Dip. In Process Instrumentation &amp; Control, Advanced Dip. in Industrial Safety (MSBTE).</p> <p>EMPLOYERS: Vasudha Pharma Chem Ltd., Aurobindo Pharma Ltd, Nagarjuna Agrichem Ltd, Armacell India Pvt Ltd., Finolex Industries Ltd., SM Dye Chem Ltd., Hindustan Polymers Ltd.(Mc.Dowel &amp; Co.).</p> <p>SKILLS: Production in Petrochemicals, DCS Operations, Commissioning &amp; Stabilization, Production Planning, Optimization. Project Safety, On Site &amp; Off Site Mock Drills, HAZOP Studies, Risk Assessments, Safety Audits(Third Party, PSCI &amp; PSM assessments &amp; CII Third Party Assessment), EHS Trainings, Kaizen 5 S techniques, Team Building, Process Safety Management, BBS and Safety Culture. OSHA Lead Auditor &amp; Qualified First Aider.</p>

Co-ordination from EASPL

**Name of the Factory Manager:**

1. Mr Sanjay Vaishnava – Plant Head – Operations
2. Mr A Satyanarayana – Head EHS

Validation : One year

Auditors	M Srinivas Rao	Lead Auditor	
	B Ravindra	Auditor	
Auditees (Client Representatives)	Mr Sanjay Vaishnava	VP & Site Head	
	Mr A Satyanarayana	Head - EHS	
Validity	One Year		

### 3. Introduction of the Company

ESCIENTIA ADVANCED SCIENCES Pvt Ltd (EIL) represents integrated Manufacturing and Research complexes fulfilling the company's long held ambition to bring teams from across its business together on one site for the first time i.e. manufacturing of Drug Substances (Active Pharmaceutical Ingredients-APIs),

"A SAFE WORK PLACE LEADS TO A BETTER HOME" is the guiding principle at EASPL. Success lies in providing a safe working atmosphere to one and all at the work place. The management believes and strives to protect the health of the employees and also to protect the Environment and its surroundings.

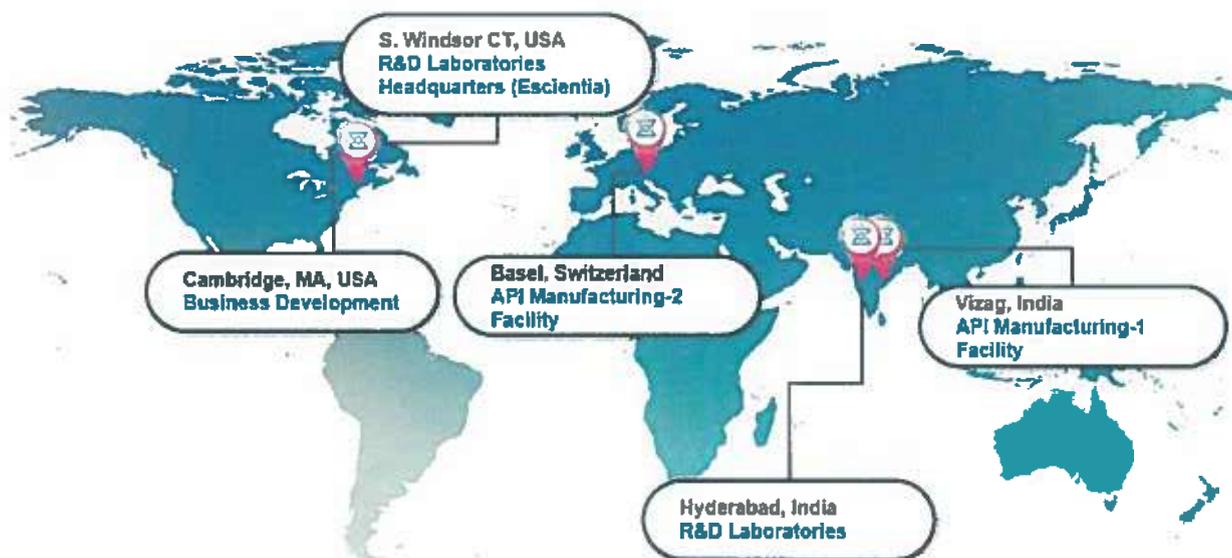
In spite of the safe conditions and laid down standard operating procedures, various factors could lead to an unforeseen situation resulting in an emergency. Prompt and efficient action is required to control such situation and minimize the loss.

EASPL's integrated Manufacturing and Research unit at Anakapalli (Vizag), Andhra Pradesh stimulates knowledge creation between teams – from those who create products through research, to those who produce - by bringing them together on one site with all the necessary support functions.

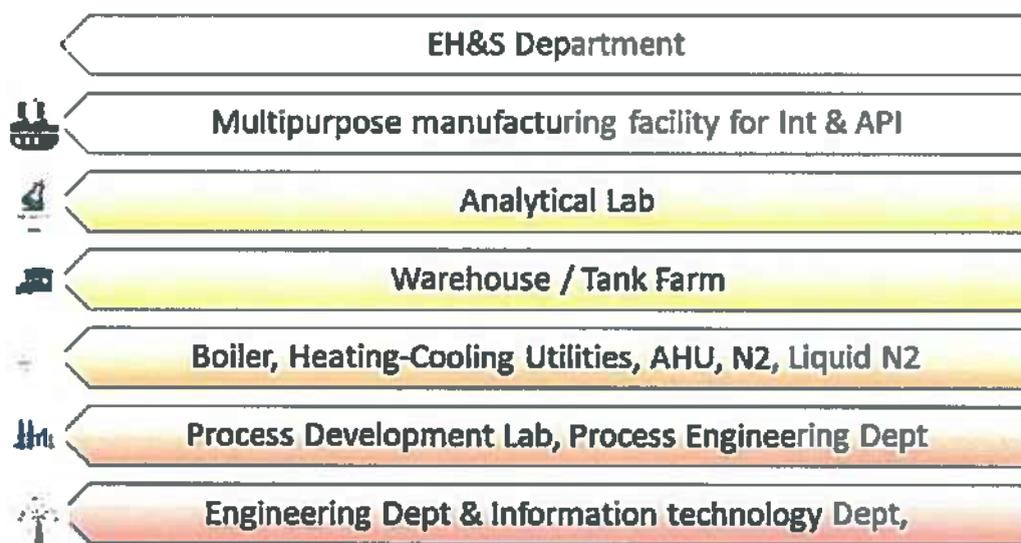
Be a preferred development and manufacturing services partner to the world's largest and most innovative pharmaceutical companies

Be a leader in greener and safer processes, modern science-and engineering-based manufacturing principles and technologies, and regulatory compliance

Play a meaningful role in addressing the 21st century challenges of optimizing the cost and increasing the speed to market of life-saving therapeutics



**Vizag Facility overview**



**Vision**

“To promote, create and maintain a safe workplace and a healthy environment for a sustainable business.

## **Mission**

- Protect our people.
- Respect the environment.
- Protect our assets.
- Support our customers to assure business continuity.

## **Environmental, Health & Safety Policy**

**Escientia is committed to protecting the safety, health and well-being of employees, the community in which we operate and the wider environment.**

### **To achieve this aim the management will:**

- Ensure compliance with all applicable laws, regulations and other legal requirements.
- Continuous review to optimize the processes and services to minimize risks.
- Train and motivate employees to perform duties in a safe manner.
- Promote culture to reduce, recycle / reuse natural resources.
- Providing leadership that advocates, recognizes and rewards excellence in Health & Safety.
- Work with suppliers and customers for seeking and acting upon meaningful opportunities to reduce risk and improve EHS performance.
- Promote eco-friendly environment in our surroundings.

## **EHS Management System Overview**

### **Management Control system**

- EHS Policy
- Integrated EHS Manual and Procedures
- Permit-to-Work System
- Change controls routed through EHS
- Engineering controls

### **EHS Management structure**

- Domain Experts in Process Safety and

#### **Environment**

- Management Review Team at HODs level
- Trained PHA team
- Trained Emergency Response Team

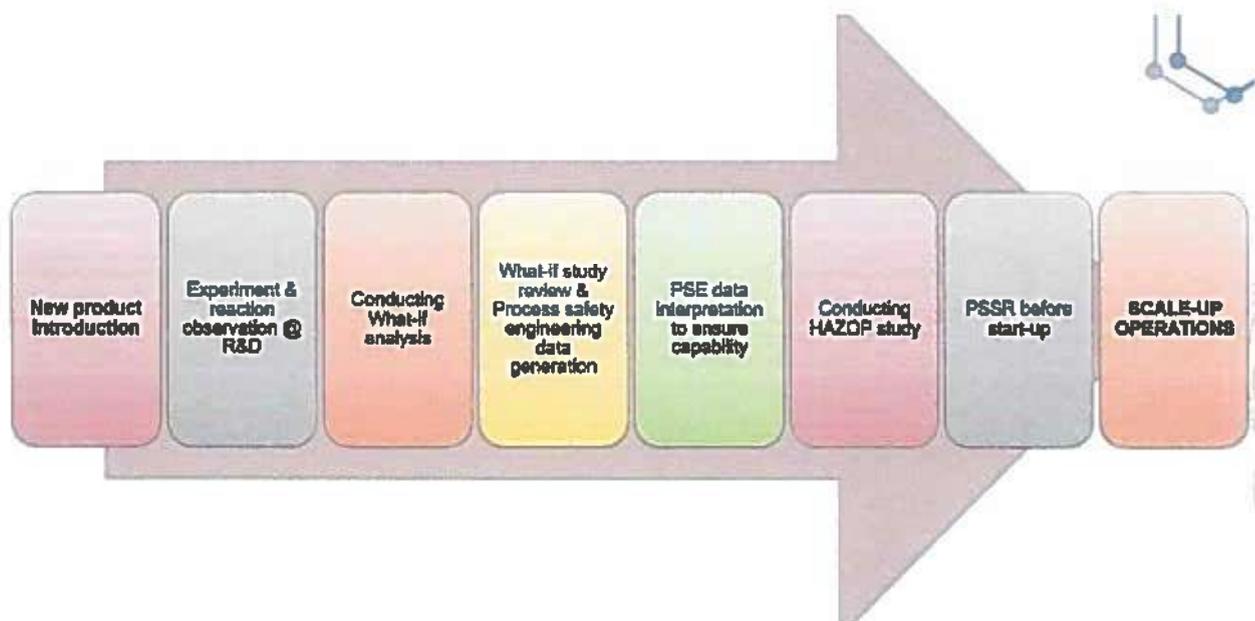
### **Process Safety installations**

#### **Process Safety**

- Nitrogen blanketing provided for all process equipment like storage tanks, Reactors, centrifuges and dryers.
- Powder transferring system (PTS) is provided for handling of solid raw materials in large scale production.
- Conductive gaskets and hoses used for transferring of flammable liquids
- Earth continuity monitoring system provided for solvent tankers unloading area.

- Rupture disc with proximity sensors provided for all reactors and the same is connected to DCS system.
- Flashback arrestors provided for QC gas cylinder manifold.
- Ex-proof electrical installation provided and maintained as per electrical zoning classification in hazardous areas.
- Ex-proof elevators are provided in API building.

**Process Safety approach**



#### **4.AUDIT SUMMARY**

Occupational Safety and Health audit meeting was conducted on 05<sup>th</sup> July 2023 and explained by the Auditor about the Occupational Safety and Health Audit, and Audit Requirements, Audit Standards, Audit Scope and Methodology.

Occupational Safety and Health Audit program for the year 2023 is planned by the Management of M/s. ESCIENTIA ADVANCED SCIENCES PVT LTD, The industry is into the manufacture Active Pharmaceutical Ingredients (APIs), Pharmaceutical Formulation Intermediates (PFIs). Assigned the OS&H Audit to PROACTIONEERING CONSULTANTS-SAFETY. The Audit and plant safety study conducted during the month of Nov 2023 and conducted a Systematic Examination of the Facilities. Audit opening meeting conducted, in this meeting explained about Occupational Safety and Health Audit, Audit Standards, Objectives of the Audit, Audit methodology, HOD meetings during plant visits. Opening Meeting conducted on date 05-07-2023 the list of participants attended is enclosed

The Audit team visited total plant - department wise for Safety study. Safety observations of the plant Safety study in detail are presented in this report. Records verification pertaining to Occupational Safety and Health conducted. Detailed discussions were held on safety audit observations and recommendations in the Audit closing meeting.

#### **5. SCOPE AND OBJECTIVE OF AUDIT:**

This report presents the findings and recommendations of the Safety Audit carried out at all sections of EASPL.

This Audit is intended to identify to the Management the IS standard and the activity and to advise whether they have been correctly assessed and appropriate steps to be taken to prevent hazards and minimize their effects.

This IS standards audit provides objectives, criteria, practices and guidelines for establishing, planning, conducting and documenting of audits on occupational safety and health systems at workplace.

It provides guidelines for verifying the existence and implementation of elements of occupational safety and health system and for verifying the system's ability to achieve defined safety objectives. It is sufficiently general in nature to permit it to be applicable or adaptable to different kinds of organizations. Each organization should develop its own specific procedures for implementing this standard.

This Audit Aim is to promote contact with individual departments as manifestation of management's interest, awareness and concern to gain their involvement, to encourage suggestions relating to Safety and Occupational Health and entire co-operation

This standard does not cover audit of environmental management system for which a separate Indian Standard.

Contact person and information provided by: Mr A Satyanarayana

#### **5.1 FACILITIES AND DEPARTMENTs**

- a. Administration building
- b. QC
- c. Formulation Manufacturing
- d. API Building
- e. Warehouse
- f. CCOE Storage tanks
- g. Non CCOE Storage tanks
- h. Gas Cylinders storage
- i. Acid Storage area
- j. Scrap yard
- k. Utility Building
- l. Pump house and water system plant
- m. ETP

Utilities such as power, instrument air, cooling and drinking water, etc are available in at respective plant areas.

Fire fighting facility provided for the total layout in the plant as per mandatory requirement.

### **PLANT SURROUNDINGS**

North side: Open Land

East Side: Vasant Chemicals

South side: Dalvkot Bio fuels

West side: Sundaram Alloys

**Total Employees and Workers in the Plant**

Employees and Casuals : 490 num

### **TIMINGS OF SHIFTS -**

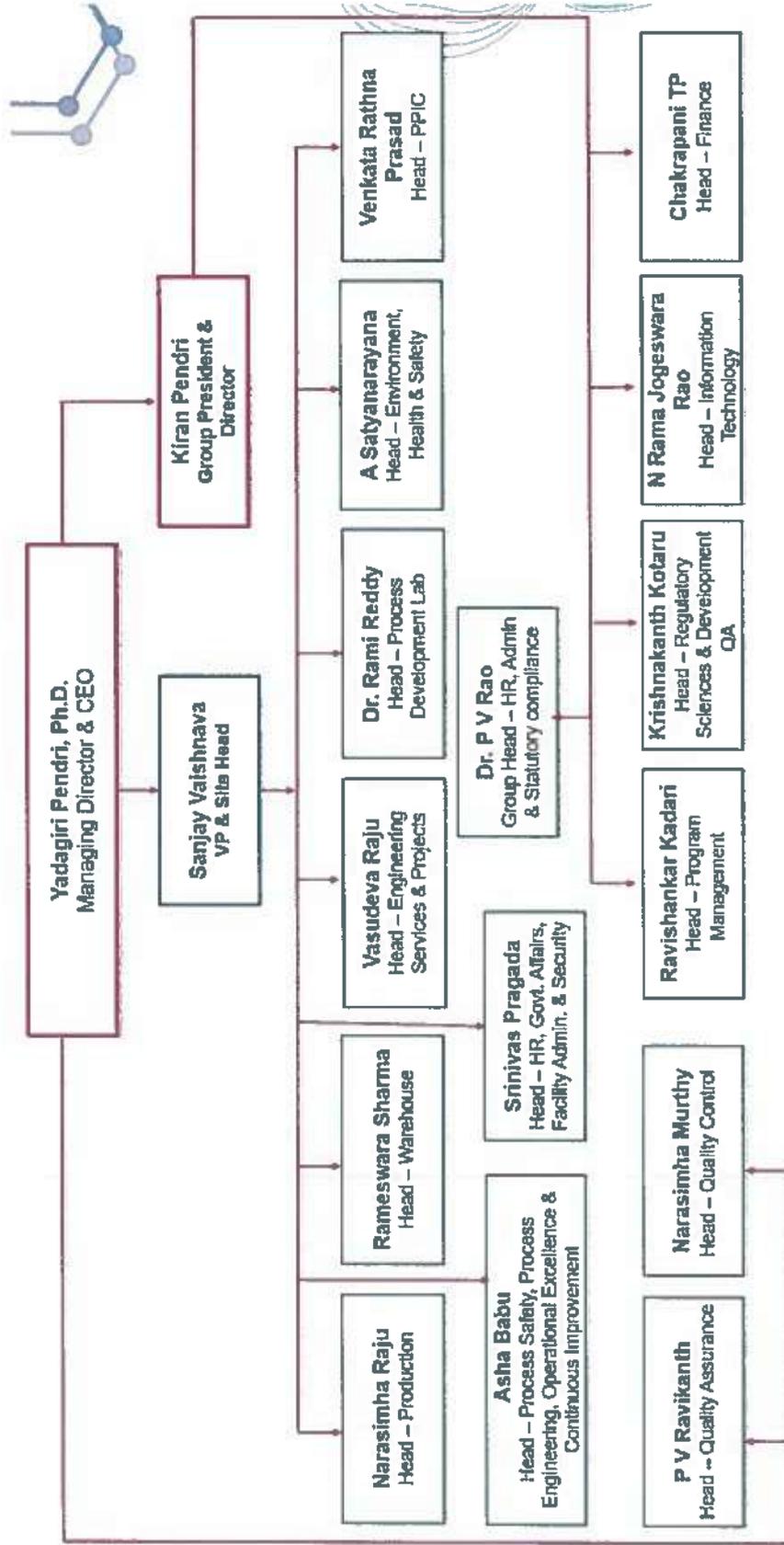
Shift A - 06.00 - 14.00 Hrs

Shift B - 14.00 - 22.00 Hrs

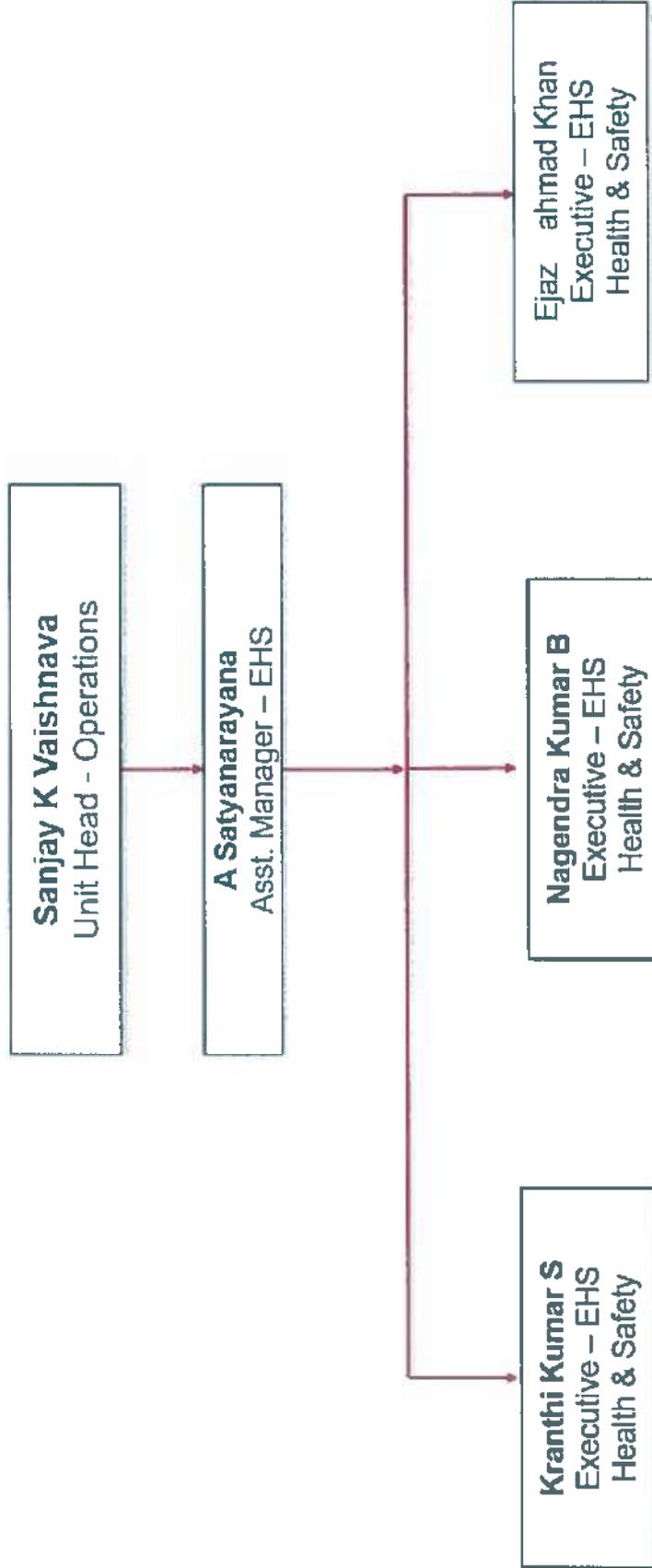
Shift C - 22.00 – 06.00 Hrs

General Shift - 09.00 – 18.00 Hrs

SITE ORGANIZATION CHART



**EHS Organogram**



6. The following elements of OS&H systems in the factory are checked during occupational safety and health Audit,

A-1 OH & S Management Elements

Sl	Elements	Remarks
a	OH & S Policy	Available in English and Telugu
b	OH & S organizational set-up	Established
c	Safety manual	Available
d	Standard Operating Procedures (SOP)	Available
e	Plant modification procedure	Available
f	Work permit system	Established
g	Contractors' safety system	Available
h	Plant design and layout	Available
i	Medical management of accidents	Available
j	Management of emergencies (natural / man-made)	Available
k	Employee selection and placement	Available in HR policies
l	Safety culture	In practice
m	Statutory licenses, approvals and records	Available
n	Motivational and promotional measures for OH & S	Available
o	Hazard identification and job safety analysis	Available
p	Product safety	Available
q	Safety training	Available
r	Change management	Available

A-2 Physical Hazard Elements

a	Housekeeping	In practice
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b	Machine and general area guarding	In practice
c	Material handling	In practice
d	Electrical safeguarding	In practice
e	Safety in storage and warehousing	In practice
f	Hazard assessment of new equipment	In practice
g	Hazards from radiation sources	Not applicable
h	Control measures for specialized industrial hazards like work at height and work in confined space	In practice

**A-3 Chemical Hazard Elements**

a	Transportation of hazardous substances	In practice
b	Handling of hazardous substances	In practice
c	Storage of hazardous substances	In practice
d	Spill control measures	In practice
e	Material Safety Data Sheet (MSDS)	Available
f	Gas cylinders	Available
g	Labeling and colour coding	In practice
h	Hazardous waste management	In practice

**A-4 Fire and Explosion Hazard elements**

a	Organisational setup for fire fighting	EHS department is handling
b	Built in safety in civil design and construction	In practice
c	Built in Safety in Electric Circuits and Equipment	In practice

d	Explosive substances	Not applicable
e	Fire safety in handling flammable and ex-plosive materials	In practice
f	Fire detection and alarm system	In practice
g	Passive and active fire protection system	In practice
h	Fixed fire extinguishing system	Available
i	Portable Fire Extinguishing System	Available
j	Fire fighting equipment and facilities	Available
k	Fire drill	In practice
l	Fire fighting training	Available
m	Static electricity and lightning	Available

**A-5 Industrial Hygiene / Occupational Health Elements**

a	Vibration, heat stress, Non-ionizing radiations, ventilation, illumination and noise	In practice
b	Work place monitoring for hazardous chemicals	In practice
c	First aid facilities and occupational health centre (OHC)	Established
d	Periodic medical examination	In practice
e	Personal protective equipment and emergency equipment	Available
f	Occupational disease	Monitoring in practice

**A-6 Accident / Incident reporting, Investigation and Analysis**

a	Accident reporting,	In practice
b	Accident investigation	In practice
c	Analysis of accidents	In practice
d	Implementation of recommendations	In practice
e	Reporting and investigation of near - miss incidents	In practice

**A-7 Emergency Preparedness (On-site / Off site)**

a	Site specific details	Available
b	Duties and responsibilities of key personnel	Available
c	Identification of emergencies and accident scenario	In practice
d	Declaration and termination of emergency	In practice
e	Resources-evacuation / transport	Available
f	Communication facilities	Available
g	Medical care	Available
h	Updation of emergency plan	In practice
i	Periodic drills / exercises	In practice
j	Training of plant personnel	In practice
k	Public awareness programmes	In practice
l	Mutual-aid programme	In practice
m	Emergency control centre	Available

A-8 Safety Inspection elements

a	Inspection programme	In practice
b	Safety Related Deficiency (SRD) Report	Available
c	Safety inspection records	Available
d	Methodology and inspection team	Available
e	Compliance of recommendations	Available

7. TYPES OF RECORDS EXAMINED DURING THE SAFETY AUDIT

Sl	Records	Remarks
a)	OH & S policy;	Examined
b)	Safety organization chart;	Examined
c)	Training records on safety fire and first-aid;	Examined
d)	Record of plant safety inspections;	Examined
e)	Accident investigation reports;	Examined
f)	Accidents, dangerous occurrences and near miss incidents - statistics and analysis;	Examined
g)	Record of tests and examinations of equipment and structures as per statutes;	Examined
h)	Standard Operating Procedures (SOP) for various operations;	Examined
i)	Record of work permits;	Examined
j)	Record of work environment monitoring (flammable, toxic and explosive substances);	Examined
k)	Maintenance, testing and calibration records of fire detection and fire fighting equipment;	Examined
l)	Medical records of employees;	Examined
m)	Records of industrial hygiene surveys (noise, ventilation, illumination, dust etc.);	Examined
n)	Material Safety Data Sheets (MSDS);	Examined

o)	On-site emergency plans and record of Mock Drills;	Examined
p)	Records of storage of hazardous solid waste and its disposal;	Examined
q)	Records of gaseous emissions and effluent discharges to the environment;	Examined
r)	Housekeeping inspection records;	Examined
s)	Minutes of safety committee meetings;	Examined
t)	Statutory licenses and approvals;	Examined
u)	Records of any modifications carried out in plant or process;	Examined
v)	Maintenance procedure and records;	Examined
w)	Instrumentation and equipment calibration and testing records;	Examined
x)	Planned shutdown maintenance procedures;	Examined
y)	In service inspection manuals, records including that of material handling;	Examined
z)	OH & S budget;	Examined
aa)	Inspection books and other statutory records;	Examined
bb)	Records of previous audits and safety analysis;	Examined
Ab)	Procedures for safe transportation of hazardous substances;	Examined
Ac)	Calibration records	Examined
Ad)	Records for break down of plants during the process of manufacture;	Examined

Ae)	Records for waste material generated and their disposal;	Examined
Af)	SOP for disposal of waste materials; and	Examined
Ag)	Records for issue of PPE items to the personnel working in process building.	Examined

8. **ANNEX C** - (under *Clause 5.3.4* as per IS 14489-2018)

<b>C.1 OH &amp; S MANAGEMENT</b>	
<b>C-1.1 OH &amp; S Policy</b>	
a) Does the organization have OH & S policy?	Management have declared the EHS Policy
b) Who has signed the OH & S policy?	Plant Head
c) Whether the OH & S policy is per guidelines of the statutory provisions?	Yes, provided
d) When was the OH & S policy declared and adopted?	14-04-2017
e) Whether the OH & S policy reviewed periodically?	Periodically reviewed
f) Whether the OH & S policy is available in local language and made known to all?	Yes, available
g) What was the last date of updation?	14-04-2017
h) Does the policy find a place in the annual report?	Included
<b>C-2 OH &amp; S ORGANIZATIONAL SET UP</b>	
<b>C-2.1 Safety Department</b>	
a) Does the factory have a safety department and what is strength of safety department?	Yes, 04 numbers strength as safety team.
b) Whether the strength and qualifications of Safety Officers are as per the statutes?	Yes, as per statutes
c) Does the head of safety department report to the Chief Executive?	Yes, reporting to Plant head
d) How often are the safety officers retrained in the latest techniques of total safety management? What is the frequency of retraining?	As and when required, periodical trainings are provided as per Management HR policy
e) What additional duties the safety officer is required to do?	None other than safety duty
f) What is the power of safety officer vis-a-vis unsafe condition or unsafe act?	Stop and instruct for correction
<b>C-2.2 Safety Committee(s)</b>	
a) Does the factory has a safety committee(s)? What are the types, structures and terms of reference of the committees?	Yes, available
b) Is the constitution of the safety committee(s) as per the statute?	established as per statutes

c) How are the members of safety committee(s) selected? (elected / nominated)	As per the SOP, members from all departments and job roles
d) How often are the meetings of safety committee(s) held?	Quarterly
e) Are the recommendations of the committees(s) implemented?	Yes, implemented and reviewed
f) Are the minutes of the safety committee(s) meetings circulated among the members?	Circulated to all plant and personnel
g) Are the minutes forwarded to the trade union(s) and chief executive and occupier?	Yes, shared to concerned
h) Whether the management and trade union play their active roles in supporting and accepting the committee(s) recommendations?	Yes involved
i) How are the safety committee(s) members apprised of the latest development in safety, health and environment?	Internal and external trainings
<b>C-2.3 Safety Budget</b>	
a) What is the annual safety budget?	0.75 Cr
b) How much percentage is this budget of the total turnover of the company?	1 %
c) How much budget has been utilized till date?	Approx 50 %
d) Is the safety budget adequate?	Yes, provided
e) How is the safety budget arrived at?	As per the annual plan
f) What is the pattern of expenditure for the last five years?	Uniform expenditure
g) What are the approved sanctions for the expenditure in this budget?	Plant Head
h) Does this budget get reflected in the annual report of the company?	Yes, placed
<b>C-3 SAFETY MANUAL</b>	
a) What is the periodicity of updation / review of safety manual?	Five years, available in safety manual
b) Does the safety manual adequately address all the hazards in the plant?	Yes, addressed all plant hazardous operations
c) Are the employee made aware of safety rules / instruction mentioned in the safety manual?	Yes, during induction and periodical trainings
<b>C-4 STANDARD OPERATING PROCEDURES (SOP)</b>	
a) Are written Standard / safe operating procedures available for all operations and processes?	Yes, available

	b) Whether the written Standard / safe operating procedures are displayed or made available and explained in the local language to the workers?	Available in operational portal for every login
	c) Whether concerned section and safety department prepares standard / safe operating procedure jointly?	Safety department involved in SOP preparation
	d) Are standard / safe operating procedures reviewed and updated?	Yes, updated
	e) Have the workers been informed of the consequences of failure to observe the standard / safe operating procedures?	Yes, during the periodical training and case studies
<b>C-5 PLANT MODIFICATION PROCEDURES</b>		
	a) What is the system for effecting any change in the existing plant, equipment or process?	Change management procedure in place
	b) Whether the P & I diagrams and other related documents are updated accordingly?	Yes, available
	c) Whether hazard assessment done before implementation of modification?	Yes, safety study by the team
<b>C-6 WORK PERMIT SYSTEM</b>		
	a) What types of work permits exist in the factory?	<ul style="list-style-type: none"> <li>• General Work permit</li> <li>• Hot work permit</li> <li>• Confined Space Entry permit</li> <li>• Height work permit</li> <li>• Excavation work permit</li> <li>• Rigging work permit</li> <li>• First-line breaking permit (hazardous pipeline)</li> </ul>
	b) Are the necessary forms detailing required safety precautions have been prepared and used for each type of work-permit?	Yes, available
	c) Is the responsibility assigned to authorized person for issuing of safety work permit?	Yes, assigned
	d) Is the copy of safe work permit sent to safety officer before execution of the job?	Yes, sent for approval and authorization
	e) Is validity period specified in the safety work permit?	Yes, available
	f) Are the records of work permit available and maintained in proper order?	Yes, maintained with record
<b>C- 6.1 Control Measures for Work at Height</b>		

a) Is adequate safe access provided to all places where workers need to work?	Yes, provided for all work areas
b) Are all such access in good condition?	Yes, in good condition
c) Are all scaffolds are properly designed and erected?	Provided, as per standard design
d) Are scaffolds inspected every day before work begins?	Yes, by the safety executives
e) Are ladders securely clamped or lashed in place?	Yes, provided
f) Are planks in good condition?	Yes
g) Are scaffold walkaways, platforms, runs or stairs free of debris, grease, any unnecessary obstruction and projecting nails?	Free and clear
h) Are the scaffolds higher than 20 m.? If yes, is a netting or intermediate railing provided between toe-boards and hand railings?	Provide as and when required
j) Are folding stepladders properly used?	Yes
k) Are ladders set up at the proper slope of about 1:4?	As per standard design
m) Do workers use hand lines to lift tools or materials?	Yes provided
n) Are proper ladders used around electrical hazards?	Insulated ladders
p) On sloping roofs, are crawling boards, lifelines, safety belts and edge protection provided where needed?	Yes, provided
q) Whether the weak spots, skylights, or deteriorated asbestos-cement boards through which a worker might fall while working in the roof has been identified and safety net provided appropriately?	Yes, provided
r) Are the workers being medically examined for their fitness to work at height?	Examined
<b>C-6.2 Work in Confined Space</b>	
a) Is work permit system followed for working in confined space?	Followed the permit system
b) Whether monitoring of the atmosphere inside the confined space is carried out and ensured that there is no flammable or toxic gas in the area?	Gas free testing performed prior to work in confirmed space
c) Whether the person entering the confined space is using suitable personal protective equipment (PPE)?	Provided with suitable PPE

	d) Is rescue team available in case of any emergency?	Available with standby person
<b>C-7 CONTRACTOR'S SAFETY SYSTEM</b>		
	a) Is there any system for selection of contractors?	Based on work expertise
	b) Are there any guidelines on contractor's safety and training?	Provided in management system
	c) Whether contract document includes necessary safety and welfare clauses as per statutes?	Yes, included
	d) Is there any programme to ensure use of PPE by contractors personnel?	Yes, provided specific for contract workmen.
	e) Do the contractors have their own safety organization?	Based on the strength safety supervisor engaged
	f) Are the contractors reporting all accidents and injuries?	Reports to concerned dept and EHS dept
	g) Are contractor workers trained to observe safety at work place?	Yes, induction and periodical trainings
	h) Whether contractor workers are engaged in process / operations? If yes, are they aware of safe operating procedures?	Not engaged in critical process, only material handling and other non-hazardous operations. Yet provided periodical safety trainings
<b>C-8 PLANT DESIGN AND LAYOUT</b>		
	a) Whether hazardous operations in the plant are segregated?	Yes, based on operations layout is designed
	b) Whether occupational health & safety aspects are considered during the design?	Yes, considered
	c) Are all the equipment provided with adequate space for working, maintenance etc.?	Yes, provided
	d) Are the storage tanks provided with enough space / clearance between them?	Yes, 80% is allowed for filling
	e) Whether the plant layout has taken care of the movement of firefighting equipment and emergency exits?	Yes, enough approach roads are provided for all areas of the plant
<b>C-9 MEDICAL MANAGEMENT OF ACCIDENTS</b>		
	a) Are medical facilities available with trained first aid staff and equipment in round the clock shift for all including contractors?	Trained and certified First Aid team available, OHC is provided with Duty doctor and medical assistants.

	b) Is the ambulance van available for round the clock basis with the dedicated driver?	Yes, available
	c) Is there any mutual aid scheme available with the nearest hospitals to manage and treat injuries during emergency?	Yes, available MOU in place, enclosed in the annexure
	d) Are the workers / contractor workers aware of emergency medical facilities?	Yes, made aware
<b>C-10 MANAGEMENT OF EMERGENCIES (NATURAL / MAN-MADE)</b>		
	a) Does the system exist to detect and control these Emergencies?	Yes, study is done and report prepared for On-site emergency plan
	b) Are the employees aware of the measures to be taken during emergencies?	Mock drill and periodical safety trainings are provided
<b>C-11 EMPLOYEES SELECTION AND PLACEMENT</b>		
	a) Whether norms are available for selection of different category of employees?	HR guidelines are established
	b) Whether pre-employment medical examination is being conducted for employees?	Yes, in practice
	Is there any procedure to evaluate safety awareness and record of the employees during their promotion?	Appraisals and inter qualification procedure is implemented
<b>C-12 SAFETY CULTURE</b>		
<b>C-12.1 Attitudes of Managers</b>		
	a) Do the managers follow the plant safety rules at all times?	Yes, they abide
	b) What are their attitudes towards safety reviews and audits?	Strictly follow the management policies and SOPs
	c) What is the response of management to safety violation?	Serious action upon the employee
	d) Whether safety related decisions are taken in consultation with the workers?	Work related discussions are held with all respective team
	e) What is the attitude of the managers towards non use of personal protective equipment?	Managers strictly insist the workers to use PPE
<b>C-12.2 Attitudes of Workers</b>		
	a) Whether workers are aware of the consequences of their wrong actions?	Yes, instructed all of the workers before work allotment
	b) Are laid down safe working procedures	Yes followed and recorded

	followed strictly?	
	c) What is the attitude of the workers towards their own mistake, which can prejudice safety?	Retraining and explanation for not repeating their mistake
	d) Do the workers report near miss incidents and suggest safety improvements?	Nearmiss reporting is in place
	e) Are the workers aware of the system of rewards and sanctions relating to safety matters?	Yes, encouragement is made aware
	What is the attitude of workers towards use of personal protective equipment?	Positive attitude for safe working culture
<b>C-13 STATUTORY LICENSES, APPROVALS AND RECORDS</b>		
	a) Whether all the safety related Acts / Rules (with latest amendments) applicable to your organization identified, informed to all employees and complied?	Yes, during periodical trainings and safety circulations
	b) Whether the licenses have been validated?	Yes, periodically tracked
<b>C-14 MOTIVATIONAL AND PROMOTIONAL MEASURES FOR OH &amp; S</b>		
	a) Does the factory have occupational health and safety suggestion scheme?	Yes, available
	b) Are occupational health and safety contests organized in the factory?	Yes, organized as per the scheduled programs and important dates
	c) Does the factory participate in National Awards?	not as such
	d) Has the factory been awarded during last five years?	None
	e) Does the organization publish safety bulletin / newsletters?	Local safety publications
	f) Whether the safety bulletins are widely distributed?	Intranet facility and emailing
	g) How is the occupational health and safety information including accident statistics disseminated in the factory? (Bulletin boards, Newsletter etc.)	Notice boards, case study with respective dept and publicizing the plant
	h) What are the activities conducted during National Safety day / week?	Safety week celebrations, contests, debates, training programs and external faculty / statutory authorities visit and motivational speeches by dignities
	j) What is the percentage of Workers participating in the various safety promotional activities?	All the workers are encouraged for participation

<b>C-15 HAZARD IDENTIFICATION AND JOB SAFETY ANALYSIS</b>		
	a) Was an initial process hazard analysis (PHA) completed?	Yes, for all products planned are studied
	b) What are the stages of PHA? Whether a dedicated group is identified for PHA?	QA team takes the lead
	c) Was the PHA appropriate for the complexity of the process and identify, evaluate, and control the hazards involved in the process?	Yes, Hazop team act as PHA
	d) Does the hazard evaluation use one or more of the following PHA methodologies: What-If Analysis, Process Checklist, Hazard and Operability Study (HAZOP), Failure Mode and Effects Criticality Analysis (FMECA), Fault Tree Analysis (FTA) or any other appropriate equivalent methodology?	Hazop study is performed for the product prior to process implementation
	e) Does PHA assures addressing issues of inherent safety features with respect to material and their properties?	Yes, addressed
	f) Does the PHA address the hazard identification, incidents history, consequences of failures (engineering and administrative controls), human factors, consequent analysis with respect to possible safety and health effects of failure of controls?	Yes, all parameters are considered
	g) What are the stages of PHA? Whether a dedicated group is identified for PHA?	All stages of process are studied
	h) Does the system exists to promptly address findings and recommendations of PHA?	Yes, addressed
	j) Are the PHA's updated and revalidated at least every five years by a qualified team to assure that the PHA is consistent with the current process?	Yes by the QA team
	j) Whether the activities requiring Job Safety Analysis have been identified?	Yes, available
	m) Whether the identified jobs for Hazard Identification have been carried out by trained and experienced persons?	Yes, available
	n) Whether the checklists have been prepared on each Job Safety Analysis and are being used while carrying out the job?	Yes, available

<b>C-16 PRODUCT SAFETY</b>		
	a) Whether hazards arising from use of the products are identified?	Yes, available
	b) Whether material safety data sheet prepared for the products?	Yes, available
	c) Are all the products labeled and packed appropriately?	Yes, available
	d) Whether safety instructions are given along with products?	Yes, provided the instructions
	e) Whether policy exists for recall of products?	Policy is established
<b>C-17 SAFETY TRAINING</b>		
	a) Whether training needs have been identified?	Periodical review are done as per the needs
	b) Is there any programme of induction training, its duration and topics covered?	Yes, available Two days induction program being followed
	c) Whether the assessment of the trainees has been carried out?	Yes, available
	d) What are the infra-structural facilities available for training?	Training department is available with all training facility
	e) Whether training is conducted by qualified person?	Yes, appropriate training teams are provided
	f) Whether trainers are being re-trained from time to time?	Yes, as per requirement
	g) Whether proper records of training program conducted are maintained?	Yes, available
	h) How training programs are evaluated?	Based on the feedback from trainees
	j) Whether schedule for training on occupational health and safety is available and maintained?	Yes, available
	k) Whether the training programmes are reviewed?	Yes, being reviewed periodically
	m) Are all the employees periodically trained / retrained and what is the frequency of such training?	Yes, training on annual basis
	n) Are the retraining needs identified whenever a new process / products and change in existing process introduced?	Based on the product and process and operation team experience training imparts
	p) Whether training covers top management?	All concerned managements are involved
	q) How many hours of safety training is given to different employees?	Based on the training calendar and individual training matrix. Usually 8 hours per year are the training hours

		determined
<b>C-18 CHANGE MANAGEMENT</b>		
	<b>18.1 Management of Change</b>	
	a) Are there written procedures for managing change to process chemicals, technology, equipment and procedures and changes to facilities that affect the plant process / system operation?	Yes, available
	b) Do the procedures assure that the technical basis for the proposed change addressed prior to any change?	Yes, available
	c) Do the procedures assure that the impact of the change on safety and health addressed prior to any change?	Yes, available
	d) Do the procedures assure that modifications to operating procedures are addressed prior to any change?	Change management review is done
	e) Do the procedures assure that the necessary time period for the change is addressed prior to any change?	Yes, QA department take care for any change in the process and recorded
	f) Do the procedures assure that the authorization requirements for the proposed change are addressed prior to any change?	Yes, available
	g) Are employees involved in operating a process, and maintenance and contract employees whose job tasks will be affected by change informed of, and trained in, the change prior to the start-up of process or affected part of process / operations?	Yes, available
	h) Is the safety information is reviewed and updated on changes?	Yes, available
	j) Are the operating procedures or practices updated?	Yes, periodical reviews
	<b>C-18.2 Mechanical Integrity</b>	
	a) Does the mechanical integrity program include for all mechanical equipment including pressure vessels and storage tanks, piping and components, relief devices and vent systems, emergency shutdown systems, pumps, control systems?	Equipment integrity program is in place,
	b) Are there written procedures to maintain the	Process equipment is available, pipelines /

	on- going integrity of process equipment?	transfer lines shall be developed
	c) Whether training been provided to each employee involved in maintaining the on-going integrity of process equipment?	Yes, available
	d) Are inspections and tests performed on each item of process equipment included in the program?	Yes, available
	e) Does the inspection and test frequencies meet the manufacturer's recommendation and good engineering practice?	As per SOP and statutory requirement are performed
	f) Are inspections and tests performed more frequently if determined necessary by operating experience?	Performed as per statutory requirement and SOP also
	g) Are deficiencies in equipment that are outside limits corrected before further use so as to assure safe operation?	Yes, rejected for further use and repaired and qualified
	h) In the construction of new plants and equipment, whether quality assurance programme is implemented to ensure that equipment fabricated is suitable for the process?	Yes, in practice
	j) Are appropriate checks and inspections made during equipment installation stage?	Yes, being checked
	k) Are the suitability of maintenance materials, spare parts and equipment ensured during maintenance?	Yes, taken care
<b>C-19 PHYSICAL HAZARD</b>		
<b>C-19.1 Housekeeping</b>		
	a) Are all the passages, floors and the stairways in good condition?	Yes, maintained
	b) Is glass door taped or otherwise marked to make it visible to workers?	Yes, available
	c) Do you have the system to deal with the spillage?	Yes, available
	d) Do you have sufficient disposable bins clearly marked and whether these are suitably located? Are containers of refuse (waste) and trash emptied at the end of every day or soon after they are full? Are the containers or bins regularly cleaned?	Yes, available
	e) Are drip trays positioned wherever necessary?	Recommended to provide drip collection pallet at drum storage shed

f) Do you have adequate localized extraction and scrubbing facilities for dust, fumes and gases? Please specify.	Yes, available Scrubbing system for all process equipment connected. Dust collection system at powder process areas
g) Whether walkways are clearly marked and free from obstruction?	Yes, provided
h) Do you have any inter-departmental competition for good housekeeping?	Not provided for inter dept competitions
j) Has your organization elaborated good housekeeping practices and standards and made them known to the employees?	Yes, provided
k) Are there any working conditions, which make the floors slippery? If so, what measures are taken to make them safe?	No slippery floors found, regular floor cleaning and house keeping in practice
m) Does the company have adequate measures to suppress polluting dust arising out of materials stored on the roadside?	Yes, provided AHUs and PTS are in place
<b>C-19.2 Machine and General Area Guarding</b>	
a) Whether machinery and equipment which can cause physical injuries to operator have been identified?	Yes, identified and guarded
b) Are all moving parts and point of operation of machinery adequately guarded?	Yes, guarded
c) Are all fixed guards securely bolted in position and in good condition?	Yes, provided
d) Are all interlock guards for prevention of physical injury in good condition?	Yes, provided
e) Are all emergency stop buttons effective and clearly labeled?	Yes, provided
f) Are the operators for machines having moving parts aware of the danger of working with loose clothing?	Trained for material handling and dress code is maintained
g) Are the openings where there is free fall hazard covered or fenced securely?	Identified and secured
<b>C-19.3 Material Handling</b>	
a) Are adequate equipment available for handling materials?	Yes, provided
b) Are the workers aware of the hazards associated with material being handled?	Trained
c) Where manual handling is necessary, are the workers been trained? Do they practice this? Are workers warned for lifting of excessive	Allowed as per the statutory guidelines

	weight? (Maximum weight of material for adult male and female are 55 Kg and 30 Kg respectively)	
	d) Do workers follow safe procedures for storage of materials?	Yes, implemented
	e) Is the register maintained to record particulars of examination of all lifting machines, tools and tackles?	Yes, register is maintained, periodical inspection and certification done
	f) Are all the statutory examinations and tests carried out and certified by competent person(s)?	Yes, performed
	g) Are the operators of crane, lifts, hoists and other mechanized operations adequately qualified?	Trained and qualified
	h) Is the safe working load clearly marked?	Yes, provided
	j) Has the person employed to operate crane, forklift, or to give signals to crane been medically examined for eyesight and colour vision?	Yes, examined
	k) Is the frequency of eyesight and colour vision examination as per the latest rules?	Yes, followed
	<b>C-19.4 Electrical Safeguarding</b>	
	a) Are licensed electricians available for electrical work?	Yes, available
	b) Whether area classification for electrical equipment has been carried out?	No, Arc flash study is recommended for electrical safety study
	c) Do the electrical fittings conform to area classification for electrical equipment?	Recommended for safety study
	d) Is a ground fault current interrupter system (ELCB) in use?	Yes, provided
	e) Are all connections made by using appropriate plugs, receptacles or enclosures? Are fuses provided?	Yes, provided
	f) Are there any make shift connection bare wires or damaged cables?	Not observed during the plant audit
	g) Is there a system of ensuring periodical inspection of hand tools, extension boards used for electrical work?	Thermography study is recommended
	h) Do the workers use proper types of PPE during the working on live line?	Yes, provided
	j) Is the separate work permit issued for working on high voltage line?	Yes, provided and qualified personnel only attend the job
	k) Whether the process(s) and equipment that	Yes, identified

	generate and accumulate static charge have been identified?	
	m) Whether all such equipment including pipelines for flammable materials are properly bonded and earthed?	Yes, provided with double earth bonds
	n) Whether earth pit resistance is measured and the record maintained?	Yes, provided
	p) Whether lightning arrestor has been installed and is adequate?	Yes, provided as per the requirement
	<b>C-19.5 Safety in Storage and Warehousing</b>	
	a) Whether the Material Safety Data Sheet for all chemicals is available?	Yes, provided
	b) Are the chemicals stored as per their hazardous properties including the incompatibility?	Yes, compatibility sheet provided
	c) Are all containers clearly, indelibly labelled? Are all chemicals stored as per safety regulations?	Yes, provided
	d) Whether all racks and steel cages have sufficient load bearing capacity?	Yes, provided and certified
	e) Is adequate natural ventilation provided to store room? Is there any emergency exit?	Yes, provided
	f) Whether adequate firefighting arrangement existing in flammable chemical storage?	Yes, provided at most of the storage areas
	g) Whether methodology for handling spillages of hazardous chemical available along with the equipment required handling the spillage?	Yes, provided with spill kits and their usage
	h) Whether aisles are marked and emergency exits displayed?	Yes, provided at escape routes and exits
	<b>C-19.6 Hazard Assessment for New Equipment</b>	
	a) What is the system for effecting any change in the existing plant, equipment?	Periodical review and equipment qualification procedure in place
	b) Is there system for evaluating hazards from new equipment?	Yes, HARA report is prepared for plant Recommended to update the HARA report to include the distance from heat radiation and dispersions from solvent tanks to operate the deluge valve and emergency control
	c) Whether the P & I diagrams and other related documents are updated accordingly?	Yes, provided
	d) Is any Job Hazard Analysis (JHA) carried out	Yes, performed

	after installation of new equipment?	
	<b>C-19.7 Hazards from Radiation Sources</b>	
	a) Whether licences have been obtained for storage / handling of radioactive material?	Not applicable
	b) Whether approved Radiological Safety Officer appointed?	Not applicable
	c) Whether appropriate PPEs are used against radiation hazards?	Not applicable
	d) Is the flooring of the radioactive material handling area amenable for proper decontamination?	Not applicable
	e) Is the storage room of radiation source as per the licence condition?	Not applicable
	f) Are all persons working in the facility have radiation safety training?	Not applicable
	g) Is the operators handling devices using radioactive materials qualified and possess the necessary certificate?	Not applicable
	h) Is the periodical radiation monitoring carried out?	Not applicable
	j) Are the records of inventory of radioactive material maintained in the standard format and submitted to the competent authority as per the period specified?	Not applicable
	k) Are emergency handling tools available?	Not applicable
	m) Are the personnel monitoring badges (TLD, Pocket dosimeter etc.) assigned and worn by each radiation worker?	Not applicable
	n) Are the radiation symbol and red light displayed as required?	Not applicable
	<b>C-20 CHEMICAL HAZARD</b>	
	<b>C-20.1 Transportation of Hazardous Substances</b>	
	a) What	
	b) What mode of transport are used?	
	1) Road,	
	2) Rail, and	
	3) Pipelines	
	1) Road	
	i) Does the company employ licensed vehicle of	Outside sources

	its own / outside sources?	
	ii) Are the loading / unloading procedures in place and safety precautions displayed?	Yes, available
	iii) Is there a provision to check the healthiness of road tanker with respect to explosives rules?	Yes, available
	iv) Are loaded tankers or trucks parked in a specific area on-site?	Yes, dedicated points to park
	v) Do all truck and tanker drivers carry transport emergency (TREM) card or instruction booklet?	Yes, available
	vi) Do all truck and tanker drivers get training in handling emergencies during transport?	Yes, provided
	vii) Are all the tankers marked for proper Hazchem code?	Yes, available
	<b>2) Rail</b>	
	i) What hazardous materials are transported by rail?	Not applicable
	ii) Does the company have a direct siding on site?	Not applicable
	iii) Are tankers or other wagons used in transportation?	Not applicable
	<b>3) Pipelines</b>	
	i) What materials are transported to and from the site by pipelines?	Solvents internal transfer
	ii) Are the pipelines underground or over ground?	Over the ground
	iii) Are corrosion protection measures employed in pipelines?	Recommended for implementation for pipelines protection system
	iv) Whether intermediate booster pumps are used?	Provided where necessary
	v) What is the maximum, minimum and average transfer rates?	As per batch requirement as specified
	vi) Are the pipelines extended in the public domain?	Not in public, within plant only
	vii) Are the pipelines dedicated for each type of chemicals?	Yes
	viii) Are the pipelines fitted with safety equipment such as leak detectors, automatic shut-off valves etc.?	Yes provided
	ix) What is the frequency and method of testing of the pipeline?	Pipeline testing methodology shall be implemented yet
	x) Is there written procedure for tackling	No procedure established

	leakages in pipeline?	
	<b>C-20.2 Handling of Hazardous Substances</b>	
	a) What are the hazardous substance handled in the factory?	Solvents, Toxic gases, Flammable gases and other drug ingredients
	b) Whether quantity of hazardous substances is above the threshold limit specified in the Manufacture, Storage and Handling of Hazardous Substances Rule, 1989? if yes, then required documentation is available as per the rule.	Yes, documentation is provided
	c) Whether written procedure for handling the hazardous substance is available and operators are trained for handling such substances including actions required in case of leakages and spillages?	Yes, provided
	d) Are the employees aware of the hazards arising from hazardous substances and safety precautions to be taken during handling of these?	Trained as per the job roles
	<b>C-20.3 Material Safety Data Sheets (MSDS)</b>	
	a) Are the material safety data sheets available for all the chemicals handled, used and manufactured in the factory?	Yes, available
	b) Whether the latest MSDS are displayed at strategic locations?	Yes, available
	c) Is it available in local language?	Yes, available
	<b>C-20.4 Spill Control Measures</b>	
	a) Whether spill control procedure is available?	Yes, available
	b) Whether spill collection pit / sump is available at the workplace?	Yes, available
	c) Whether methodology for recovery / disposal of collected material has been established?	Yes, available
	<b>C-20.5 Storage of Hazardous Substances</b>	
	a) Whether storage vessels are identified with the capacity as required under MSIH, Rules 1989.	Yes, available
	b) What are the storage pressure and	Solvents are at atmospheric pressure and

temperature?	temperature Gases like Nitrogen and Oxygen are as per the standard parameters
c) Whether vessels are above ground / underground?	Above ground
d) If any of the tanks storing flammable material, whether electrical equipment and fittings are as per electrical area classification?	Flame proof fittings are provided
e) Is the bunded area takes into account the total quantity of the largest tank?	Yes, provided as per the standard requirement
f) Whether the bund perimeter takes into consideration of trajectory of leak from tank?	Yes considered, the same shall be studied and included in the HARA for the hazardous materials storage tanks
g) Are the vessels properly bonded and earthed and whether periodically checked and record maintained?	Yes, provided
h) Are the vessels fitted with remotely controlled isolation valves?	Yes, available
j) Are vessels provided with emergency vent, relief valve, bursting disc, level indicator, pressure gauge, overflow line?	Yes, available
k) Where do such vents discharge?	Dump tank and scrubber system based on the type of equipment
m) Are the vessels provided with alarms for high level, high temperature and high pressure?	No alarms are provided for high reach parameters
n) Are standby empty tanks or any other alternate systems provided for emptying / transfer in case of emergencies?	Yes, provided
p) What are the provisions made for firefighting / tackling emergency situations around the storage vessels?	Fire monitors, foam monitors are available. Sprinkler system also provided
q) Has any consequence analysis for loss of containment been carried out?	HARA report to be revised including the consequence analysis
r) Whether the vessels are tested as per statute?	Storage tanks / vessels testing and certification on periodical basis.
s) Whether log sheets are filled up on daily basis for recording the parameters of these vessels?	Yes, WH team is maintaining
t) Whether monitors for detection of leakage of flammable / toxic material installed?	Yes, provided
u) Whether the chemicals stored are as per their compatibility?	Yes
<b>C-20.6 Gas Cylinders</b>	

a) What are the various gas cylinders used in the plant?	Nitrogen, Zero Gas, Oxygen
b) Are valid licenses available for storing all these cylinders?	Yes, available
c) Are the cylinders stored and segregated as per their compatibility?	Yes, available
d) What are the measures taken for combating any emergency in the cylinders storage area?	Leak detection system provided Fire sprinklers are provided
e) Whether integrity test certificates are obtained from the suppliers of the cylinders?	Not being practiced as such, recommended for getting the certificates for the same
f) Are the cylinders chained and secured properly along with the valve caps and proper identification colour code?	Yes, available
g) Are the cylinders protected from heat or sun and rain?	Yes, available
h) Whether monitors for detection of leakage of flammable / toxic gas installed?	Yes, provided
<b>C-20.7 Labeling and Colour Coding</b>	
a) Are all the containers, vessels and storage tanks labeled for its content and capacity?	Yes, available
b) Whether the pipelines are colour coded as per IS 2379?	Yes, available
c) Is any plant specific colour code followed?	Yes, available
d) Whether the colour codes are displayed conspicuously in the working areas?	Yes, provided
<b>C-20.8 Hazardous Waste Management</b>	
a) Is identification done for various types of hazardous wastes?	Yes, available
b) Are these quantities less than those specified by the Hazardous Wastes (Management & Handling) Rules, 1989?	Yes
c) What are their disposal modes?	Disposal to approved vendors as per the PCB guidelines
d) What are the systems / measures adopted for controlling air / water / land pollution?	ETP established
e) Whether the solid waste like combustibles, plastic, metals etc. segregated?	Segregated and disposed to approved vendors
<b>C-21 FIRE AND EXPLOSION HAZARD</b>	
<b>C-21.1 Organizational Set-up for Fire Fighting</b>	

a) What is the total strength of fire station and fire crew?	21 nos on duty during every shift
b) How many fire crews are available in each shift?	5 nos on duty during every shift
c) Is there fire squad identified in each shift?	Yes, identified
d) Standing fire order is available with latest revision	Yes, available
e) How is the communication with fire station?	Walkie talky, intercom
f) Does fire safety inspections carried out?	Yes, in practice
g) Does emergency procedure available for leakage or combustion of flammables?	Yes, available
h) What measures are available to control the fire load in the plant area?	Fire tenders, Fire fighting equipment and hydrant system
j) Whether technical knowledge and skills of the manager and staff responsible for overall fire safety of the plant is adequate?	Yes, provided
k) How many major and minor incidents / fires were there in the factory during the last five years? Give department / plant wise.	No fire accidents in the recent five years
m) Have all the fires / incidents been investigated and corrective actions taken? Give break-up.	No history
n) Resources:	
1) Adequacy of protective clothing (coat, trouser, gloves, boots and helmets);	Yes, available
2) Availability of SCBA for firefighting operations and spare cylinders (at least 2 for each SCBA);	Yes, available
3) Adequacy of hose, nozzles, ladders, lighting equipment and pumps; and	Yes, available
4) Communication facility at fire station, walkie talkie sets during firefighting.	Yes, available
<b>C-21.2 Built in Safety in Civil Design and Construction</b>	
a) Whether the two safe means of escape available? Are they in separate directions?	Yes, available
b) Is emergency exits provided to the building handling flammables?	Yes, provided
c) Whether emergency lights are provided?	Yes, available
d) Whether fire / smoke detectors are installed in fire prone areas?	Yes, available
e) Whether fire call points are provided in different areas?	Yes, available

f) Whether Fire hydrants are provided near the buildings?	Yes, available
g) Is ventilation system in plant handling flammables is adequate to prevent formation of flammable mixtures?	Yes, adequately provided
h) Is adequate separation is provided between combustible / flammable materials and other material to restrict the fire growth?	Yes, provided as per design
j) Access routes for fire fighting operations is available for areas having high fire load	Yes, available
k) Whether building changes interferes with fire detection and / or fire suppression systems?	Designed as per NBC requirement
m) Whether building changes cause unreasonable fire loading / openings in the fire rated walls?	No, flammable material stored in fire rated partitions and fire is not spread to other areas
<b>C-21.3 Built in Safety in Electric Circuits and Equipment</b>	
a) Are the electrical equipment in areas where flammables mixture is likely to be present of flame-proof type?	Yes, provided flame proof fittings
b) Are lightning arrestors are provided to the buildings / structures storing flammable materials?	Yes, available
c) Whether adequate bonding and grounding of electrical equipment / pipelines provided?	Yes, provided adequately
<b>C-21.4 Explosive Substances</b>	
a) Whether necessary license / approval taken from concerned statutory bodies?	Yes, obtained from PESO
b) Whether systems for explosion suppression, high speed fire detection with deluge, sprinklers, explosion venting etc. are provided?	Yes, provided where necessary
c) Whether explosion resistant walls or barricades are provided around explosive storage?	Yes, available
d) Whether explosive substance storage areas are restricted for entry?	Yes, provided
e) Whether only trained persons are handling explosive substances?	Yes, only trained personnel from warehouse and operations
f) Whether explosive substances are stored and transported in approved containers only?	Yes, provided
g) Whether electrical fixtures in areas handling explosives are explosion proof type?	Yes, provided fire proof

	h) Whether adequate measures are taken to prevent any sources of ignition where explosive substances are handled?	Yes, adequately provided
	<b>C-21.5 Fire Safety in Handling Flammable and Explosive materials</b>	
	a) Whether emergency procedure is available for control of leakage?	Yes, provided
	b) Whether emergency measures are displayed locally in case of accidental spillage / leakage?	Yes, provided
	c) Whether facility is provided for safe drainage of combustible or flammable liquids in case of leakages?	Yes, provided
	d) Whether highly flammable liquids are stored under inert atmosphere?	Nitrogen blanketing is provided
	e) Whether flammable storage tanks are provided with flame arrestors?	Yes, provided
	f) Whether suitable PPEs are provided?	Yes, provided
	<b>C-21.6 Fire Detection and Alarm System</b>	
	a) What type of fire detection and alarm system provided?	Smoke detector, flame detectors, IR type and beam detectors are provided
	b) Whether all fire prone areas of the plant are covered with fire detection system?	Yes, provided
	c) Whether fire detection equipment and smoke alarms in good operating condition?	Yes, periodically checked and certified
	d) Whether the number of fire call points are adequate and free from obstruction?	Yes, installed as per requirement
	e) Whether regular inspection / maintenance / testing of fire detection and alarm system carried out and records maintained	Yes, maintained
	f) Whether any atmospheric monitoring is carried out for explosive mixture of gases or vapours?	VOC and LEL sensors are installed
	g) Whether emergency power supplies are provided to fire detection and fire alarm system?	Yes, provided
	h) Whether smoke detectors are located considering ventilation pattern?	Yes, provided
	j) Whether annunciation of fire is local or in the control room or in both places?	In the control room only
	k) Whether fire panel is constantly attended?	Yes, 24 x 7 attended
	<b>C-21.7 Passive and Active Fire Protection</b>	

<b>System</b>	
a) What are the passive fire protection measures available? (barriers, doors, dampers etc.)	Emergency doors with push bar, dampers at process areas
b) Are the areas requiring fire barriers identified?	Gas storage, Solvent process areas and storage areas
c) Whether the fire barrier provided is of adequate ratings?	Yes, adequate
d) Whether ventilation ducts in flammable areas have been provided with isolation dampers of suitable fire rating?	Yes, provided
e) Whether sprinklers / deluge are installed wherever necessary?	Yes, provided
f) Whether regular inspection / maintenance / testing of fire protection system carried out and records maintained?	Yes, provided. Records maintained
<b>C-21.8 Fixed Fire Extinguishing System</b>	
a) What are the sources of firewater and whether they are dedicated to the fire extinguishing system?	Hydrant sump of 1000 KL and fire hydrant of 270 m3/hr, 170 m3/hr of electrical and 243 m3/hr diesel pumps are provided
b) Whether the capacity of dedicated water reservoir is adequate to supply to hydrants for minimum 2 h?	Yes, available
c) Whether un-interrupted power supply is provided to the firewater pumps?	One diesel driven pump for pump house is provided
d) Whether the extinguishing medium selected is appropriate to the class of fire (water, gaseous, foam, dry powder)?	Yes, water or foam or DCP
e) Whether fire hydrants layout is available?	Yes, available
f) Whether additional (over minimum requirement) fire hoses, nozzles are available?	Yes, provided
g) Whether the hydrants lines are kept pressurized?	7 kg/cm2 is the pressure maintained
h) Whether regular inspection / maintenance / testing of fixed fire extinguishing systems carried out and records maintained?	Yes, maintained and recorded
<b>C-21.9 Portable Fire Extinguishing System</b>	
a) Whether suitable type and numbers of fire extinguishers provided?	Yes, provided
b) Whether the fire extinguishers are located at conspicuous position and easily accessible? Are they fully charged and tagged?	Yes, provided and marked at locations.

	c) Whether fire extinguishers periodically inspected, tested, refilled and records maintained?	Yes, periodically inspected and certified by outside agency
	d) Whether defective / unchecked fire extinguishers present at site?	None at site are observed
	e) Whether additional fire extinguishers are available?	Yes, provided
	<b>C-21.10 Fire Fighting Equipment and Facilities</b>	
	a) Whether fire tenders (water / foam) are available?	Yes, provided
	b) Whether the fire-fighting system and equipment approved, tested and maintained as per relevant standard?	Yes, maintained
	c) Whether the SCBA / fire suit provided to fire fighting team for immediate action?	Yes, provided
	d) What is system for maintenance / recharge of SCBA?	Periodical check and refill by approved agency
	e) Is proper access available for fire fighting equipment?	Yes, access for all areas of plant provided
	f) Whether fire hose cabinets are in good condition, easily visible, and accessible?	Yes, maintained
	g) Whether drill tower is available? Are fire personnel carrying out regular fire drill?	Fire drills are conducted regularly
	h) What is the communication facility at fire station? Is it adequate?	Intercom and walkie talky provided
	<b>C-21.11 Fire Drill</b>	
	a) Whether mock fire drills are conducted? What is the frequency of drills?	Monthly fire drills are conducted
	b) Whether fire drills are also performed in night Shift	Yes, being practiced
	c) Whether feedback of fire drill is documented?	Not documented for the night shifts, same shall be documented
	d) What is the system of mutual-aid scheme?	Mutual aid with neighboring industries
	<b>C-21.12 Fire Fighting Training</b>	
	a) Whether there is a system of providing fire-fighting training to plant personnel?	Yes, provided to all operational personnel and security
	b) What is the frequency and duration of such training? Whether training records are maintained?	Monthly trainings conducted
	c) Whether fire squads are identified for different areas for first-aid fire fighting and	Yes, provided

	rescue, and suitably trained?	
	d) Are all personnel conversant with the fire prevention and protection measures?	Yes, trained
	e) Whether the fire staff are sent for refresher / advanced training courses?	No record for outside training programs
	<b>C-21.13 Static Electricity and Lightning</b>	
	a) Whether all vessels and pipes are provided with suitable bonding and grounding?	Yes, provided
	b) Whether arrangement has been made for grounding the tanker containing flammable liquid during loading / unloading?	Earth right system provided
	c) Whether spark resistant tools are provided?	Yes, provided
	d) Whether lightning protection is provided and is adequate?	Yes, provided
	e) Whether antistatic clothing, hand gloves and footwear are provided?	Yes, provided
	<b>C-21.14 Pressure Relief System</b>	
	a) Whether the listing of all 'pressure plants' [as defined under <i>Factories Act</i> ] has been done?	Yes, nitrogen receivers and air receivers are identified as pressure vessels.
	<b>C-22 INDUSTRIAL HYGIENE / OCCUPATIONAL HEALTH</b>	
	<b>C-22.1 Ventilation, Illumination, Noise, Vibration, Heat stress and Non-ionizing Radiations</b>	
	<b>C-22.1.1 Ventilation</b>	
	a) Whether any ventilation study has been carried out?	Yes, provided
	b) Whether natural ventilation is adequate or not?	Mechanical ventilation is provided wherever the process is going on
	c) Whether dust / fumes / hot air is generated in the process?	Yes, traces of fumes are observed
	d) Is there any exhaust ventilation system in any section of the plant?	Yes, provided in process blocks and warehousing
	e) Is periodic / preventive maintenance of ventilation system carried out and record is maintained?	AHUs are checked under AMC
	f) Does any ventilation system re-circulate the exhausted air in work areas?	Only in the office areas are recirculated

	g) Is the work environment assessed and monitored for chemical and physical hazards?	Yes, assessed by ventilation study
	h) Whether PPE are provided to workers exposed to dust / fumes and gases?	Yes, provided
	<b>C-22.1.2 Illumination</b>	
	a) Whether illumination study has been carried out for the assessment of illumination level?	Yes, provided
	b) Is there any system of periodical cleaning and replacing the light fittings / lamps in order to ensure that they give the intended illumination levels?	Yes, implemented
	c) Are the workers subject to periodic optometry tests and records maintained?	Yes, medical checks are done periodically
	d) Are emergency lighting available at first aid center.	Yes, provided
	<b>C-22.1.3 Noise</b>	
	a) Whether any noise study conducted?	Noise levels monitoring on regular basis
	b) Are there any machines / processes generating high-noise?	Utility compressors area, DG area
	c) Whether engineering and administrative controls been implemented to reduce noise exposure below the permissible limits?	DG are with acoustic panels
	d) Is there a system of subjecting all those employees to periodic audiometric test who work in high- level noise areas?	Yes, provided for all employees
	e) Whether the workers are made aware of the ill effects of high noise?	Yes, provided in training
	f) Whether ear muffs / plugs are provided and used?	Yes, provided for high noise areas
	<b>C-22.1.4 Vibration</b>	
	a) Are there equipment which contribute excess level of vibrations and whether they are identified?	Only centrifuges are provided with vibration sensors
	b) Whether any vibration study has been carried out?	No study as such
	c) Are the measures taken to combat vibration to acceptable levels?	Vibration sensors are provided
	d) What is the frequency for measurements of vibration?	No study in practice
	e) Are the records of measurements and maintenance of equipment / system	No record in practice

	maintained?	
	<b>C-22.1.5 Heat Stress / Cold stress (Extremes of Temperature)</b>	
	a) Are there sources from equipment increasing the heat load in work places?	Reaction process areas
	b) Whether evaluation of heat stress is carried out?	Process safety study is conducted
	c) Whether natural ventilation is adequate to minimize the heat stress in work environment?	Process areas are to be provided with mechanical ventilation
	d) Are resources available to deal with very hot or very cold conditions (drinking water, lined gloves, insulated boots)?	Not in practice as in current conditions
	e) Do workers know the symptoms of heat cramps / heatstroke or frost bite / hypothermia?	Made aware in periodical training
	f) Are the personal protective equipment suitable for reducing the effects of heat stress available?	No, study shall be conducted for heat stress reduction
	<b>C-22.1.6 Non-ionising Radiations</b>	
	a) Does the work involve likely exposure to non-ionising radiations (ultraviolet, infrared, radiofrequency, microwaves, lasers, etc.)	Not applicable
	b) Whether risk assessment have been done for all work areas involving presence of non-ionising radiations?	Not applicable
	c) Are the work areas displayed with relevant safety signs?	Not applicable
	d) Are the employees aware about the hazards of non-ionising radiations?	Not applicable
	e) Does written procedures exists for working in non-ionising radiations?	Not applicable
	f) Is the work environment monitored periodically for physical hazards and control measures initiated whenever deviation from permissible values is observed?	Not applicable
	g) Whether suitable personal protective equipment are provided to workers exposed to non-ionising radiations?	Not applicable
	<b>C-22.2 Work Place Monitoring for Hazardous Chemicals</b>	
	a) Whether the dust, fumes, smoke aerosols	Yes, sensors are provided

	and mist are monitored as per statute and records maintained?	
	b) What are the types of detectors used for monitoring concentration of hazardous chemicals?	LEL, O2 deficiency sensors
	c) Is any alarm system installed for any leakage of hazardous chemicals?	Yes, provided
	d) Are antidotes available for toxic chemicals?	Yes, provided
	e) Are control measures initiated whenever deviation from permissible values is observed?	Yes, provided
	<b>C-22.3 First Aid Facilities and Occupational Health Centre (OHC)</b>	
	a) Are adequate numbers of first aid boxes provided? Give location details?	Yes, provided Locations are listed in annexure
	b) Are qualified / trained first aiders available in each shift?	Yes, available
	c) How many qualified / trained first aiders are available at each plant / department?	Yes, available List enclosed in annexure
	d) How many persons are trained / given refresher training in first aid in a year?	14 numbers every year
	e) Whether occupational health center is provided?	Yes, provided
	f) Does OHC conform to the provisions of the existing statutes?	Yes, provided
	g) Are the Medical Attendants / Doctors available in each shift?	Yes, medical attendants are available in every shift. Doctor is with Industrial Hygiene certification as per statutory requirement to be deployed
	h) What facilities are available for transportation of the injured to hospital?	Ambulance is available
	j) Are the names of the trained first aiders displayed?	Names are displayed at respective departments / work areas
	k) Are the name of nearest hospitals and its telephone number available in OHC?	Yes, provided
	m) Does the plant have any special preventive medicine program?	Yes, provided annually
	n) Is ambulance posted in proper place and is it available whenever required?	Yes, kept available
	p) Are sufficient numbers of anti-dotes available in case of any emergency?	Yes, provided
	q) Are fire safety measures provided in first aid centre?	Yes, provided
	r) Are emergency lighting arrangements	Yes, provided

	available at first aid centre?	
	<b>C-22.4 Periodic Medical Examination</b>	
	a) Whether the periodical medical examination of employees, required under relevant statute is carried out?	Yes, provided yearly
	b) Whether it is ensured that contractors employee are medically examined during pre-employment as well as during the course of employment?	Yes, provided for regular contract employees also
	c) During the periodical medical examination of the workers, are they examined as per the hazardous process in which they work? (First schedule of <i>The Factories Act, 1948</i> )	Yes, as per the statutory requirement
	d) Are the records of all such examination maintained?	Yes, records are available
	<b>C-22.5 Personal Protective Equipment and Emergency Equipment</b>	
	a) Whether list of required PPE for each hazardous activity is available?	Yes, provided
	b) Whether feedback from workers obtained during selection of PPE?	Not in practice
	c) Have the workers been trained in proper use of PPE including BA sets?	Yes, provided
	d) What is the system of procurement, inspection, issue, maintenance and replacement of PPE?	By EHS dept
	e) Whether qualitative and quantitative fit-check for respirators is ensured prior to use?	No record is available
	f) What are the arrangements for safe custody and storage of PPE?	Storage is provided appropriately for all PPEs
	g) Are the contractor's workers provided with the required PPE?	Yes, provided
	h) Do the PPE conform to any standard?	IS, CE mark
	j) Are sufficient eye wash fountains and safety showers available?	Yes, provided
	k) Whether appropriate respiratory protective devices are available in accordance to the hazard potential?	Yes, provided
	m) Are the staff members trained in the right uses of respiratory protective devices?	Yes, required training provided
	<b>C-22.6 Occupational Diseases</b>	

	a) Whether pre-employment medical checkup data available?	Yes, available
	b) During the medical checkup, is any person found having occupational diseases mentioned in 3 <sup>rd</sup> schedule of <i>The Factories Act, 1948</i> ?	None
	c) Whether the medical practitioner informed the Chief Inspector of Factories about the occurrence of the occupational disease?	No record of such case study
<b>C-23 ACCIDENT / INCIDENT REPORTING, INVESTIGATION AND ANALYSIS</b>		
<b>C-23.1 Accident Reporting and Database Management</b>		
	a) What is the procedure for accident / incident / dangerous occurrence reporting?	Accident / incident reporting system in place
	b) Whether the accident data for the last five years for reportable and non-reportable accidents are available?	Yes, available
<b>C-23.2 Accident Investigation</b>		
	a) Are all the accidents investigated?	Yes, investigated and recorded
	b) Whether accident investigation procedure is documented?	Yes, document provided Enclosed incident report in the annexure
	c) Whether accident investigation reports are submitted to top management?	Yes, submitted to top management
	d) How are the findings from accident investigation reports communicated to workers?	Case study awareness program
<b>C-23.3 Analysis of Accidents</b>		
	a) Whether accident analysis is done as per IS 3786?	Yes, as per statues
	b) Whether root causes of accidents are analysed?	Yes, case study is performed and CAPA is implemented
	c) Is the accident statistics effectively utilized? If yes, how?	During periodical trainings
	d) What nature of injuries occurred during the last five years?	Spill of chemicals, cut injuries
<b>C-23.4 Implementation of Recommendations</b>		
	a) How does the management ensure implementation of the recommendations to avoid recurrence of accidents and incidents?	CAPA is implemented and training is provided to all concerned accordingly

	<b>C-23.5 Reporting and Investigation of Near-miss Incidents</b>	
	a) Are all near-miss incidents reported and investigated?	Yes, investigated
	b) Is there any system of classifying and analyzing the near-miss incidents?	Yes, as per the intensity of the nearmiss identified
<b>C-24 EMERGENCY PREPAREDNESS</b>		
	<b>C-24.1 Site Specific Details</b>	
	a) Are the site area maps (including layout, access roads and assembly points) available in control room / emergency control centre?	<p>Yes, provided Following emergency handling facilities are available</p> <ul style="list-style-type: none"> <li>• Self-Contained Breathing Apparatus provided @ all floors of API building, warehouse, Drums storage areas</li> <li>• Dupont – fire retardant suits available at ECC</li> <li>• Fire proximity suits available at ECC</li> <li>• Foldable stretchers provided at various locations</li> <li>• Inhouse Ambulance van with full time dedicated drivers</li> <li>• Public Address System (PAS) @ API building, Utility building &amp; warehouse 1<sup>st</sup> floor.</li> <li>• Trained ERT available 24 x 7 with different departments</li> <li>• Emergency way finding signs (auto-glow) provided at all locations</li> <li>• Automated External Defibrillator (AED) available @ OHC</li> </ul>
	<b>C-24.2 Duties and Responsibilities of Key Personnel</b>	
	a) Is the hierarchy of emergency response personnel right from site emergency controller downward, and alternative officials identified?	Yes, chart provided in OSEP plan
	b) Are the duties and responsibilities assigned to the designated officials during emergency, both during and outside normal working hours clearly identified and understood by them?	Yes, designated to all concerned authorities as per OSEP
	<b>C-24.3 Identification of Emergencies and Accident Scenario</b>	
	a) Are the possible accident scenarios leading to emergency identified and known to the	<p>Anticipated scenarios are as below</p> <ul style="list-style-type: none"> <li>• Spillage</li> </ul>

	operating personnel?	<ul style="list-style-type: none"> <li>• Fire/Explosion</li> <li>• Dust Explosion</li> <li>• Physical injuries to personnel</li> <li>• Toxic or poisonous gas release in process areas</li> <li>• Toxic gas release from neighboring industries</li> <li>• Natural disasters</li> <li>• 8. Food poisoning</li> </ul>
	b) Are approved emergency preparedness plans (on- site and off-site) in place?	Yes, provided
	<b>C-24.4 Declaration and Termination of Emergency</b>	
	a) Is the list of designated officials who are to be communicated about declaration and termination of emergency available in the control room / emergency control centre?	Yes, provided
	b) Are the methods of communication (siren, public address system etc.) for declaration and termination of an emergency known to all the workers?	Yes, provided training with Mock drills to all employees
	<b>C-24.5 Resources-evacuation / Transport</b>	
	a) Are the following resources (equipment, personnel and procedures) required to handle emergency available?	Yes, provided
	1) Communications,	Yes, provided
	2) Public announcement systems	Yes, provided
	3) Monitoring of hazardous releases into the environment,	Yes, available
	4) Emergency shelters at the facility,	Yes, provided
	5) Emergency exits with proper illumination, with uninterrupted power supply	Yes, provided
	6) Direction for emergency exit / escape route marked in haulage / Alleyways,	Yes, provided
	7) Transport for evacuation of plant personnel,	Yes, provided
	8) Medical care including administration of antidotes, and	Yes, provided
	9) Security / maintenance of law and order.	Yes, provided
	<b>C-24.6 Communication Facilities</b>	
	a) Does the emergency control centre have direct communication links with the fire station and the plant control room?	Yes, available

	b) Are there adequate alarm points from which an emergency alarm can be raised?	Yes, provided
	c) Is there infrastructure available for ensuring backup electric power supply for communication links where required	Yes, provided DG & UPS of required capacity
	<b>C-24.7 Medical Care</b>	
	a) Is the procedure for emergency medical care available?	Yes, provided
	b) Whether the system has been tested at regular frequency through mock drill / exercises for its adequacy?	Mock drills are practices
	c) Does the system of periodic replacement of antidotes and medicines required in emergency exist?	Yes, available
	<b>C-24.8 Updation of Emergency Plan</b>	
	a) Is the emergency plan updated based on the feedback from the periodic drills / exercises?	Emergency plan is available, yet to update
	b) Are the contact details of all concerned officials kept updated in the emergency plan?	Yes, provided
	<b>C-24.9 Periodic Drills / Exercises</b>	
	a) Are mock-exercises conducted at stipulated intervals?	Yes, quarterly practice
	b) Are the scenarios varied in the mock-exercises to ensure that all possible factors including meteorological conditions, affected plant personnel covered?	Yes, planned as per the scenarios
	c) Whether emergency preparedness Plans have been tested and reviewed at regular frequency through mock drill for its adequacy	Yes, assessed and improved as per the observations and recommendations
	<b>C-24.10 Training of Plant Personnel</b>	
	a) Are the plant personnel trained in handling emergency equipment?	Yes, training provided
	<b>C-24.11 Public Awareness Programmes</b>	
	a) Are public awareness programs conducted for the people around the site regarding the actions to be taken in case of off-site emergency?	Yes, provided the awareness training

<b>C-24.12 Mutual-aid Programme</b>		
a) Are the types of accidents where external organizations would be involved in remedial actions identified? Are their responsibilities defined?		Yes, provided in the mutual aid agreement. Copy enclosed in annexure
b) Is the plant responsible for rendering mutual aid assistance to any other external organizations? Does this assistance effect the plant's emergency preparedness?		Yes, during offsite emergency mock drills are practiced
c) Whether the communication channels for mutual assistance identified and known with and between two organizations?		Yes, provided
<b>C-24.13 Emergency Control Centre</b>		
a) Is the emergency control center located beyond the effective distances of identified emergency scenarios?		Yes, provided as per the requirements
b) If the emergency control center is located within the effect distance, is it suitably protected that it will be available in case of emergency?		Suitably located
<b>C-25 SAFETY INSPECTION</b>		
<b>C-25.1 Inspection Programme</b>		
Are checklists available for inspections? For example availability of checklists like:		
a) Handling, Storage and Transportation of hazardous chemicals;		Safety Inspection Program is being implemented on monthly basis. Checklists are available for few activities and few others need the checklist to be developed. Checklist is available for Handling, Storage and Transportation of hazardous chemicals.
b) Electrical hazards;		Not, Available, to be developed yet
c) Fire safety;		Available
d) Hand and portable power tools;		Not, Available, to be developed yet
e) Machine hazards;		Available
f) Lifting equipment;		Not, Available, to be developed yet
g) Ladders and scaffolding;		Not, Available, to be developed yet
h) Environmental Monitoring;		Not, Available, to be developed yet
j) Civil structure;		Available
k) House keeping;		Available
m) Emergency equipment; and		Available

	n) Gas cylinder and other pressure vessels used / available in the organization.	Available
	<b>C-25.2 Safety Related Deficiency (SRD) Report</b>	
	a) Are SRDs generated based on the area wise checklists?	Not, Available, to be developed yet
	b) What is the procedure for resolving the SRDs?	Periodical reviews with operational heads
	c) Whether the procedure exists for notification and root cause analysis of non-conformities and action taken on them?	Yes, in practice
	<b>C-25.3 Safety Inspection Records</b>	
	a) Are the safety inspection records maintained?	Yes, maintained
	<b>C-25.4 Methodology and Inspection Team</b>	
	a) Is there written procedure for safety inspection?	Yes, available
	b) Whether safety inspection is carried out by a designated team?	EHS team
	c) What is the frequency of safety inspections?	As per SOP
	d) Whether an inspection report is generated?	Yes, available in record
	<b>C-25.5 Compliance of Recommendations</b>	
	a) To whom the recommendations are submitted	To the top management
	b) Are recommendations of safety inspections complied in time?	Yes, tracking system in place
	c) Is compliance of recommendations sent to top management?	Yes, submitted in periodical review meetings
	d) Is compliance of recommendations reviewed by safety committee?	Yes, reviewed
	e) Does top management follows-up the compliance?	Follows with the concerned vertical heads for complained status and plant integrity.

**9. SAFETY OBSERVATIONS:**

**The following Fire Safety and Safety systems are installed in the plant.**

1. Company have obtained the license from Factories Dept and consent from PCB, NOC from Fire Dept, License for handling solvents from PESO, Boiler License and Electricity board certification periodically.
2. Management have declared the EHS Policy
3. Management have the focus of Vision and Mission deliberated to the team
4. Company has a team of Safety personnel
5. Fire extinguishers are adequately provided
6. Fire water pump house for firefighting purpose
7. Fire hydrants and fire hose boxes
8. Earth pits for grounding purpose
9. Emergency Showers and eye fountains provided
10. Required Personal Protective Equipment are provided
11. Alternate power DG and UPS for Emergency lighting
12. Safety committee is available
13. Emergency communication system provided
14. Licensed operators for Boiler on duty
15. Electrical Licenses for the team available

16. Warehouse team all are trained on Firefighting,
17. Gas levels monitoring, compatibility charts and required PPE are available at warehouse
18. Ambulance available at site
19. Manual call points, Public Address System, Intercom, hand operated sirens are provided for emergency communications.
20. Safety instructions are displayed in local language and in English.
21. OHC equipped with emergency first aid kit, stretcher, examination couch, medical oxygen cylinder, suction apparatus, etc. to be available.
22. Mutual Aid system is in place.

## 9.1 SPECIFIC SAFETY RECOMMENDATIONS:

The following are the recommendations for further safety improvement of the plant.

### Status of previous Audit recommendation and compliance:

Previous Audit recommendations were 24 nos, complied 21 nos, pending 3 nos in process.

#### Health

1. Recommended to provide women First Aid training for the strength of the women employees within plant
2. Recommended to include the women employees in the fire fighting training

#### Safety

3. Found the construction works are in progress for plant extension activities, recommended to have the contract workmen undergo construction safety
4. Recommended to have the Retractable fall arrested for the purpose of fall protection provided for all height works in the construction site
5. Recommended to provide safety nets for all construction openings
6. Recommended to have the HSE policy revised by the Top management as existing policy was prepared in year 2017

7. Found the lifelines are provided for the pipelines without the walkway, recommended to provide suitable safe approach
8. Recommended to provide the first aid box at the process and storage areas
9. Found the helmets in use are more than 7 years since manufacturing, recommended to replace with valid shelf life
10. Recommended to get the rescue winch examined and certified by competent person periodically
11. Recommended to Identify possible worst-case scenarios within plant and operations, Practice the Mock drills in accordance to the worst cases during Holidays and Night working times, maintain the record and observations addressed during the mock drills
12. Recommended to update the OSEP mentioning the plant worst case scenarios, ERT members, Mock drill procedure
13. Recommended to update the HARA report to include the distance from heat radiation and dispersions from solvent tanks to operate the deluge valve and emergency control
14. Recommended to provide Dress code or easy identification for the First Aiders and ERT members with in the employees
15. Arrange SCBA near-by to cater any emergency at Liquid nitrogen tank area

16. Display liquid nitrogen safety awareness boards in local language

## Security

17. Recommended to display First aiders list on duty with emergency contact number at security

## Fire fighting

18. Recommended to check the capacity of the priming tank at fire hydrant pump house and replace with required volume with respect to pump suction header

19. Recommended to provide fire fighting equipment at tanker sampling area

20. Recommended to fix the wall mounted Fire extinguishers at standard height of 750 mm

21. Recommended to provide pressure indicators for the Hydrant line in the plant areas

## PROCESS

22. Found the process area team skills are lacking for responding in emergency, recommended to provide effective training and mock drills.

23. In production block at Hydrogen manifold area not arranged hydrogen leak detect sensor, recommended to be provided Hydrogen leak detect sensor at Hydrogen manifold and cylinder storage area.
24. In production block at hydrogen manifold area not arranged fire suppression system, recommended to be provided fire suppression system at above manifold area.

## **HYDROGENATION:**

25. Recommended to provide the Personal tester to ensure working personal are free from static charge while entering the hydrogenation block
26. Recommended to provide the awareness training and mock drills to improve the levels on various emergencies and mitigation in the Hydrogenation block
27. Hydrogen safety awareness boards are recommended to be displayed in local language

## **Electrical**

28. Recommended to provide exhaust fans at main PCC, MCC, ETP MCC & Production block electrical panels area for appropriate ventilation

29. Recommended to have all the Earth pits checked by third party once in a year and maintain the values displayed near the earth pit.
30. Recommended to get the Arc flash study performed for all Electrical installation in the plant.
31. Recommended to depute one 33KV permit holder and wireman permit holder for each shift at plant.
32. Entry restriction board to be displayed and list of authorized persons to be arranged 33KV substation

## Warehouse

33. Recommended to provide fall protection system for tankers sampling and unloading facility
34. Recommended to place non sparking tools for the tanker unloading activity
35. Found common dyke was provided for 6 nos qty at solvents storage area, recommended to provide inner partition for the dyke to control the spread of fire during such emergency
36. Recommended to provide foam flooding provision for the solvent storage tanks

37. Recommended to provide detection system at Ammonia and Dry HCL cylinder storage facilities
38. Recommended to provide emergency pit at cylinder storage
39. Recommended to segregate and store at concealed storage area for water reactant chemicals
40. Recommended to provide individual exhaust ventilation for the hazardous chemical store rooms
41. Recommended to provide drip pallets at all drum storage areas with sufficient numbers for handling the spillages or damaged drums
42. Recommended for periodical training and assessment to be implemented for forklift operators

## LAB

43. In QC Lab chemical storage room found large quantity of lab chemicals are stored which is not a safe practices, recommended to reduce the material and to be kept based on requirement
44. Recommended to improve the awareness and firefighting skills of the team, the audit team while interacting with the QC personnel found the skills were lacking

## FABRICATION YARD:

- 45. House keeping to be improved
- 46. Cable gland to be properly fitted

## 11. ACKNOWLEDGEMENT

We acknowledge our thanks to the management of M/s ESCIENTIA ADVANCED SCIENCES Pvt Ltd. and their team for the giving this opportunity on Occupational Safety and Health Audit as per IS-14489 and for their cooperation in all aspects.

### DISCLAIMER

PROACTIONEERING CONSULTANTS SAFETY. is a service providing company, providing Safety services and industrial services such as Statutory Inspections and certification, Safety Audits, Emergency Management, Emergency Response plans, HARA, HAZOP, Safety survey and Safety trainings programs etc.

Individually and collectively, referred to in this clause as PROACTIONEERING CONSULTANTS SAFETY. assumes no responsibility and shall not be liable to any person for any loss, damage or expense caused by Client Company on the information or advice in this document. PROACTIONEERING CONSULTANTS SAFETY. does not hold any legal obligation in any aspect.

Also the suggestions given in the report are based on the observations made and on the prevailing situations at the time of Audit and basing on the interaction with the plant personnel and on the professional experience of Auditors.

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For PROACTIONEERING CONSULTANTS SAFETY.

Date: 05-07-2023



## 12. ANNEXURES



# PROACTIONEERING CONSULTANTS-SAFETY

## STATUTORY INSPECTIONS AS PER FACTORIES ACT AND RULES

SAFETY SERVICES: SAFETY AUDITS, HARA, EMERGENCY PLANS, TRAINING ON HEALTH, SAFETY AND ENVIRONMENT FOR INDUSTRIAL, CONSTRUCTION AND ROAD SAFETY

### Audit Meeting

Client: *M/s Escientia Advanced Sciences Pvt. Ltd*

Service: Statutory Safety Audit as per IS Code 14489

Date: *5/July/2023*

Name	Designation	Signature
K. Asha Babu	General Manager - PRE	<i>X</i>
A. Sathyanarayana	Asst. manager - EHS	<i>[Signature]</i>
Sanjay K. Vaishnav	Sr. V-P. Operation	<i>[Signature]</i> 05/07/2023
G. N. MURthy	AVP - QCD	<i>[Signature]</i> 05/07/2023
V. R. SHARMA	AVP WHG	<i>[Signature]</i> 05/07/23
B. Nagesh Kumar	EHS - Executive	<i>[Signature]</i> 05/07/2023
Ejaz Ahmed Khan	EHS - Executive	<i>[Signature]</i> 05/07/23
U. A. N. RASU	AVP - PRO	<i>[Signature]</i> 05/07/2023
S. Vasudevan Raju	AVP - ESD	<i>[Signature]</i> 05/07/2023
P. V. Ravikanth	AGM - OAD	<i>[Signature]</i> 05/07/2023
L. Tata kabee	Sr. Executive - HR	<i>[Signature]</i> 05/07/2023
M. Srinivas Rao	PRO - ACT - Safety Auditor	<i>[Signature]</i> 05/07/23
CH. Krishna Kishore	PRO - ACT - Auditor	<i>[Signature]</i> 05/07/2023
V. GURU PRATAP	PRO - ACT AUDITOR	<i>[Signature]</i> 05/07/2023
RAVINDRA .R	PROACT Auditor	<i>[Signature]</i>

Address: 78-4-9, Syamala nagar, RAJAHMUNDRY (AP) 533103

Address: 51-8-40/21, K.R.M. Colony, Seethammadhara, Besides Canara Bank, Visakhapatnam-530 013

Mob - 9848290978 e-mail: [proaction.in@gmail.com](mailto:proaction.in@gmail.com), [www.proaction.in](http://www.proaction.in)



**ESCIENTIA ADVANCED SCIENCES PRIVATE LIMITED**  
**VISAKHAPATNAM**  
**EXTERNAL HEALTH & SAFETY AUDIT COMPLIANCE REPORT - 2021**

**SOURCE(S) FOR CAPA: : Third Party Health & Safety Assessment By GLOBAL HSE SOLUTIONS**

S. NO.	Location/Area	CATEGORY	DESCRIPTION OF FINDINGS	CORRECTIVE ACTION TAKEN	STATUS as on Feb, 2022	COMPLETION / TARGETED COMPLETION DATE
1	Drum Storage Shed	Recommendations	More numbers of drums with chemicals / Solvents /MLS were observed in the facility under the shed and outside the shed. PESO licence is available only for 12 KL in drums. The PESO licence is to be amended to include the Solvent Drums (class A) in the licence and a shed need to be constructed to store the drums in secured manner	<ul style="list-style-type: none"> <li>- Spent Solvent drums was disposed for authorised recyclers for re- processing .</li> <li>- All Other drums kept shed and PESO licenced quantity is being stored in designated place.</li> </ul>	CLOSED	NA
2	CCOE Drum Storage shed	Recommendations	Sprinkler System Is not available for CCoE Drum Storage yard	Modular type fire extinguishers are provided in CCOE drum storage area.	CLOSED	NA
3	Non-CCoE Drum Storage shed	Recommendations	Lot of fumes was observed in Non-CCoE and Acid Storage area. Local Exhaust Ventilation (LEV) need to be provided for Non-CCoE and Acid Storage shed.	Exhaust fan provided for Non-CCoE and Acid Storage shed and dispensing booth is in place for dispensing of materials in closed manner.	CLOSED	
4	All Areas	Recommendations	SOP need to be established for Ladder Management in the site. it was observed that the ladders are not numbered and not inspected periodically. All ladders must be numbered, inspected, and labelled	<ul style="list-style-type: none"> <li>- All Ladders marked with identification number</li> <li>- Survey / periodical inspection carried out for all ladders</li> <li>- Check points incorporated in the monthly inspection check list.</li> </ul>	CLOSED	NA

S. NO.	Location/Area	CATEGORY	DESCRIPTION OF FINDINGS	CORRECTIVE ACTION TAKEN	STATUS as on Feb, 2022	COMPLETION / TARGETED COMPLETION DATE
5	Warehouse	Recommendations	There are two Walk-in cold chambers in Warehouse. 2 oC to 8 oC and -20 oC. Both the walk-in cold chambers are having one entry, which is not safe as the risk of personnel entrapment is more in this case. It is recommended to provide individual doors for both the cold chambers to avoid the personnel entrapment. And both the cold chambers need to have the panic push buttons and audio-visual alarms to WARN the outside persons in case of person trap inside. SOP should be available for Cold chambers operation. There should be one person available outside when one person enters the cold chamber	Panic push button provided for both the cold chambers to escape from the cold chamber in case of person trap inside	CLOSED	NA
6	Warehouse	Recommendations	Oxygen Detector need to be provided with audio-visual alarm in Warehouse WH1-G-31 Isolator room and material entry and exit room.	Nitrogen line dummied in Warehouse WH1-G-31 Isolator room and material entry and exit room .	CLOSED	NA
7	Warehouse	Recommendations	The maximum capacity and the list of authorized personnel (operators) for stacker need to be displayed on stacker.	The maximum capacity and the list of authorized personnel (operators) for stacker was displayed on stacker.	CLOSED	NA
8	Warehouse	Recommendations	The height of the smoke detector is too high in the warehouse, and it is not very clearly visible and does not whether it is working or not working.	Fire alarm system is working and service carried out once in 3 months.	CLOSED	NA
9	Primary Water Plant	Recommendations	Fire Hydrant System Panel busbar door is found in open condition, which is live. This need to be in closed condition always to avoid accidental electrocution.	Fire Hydrant System Panel busbar door is closed with delta key and controlled by Engineering Service department.	CLOSED	NA
10	Warehouse	Recommendations	Zero access guards are not provided for the belt-drive of Ingersoll-Rand air compressor. Guard is available in outside of the belt drive	Zero access guard provided for the belt-drive of Ingersoll-Rand air compressor	CLOSED	NA

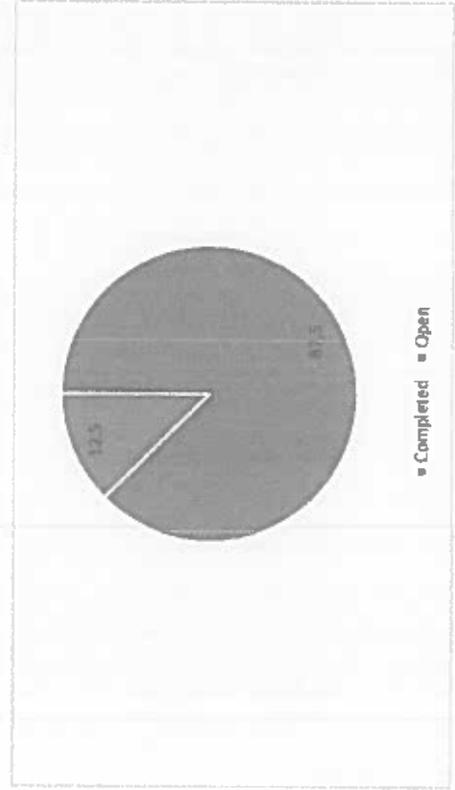
S. NO.	Location/Area	CATEGORY	DESCRIPTION OF FINDINGS	CORRECTIVE ACTION TAKEN	STATUS as on Feb, 2022	COMPLETION / TARGETED COMPLETION DATE
11	Boiler Room	Recommendations	For 3.5 TPH Boiler, water level indicator is showing 3/4th in one level tube and 90% in another level tube. It needs to be checked and corrected.	3.5 TPH Boiler water level indicator was checked and corrected.	CLOSED	NA
12	Boiler Room	Recommendations	Ladder is provided to access the boiler top. This ladder does not have the safety railing.	Safety railing provided for Ladder to access the boiler top.	CLOSED	NA
13	Non-CCoE Drum Storage shed	Recommendations	Smoke Detectors are not blinking in Drum Storage Yard. This needs to be checked and corrected.	Smoke detectors were tested and corrected at drum storage yard	CLOSED	NA
14	Non-CCoE Drum Storage shed	Recommendations	Railing is to be provided for ramp at Drum Storage Shed.	Safety chain provided for ramp at Drum Storage Shed.	CLOSED	NA
15	Non-CCoE Drum Storage shed	Recommendations	Local Exhaust Ventilation is to be provided for Water reactive Chemicals Storage Room.	Exhaust fan provided for Non-CCoE and Acid Storage shed, and dispensing both is in place for dispensing of materials in closed manner.	CLOSED	NA
16	API Block	Recommendations	Visible Double Body earthing is not provided for Heat Sealing machine and Sifter	Double Body earthing provided and ensured before starting the process for Heat Sealing machine and Sifter	CLOSED	NA
17	API Block	Recommendations	Rubber mat is not available for API Process MCC Panel-II at ground floor	Insulated Rubber mat was provided for API Process MCC Panel-II at ground floor	CLOSED	NA
18	API Block	Recommendations	Zero access guards are not adequate for Reactors R-3100 (GLR 3.0 KL), R-2100 (GLR 5.0 KL) and R-2110 (3.0 KL) coupling guards.	Survey / periodical inspection was carried out for protective guarding for all Equipments/machinery.	CLOSED	NA
19	API Block	Recommendations	DCP Modular type fire extinguishers are not provided above the reactors manholes in 2nd Floor and 3rd Floor. DCP modular type fire extinguishers are to be provided above the reactors for fire protection	Auto-Modular fire extinguishers had been placed at the reactors having hazardous process reactions at the time of critical reactions.	CLOSED	NA
20	API Block	Recommendations	No Audio-visual alarm, though the detectors are available at Peeler centrifuge area in 1st floor centrifuge area.	Audio-visual alarm will be provided for oxygen sensors at peeler centrifuge area 1st floor.	OPEN	30.04.2022

S. NO.	Location/Area	CATEGORY	DESCRIPTION OF FINDINGS	CORRECTIVE ACTION TAKEN	STATUS as on Feb, 2022	COMPLETION / TARGETED COMPLETION DATE
21	EHS	Recommendations	Certification Training on First Aid need to be conducted for selected first aiders by authorized party	First aid training will be conducted for selected first aiders by authorized party.	OPEN	20.03.2022

S. NO.	Location/Area	CATEGORY	DESCRIPTION OF FINDINGS	CORRECTIVE ACTION TAKEN	STATUS as on Feb, 2022	COMPLETION / TARGETED COMPLETION DATE
22	EHS	Recommendations	The scrap yard roof sheets are damaged and rainwater is leaking into the waste and the floor is untidy. The roof sheets need to be replaced with new sheets.	The scrap yard roof sheets replaced with new sheets	CLOSED	NA
23	EHS	Recommendations	Training on Use of Eye wash shower need to be conducted to contract workers. It was found that one contract person at ETP could not operate eye wash shower effectively.	Training conducted on Operating of Eye wash shower and its importance to contract workers	CLOSED	NA
24	EHS	Recommendations	Toe Guards are not found across the plant for any staircase or tanks tops. Toe guard is mandatory for all staircases (eg: at ETP tanks, Water Storage tanks etc).	Survey / inspection will be carried out for toe guards across the plant.	OPEN	30.03.2022

Total Observations  
Completed  
Open

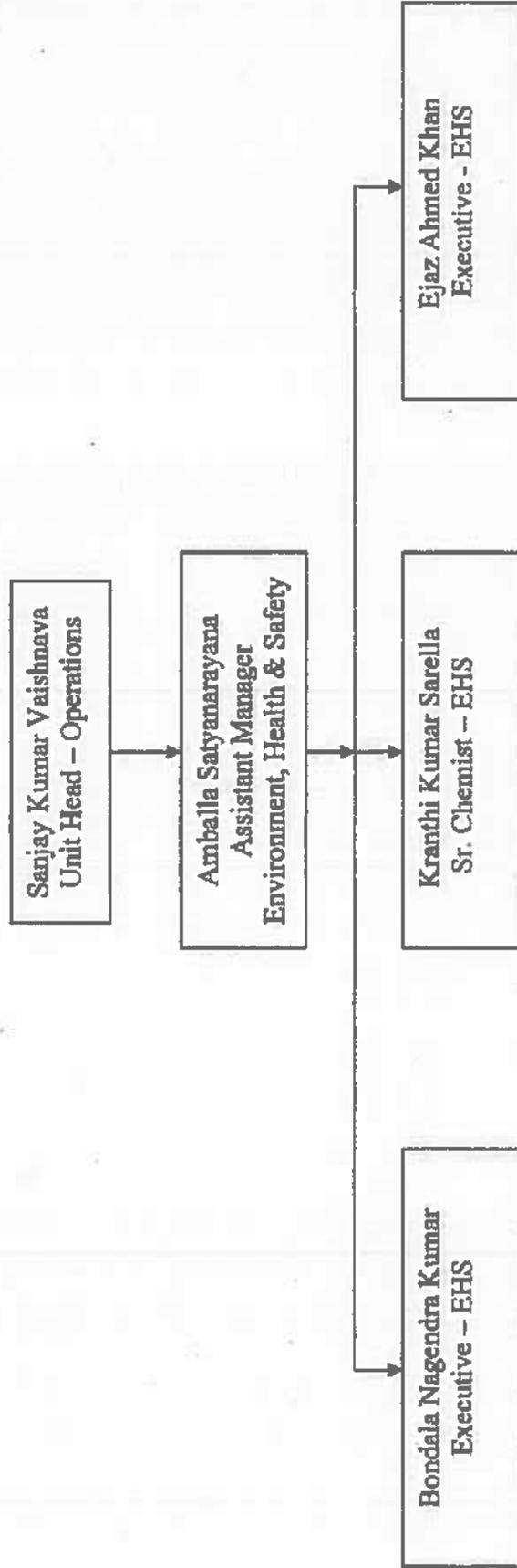
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 QAD Sign & Date: 28/06/2023

Version No.01

Effective date: 28/06/2023



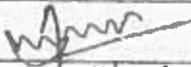
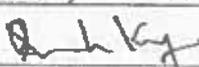
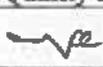
	Prepared by	Approved by
Sign and Date	<i>Nagendra Kumar</i> 28/06/2023	<i>A Satyanarayana</i> 28/06/2023
Name	B Nagendra Kumar	A Satyanarayana

Format No.: QAD005/F01/04 Effective date: 10.11.2022

<b>List of EHS Employees &amp; Qualifications</b>				
<b>S.No</b>	<b>Name of the employee</b>	<b>Emp.Code</b>	<b>Designation</b>	<b>Qualifications</b>
01	A. Satyanarayana	E0074	Asst.Manager-EHS	M.Sc. Environmental Science, Diploma in Industrial Safety from Regional Labour Institute – DGFASLI & IRCA Certified Lead Auditor for ISO 45001:2018
02	B.Nagendra Kumar	EBP125	Executive	M.Sc. Environmental Science, Diploma in industrial safety from SBTET
03	S. Kranthi Kumar	E0315	Executive	MSc Biochemistry & Diploma in Industrial Safety (DIS) from SBTET.
04	Ejaz Ahmed Khan	E0403	Executive	Diploma in Petrochemical engineering, Diploma in Industrial Safety (DIS) from SBTET& NEBOSH IGC &Master diploma in oil & gas offshore safety.

### SOP INDEX

S. No.	SOP No.	Title of SOP	Effective Date	Next Review Date
1.	EHS001/03	Operation and Maintenance of Fire Hydrant System	05.08.2020	04.08.2023
2.	EHS002/03	Operation and Maintenance of Fire Extinguishers	03.01.2023	02.01.2026
3.	EHS003/02	Handling of Hazardous, Toxic and Flammable substances	04.01.2023	03.01.2026
4.	EHS004/03	Operation/use of Self-Contained Breathing Apparatus (SCBA)	03.01.2023	02.01.2026
5.	EHS005/03	Usage and maintenance of Non-Respiratory Personal Protective Equipment	29.12.2022	28.12.2025
6.	EHS006/03	Usage and maintenance of Air-Purifying Respiratory Protective Equipment	29.12.2022	28.12.2025
7.	EHS007/03	Emergency Eyewash and Body Shower	29.12.2022	28.12.2025
8.	EHS008/03	Spill Control	03.01.2023	02.01.2026
9.	EHS009/03	Noise Monitoring	03.01.2023	02.01.2026
10.	EHS010/03	Operation of multi-gas Detector	04.01.2023	03.01.2026
11.	EHS011/00	Usage of internal doors and emergency doors in API building	17.11.2017	14.12.2023

	Prepared by	Reviewed by	Approved by
Name	A Satyanarayana	S Suresh Kumar	B Sri Ranga
Department	Environment, Health & Safety	Environment, Health & Safety	Quality Assurance
Signature			
Date	05/01/2023	05/01/2023	05/01/2023

Format No.: QAD001/F05/02

Effective date: 03.10.2022

Page 1 of 2

### SOP INDEX

S. No.	SOP No.	Title of SOP	Effective Date	Next Review Date
12.	EHS012/04	Occupational Health Centre	04.01.2023	03.01.2026
13.	EHS013/04	Handling, Storage and Disposal of Wastes	01.01.2023	31.12.2025
14.	EHS014/02	Operation and maintenance of Effluent Treatment Plant	29.12.2022	28.12.2025
15.	EHS015/02	Operation and maintenance of Sewage Treatment Plant	29.12.2022	28.12.2025
16.	EHS016/02	Numbering system for EHS equipment	04.01.2023	03.01.2026
17.	EHS017/02	Operation and Maintenance of Fire Alarm & Public Address System	04.01.2023	03.01.2026

Approved by			
B Sri Ranga	Quality Assurance		05/01/2023
Name	Department	Signature	Date
Format No: QAD001/F05/02		Effective date: 03.10.2022	

**ESCIENTIA ADVANCED SCIENCES PRIVATE LIMITED**  
**APSEZ, Atchutapuram, Vizag.**  
**LIST OF EHS PROCEDURES**

S. No.	Doc. Code	Description
1	EASPL-EHSP-423.01	EHS Rules and Regulations
2	EASPL-EHSP-431.01	Process Safety Information
3	EASPL-EHSP-432.01	Process Hazards Analysis and Risk Management
4	EASPL-EHSP-432.02	Environmental Aspects & Impacts
5	EASPL-EHSP-432.03	SDS Reviews
6	EASPL-EHSP-433.01	Legal and Other Requirements
7	EASPL-EHSP-434.01	EHS Objectives and Targets
8	EASPL-EHSP-436.01	Occupational Health & Wellness Program
9	EASPL-EHSP-436.02	Ergonomics Program
10	EASPL-EHSP-436.03	Personnel Protective Equipment Program
11	EASPL-EHSP-442.01	Competence, Training and Awareness Procedure
12	EASPL-EHSP-443.01	EHS Group Meetings Charter
13	EASPL-EHSP-443.02	Internal & External EHS Communication
14	EASPL-EHSP-445.01	Control of Documents
15	EASPL-EHSP-446.01	Purchasing, Handling, Packaging, Storage, Preservation and Distribution
16	EASPL-EHSP-446.02	Environmental Monitoring and Management Program(s)
17	EASPL-EHSP-446.03	Chemical Hygiene Plan
18	EASPL-EHSP-446.04	Hazardous Communication Program
19	EASPL-EHSP-446.05	Management of Change
20	EASPL-EHSP-446.06	Permit to Work and Lock-out & Tag-out
21	EASPL-EHSP-446.07	Pre-Start-up Safety Review

**ESCIENTIA ADVANCED SCIENCES PRIVATE LIMITED**  
**APSEZ, Atchutapuram, Vizag.**  
**LIST OF EHS PROCEDURES**

22	EASPL-EHSP-446.09	Mechanical Integrity
23	EASPL-EHSP- 447.01	Suppliers EHS Management
24	EASPL-EHSP-448.01	Emergency Preparedness & Response Plan
25	EASPL-EHSP-448.02	Disaster Recovery and Business Continuity Plan
26	EASPL-EHSP-452.01	Evaluation of Compliance
27	EASPL-EHSP-453.01	Incident Reporting and Investigation
28	EASPL-EHSP-453.02	Nonconformity and Corrective & Preventive Action Procedure
29	EASPL-EHSP-454.01	EHS Records Management Procedure
30	EASPL-EHSP-455.01	EHS Internal Audits
31	EASPL-EHSP-455.02	EHS Inspection and Testing
32	EASPL-EHSP-461.01	Management Review

**EHS SUPPLEMENTARY PROCEDURES**

<b>S. No.</b>	<b>Document No.</b>	<b>Document Title</b>	<b>Effective Date</b>	<b>Next review date</b>
1	EASPL-EHS-SP-01/01	Handling of Potent and Highly Potent Substances/Procedures	31/07/2020	30/07/2023
2	EASPL-EHS-SP-02/01	Chemical Exposure Risk Assessment (CERA)	22/12/2020	21/12/2023
3	EASPL-EHS-SP-03/01	Chemical Containers/ Drums Decontamination	26/06/2021	25/06/2024
4	EASPL-EHS-SP-04/00	Usage and Handling of Drums/ Containers in Process Areas	02/09/2020	01/09/2023
5	EASPL-EHS-SP-05/00	Contractor Safety	12/06/2023	11/06/2026

**LIST OF FIRE FIGHTERS & FIRST AIDERS**

S. No	Name	Employee Number	Department
1	Venkata Satya Siva Nagaraju Rudraraju	E0019	Engineering Services
2	K Kartheek	E0060	Engineering Services
3	D Srinivas	E0326	Engineering Services
4	Demudu P	E0227	Engineering Services
5	Narasinga L	E0226	Engineering Services
6	Chandra Sekhar K S CH	E0132	Engineering Services
7	Panga Srinivasarao	E0109	Process Development Lab
8	A. Parameswar Rao	E0316	Process Development Lab
9	V Manikanta	E0294	Warehouse
10	G Sai Kumar	E0114	Warehouse
11	D Shivaji	E0334	Warehouse
12	Koncha Ganesh	E0329	Warehouse
13	Mr Rama Krishna	EBP139	External Mfg.
14	Kutcharlapati Ramesh	E0017	Production
15	Jampani Sreenivasarao	E0031	Production
5	Pasupureddi Jagadeeswara Rao	E0037	Production
16	M Dasaradha Rama Rao	E0054	Production
17	Kanakaraju K	E0120	Production
18	Ramesh.P	E0131	Production
19	Naresh Reddy D	E0141	Production
20	Krishna Prasad Illa	E0043	Production
21	Hari Prasad T	E00217	Production
22	Marni Surendra	E0041	Production
23	Murali Krishna P	E 0142	Production
24	Ramesh. D	E 0148	Production
25	Tata Babu L	E0206	Human Resources
26	A Veerendra Sagar	E0421	Quality Assurance
27	Dr. M Sahithi	E0419	Quality Assurance
28	G. Ramana	E0215	Quality Control
29	S. Seshagiri	E0194	Quality Control
30	Vishal A	E0385	Quality Control

EHS TRAINING NEEDS CUM TRAINING CALENDAR FOR THE YEAR – 2023

S. No	Training Topic	Targeted Group (whom needs to be trained)	MONTHS														
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec			
1	Emergency Preparedness and Response	All level of Employees															
2	Permit-To-Work System & LOTO	All Supervisor(s), Shift In-charge(s) and above															
3	First Aid	ERT members															
4	Fire Prevention & Control	ERT members/All level of employees															
5	Handling of Hazardous Chemicals & importance of PPE	All level Employees from WHD, QCD, PRD, PDL, PRE, ESD & EHS															
6	Incident Reporting & Investigation	All level of Employees															
7	Handling of Potent & High Potent APIs	All level Employees from WHD, QCD, EHS, PDL, PRE, ESD & PRD															
8	Electrostatic Hazards & its control	All level Employees from WHD, QCD, PRD, PDL, PRE & ESD															
9	Chemical Health Hazards	All level Employees from WHD, QCD, PRD, PDL, PRE, ESD & EHS															
10	Industrial Hygiene	All level of Employees															
11	Noise and its effects	All level Employees from ESD, PRD & EHS															
12	Process Hazards Analysis Techniques	PHA Team															
13	Awareness on Environment Management	All level employees from WHD, QCD, PRD, PDL, PRE, ESD & EHS															
14	Safety data Sheet	All level employees from WHD, QCD, PRD, PDL, PRE, ESD & EHS															
15	Handling of Wastes	All level employees from WHD, QCD, PRD, PDL, PRE, ESD & EHS															



**ESCIENTIA ADVANCED SCIENCES PVT LTD  
CONTRACT SAFETY TRAINING ATTENDANCE SHEET**

TOPIC: Emergency preparedness and Response  
Handling of Hazardous Chemicals      DATE: 17/01/2023  
Document Ref. No. if any: MA      TIME: 14:05 to 14:35

NAME OF THE TRAINER: S. Kranthi Kumar

S.No	Name	Contract Agency/Firm	Dept.	Signature
1	B. Devaru	KIP	P.R.D	B. Devaru
2	K. Babu Rao	IFS	P.R.D	K. Babu Rao
3	G. Gangaiah	KIP	P.R.D	G. Gangaiah
4	P. Ram. Moh. Kumar	KIP	P.R.D	P. R. M. K.
5	Ch. Appaiah	KIP	P.R.D	Ch. Appaiah
6	Ch. Ramesh	IFS	P.R.D	Ch. Ramesh
7	K. N. Bhaskar	KIP	P.R.D	K. N. Bhaskar
8	L. Gangaiah	KIP	P.R.D	L. Gangaiah
9	R. RAJU	IFS	P.R.D	R. RAJU
10	S. Govind	IFS	P.R.D	S. Govind
11	M. Ramana	KIP	P.R.D	M. Ramana
12	B. Govind	KIP	P.R.D	B. Govind
13	S. Sankar Rao	KIP	P.R.D	S. Sankar Rao
14	M. Nooka Raju	KIP	P.R.D	M. Nooka Raju
15	J. APPABAO	KIP	PRD	J. APPABAO
16	J. Saikumar	IFS	Production	J. Saikumar

SIGNATURE & DATE OF THE TRAINER: (Signature) 17/01/2023

## ENVIRONMENT, HEALTH AND SAFETY LEGAL REGISTER AND COMPLIANCE STATUS

Sl. No	NAME OF THE LICENSE/ STATUTE	LICENSE / STATUTE NO.	APPLICABLE REGULATION	APPLICABLE RULES / SECTIONS	APPLICABILITY/ SCOPE	RESPONSIBILITY	VALIDITY/ COMPLIANCE STATUS	REMARKS
1	Factory Licence	No. 104374 03/2018-	The Factories Act, 1948.	Under Rule 4(4)	License to work a Factory.	HR	Available.	--
2	Boiler Licence HORIZONTAL MULTI TUBULAR BOILER	AP-6472	Indian Boiler Regulations, 1950.	Under Section 7/8	Certificate for use of a Boiler.	ESD	01/09/2023	--
3	Building Stability	NA	The Factories Act, 1948.	Under Rule 3(8)	Certificate of Stability for the buildings in a factory.	HR	Available.	--
4	Proh & Excise Dept - Methanol License	R.C. No. 164/2023/A2 dated 29.03.2023	Andhra Pradesh Excise Act, 1968, Andhra Pradesh Prohibition Act, 1995.	-	License to possess and use of Methanol for Industrial Purpose.	HR	31/03/2024	--
5	Drug Licence Form 25	No. 06/VSP/AP/2018/B/G dated 06/04/2018	Drugs and Cosmetics Act, 1940 and Rules, 1945 As amended up to the 31st December, 2016	Under Rule 70	License to manufacture for sale (or for distribution) of drugs.	RA	05/04/2028	--
6	Consent for Operation (CFO)	No: APPCB/VSP/VSP/32 7/HO/CFO/2018 dated 28/02/2018	1. The Water (Prevention and Control of Pollution) Act, 1974 2. The Air (Prevention and	1. Under Section 25 2. Under Section 21	Environmental Clearances from Ministry of Environment and Climate Change, Central/State Pollution Control Board for	EHS	31/12/2023	--

ENVIRONMENT, HEALTH AND SAFETY LEGAL REGISTER AND COMPLIANCE STATUS

			Control of Pollution) Act, 1981. 3. The Hazardous Waste (Management & Transboundary movement) Rules, 2016.	3. SCHEDULE I Under Rule 3 (1) (17) (i)	Industrial Establishment/ operation.		
7	Fire Licence	No. 339/MSB/ER/VSP/2016 dated 25/04/2023	Andhra Pradesh fire & emergency operations and levy of rules, 2006.	Under rule 15	No objection certificate for occupancy.	EHS	24/04/2026
8	PESO License - Class A, B & C (Petroleum & Explosives Safety Organization)	No. P/HQ/AP/15/4998(P 369718) dated 10/06/2022	The Petroleum rules, 2002.	Article 6 of the first schedule.	License to import and store petroleum in an installation.	EHS	31/12/2026
9	PESO License - Gas Cylinders (Petroleum & Explosives Safety Organization)	No. G/5Z/AP/06/7287 (G45274)	The gas cylinders rules, 2016.	Under rule 50, 51 & 54	License to store compressed gas cylinders.	EHS	30/09/2025
10	Proh & Excise Dept - RS/III License (Ethanol)	CR. No.:2562/2019/CPE/G1dated 01/04/2023	The Andhra Pradesh Distillery (Manufacture of Spirits) Rules, 2006.	-	License to possess and use of Rectified spirit or Ethanol for Industrial Purpose.	HR	31/03/2024
11	Narcotic License (Acetic anhydride)	NCB F. No. 48/15/12/Online URN/2016/BZU/781 dated 08/08/2018	The Narcotic drugs and Psychotropic Substances (Regulation of Controlled	Form A (subclause (1) of Clause 4)	Registration for manufacture/ distribution/ sale/ purchase/ possession/ storage / consumption	HR	NA

ENVIRONMENT, HEALTH AND SAFETY LEGAL REGISTER AND COMPLIANCE STATUS

12	Electrical license (APEPDCL)	No. DES & CEIG/Tech. Sec/HT/VSP-205/D. No./434/17 dated 15/02/2017	The electricity act, 2003 & Under regulation 43(3) of Central Electricity Authority (measures relating to safety & supply) regulations, 2010.	Substances) Order, 2013 & The Narcotic Drugs and Psychotropic Substances Act, 1985 (61 of 1985)	Section 54 of the Electricity act, 2003 & Under regulation 43(3) of CEA.	Electrical Installations	ESD	Not applicable.	-		
13	Walkie Talkie licence	NA	The Indian Wireless Telegraphy Act, 1933.		Section 4	License for telecom services	ITD	13/03/2034	-		
14	Bio-medical waste authorization	PCB/ROVSP/BMW/HCE/2020-26 dated 03/09/2020	Bio-Medical Waste Management Rules, 2016		Under Rule 10	Authorization for operating a facility for generation, segregation, collection, storage and packaging of Bio-Medical wastes.	EHS	31/08/2025	-		
15	Form - V Environment Statement	NA	The Environment (Protection) Rules, 1986.		Under Rule 14	Annual statement submission regarding water consumption, products manufactured, RM consumption, HW waste generation and disposal (before 30 <sup>th</sup>	EHS	30/09/2023	-		

ENVIRONMENT, HEALTH AND SAFETY LEGAL REGISTER AND COMPLIANCE STATUS

						September of every year).			
16	Form - IV Returns regarding disposal of hazardous wastes	NA	The Hazardous and Other wastes (Management and Transboundary Movement) Rules, 2016.	Under Rule 6(5)	Annual returns submission regarding generation and disposal of Hazardous and other wastes (before 30 <sup>th</sup> June of every year).	EHS	30/06/2024	-	
17	Half yearly compliance report of CFO conditions	NA	1. The Water (Prevention and Control of Pollution) Act, 1974 2. The Air (Prevention and Control of Pollution) Act, 1981. 3. The Hazardous Waste (Management & Transboundary movement) Rules, 2016.	-	Submission of Half yearly compliance status report regarding CFO conditions.	EHS	31/12/2023	-	

ESCIENTIA ADVANCED SCIENCES PVT LTD  
PERSONNEL PROTECTIVE EQUIPMENT MATRIX

Activity	PICTORIAL	PPPE REQUIRED	Activity	PICTORIAL	PPPE REQUIRED
PVC secondary before entering to any work Areas.		Safety Shoes ✓	Electrode Cap handling the Hydrogen etc.		Shoes
		Safety Goggles ✓			
		Safety Helmet ✓			
Handling of Flammable Gas with proper Corrosive and handling.		Safety Shoes ✓	Water boiler		
		Safety Goggles ✓			
		Safety Helmet ✓			
		Full Face Mask ✓			
Toxic Material Handling (like HCL, Sulfuric acid)		Safety Shoes ✓	Opening of Pipe Work		
		Safety Helmet ✓			
		Full Face Mask ✓			
Cleaning/Handling of caustic chemical (NaOH, H <sub>2</sub> SO <sub>4</sub> )		Safety Shoes ✓	PPE and DG Set use		
		Safety Goggles ✓			
		Full Face Mask ✓			
Cleaning/Handling powder (sulfur Trioxide, silica, Phosphorus and charging in to reactor etc)		Safety Shoes ✓	Working at different steps, such as sample, cooling/boiling, weighing, mixing, etc.		Goggles
		Safety Goggles ✓			
		Full Face Mask ✓			
Gas contained handling, Airborne material handling		Safety Shoes ✓	Working at height, painting, and Chd maintenance.		
		Safety Goggles ✓			
		Full Face Mask ✓			
Process operation in Fire		Safety Shoes ✓	Hot Works like welding, cutting, grinding, heating, rapping etc.		
		Safety Goggles ✓			
		Safety Helmet ✓			
		Full Face Mask ✓			
Process operation in work, includes decompress.		Safety Shoes ✓	Controlled Space Entry		
		Safety Goggles ✓			
		Full Face Mask ✓			
Laboratory work		Safety Shoes ✓	Working on MCC, APC, Isolator, repairing underground cable		
		Safety Goggles ✓			
		Full Face Mask ✓			
Construction Work		Safety Shoes ✓	Electrician work		
		Safety Goggles ✓			
		Safety Helmet ✓			
Manufacturing activities to plant and workshop		Safety Shoes ✓	Gas cylinder handling		
		Safety Goggles ✓			
		Safety Helmet ✓			
Work Under Sampling and Packaging		Safety Shoes ✓	Powder Handling		
		Safety Goggles ✓			
		Full Face Mask ✓			



# Vasant Chemicals Private Limited

**Regd. Office :**

1-11-251/1B, 4th Floor, Vasant Towers,  
Behind Shoppers' Stop, Begumpet,  
Hyderabad - 500 016, Telangana, India

VCPL/SEZ/HR/20/2020-21

Date: 08.09.2020.

TO

The H.R. Department,  
Escentia Advanced Sciences Pvt. Ltd,  
Plot No.11, 11A, 12 and 12A, APSEZ, Atchutapuram,  
Visakhapatnam District.

Dear Sir,

**Sub: Mutual Aid in case of Emergency at our Factories -Reg.**

**Ref: Section 41-B(4) of The Factories Act 1948 and A.P. Factory Rules, Mutual Aid with surrounding factories, regarding facilities available with them to utilize in case of emergency at our plant.**

With reference to the subject cited above, we are requesting you to accept our proposal for MUTUAL AID in case of emergency at both of our factories. We have the following facilities at our factory, which we can spare for you to provide AID at your factory in emergency situations. We are accepting to provide the following facilities in case of emergency at your factory. And we are requesting you to extend your co-operation by accepting to provide AID, which you can spare from the resources available at your factory.

S.No	Details	Resources, we can provide for you In case of Emergency at your Factory.	Availability
1	Manpower	8 persons in A, B & C shifts (including ERT members: 4) 15 persons in General Shift (including ERT members: 10)	Shift Timings: A = 0600 hrs to 1400 hrs B = 1400 hrs to 2200 hrs C = 2200 hrs to 0600 hrs G = 0900 hrs to 1730 hrs.
2	1 Vehicle (Innova)	Based on the availability	24 hrs
3	Fire Fighting Equipment	AFFF-Foam Solution=100 lts. Fire extinguishers: DCP (9KGs)=5 nos, CO2(4.5Kgs)=5 Nos. 100 KL of fire hydrant water is available at our site. (Note: A vehicle is required shift the water). Fire Hydrant hoses & nozzles-2 sets.	24 hrs.
4	Male Compounder	for First Aid treatment at Our Health Center, near main gate.	24 hrs.

S.No	Name	Designation	Mobile No.
1	G.RAGHAIAIAH	Manager-H.R.	98665 44998
2	K. PARASURAM	Manager-E.H.S	95734 00155
3	M.V. SATYANARAYANA RAJU	General Manager-Operations	91210 22445
4	SECURITY	SECURITY OFFICE	89785 00088 /91001 12575

Kindly accept our proposal for MUTUAL AID and arrange to give written consent for the same.

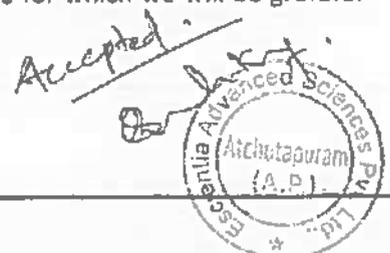
We hereby request you to provide your Ambulance service for our employees in case of any Medical Emergency. We hope you will accept our request and provide the service for which we will be grateful to you.

For VASANT CHEMICALS PVT LTD.,

M.V. SATYANARAYANA RAJU  
GENERAL MANAGER- OPERATIONS

Vasant Group

APSEZ Unit:  
Plot No. 10 & 10A, Western Sector, APSEZ  
Atchutapuram 531011, Visakhapatnam Dist., A.P., India  
Tel: +91-8008022996





ఆంధ్ర ప్రదేశ్ ఆంధ్ర ప్రదేశ్ ANDHRA PRADESH

N. Surya Latha  
CD 016965

SL. No 4003 Date 27/7/18 Rs 100

**NETHI SURYALATHA**

Licensed Stamp Vendor

L.No. 03-12-003-2017

# 10-1-132, Mahamegar,

Old Gajuwala, Visakhapatnam - 530026

Cell : 760023388

Sold to Kiran Reddy Tendri Sr. Yadagiri,

For whom sell

**AGREEMENT TO PROVIDE HOSPITAL SERVICES**

This Agreement is entered into on this 25<sup>th</sup> day of July, 2018 at Visakhapatnam ("Agreement"), by and between:

**Escientia Advanced Sciences Private Limited**, a company incorporated under the provisions of Companies Act, 1956, having its at SEZ Unit, Plot Numbers 11, 11A, 12, 12A, APSEZ Multi Product Special Economic Zone, Atchutapuram and Rambilli Mandals, Visakhapatnam District, Andhra Pradesh, represented by its Authorised signatory Mr. Ashok Kumar Inampudi, hereinafter called as "Escientia" of the First Part.

AND

**SURYA TEJA MULTI SPECIALITY HOSPITAL**, a hospital located at Anakapalle Road, Atchutapuram, Visakhapatnam, represented by its Authorised signatory and licensed medical professional Dr. Budda Kedar Ashok, having Aadhar Number 6333 3774 4-56 hereinafter called as "Hospital" of the Second Part.

Escientia and Hospital are individually referred to as "Party" and collectively as "Parties".

**WHEREAS:**

A. Escientia has established a factory which has many employees working in four shifts, 365 days a year, often in hazardous operations involving chemicals.

*[Signature]*  
**Dr. B.K. ASHOK**, M.B.B.S.D  
R C No 58356  
Surya Teja Multi Speciality Hospital  
ATCHUTAPURAM-531 011

For Escientia Advanced Sciences Pvt.Ltd.,  
*[Signature]*  
Authorised Signatory

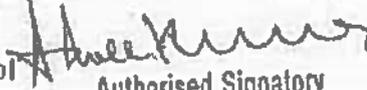
B. Hospital has established a new and modern hospital located nearest to Escientia, with adequate staffing and expertise.

**NOW, THEREFORE,** in consideration of the mutual covenants, terms and conditions and understandings set forth in this Agreement and other good and valuable consideration (the receipt and adequacy of which are hereby mutually acknowledged), both Parties agree as follows:

1. Hospital shall support Escientia and its employees, visitors, contractors, contract workers, or any other persons so sent by Escientia for any reason to Hospital at any time in case of routine or emergency medical situations in a cooperative manner with expert medical attention from licensed professionals such as doctors and nurses. Hospital shall raise bills separately for any medical services provided as per norms to the patient.
2. Escientia shall pay INR 1000 per year in advance by cheque as "retainer fee" in connection with this agreement.

**In witness whereof** the Parties hereto have signed this Agreement on the date mentioned above. Each person who signs this Agreement below represents that such person is fully authorized to sign this Agreement on behalf of the applicable Party and that it shall bind the respective Party.

For Escientia Advanced Sciences Pvt.Ltd.,

For & on behalf of   
Authorized Signatory  
Escientia Advanced Sciences Private Limited

Authorized Signatory

For & on behalf of

  
D. B. WASHUK, M.B.B.S., D.N.B. (Ortho)  
R C No 56366  
Surya Teja Multi Speciality Hospital  
ATCHUTAPURAM-531 011

Authorized Signatory

WITNESSES:

(1) M. S. Muralidharan

(Signature)

Name :

Designation : Manager - HR

Address :

(2) S. Anu Radha

(Signature)

Name :

Designation :

Address :

## RAVINDRA BALAGAM – COMPETENT PERSON

H No. 78-4-9, Syamalanagar, Rajahmundry – 533103 A.P

Ph: 9848290978, Email: proaction.in@gmail.com

Cert. No. EAG/L123/01

### FORM NO -38

(Prescribed under Rule 55 & 55A)

(Report of Examination of Hoist or Lift or Lifting Machinery / Tackle)

	Name of the Occupier (or Factory) Situation address of Factory	:	M/s ESCIENTIA ADVANCED SCIENCES PVT. LTD Plot No-11, APSEZ, Atchutapuram, Visakhapatnam
1	(a) Type of Hoist or Lift or Lifting Machinery Tackle and identification number or description	:	Electric traction Passenger cum Goods Lift -1 Make: Dharmajyot Engineers & fabricators, Cap – 1500 Kgs, G+3 Floors, Auto Door. Drive: BBL, Wire rope 13 mm dia, 4 fall
	(b) Date of Construction or Reconstruction (if ascertainable)	:	2016
2	Design and Construction (Are all parts of the Hoist or Lifting Machinery / Tackle of good mechanical construction, sound material and adequate strength as far as ascertainable.)	:	Good
3	Distinguished Number of mark (if any) and Description sufficient to identify the Lifting Machine, Chain ropes or the Lifting Tackle	:	Sr.No. M-1604990 Location: Teris Plant Tag No. PL-1101
4	Maintenance: Are the following parts of the Hoist or Lift properly maintained and in good working order? If not, state what defects have been found	:	Not Applicable
	a) Enclosure of Hoist way or Lift way	:	Satisfactory
	b) Landing gates and cage gate(s)	:	Satisfactory
	c) Interlocks on the landing gate(s) and cage gate(s)	:	Satisfactory
	d) Other gates, fastenings	:	Satisfactory
	e) Cage and Platform and fittings, guiders, buffers, interior of the Hoist way or Lift way	:	Satisfactory
	f) Over- running devices	:	Satisfactory
	g) Suspension ropes or chain and their attachments.	:	Satisfactory
	h) Safety gear i.e. arrangements for prevention fall of platform or cage brakes	:	Satisfactory
	i) Brakes	:	Satisfactory
	j) Worm or spur gearing	:	Satisfactory
	k) Other electrical equipment	:	Satisfactory
5	What parts (if any) were inaccessible	:	Nil
6	(a) Repairs renewals or alterations (if any) required and the period within which they should be executed. (b) Particulars of Parts of Hoist or lifts or Lifting machinery / tackle rejected after the examination.	:	Nil
7	Maximum safe working load subject to repairs, renewals or alterations (if any) specified in Column(6)	:	Capacity: 1500 Ton (SWL)
8	Others	:	The Passenger cum Goods lift thoroughly inspected and tested to the rated capacity and found working in satisfactory condition, Hence fit for use.

I / We certify that on 18.04.2018 thoroughly examined this Hoist / Lift / Lifting Machine / Tackle and the above is a correct report of the result. This certificate valid for six months.

**RAVINDRA BALAGAM**

Approved Competent Person by Govt of AP

Order No: C.P.(O) No. LAE05-12021(68)/24/2022-B SEC-DOF

**RAVINDRA BALAGAM**  
**COMPETENT PERSON**  
**AS PER A.P. FACTORIES RULES**  
# 78-4-9 Syamala Nagar,  
RAJAHMUNDRY, G. # 9848290978

**RAVINDRA BALAGAM – COMPETENT PERSON**  
**H No. 78-4-9, Syamalanagar, Rajahmundry – 533103 A.P**  
**Ph: 9848290978, Email: [proaction.in@gmail.com](mailto:proaction.in@gmail.com)**  
**Report of Examination of Pressure Vessel**  
**Form No. 8**  
**Prescribed under Sec 31 of Factories Act, 1948**

Cert No. PV/12301

1	Name of occupier (or factory)	M/s Escientia Advanced Science Limited
2	Situation of and address of factory	Plot No-11, APSEZ, Atchutapuram, Visakhapatnam
3	Name, description and distinctive Number of Pressure vessel.	Nitrogen Receiver Type: Vertical, Cap: 20 m <sup>3</sup> ID No NR-5101, Loc. Utility Block
4	Name and Address of the manufacturer	M/s AS Engineering Equipment
5	Nature of process in which it is used	For supply of Nitrogen
6	Particulars of Vessel:-	
	a) Date of construction	2015
	b) Thickness of walls	Shell: 10.0, Dishend: 12.0 mm
	c) Date on which the vessel was first taken into use	2017
	d) Maximum permissible working pressure recommended by the manufacturer	10 kg/cm <sup>2</sup>
	e) Design pressure (The history should be briefly given and the examiner should state whether he has been previous report)	11 kg/cm <sup>2</sup> Previous inspection by Narasimharaju on 03-08-2022
7	Date of last hydraulic test (if any) and pressure applied	by the manufacturer @ 12 kg/cm <sup>2</sup>
8	Is the vessel in open or otherwise exposed to weather or to damp?	Kept under shed
9	What parts (if any) were inaccessible?	Nil
10	What examination & tests were made? (specify pressure if hydraulic test was carried out?	Thorough Visual examination and thickness gauging
11	Condition of vessel (state any defects materially affecting the safe working pressure or the safe working of the vessel)	External: Satisfactory Internal: could not examine
12	Are all required fitting and appliances provided in accordance with the Rules for pressure vessels?	Pressure gauge, relief valve, drain are provided
13	Are all fitting and appliances properly maintained and in good condition?	Yes
14	Repairs (if any required and period within which they should be executed and any other condition which the person marking the examination thinks it necessary to specify for securing safe working).	Nil
15	Safe working pressure, calculated from dimensions and from the thickness and other data ascertained by the present examination due allowance being made for conditions of working if unusual or exceptionally severe (state minimum thickness of walls measured during examination).	MPWP of the vessel does not exceeds and within the Limits Min Thickness found as Shell: 10.0, Dishend: 11.5 mm
16	Where repairs affecting the safe working pressure are required state the safe working pressure	Nil
	a) Before the expiration of the period specified (14)	Nil
	b) After the expiration of such period if the required repairs have not been completed	Nil
	c) After the completion of the required repairs	Nil
17	Other observations/Examinations findings.	The Pressure Vessel thoroughly inspected and found to be fit for operation upto the rated working pressure.

I certify that on 29-01-2023, the pressure vessel described above was thoroughly cleaned and (so far as its construction permits) made accessible for thorough examination and for such test as very necessary for thorough examination and that on the said date, I thoroughly examined the pressure vessel including its fittings and that the above is true report of my examination. This certification is valid for six months as per Factories Rules

Ravindra Balagam  
Competent Person

Approved competent person by The Director of Factories, Government of Andhra Pradesh

Order No: C.P.(O) No. LAE05-12021(68)/24/2022-B SEC-DOF

**RAVINDRA BALAGAM**  
**COMPETENT PERSON**  
**AS PER A.P. FACTORIES RULE**  
**R 78-4-9 Syamala Nagar,**  
**RAJAHMUNDRY, CL 9848290978**

**EXAMINATION REPORT OF FULL BODY HARNESS (SAFETY BELTS), LIFELINE, FALL BACK ARRESTER**  
**(Prescribed under Rule 61-C of A.P. Factories-Rules, 1950)**

**Cert. No: RL/123/1**

1. Name of Occupier (or Factory) : M/s Escientia Advanced Science Limited
2. Situation & Address of Factory : Plot No-11, APSEZ, Atchutapuram, Visakhapatnam
3. Name, Description and Distinctive Number of Safety Belt / Life saving device : Aluminium Rope Ladder  
Location: Engineering Warehouse  
10 mtr height
4. S. No. / ID. No. : WH/LD/002
5. Make : Little Giant Ladder Systems
6. Date of manufacture of the device : 2022
7. Condition of the D-ring, Carabiner, Snap hook, straps : Satisfactory
8. State whether the Harness is provided With Single Lanyard or Double and Shock absorber within Lanyard? : not applicable
9. Other observations : Satisfactory

I Certify that on 28-07-2023 the above Life Saving Device was thoroughly examined and conducted such tests as were necessary for thorough examination on the said date,

I thoroughly examined this Safety Belt / Life Line / Fall Arrester including its fittings and that the above is a true report of my examination.

This certificate is valid for six months.

Competent Person  
Seal & Signature:

**Ravindra Balagam**  
Competent Person under A.P Factories Rules  
Order No: C.P.(O) No. LAE05-12021(68)/18/2023-B SEC-DOF

**RAVINDRA BALAGAM**  
COMPETENT PERSON  
AS PER A.P. FACTORIES RULES  
78-2-9, Syamala Nagar,  
RAJAHMUNDRAM Dist. 514602

**RAVINDRA BALAGAM – COMPETENT PERSON**  
H No. 78-4-9, Syamalanagar, Rajahmundry – 533103 A.P  
Ph: 9848290978, Email: proaction.in@gmail.com

Cert. No: EASL823/11

**FORM NO -38**

(Prescribed under Rule 55 & 55A)

(Report of Examination of Hoist or Lift or Lifting Machinery / Tackle)

	Name of the Occupier (or Factory) Situation address of Factory	:	M/s ESCIENTIA ADVANCED SCIENCES PVT. LTD Plot No-11, APSEZ, Atchutapuram, Visakhapatnam
1	(a) Type of Hoist or Lift or Lifting Machinery Tackle and Identification number or description	:	Fork Lift Make: ACE, Cap: 2 Ton, Lift: 3 mtr, Type: Battery operated
	(b) Date of Construction or Reconstruction (if ascertainable)	:	2022
2	Design and Construction (Are all parts of the Hoist or Lifting Machinery / Tackle of good mechanical construction, sound material and adequate strength as far as ascertainable.)	:	Good
3	Distinguished Number of mark (if any) and Description sufficient to identify the Lifting Machine, Chain ropes or the Lifting Tackle	:	ID No. WHD/FLT-003 SI No. F42204108021 Location: Warehouse
4	Maintenance: Are the following parts of the Hoist or Lift properly maintained and in good working order? If not, state what defects have been found	:	Not Applicable
	a) Enclosure of Hoist way or Lift way	:	Not Applicable
	b) Landing gates and cage gate(s)	:	Not Applicable
	c) Interlocks on the landing gate(s) and cage gate(s)	:	Not Applicable
	d) Other gates, fastenings	:	Not Applicable
	e) Cage and Platform and fittings, guiders, buffers, interior of the Hoist way or Lift way	:	Not Applicable
	f) Over- running devices	:	Satisfactory
	g) Suspension ropes or chain and their attachments.	:	Not Applicable
	h) Safety gear i.e. arrangements for prevention fall of platform or cage brakes	:	Not Applicable
	i) Brakes	:	Satisfactory
	j) Worm or spur gearing	:	Not Applicable
	k) Other electrical equipment	:	Satisfactory
5	What parts (if any) were inaccessible	:	Nil
6	(a) Repairs renewals or alternations (if any) required and the period within which they should be executed. (b) Particulars of Parts of Hoist or lifts or Lifting machinery / tackle rejected after the examination.	:	Nil Nil
7	Maximum safe working load subject to repairs, renewals or alterations (if any) specified in Column(6)	:	Capacity : 2 Ton (SWL)
8	Others	:	The said battery operated fork lift thoroughly examined and tested to rated capacity, found in satisfactory condition, Hence fit for use.

I / We certify that on 02.08.2023 thoroughly examined this Hoist / Lift / Lifting Machine / Tackle and the above is a correct report of the result. This certificate valid for twelve months.

  
**RAVINDRA BALAGAM**  
Approved Competent Person by Govt of AP  
Order No: C.P.(O) No. LAE05-12021(68)/18/2023-B SEC-DOF  
**RAVINDRA BALAGAM**  
**COMPETENT PERSON**  
**AS PER A.P FACTORIES RULES**  
78-4-9, Syamala Nagar,  
**RAJAHMUNDRY Cell 9848290978**



"STUDIO - 10", Vasavi Street,  
 Plot No. 32 & 33, Kamala Nagar,  
 Kelambakkam, Chennai - 603 103.  
 Email: [admin@sunteknoloji.com](mailto:admin@sunteknoloji.com)  
 M: 9790927580 / GSTIN: 33AEPG2831N1Z8

**Certificate of Calibration**

Certificate No	0702/LUX/2023-2024	Date	04-07-2023
Name of the Customer	M/s Escientia Advanced Sciences Private Limited, Plot No:11, 11A, 12&12A in APSEZ, Visakhapatnam - 531011.	Customer Reference	Calibration
		Ref No	92000473
		Date	14-06-2023
		Date of Receipt	20-06-2023
		Status	Satisfactory

Date of Calibration	03-07-2023	Due Date	02-07-2024
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Calibration Procedure Reference	CAL/GEN/LUX
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Environmental Conditions	Temp: 25°C ± 5°C	Relative Humidity	35% to 65%
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Equipment	Make	Model	SI No	Range
LUX Meter	Exttech	HD 450	161215240	400K
	Accuracy	Least Count	Sensor Type	
	±2%	0.01K	Photo	

**Details of Calibration**

Standard Calibration Value/ Range	Reading of Reference Equipment K Lux	Reading of Customer Equipment K Lux	Error in K Lux	Remark
12.25K	12.25	12.26K	0.01K	OK
12.25K	12.25	12.25K	NIL	OK

Traceability	REFERENCE LUX METER & Standard Light Source With Slit. MODEL NO: TES 132 Valid Upto 13th Nov, 2023.
--------------	--

Calibrated By

Checked by



Seal

Authorised Signatory

*H. Manikandan*

*[Signature]*

*[Signature]*



"STUDIO - 10", Vasavi Street,  
 Plot No. 32 & 33, Kamala Nagar,  
 Kelambakkam, Chennai - 603 103.  
 Email: [admin@sunteknolozy.com](mailto:admin@sunteknolozy.com)  
 M: 9790927580 / GSTIN: 33AEPGG2831N1Z8

**Certificate of Calibration**

Certificate No	0704/Anemo/2023-2024	Date	04-07-2023
Name of the Customer	M/s Escentia Advanced Sciences Private Limited, Plot No:11,11A,12&12A in APSEZ, Visakhapatnam - 531011.	Customer Reference	Calibration
		Ref No	92000473
		Date	14-06-2023
		Date of Receipt	20-06-2023
		Status	Satisfactory

Date of Calibration	03-07-2023	Due Date	02-07-2024
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Calibration Procedure Reference	Ca/GNL/005
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Environmental Conditions	Temp: 30°C ± 5°C	Relative Humidity	35% to 65%
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Equipment	Make	Model	SI No	Range
Thermo Anemometer	Omega	HHF142	1019093	40 M/sec
	Accuracy	Least Count	Sensor Type	
	± 2%	0.1° C	Hot Wire	

**Details of Calibration**

Standard Calibration Value/ Range	Reading of Reference Equipment	Reading of Customer Equipment	Error	Remark
5.00 M/sec	5.02 M/Sec	5.02 M/Sec	0.02 M/ Sec	Pass
10.00 M/sec	10.01 M/Sec	10.01 M/Sec	0.01 M/ Sec	Pass
10.00 M/sec	10.00 M/Sec	10.00 M/Sec	NIL	Pass

**Traceability** Thermo Anemometer Metravi AVM 04 , with Validity up to 09th January, 2024.

Calibrated By  
*H. Maniandan*

Checked by  
*[Signature]*



Seal

Authorised Signatory  
*[Signature]*

**GOVERNMENT OF ANDHRA PRADESH  
FACTORIES DEPARTMENT**

-:-

From:  
Sri. V Suresh  
B. E., MBA,  
Deputy Chief Inspector of Factories  
Visakhapatnam

To:  
Sri. Kiran Reddy Pendri,(Age: 35 Years)  
S/o. Yadagiri Reddy pendri,  
Occupier,  
Sri. Sanjay Kumar Vaishnava,  
S/o. Dhan Das Vaishnava,  
(Age: 56 Years),  
Manager,  
M/s. Escientia Advanced Sciences Pvt.  
Ltd., APSEZ, Atchuthapuram  
Plot No11, 11A, 12 & 12A,  
Anakapalli District.

**Lr.No: A/ 339682/ 2023, Dt: -03-2023**

<b>Name &amp; Address of the factory</b>	M/s. Escientia Advanced Sciences Pvt. Ltd., APSEZ, Atchuthapuram, Plot No: 11, 11A, 12 & 12A, Anakapalli District. <b>R. No: 104374</b>			
<b>Audit Date</b>	19.10.2022		<b>Regular</b>	233
<b>Audit Team Members</b>	Sri. J. Sivasankara Reddy, Joint Chief Inspector of Factories, Visakhapatnam	<b>No of workers Present</b>	<b>Contract</b>	184
	Sri P. Chinna Rao, I/c. Inspector of Factories, Visakhapatnam-II.		<b>Casual</b>	-
			<b>Total</b>	427

## Improvement Notice

*The following are the recommendations made by the audit team. They shall be complied immediately and a report in writing shall be submitted in this office within **15 days** from the date of receipt.*

<b>A. Health And Safety Policy</b>		
1	b	The Health and safety Policy has to be prepared keeping the guidelines under Rule 61(SB)A of AP Factory rules like arrangements for involving the workers, Considering safety performance of individuals in career advancement, fixing the responsibility of the contractors and other agencies entering the premises, conducting periodical audits and risk assessments, arrangements for informing, training and retraining of workers etc and shall be submitted
2	c	The policy shall be translated into local language also and be made available at all locations.

<b>B. Safety Department</b>		
1	a	Appoint a knowledgeable person exclusively for administration of safety and health at work in the factory and report the details

<b>C. Safety Committee</b>	
3	<p>a • The safety committee shall function and should discharge its duties towards b Creating safety awareness among workers/ Undertaking educational, training c &amp; Promotional activities/ Reviewing the documents like HARA, HAZOP, Audit, d Onsite Emergency Plan and recommendation implementation / Carrying out e H &amp; S Surveys/ Looking into complaints by workers on imminent dangers etc.</p> <p>• Appoint a Medical Officer with the qualifications specified in Rules. The Medical Officer should be a member of committee to survey health of workers engaged in handling of Chemicals.</p>

<b>D. Safety Budget</b>	
1	<ul style="list-style-type: none"> <li>• <b>Annual safety budget in the year <u>2021-22</u> is not mentioned.</b></li> <li>• <b>Percentage of this budget in the total turnover of the company is not informed.</b></li> </ul> <p>No practice of separate budget allocation is being followed. Use the allocation of budget as a tool</p> <ul style="list-style-type: none"> <li>• To make provision for future improvements towards the compliance of legislation and recommendations from safety monitoring activities, risk assessment and accident investigations.</li> <li>• To ensure managers pay sufficient attention to the subject and in assessing future workplace safety provisions;</li> <li>• To encourage the creative thinking and proactive approach in enhancement of safety at workplace (Encouraging Research, Learning from Best Practices etc.)</li> </ul>

<b>E. Information, Instructions, &amp; Training</b>	
1	<p>b The Safety Data Sheets of the all intermediates derived from Key Start Material to finished product are not available; and some of the MSDS of intermediates produced are not containing properties like physical, chemical, biological, threshold quantities of LD50/LC50 and antidotes if any person affected.</p> <p>MSDS of all chemicals shall be made available and accessible to all workers both in English and the local language.</p>
2	<p>a Arrange a separate training cell in the factory for extending continuous training on various aspects in safety and health at work.</p> <p>b i. The induction training for employees was not included with safety and Health module. It shall be designed suitably.</p> <p>ii. The induction training to contract workers was not adequately designed to cover all the basic aspects of health and safety at work. <b>The training hours for Regular Workers should be 6 to 8 Hours and Contract Workers: 2 to 4 Hours.</b></p>
3	<p>a Persons holding supervisory position and overseeing the handling of hazardous materials shall be got trained in prescribed course as detailed in Rule 61(SC) F. They shall also be trainers for workers in the factory</p> <p>b i. Specific retraining shall be extended to the workers whenever a new hazard is added in to the factory as no such practice is in force.</p>

	ii. Arrange for a calendar for <b>Refresher</b> training for all workers in OHS matters and implement the same
c	The data with reference to number of persons trained, Number of training Man hours etc shall be maintained for at least for last 2 years
d	The safety training record shall be maintained in <b>worker wise</b> so as to assess the training effectiveness and designing the future schedules

<b>F. Accident / Near Miss Reporting</b>	
1	There is no record of investigations carried on in to such near miss incidents is available in the factory. Arrange for this system and maintain the record for at least 3 years.

<b>I. General Working Conditions:</b>	
	<b>House Keeping</b>
1	a There are working conditions which make the floors slippery.
	b Corrosion was noticed at different locations in the passages, floors etc.
	e Drip trays should be positioned wherever necessary.
	g Walk ways across the plant as well as locations for material placement shall be clearly painted.
	h Conduct inter departmental competitions in the factory for good housekeeping & the best can be suitably awarded. Explain the house keeping standards to all the workers elaborately based which the competitions can be held.
	i
	<b>Ventilation</b>
2	a <b>Natural ventilation in different sections are inadequate, the number of air changes per hour should be measured in Production blocks.</b>
	b <b>Fumes/ vapours are being generated in the process area. (Suite – 1 &amp; 2 of 2<sup>nd</sup> &amp; 3<sup>rd</sup> floors.)Take necessary steps to render them safe.</b>
	c Provide local exhaust system at the man holes of the reactors where the chemical dust / vapor is escaping into work environment and connect the same to a scrubber. <b>(2<sup>nd</sup>&amp; 3<sup>rd</sup> floors of production blocks (suite) 1 &amp; 2.)</b>
	d Get the ventilation study done through a competent resource for <b>production blocks and other</b> sections in the factory where only natural ventilation prevailed and submit the report.
	e Maintain proper record for periodical preventive maintenance of ventilation system.
	g Get the work environment monitored in the sections like clean rooms where the air is re-circulated for the minimum percentage of Oxygen and presence of flammable / toxic materials with on line detection systems
	<b>Illumination</b>
3	a Arrange for lighting audit towards assessing the sufficiency and suitability of lighting based on the nature and type of the work at each location and arrange for measuring the lighting level during day and night times separately in comparison to such assessed levels of lighting and maintain the record.
	d The possibility of formation of Glare and shadows shall be also examined during night time and accordingly the lighting shall be arranged to avoid them.

<b>J. Hazard &amp; Risk Control</b>
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2	The HARA report needs to be immediately revised as is not covering the products/intermediates of <b>the products (15no's) produced in annexure</b> . It shall be submitted in this office along with the compliance report on recommendations in the report.
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<b>K. Safe Operating Procedures</b>		
1	b	The SOPs shall be displayed or made available at work places for ready reference
	e	All the SOPs shall be reviewed and updated at least once in a year or as and when there is a new learning by taking in to consideration the data on accidents & near miss incidents as well as the experiences across the industry, in order to enhance the safety integration in the operations even though there are no changes
	f	Prepare written SOPs for the operations like 1) data of accident and record keeping and 2) definition of processing and non-processing area to restrict the contract workers' entry in to the processing area 3) for the operations like engagement of contract worker in chemical handling and implement after appropriate training to the workers. 4) Shift relieving activities, engaging new shift relievers, working hours if the workers engaged to continue in the same shift and reporting to Inspectorate of Factories. 5) reporting to Inspectorate of Factories, if any deviations from Form-11. 6) Pre and Post employment medical examinations. 7) Health and Safety Surveys by safety committee along with Industrial Hygienist. 8) inclusion of certification of competent person in the confined space entry work permit. 9) <b>The operations of boiler by contract workers</b> and appropriate training to them. 10) Notifying the emergency works to the Inspectorate of Factories.
	b	<b>The contract workers engaged in the operations, which are not covered by the licences issued under Contract Labour (Abolition &amp; Regulation ) Act. The Integrated annual returns were not submitted annually. The details of contractors are not available.</b>
	c	The operations performed by contractors namely <b>Charan engineering – technical &amp; vignan electrical work engaged in production</b> , in which the contract workers are found engaged without proper license. This shall be dispensed with immediately. The operations namely dispensing, unloading, loading, transferring of drums, assisting directly to chemists other than non-processing area, in which the contract workers are found engaged without proper license. This shall be dispensed with immediately. <b>Activities to be performed shall be covered in CLA.</b>
3	a	i. The contract workers are found working in activities having interface with the chemicals near reactors and other equipment with hazardous substances but they were not trained in chemical safety. This shall be addressed suitably.
		ii. Engaging the contract workers shall be avoided in charging the raw materials into the reactors and other operations involving transfer of chemicals which are part and parcel of core manufacturing activity.
	b	<b>The contract workers operations should be covered by SOPs.</b>
	c	Get the contract workers adequately trained on SOPs being adopted as the same was found not attempted suitably

<b>L. Emergency Management</b>		
1	a	<b>On site emergency plan is not prepared by considering all hazards identified in HARA as well as associated worst cases among the all-credible cases.</b>
	b	No steps were found taken to make the workers aware of Onsite emergency plan and its details. Arrange for training on this topic immediately.
	c	The scenarios identified are only for raw materials, no emergencies identified based on the chemical in process like chances of runaway reactions and the emergencies associated with the specific processes.
	d	The possible emergencies shall be reviewed based on the industry experience and internal assessments once in every year. The onsite emergency plan shall also be revised based on this review.
	e	The emergency plan is not reflecting the arrangement made if any for summoning the outside help rescue, firefighting, urgent medical needs. Ensure their coverage while revising the plan.

<b>M. Maintenance and Condition Monitoring</b>		
1		<b>Statutory tests should be added in the Preventive maintenance schedules for all equipment &amp; instruments etc...</b>
2	a	All the parts of plant, equipment and machinery, failure of which can rise to emergency situation shall be got identified and tested once in 2 years as per the test procedure evolved by the competent person and record shall be maintained
	b	All the parts of plant, equipment and machinery, failure of which can rise to emergency situation shall be got identified and examined by the competent person once in a month.
3		Get all parts of lifting machinery found being used like chain pulley blocks including their lifting tackles thoroughly been examined by a competent person immediately and in future once in 12 months. Get all parts of lifting machinery found being used like chain pulley blocks including their lifting tackles thoroughly not been examined in the presence of competent person. Hence it is treated as not tested and test it once again.
4	a	i. Get the pressure plants including pressure vessels having pressure greater than atmospheric pressure like air receives been examined and tested as per the prescribed periodicity by a competent person. The Pressure vessels tested and examined not in the presence of competent person. Hence it is not considered as tested, and test it once again.
		ii. The mountings of pressure vessels like SRV are found not got tested & examined by the competent person approved by the Director of Factories, AP
	b	The pressure vessels were found due for Hydrostatic tests. Get them tested immediately as prescribed. <ul style="list-style-type: none"> <li>• <b>On 02/08/2022, tested pressure vessels are – 28 no's from 15:20 hrs. to 20:15 hrs.</b></li> <li>• <b>04/8/2022 total pressure vessels – 20 from 9:30 hrs. to 17:40 hrs. and 10 lifting tackles, 6 safety belts.</b></li> </ul>
5		All instruments and safety devices used in the process shall be tested before taking into use and after carrying out any repair to them and shall be examined periodically once in a month, by a competent person approved by the Director of Factories, AP, Vijayawada and record shall be maintained.

9		Get the factory buildings certified for their stability by the competent person approved by the Director of Factories, AP. Get the building certified immediately and furnish the details of the same.
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### N. Work Permit System

2	a	The physical fitness of the worker shall be cross checked each time a worker is engaged in an activity covered by permit system
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### O. Process Safety

1.	a	Provide rupture discs in addition to SRV to all SS reactors and Rupture discs to GLRs in the factory.
	b	Determine the size of SRV/RD based on the vent size calculations made for each reactor and maintain the record of the same.
4	b	Automatic vacuum cut off arrangements should be made to the vacuum pump; so as to limit the vacuum in safe limits at all times.
5	a.	Provide suitable provisions such as automatic and remote control systems for controlling the effects of dangerous chemical reactions.
	b.	Provide automatic flooding or blanketing or other effective arrangements to come into operation in the event of failure of such control arrangements.
	c.	Provide automatic audio-visual warning devices to the reactors preferably by integrating with process correction systems
	d.	Arrange for process heating in equipment is designed to automatic control and cut off the heating below the predetermined safe limit and arrange for checking them daily and tested once in a month
	e.	Provide an automatic feed cut off arrangement provided to stop the addition of materials into reactor if the process conditions excessively deviate from normal limits
	f.	Arrange for all safety instrumentation checking daily and testing once in a month. Checks in daily rounds should be maintained in log Book.
6		Arrange all the reactors in which exothermic/ runaway reactions /distillations are being carried on either in isolation or installed in separate sheds
11		Production in the factory involves handling of toxic chemicals. Provide sufficient continuous exhaust arrangement to said process and get it interlocked with the said process so as to ensure the process can not be carried on without the operation of said ventilation system
12		Through ventilation system needs to be provided in all production blocks and processing areas. <b>(Suite 1 &amp; 2, 2<sup>nd</sup> &amp; 3<sup>rd</sup> floor.)</b>
14		The serious operations are involved in Hydrogenation processes, special strategy should be developed to mitigate untoward incidents. Submit the same.
17		Arrange for studying the critical properties like Minimum Ignition energy (Layer/Cloud), particle size, and minimum dispersal concentration etc...for all <b>the powders and based on the finding, take necessary steps for prevention of dust explosions for the powders having the property of</b> like Minimum Ignition energy less than <b>10mJ.</b>
18	a	Provide suitably designed chemical and heat resistant full body suits to the workers engaged in charging of chemicals in to reactors either with SCBA or online air supply
19	b	Get the scrubbers functioning interlocked with process continuity so as to interrupt the process if the scrubber failed to function
	c	Arrange for periodical sampling of scrubbing media in scrubbers and analysis

	for its potentiality and maintain the data
22	The initiatives like timely intervention, correction, counseling or coaching designed and being practiced for abnormal behavior of workers at work especially in the areas of chemical safety & Process Safety.

<b>P. Fire Safety</b>	
21	a. Identify all process, storages, equipment and plants where in serious explosion and flash fire hazards are present and propose them only in a segregated buildings b. Identify all industrial processes involving serious fire hazard and locate them locate them in buildings or work places separated from one another by walls of fire-resistant constructions
22	The equipment having serious fire hazard like reactors, centrifuges etc shall be isolated from rest of the work place.
23	Provide electrical interlocking to the dampers in ventilation ducts with smoke/heat detection system
24	The Gas cutting operations shall be carried on with relevant precautions like cylinder handling, PPE, Flash back arrester, gauges in good condition etc
34	The fire fighting systems in the factory are not in proportion to the fire load potential in the factory thereby the factory is not self sufficient. Get the fire safety audit done through an expert third party and submit the compliance report
35	Arrange for well ventilated rooms of fire resisting constructions which are isolated from the remainder of the building by fire walls and self closing fire doors for keeping the flammable liquids, if any, intended for batch production requirements in production blocks
36	Provide Fire resisting doors at appropriate places along the escape routes to prevent spread of fire and smoke, particularly at the entrance of lifts or stairs where funnel or flue effect may be created inducing an upward spread of fire
39	Arrangements should be made for removing the smoke immediately after a fire in an enclosed area

<b>Q. Storage and Handling</b>	
2	Provide standby storage container equal to biggest container in order to transfer the hazardous substances if any defect develops in any of the container
4	Provide the bund walls independently to each of the Bulk storage tanks, process storage tanks, receivers containing flammable, toxic and corrosive chemicals (instead of common bund walls) in order to reduce the risk.

<b>R. Equipment Safety</b>	
7	<u>Driers:</u> <ul style="list-style-type: none"> <li>Provide safety ventilation system to dilute flammable mixture in air to limit the concentration to 25% LEL.</li> <li>Provide arrangements to prevent dripping of combustible substances on electric heaters or burner flame.</li> </ul>

<b>S. Electrical Safety</b>	
6	The rubber mats should be examined periodically by an authorized person and record of such examinations shall be maintained and made available during

inspection.
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**U. Additional Recommendations:-**

<i>Recommendations</i>
1. Provide Latch to the hook of the mobile crane.
2. Provide fire module over the furnace oil panel board.
3. Provide Iron grill below the transport sheets over the roof of boiler in order to arrest fall of workers whenever maintenance works are going on the roof.
4. Provide fire module over the panel board in power house.
5. Provide water sprinkler system in commercial block 2,3,4, in production block.
6. Provide bushes to the legs of the stands in production block.
7. Provide water sprinkler system in Kilo lab (Commercial block -2).

Deputy Chief Inspector of Factories,  
Visakhapatnam

Copy submitted to the Director of Factories, Andhra Pradesh, Vijayawada.  
Copy submitted to the Collector & District Magistrate, Anakapalli.

## OFFICE OF THE DEPUTY CHIEF INSPECTOR OF FACTORIES, VIZIANAGARAM

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No .R.No. 104374 /2024/Special, Dt. 24-08-2024

Sub: Factories Act & A.P. Factories Rules, 1950 – Accidents – Fatal accident in M/S Escientia advanced sciences Private Limited ,Plot No 11,11A,12,12A , APSEZ,Atchutapuram ,Anakapalli District on 21.08.2024 at 2.20 PM - Violation of certain provisions of Act & Rules – Prohibitory Orders issued – Reg

- Ref: 1. Telephonic Message of accident at 2.45 PM on 21.08.2024 by ZM APIIC Anakapalli
2. Preliminary Investigation of the accident by Joint Chief Inspector of Factories, Visakhapatnam along with Deputy Chief Inspector of Factories, Vizianagaram and Inspector of Factories , Visakhapatnam –II on 21.08.2024 at 3.15 PM

On 21-08-2024 in "A " shift the distilled Methyl Tert-Butyl Ether (MTBE) from the reactor in 2<sup>nd</sup> floor was being collected in the 100 Lts receiver and then transferring from receiver to out side storage tank of 10 KL capacity at west side of block by applying Nitrogen pressure . The boiling point of MTBE is 55 oc and flash point is - 28 oc. The LEL and UEL are 1.6% and 15.1% respectively. At about 1.55 PM the workers have observed that the leakage from flange at first floor and falling through cable opening floor cut and is falling on MCC panel located at ground floor .The entire building was provided with recirculated AHU by providing ducts in all floors and main AHUs are located at ground floor . The MTBE vapours at ground floor and first floor are sucked through AHU and circulated to all other areas like PD LAB and other rooms . .At about 2.20 PM due to some ignition source either at electrical panel or static charge ,the vapours accumulated heavily in the ground floor and spreaded through AHU duct caught fire and exploded heavily due to vapour cloud explosion. Due to that impact MCC panel blasted and the walls of PD lab and AHU corridor walls ,ducts of AHU and false ceiling in the ground floor were found collapsed and fire with smoke spreaded to the all 4 floors and resulting into death of 17 workers and injuries to 38 workers .

During enquiry of this accident on 21-08-2024 at 2.20 PM by Joint chief Inspector of Factories, Visakhapatnam along with Deputy Chief Inspector of Factories, Vizianagaram and Inspector of Factories, Visakhapatnam-II, it was found that the said

accident had taken place as a result of non-compliance of various statutory obligations prescribed under the Factories Act and Rules made there under as follows.

- a. Hazard Analysis & Risk Assessment study was not carried on for manufacturing of RGP (Remigepant sulphate) product and not submitted the report along with compliance of recommendations to the office at least 15 days before commencement of process
- b. Hazard & Operability Study for qualitative assessment of risk was not carried for manufacturing of RGP (Remigepant sulphate) product duly considering the risks due to MTBE solvent and not submitted the report along with compliance of recommendations to the office at least 15 days before commencement of process
- c. Condition monitoring of the pipelines carrying the MTBE to ensure mechanical integrity was not done by a competent person
- d. The condition imposed while approving the plans vide Lr No LAE05-11021(35)/24/2024-ASEC-DOF-dt 13.03.2024 that balconies shall be provided for all the elevated floors of process buildings where hazardous chemicals are being stored /processed was not complied with

In view of the above observations, there is a reason to believe that there is an imminent danger to the life and health people working therein if the operations are allowed to be carried on. Therefore, the following prohibitory orders are issued.

#### Prohibitory Orders

##### 1. Section 40(2) :-

Carrying on the manufacturing operations /Processes in the Production block is hereby **PROHIBITED** with immediate effect until-

- (i) Hazard Analysis & Quantitative Risk Assessment study shall be carried for manufacturing of RGP (Remigepant sulphate) product and submitted the report along with compliance of recommendations to the office
- (ii) Hazard & Operability Study for qualitative assessment of risk shall be carried duly considering the risks due to MTBE solvent and submitted the report along with compliance of recommendations to the office
- (iii) the pipelines carrying the hazardous chemicals like MTBE shall be got tested by a competent person to find out the defects and produce the record

- 3
- (iv) Balconies shall be provided for all the elevated floors of process buildings where hazardous chemicals are being stored /processed

The prohibitory orders are issued with immediate effect and shall be in force until they are revoked.

*[Signature]* 24/8/24  
Deputy Chief Inspector of Factories,  
Vizianagaram .

To

1. Sri. Kiran Reddy Pendri , Occupier.

S/o Yadagiri Reddy pendri

2. Sri. sanjay Vaishnava , Manager.

M/S Escientia advanced sciences Private Limited ,Plot No 11,11A,12,12A ,  
APSEZ, Atchutapuram ,  
Anakapalli District



Revised by

*[Signature]*  
P. Srinivas

24/08/2024

9849003551

Asst. Manager - HR

**BY REGISTERED POST WITH ACKNOWLEDGEMENT DUE****GOVERNMENT OF ANDHRA PRADESH  
FACTORIES DEPARTMENT**

-:-

From  
Sri. G.V.V.S. Narayana,  
M.E.,  
Deputy Chief Inspector of Factories  
Vizianagaram.

To  
1.Sri. Kiran Reddy Pendri,(Age: 35 Years),  
S/o. Yadagiri Reddy Pendri,  
Occupier,  
2.Sri. Sanjay Kumar Vaishnava, (Age: 56 Years),  
S/o. Dhan Das Vaishnava,  
Manager,  
3.Sri UAN Raju (Age : 53Years)  
S/o Satyanarayana raju  
Manager  
M/s. Escientia Advanced Sciences Private Limited,  
Plot No11, 11A, 12 & 12A  
APSEZ, Atchuthapuram,  
Anakapalli District.-531011

**Lr. A. No. 74939/2024, Dated: 16-10-2024**

Sir,

Sub:- Factories Act - 1948 and A. P. Factories Rules - 1950 M/s. Escientia Advanced Sciences Private Limited, Plot No11, 11A, 12 & 12A, APSEZ, Atchuthapuram, Anakapalli District – Non-Compliance of certain provisions – Show Cause Notice Issued - Regarding.

Ref:- This office Inspection Order No. R. No. 104374/2024, dt: 16 -10-2024.

-:-

Please show cause in writing within **07 days** of receipt of this notice, why prosecution should not be taken against you for non-compliance of the provisions of the above Act and Rules, as detailed in the Inspection Order cited above

Yours faithfully

Encl: Inspection Order.

  
(G.V.V.S. Narayana)  
Deputy Chief Inspector of Factories,  
Vizianagaram.

OFFICE OF THE DEPUTY CHIEF INSPECTOR OF FACTORIES: VIZIANAGARAM.

R. No. 104374/2024

Date: 16-10-2024.

INSPECTION ORDER

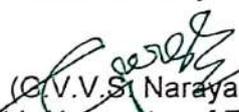
Factories Act, 1948 and A.P. Factories Rules, 1950 and the Government Notification issued thereon.

Sir

Upon a recent Inspection of the factory by me along with Inspector of Factories, Visakhapatnam-II on 21.08.2024 at 03:20 PM , on 22.08.2024 at 9.00 AM by me along with Inspector of Factories, Visakhapatnam-II and again on 24.08.2024 at 3.30 PM by me along with Inspector of Factories, Visakhapatnam-II .It was found to the extent indicated below that certain provision of the Act and Rules were not being carried out.

The orders below are issued or repeated from previous order, without prejudice to any action that the office may take for non-compliance with the provisions of the act and rules there under.

Yours faithfully

  
(V.V.S. Narayana)  
Deputy Chief Inspector of Factories,  
Vizianagaram.

To

- 1.Sri. Kiran Reddy Pendri,(Age: 35 Years),  
S/o. Yadagiri Reddy Pendri,  
Occupier,
- 2.Sri. Sanjay Kumar Vaishnava, (Age: 56 Years),  
S/o. Dhan Das Vaishnava,  
Manager,
- 3.Sri UAN Raju (Age: 53 Years)  
S/o Satyanarayana raju  
Manager  
M/s. Escientia Advanced Sciences Private Limited,  
Plot No11, 11A, 12 & 12A  
APSEZ. Atchuthapuram,  
Anakapali District.-531011

1.Section 7A(2) read with Section 87 & Rule 95 Schedule XV Part II para 5,10,11,12,13(1),15 and part III Para 7.

- 1). Failed to carryout HARA (Hazard Analysis and Risk Assessment) report for manufacturing of RGP product and also failed to submit the report in the office of the Deputy Chief Inspector of Factories , Vizianagaram along with compliance report for the recommendations made at least 15 days prior to the manufacturing process of RGP.
- 2) Failed to carry out HAZOP (Hazard operability ) study for the product of RGP duly considering the risks due to MTBE solvent and also failed to submit the report in the office of the Deputy Chief Inspector of Factories, Vizianagaram along with compliance report for the recommendations made at least 15 days prior to the manufacturing process of RGP.
- 3) Failed to get the the pipe lines carrying the Hazardous chemicals like MTBE solvent by a competent person approved by the Director of Factories, A.P, Vijayawada once in two years to find out the defects in the pipe lines and joints.
- 4) Failed to provide detectors with hooter system in all the floors of the production block for early detection of the solvent vapours.
- 5) Failed to close the cable opening cut on the first floor after installation of the solvent transfer pipe lines and electric cables.
- 6) Failed to provide dampers interlocking with sensor system to the AHU ducts and also auto change of once through system if any flammable vapours above LEL are found
- 7) Failed to comply with the condition imposed while approving the plans vide Lr No LAE05-11021(35)/24/2024-ASEC-DOF-dt 13.03.2024 that balconies shall be provided for all the elevated floors of process buildings where hazardous chemicals are being stored /processed
- 8) Failed to declare emergency in the block even after finding the leakage of highly flammable MTBE ( Methyl Tert Butyle Ether) solvent by giving emergency siren and addressing through public address system immediately for evacuation after noticing of the MTBE solvent leak to alert the workers instead of waiting up to nearly 12-15 minutes
- 9) Failed to keep away the electrical MCC panel board outside the block to prevent risks and same was installed in the ground floor just below the solvent transferring pipe line joints and also failed to keep away the departments like QA, QC and PD Lab away from the production block to minimise the loss of human lives
- 10) Failed to provide Rotometer to the receiver to regulate the nitrogen pressure during transferring of MTBE solvent

Due to the above failures ,on 21-08-2024 in "A " shift the distilled Methyl Tert-Butyl Ether (MTBE) from the reactor in 2<sup>nd</sup> floor was being collected in the 500 Lts receiver and then

transferring from receiver to out side storage tank of 10 KL capacity at west side of block by applying Nitrogen pressure. The boiling point of MTBE is 55 oc and flash point is -28 oc. The LEL and UEL are 1.6% and 15.1% respectively. At about 2.08 PM the workers have observed that the leakage from flange of pipeline at first floor and falling through cable opening floor cut and is falling on MCC panel located at ground floor .The entire building was provided with recirculated AHU by providing ducts in all floors and main AHUs are located at ground floor. The MTBE vapours at ground floor and first floor are sucked through AHU and circulated to all other areas like PD LAB and other rooms . At about 2.20 PM due to some ignition source either at electrical panel or static charge ,the vapours accumulated heavily in the ground floor and spread through AHU duct caught fire and exploded due to vapour cloud explosion. Due to that impact MCC panel blasted and the walls of PD lab and AHU corridor walls ,ducts of AHU ,walls of ground floor and false ceiling in the ground floor were found collapsed and fire with smoke spreaded to the all 3 floors and resulting into death of 17 workers and injuries to 39 workers.

This is irregular

**List of deceased Workers:**

S. No	Employee Name	Date of Birth	Age	Fathers Name	Department	Designation
1	RAMI REDDY NEELAPU	20-08-1975	49	NarasimhaRerddy	R&D-(PD Lab)	Associate General Manager/Ass ociate Director
2	PPASANTH HANSA	22-08-1990	34	Satyanarayana,	Production	Senior executive
3	NARAYANA RAO MAHANTI	25-06-1990	34	Satyam,	R&D-(PD Lab)	Assistant manager/Tea m leader
4	GANESH KUMAR KOPPARTI	20-08-1991	33	Satyanarayana	Production	Assistant manager/Tea m leader
5	HARIKA CHALLAPALLI	14-12-2002	21	Eswararao Late	R&D-(PD Lab)	Trainee Engineer
6	RAJASEKHAR PAIDI	7-08-2001	23	Dharamarao	Process Engineering	Trainee Process Engineer
7	SATISH MARISETTI	3-12-1993	30	Srinu	Production	Senior Executrive

8	NAGABABU MONDI	20-02-1988	36	Satyanarayana	Production	Asst Manager
9	NAGESWARARAMAC HANDRAR	2-12-1977	46	Satyam	Production	Assistant manager/Tea m leader
10	SANYASI NAIDU VEGI	1-01-1971	53	Pydithaili,	Engineer	HK Boy
11	CHINNARAOYALLABIL LI	3-10-1990	33	Durgarao.	Engineer	painter
12	PARDASARADI JAWADI	23-03-1997	27	Koteswararao	Engineer	Fitter
13	MOHAN DURGA PRASAD PUDI	29-08-2005	19	Suryarao	PD Lab	HK boy
14	ANANDA RAO BAMMIDI	1-02-1988	36	B.Pothayya	Production	Asst Manager
15	SURENDRAMARNI	24-12-1987	36	Krishna Rao,	Production	Asst Manager/Tea m leader
16	VENKATA SAI PUSARLA	5-07-1997	27	P.M.V.Nagaappala Setti	Production	Senior Executive
17	CHIRANJEEVIJAVVADI	4-01-2000	24	Satyanarayana,	Engineering	Fitter

List of Injured workers:

Sr.No	EmpNo	Name	Designation
1	E0269	GANGADHARTAMARANA	JuniorChemist-Analytical
2	E0528	SASHIKANTHBANDI	Executive
3	E0234	SAIKUMARGUDISA	Executive
4	E0014	JAGADEESHPONNADA	Manager/Groupleader
5	E0109	SRINIVASARAOPANGA	DeputyManager/SrTeamleader
6	E0433	PRAKASHJAGARAPU	Executive
7	E0216	KASINAIDUJJEEREDDI	SeniorExecutive
8	E0314	SANTHOSHGEDDA	Executive
9	EC160	SATYANARAYANAVARAPRASADRA JUGANDRAJU	SeniorManager/SrGroupleader
10	E0500	ARUNAKUMARPOTTASIRI	Manager
11	E0567	BABASRINIVASAVARMADANDU	SeniorExecutive
12	E0037	JAGADEESWARARAOPASUPUREDD	DeputyManager/Sr.Teamleader
13	IFS	BSiva VenkataRatnam	HKHelper
14	E0570	RAMBABUKONDRU	SeniorExecutive
15	Charan	KChandraSekhar	UtilityOperator
16	Charan	YManesh Babu	ESD
17	E0234	NARAYANARAOKONDALA	Asst.Manager/TeamLeader
18	E0227	DEMUDUPIKKI	SeniorEngineer
19	IFS	MPYDIKALYAN	HK
20	Kapston	E Surioabu	HKBoy
21	E0364	KIRANSATYANARAYANA MANDAPATI	SeniorExecutive
22	E0250	M.LAKSHMICHAITANYAGANDRETI	SeniorExecutive
23	EC415	SHANMUKHARAOKELLA	Chemist
24	EC535	SHANMUKHARAJUKANCHU	TraineeChemist
25	EC497	SHANMUKHARAJUKANCHU	SeniorExecutive
26	EC482	BANGARNAIDUCHANDAKA	Executive
27	Kapston	G Apparao	HKBoy
28	Kapston	G Rajarao	HKBoy
29	IFS	G Apparao	HKHelper
30	FS	J Yardhan	HKHelper
31	FS	R Sanyanarayana	HKHelper
32	EC452	MAASINISARAGADAM	TraineeChemist
33	EC016	PARNAMESWARRAOALLAKA	Executive
34	Kapston	Tam SekharBabu	HKHelper
35	EC455	MAASINISARAGADAM	JuniorChemist
36	ERP	G Rajarao	PRE
37	CSF	G Apparao	Security
38	SVEW	M Nambushanam	Painter
39	EC402	TEJESWARARAOYANDAVA	SeniorExecutive

**2. Section 6 and Rule 3(1)(b) and Rule 3-A(6) :**

Failed to get the plans of the following additional machinery and additional facilities in production block-6 approved by Director of Factories ,AP,Vijayawada and installed and taken into use the same without obtaining a previous permission in writing approving the plans from Director of Factories, AP, Vijayawada and same were not shown in previous plans approved vide Lr No LAE05-11021(35)/24/2024-ASEC-DOF-dt 13.03.2024 to the extent that

S.No	Reactor ID	Make	Capacity(Liters)	Location
1	PDL/ALC-001	SS	5	Ground Floor PD Lab
2	PDL/ALC-002	Hast alloy	0.5	
3	PDL/ALC-003	SS	1	
4	PDL/ALC-004	SS	1	
5	PDL/ALC-005	SS	1	
6	CF-1310,CF-1300,CF-1320,FD-1210,DF-1310 & D-1310	Electrical panels	NA	Ground Floor South Technical area
7	BLD-1503	SS316	1000	Ground Floor Suit-2 Powder processing area
8	AJM-1504	SS316	12"	
9	MM-1502	SS316	500 Kg	
10	S-1503	SS316	30"	
11	R-1110	SS316	3000	First Floor Hydrogenation
12	R-1120	SS316	5000	
13	VTD-1200	SS316	48 Trays	First Floor Suit-2
14	FD-1210	SS316	1000	
15	CF-1210	SS316	36"	
16	FD-1200	SS316	2500	
17	CF-1200	SS316	36"	

18	VTD-1210	SS316	48 Trays	First Floor Suit-3
19	D-1300	SS316	1000	
20	CF-1310	SS316	48"	
21	CF-1300	SS316	48"	
22	FD-1300	SS316	2500	
23	FD-1310	SS316	2500	
24	D-1310	Hastelloy	2000	
25	VR-2225	SS316	500	
26	VR-R-2270	SS316	1500	
27	VR-2200	MSGL	1000	
28	VR-2255	MSGL	1000	
29	VR-2245	MSGL	1000	
30	R-2200	MSGL	6000	
31	R-2210	MSGL	3000	
32	R-2220	SS316	3000	
33	R-2270	SS316	3000	
34	R-2250	MSGL	5000	
35	R-2210	MSGL	3000	Second Floor Suit-3
36	VR-R-2340	SS316	1500	
37	WT-CF-1310	SS316	500	
38	VR-R-2310	SGL	1000	
39	WT-CF-1300	SS316	500	
40	VR-R-2330	SGL	1500	
41	R-2300	SS316	8000	
42	R-2310	MSGL	8000	

43	R-2320	Halor coted	5000	Third Floor Suit-2	
44	R-2330	SS316	8000		
45	VR-R-3230	SS316	1000		
46	VR-R-3220	SS316	1000		
47	VR-R-3210	SS316	1000		
48	VR-R-3200	SS316	1000		
49	R-3200	MSG L	6300		
50	R-3210	MSG L	3000		
51	R-3240	CSGL	5000		
52	R-3230	SS316	5000		
53	R-3300	SS316	6000		Third Floor Suit-3
54	R-3310	MSG L	6300		
55	R-3320	MSG L	6300		
56	R-3330	MSG L	6300		
57	R-3340	MSG L	6300		
58	VR-R-3300	SS316	1500		
59	VR-R-3310	MSG L	1000		
60	VR-R-3320	MSG L	1500		
61	VR-R-3330	MSG L	1000		
62	VR-R-3340	MSG L	1000		

**3. Section 7 and Rule 12 :**

There is a change in factory Manager from Sri UAN Raju, S/o Satyanarayana Raju to Sri Sanjay Vaishnav in the year 2021 But no application Form No 2-A has been submitted for

change of Factory Manager with in 7 days from change of Manager .Improvement notice was issued to the manager Sri Sanjay Vaishnava vide Lr No A/339682/2023 dt 25.03.2023 and reply was submitted by him as manager on 07.04.2023 and no dispute was made by Sri Sanjay Vaishnava as Manager at that time .

This is irregular

**4. Section 88 and Rule 96:**

Failed to submit Form No 18 in the office of Dy chief Inspector of Factories,Vizianagaram by Sri UAN Raju, S/o Satyanarayana Raju ,Manager in connection with accident occurred on 21.08.2024 .Form No 18 is submitted by Sri Sanjay Vaishnav .Form No 2 was submitted in the year 2021 in the name of Sri UAN Raju as manager and no application was made for change of manager since 2021.

This is irregular

IN THE HONOURABLE COURT OF THE ADDITIONAL JUDICIAL FIRST CLASS  
MAGISTRATE, YELLAMANCHILI.

Accused 1 COPY

S.T.C. No. /2024.

A.P. State Represented by  
Inspector of Factories,  
Visakhapatnam -II.  
Factories Department  
Government of A.P

Complainant

Versus

Sri. Kiran Reddy Pendri (Age: 35 Years),  
S/o. Yadagiri Reddy Pendr.  
Occupier

Accused-1

Sri. Sanjay Kumar Vaishnava, (Age: 56 Years),  
S/o. Dhan Das Vaishnava.  
Manager

Accused-2

Sri UAN Raju (Age: 53Years)  
S/o Satyanarayana Raju,  
M/s. Escientia Advanced Sciences Private Limited,  
Plot No11, 11A, 12 & 12A  
APSEZ, Atchuthapuram,  
Anakapalli District.-531011.

Accused -3

COMPLAINT FILED UNDER SECTION 92 OF THE FACTORIES ACT, 1948 AND  
AMENDED ACT, 1976 AND FACTORIES (AMENDMENT) ACT, 1987.

I, P. Chinna Rao, Inspector of Factories, Visakhapatnam - II and the above named complainant beg to state as follows:

1. The premises known as "M/s Escientia Advanced Sciences Private Limited", situated at Plot Nos. 11& 11A, 12 & 12 A, APSEZ, Atchutapuram, Anakapalli District - 531011 is a factory within the meaning of Section 2m(i) of the Factories Act, 1948, of which Sri. Kiran Reddy Pendri, is the Occupier, Sri. Sanjay Kumar Vaishnava & Sri UAN Raju were the Managers.
2. The said factory was inspected by the Deputy Chief Inspector of Factories, Vizianagaram along with Inspector of Factories, Visakhapatnam -II on 21.08.2024 at about 3:20 P.M and again by the Deputy Chief Inspector of Factories, Vizianagaram along with Inspector of Factories, Visakhapatnam -II on 22.08.2024 at about 9:00 A.M It was found that the above said accused had failed to comply with the provisions of the Act & Rules to the extent indicated below.

1. Section 7A(2) read with Section 87 & Rule 95 Schedule XV Part II para 5,10,11,12,13(1),15 and part III Para 7.

- 1). Failed to carryout HARA (Hazard Analysis and Risk Assessment) report for manufacturing of RGP product and also failed to submit the report in the office of the Deputy Chief Inspector of Factories, Vizianagaram along with compliance report for the recommendations made at least 15 days prior to the manufacturing process of RGP.

2) Failed to carry out HAZOP (Hazard operability) study for the product of RGP duly considering the risks due to MTBE solvent and also failed to submit the report in the office of the Deputy Chief Inspector of Factories, Vizianagaram along with compliance report for the recommendations made at least 15 days prior to the manufacturing process of RGP.

3) Failed to get the test pipe lines carrying the Hazardous chemicals like MTBE solvent by a competent person approved by the Director of Factories, A.P, Vijayawada once in two years to find out the defects in the pipe lines and joints.

4) Failed to examine all the parts of equipment and machinery, failure of which can rise to emergency shall be got identified and examined by a competent person once in a month and also failed to produce the above record at the time of enquiry.

5) Failed to provide detectors with hooter system in all the floors of the production block for early detection of the solvent vapours.

6) Failed to close the cable opening cut on the first floor after installation of the solvent transfer pipe lines and electric cables.

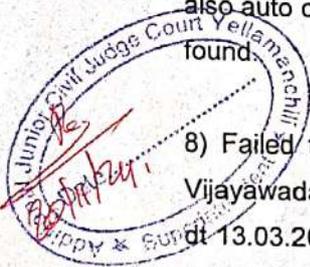
7) Failed to provide dampers interlocking with sensor system to the AHU ducts and also auto change of once through system if any flammable vapours above LEL are found.

8) Failed to comply with the condition imposed by the Director of Factories, AP, Vijayawada approving the plans vide Lr No. LAE05-11021(35)/24/2024-ASEC-DOF-dt 13.03.2024 that balconies shall be provided for all the elevated floors of process buildings where hazardous chemicals are being stored /processed.

9) Failed to declare emergency in the block even after finding the leakage of highly flammable MTBE (Methyle Tert Butyle Eather) solvent by giving emergency siren and addressing through public address system immediately for evacuation after noticing of the MTBE solvent leak to alert the workers instead of waiting up to nearly 12-15 minutes.

10) Failed to keep away the electrical MCC panel board outside the block to prevent risks and same was installed in the ground floor just below the solvent transferring pipe line joints and also failed to keep away the departments like QA, QC and PD Lab away from the production block to minimise the loss of human lives.

11) Failed to provide Rotometer to the receiver to regulate the nitrogen pressure during transferring of MTBE solvent



Due to the above failures, on 21-08-2024 in "A" shift the distilled Methyl Tert-Butyl Ether (MTBE) from the reactor in 2<sup>nd</sup> floor was being collected in the 500 Lts receiver and then transferring from receiver to outside storage tank of 10 KL capacity at west side of block by applying Nitrogen pressure. The boiling point of MTBE is 55 oc and flash point is 28 oc. The LEL and UEL are 1.6% and 15.1% respectively. At about 2.08 PM the workers have observed that the leakage from flange of pipeline at first floor and falling through cable opening floor cut and is falling on MCC panel located at ground floor. The entire building was provided with recirculated AHU by providing ducts in all floors and main AHUs are located at ground floor. The MTBE vapours at ground floor and first floor are sucked through AHU and circulated to all other areas like PD LAB and other rooms. At about 2.20 PM due to some ignition source either at electrical panel or static charge, the vapours accumulated heavily in the ground floor and spread through AHU duct caught fire and exploded due to vapour cloud explosion. Due to that impact MCC panel blasted and the walls of PD lab and AHU corridor walls, ducts of AHU, walls of ground floor and false ceiling in the ground floor were found collapsed and fire with smoke spreaded to the all 3 floors and resulting into death of 17 workers and injuries to 39 workers.

This is irregular.

**Details of Deceased Workers:**

S. No	Employee Name	Date of Birth	Age	Fathers Name	Department	Designation
1	RAMI REDDY NEELAPU	20-08-1975	49	NarasimhaRerddy	R&D-(PD Lab)	Associate General Manager/Associate Director
2	PRASANTH HAMSA	22-08-1990	34	Satyanarayana,	Production	Senior executive
3	NARAYANA RAO MAHANTI	25-06-1990	34	Satyam,	R&D-(PD Lab)	Assistant manager/Team leader
4	GANESH KUMAR KOPPARTI	20-08-1991	33	Satyanarayana	Production	Assistant manager/Team leader
5	HARIKA CHALLAPALLI	14-12-2002	21	Eswararao Late	R&D-(PD Lab)	Trainee Engineer
6	RAJASEKHAR PAIDI	7-08-2001	23	Dharamarao	Process Engineering	Trainee Process Engineer
7	SATISH MARISETTI	3-12-1993	30	Srinu	Production	Senior Executrive
8	NAGABABU MONDI	20-02-1988	36	Satyanarayana	Production	Asst Manager
9	NAGESWARARAMACHAN DRAR	2-12-1977	46	Satyam	Production	Assistant manager/Team leader
10	SANYASI NAIDU VEGI	1-01-1971	53	Pydithalli,	Engineer	HK Boy
11	CHINNARAORYALLABILLI	3-10-1990	33	Durgarao.	Engineer	painter
12	PARDASARADI JAWADI	23-03-1997	27	Koteswararao	Engineer	Fitter
13	MOHAN DURGA PRASAD PUDI	29-08-2005	19	Suryarao	PD Lab	HK boy
14	ANANDA RAO BAMMIDI	1-02-1988	36	B.Pothayya	Production	Asst Manager
15	SURENDRAMARNI	24-12-1987	36	Krishna Rao,	Production	Asst Manager/Team leader

16	VENKATA SAI PUSARLA	5-07-1997	27	P.M.V.Nagaappala Setti	Production	Senior Executive
17	CHIRANJEEVIJAVADI	4-01-2000	24	Satyanarayana,	Engineering	Fitter

**Details of Injured workers:**

Sr.No	EmpNo	Name	Designation
1	E0269	GANGADHARTAMARANA	Junior Chemist-Analytical
2	E0528	SASHIKANTHBANDI	Executive
3	E0284	SAIKUMARGUDISA	Executive
4	E0014	JAGADEESHPONNADA	Manager/Group leader
5	E0109	SRINIVASARAOPANGA	Deputy Manager/Sr Teamleader
6	E0433	PRAKASHJAGARAPU	Executive
7	E0216	KASINAIDUJEEREDDI	Senior Executive
8	E0314	SANTHOSHGEDDA	Executive
9	E0166	SATYANARAYANAVARAPRASADRA JUGANDRAJU	Senior Manager/Sr Group leader
10	E0500	ARUNAKUMARPOTTASIRI	Manager
11	E0567	BABASRINIVASAVARMADANDU	Senior Executive
12	E0037	JAGADEESWARARAOPASUPUREDDI	Deputy Manager/Sr. Teamleader
13	IFS	B..Siva Venkata Ratnam	HKHelper
14	E0570	RAMBABUKONDRU	Senior Executive
15	Charan	K.ChandraSekhar	Utility Operator
16	Charan	Y.MaheshBabu	ESD
17	E0234	NARAYANARAOKONDALA	Asst.Manager/TeamLeader
18	E0227	DEMUDUPIKKI	Senior Engineer
19	IFS	NPYDIKALYAN	HK
20	Kapston	BSuribabu	HKBoy
21	E0364	KIRANSATYANARAYANA MANDAPATI	Senior Executive
22	E0250	VVLAKSHMICHAITANYAGANDRETI	Senior Executive
23	E0415	SHANMUKHARAOKELLA	Chemist
24	E0535	DHANNJAYABODALA	Trainee Chemist
25	E0487	SHANMUKHARAJUKANCHU	Senior Executive
26	E0464	BANGARINAIDUCHANDAKA	Executive
27	Kapston	Ch Apparao	HK Boy
28	Kapston	G Rajarao	HK Boy
29	IFS	N Apparao	HK Helper
30	IFS	J Vardhan	HK Helper
31	IFS	R Satyanarayana	HK Helper
32	E0452	YAAMINISARAGADAM	TraineeChemist
33	E0316	PARAMESWARRAOALLAKA	Executive
34	Kapston	RamMeHarBabu	HKHelper
35	E0355	VAMSISARAGADAM	JuniorChemist
36	EBP	PrabathYadav	PRE
37	CSF	DApparao	Security
38	SVEW	MNagabushanam	Painter
39	E0302	TEJESWARARAORYANDAVA	Senior Executive

**2.Section 7 and Rule 12 :**

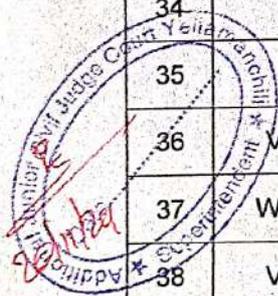
There is a change in factory Manager from Sri UAN Raju, S/o Satyanarayana Raju to Sri Sanjay Vaishnav in the year 2021. Failed to submit an application in Form No 2-A for change of Factory Manager within 7 days to this office. Improvement notice was issued to the manager Sri Sanjay Vaishnava vide Lr No A/339682/2023 dt 25.03.2023 and reply was submitted by him as manager on 07.04.2023 and no dispute was made by Sri Sanjay Vaishnava as Manager at that time.

**3. Section 6 and Rule 3(1)(b) and Rule 3-A(6) :**

Installed the following machinery and additional facilities in production block-6 without obtaining a previous permission in writing approving the plans from Director of Factories, AP, Vijayawada and same were not shown in previous plans approved vide Lr No LAE05-11021(35)/24/2024-ASEC-DOF-dt 13.03.2024 to the extent that.

S.No	Reactor ID	Make	Capacity(Liters)	Location
1	PDL/ALC-001	SS	5	Ground Floor PD Lab
2	PDL/ALC-002	Hast alloy	0.5	
3	PDL/ALC-003	SS	1	
4	PDL/ALC-004	SS	1	
5	PDL/ALC-005	SS	1	
6	CF-1310,CF-1300,CF-1320,FD-1210,DF-1310 & D-1310.	Electrical panels	NA	Ground Floor South Technical area
7	BLD-1503	SS316	1000	Ground Floor Suit-2 Powder processing area
8	AJM-1504	SS316	12"	
9	MM-1502	SS316	500 Kg	
10	S-1503	SS316	30"	
11	R-1110	SS316	3000	First Floor Hydrogenation
12	R-1120	SS316	5000	
13	VTD-1200	SS316	48 Trays	First Floor Suit-2
14	FD-1210	SS316	1000	
15	CF-1210	SS316	36"	
16	FD-1200	SS316	2500	
17	CF-1200	SS316	36"	
18	VTD-1210	SS316	48 Trays	

19	D-1300	SS316	1000	First Floor Suit-3
20	CF-1310	SS316	48"	
21	CF-1300	SS316	48"	
22	FD-1300	SS316	2500	
23	FD-1310	SS316	2500	
24	D-1310	Hastelloy	2000	
25	VR-2225	SS316	500	Second Floor Suit-2
26	VR-R-2270	SS316	1500	
27	VR-2200	MSGL	1000	
28	VR-2255	MSGL	1000	
29	VR-2245	MSGL	1000	
30	R-2200	MSGL	6000	
31	R-2210	MSGL	3000	
32	R-2220	SS316	3000	
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34	R-2250	MSGL	5000	
35	R-2240	MSGL	3000	Second Floor Suit-3
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37	WT-CF-1310	SS316	500	
38	VR-R-2310	SGL	1000	
39	WT-CF-1300	SS316	500	
40	VR-R-2330	SGL	1500	
41	R-2300	SS316	8000	
42	R-2310	MSGL	8000	
43	R-2320	Halor coted	5000	
44	R-2330	SS316	8000	
45	VR-R-3230	SS316	1000	Third Floor Suit-2
46	VR-R-3220	SS316	1000	
47	VR-R-3210	SS316	1000	
48	VR-R-3200	SS316	1000	



49	R-3200	MSGL	6300	Third Floor Suit-3
50	R-3210	MSGL	3000	
51	R-3240	CSGL	5000	
52	R-3230	SS316	5000	
53	R-3300	SS316	6000	
54	R-3310	MSGL	6300	
55	R-3320	MSGL	6300	
56	R-3330	MSGL	6300	
57	R-3340	MSGL	6300	
58	VR-R-3300	SS316	1500	
59	VR-R-3310	MSGL	1000	
60	VR-R-3320	MSGL	1500	
61	VR-R-3330	MSGL	1000	
62	VR-R-3340	MSGL	1000	

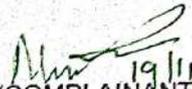
**4. Section 88 and Rule 96:**

Failed to submit Form No 18 in the office of Dy chief Inspector of Factories, Vizianagaram by Sri UAN Raju, S/o Satyanarayana Raju, Manager in connection with accident occurred on 21.08.2024. Form No 18 is submitted by Sri Sanjay Vaishnav. Form No 2 was submitted in the year 2021 in the name of Sri UAN Raju as manager and no application was made for change of manager since 2021.

This is irregular

3. The said accused, having acted in contravention of the above provisions of the said Act and Rules mentioned above has thereby rendered himself liable for punishment under Section 92 of the Factories Act.
4. The above named complainant therefore prays Honorable Court that the said accused may be tried and dealt with according to the Law.
5. The above named complainant further prays that a direction may be issued in writing under Section 102 of the Factories Act, 1948 (and Amendment Act-1976 and Factories Amendment Act-1987) to the accused to comply with the above provisions of the Act and rules within such time as the Honorable Court thinks which deems fit.

6. The above named complainant prays the Honorable Court to take the above complaint into records with the documents expect Prosecution Sanction Order, for which prosecution proposal was submitted to the Appropriate Authority Lr. A. No. 74939/ 2024, Dated: 11-11-2024 and sanction was yet to be received from the Appropriate Authority, as on the date of filing the complaint. As soon as the complainant receives the same, immediately it shall be submitted to the Honorable Court for which the inconvenience caused to the Honorable Court, may please be condoned.

  
(COMPLAINANT)  
INSPECTOR OF FACTORIES,  
VISAKHAPATNAM -II.

Prosecution witnesses :

1. Sri G.V.V.S. Narayana  
Deputy Chief Inspector of Factories,  
Vizianagaram.
2. Sri P. Chinna Rao,  
Inspector of Factories,  
Visakhapatnam-II.



**Detailed enquiry report in to the Fatal accident &Fire  
incident occurred in M/S Escientia Advanced Sciences  
Private Limited, Plot No: 11,11A,12 & 12 , APSEZ ,  
Atchutapuram, AnakapalliDt, on 21-08- 2024 at about  
02:20PM.**

Endt NO:A/388310/2024, dt: 12-09-2024

**PART-I: Abstract**

Type of Accident		Explosion
Nature of Accident		Fire
Date & Time of Accident		On 21-08-2024 in General Shift at about 2:20 PM
Source of Information	Telephonic	Telephonic call from the management of Atchyuta Laboratories Pvt Ltd., Atchutapuram at about 03:05 PM on 21-08-2024.
	Media	--
	Form No. 18	Received in this office on 24-08-2024
	Complaint	--
Name & Address of the factory		M/S Escientia Advanced Sciences Pvt Ltd., Plot no: 11,11A,12 & 12 , APSEZ , Atchutapuram, AnakapalliDt
Manufacturing Process		Bulk Drug Intermediates ,
Name of the Occupier		Sri Kiran Reddy Pendri, Age 36 Years, S/o Sri. P. Yadagiri Reddy
Name of the Manager		Sri Uppalapati. AppalaNarasimhaRaju, Age 52 years, S/o Sri Uppalapati .SatyanarayanaRaju
Deceased & Injured	No:1	
	Name	List enclosed separately Total 17 deceased workers and 39 injured workers.
	Designation	
	Age	
	Employment	
	Wage	
	Native of	
ESI		
Date of Investigation		on 21-08-2024 by Joint Chief Inspector of Factories, Visakhapatnam along with Deputy Chief Inspector of Factories, Vizianagaram & Inspector of Factories,

		Visakhapatnam-II and continued further enquiry by Joint Chief Inspector of Factories, Visakhapatnam along with Deputy Chief Inspector of Factories, Vizianagaram& Inspector of Factories, Visakhapatnam-II on 22-08-2024, and again by the Deputy Chief Inspector of Factories, Vizianagaram& Inspector of Factories, Visakhapatnam-II on 24-08-2024 at about 03:00 PM and continued further enquiry by JCIF VSP on 28-08-2024.	
Investigated By	Name	Sri. J.SivaSankara Reddy	Sri G.V.V.S.Narayana, Sri. P. ChinnaRao
	Designation	Joint Chief Inspector of Factories, Visakhapatnam	Deputy Chief Inspector of Factories, Vijayanagaram. & Inspector of Factories, Visakhapatnam-II Circle.
Statements recorded	Name	1) Sri KondalaNarayanaRao	
	Designation	Assistant Manager, PD	
	Name	2) Sri P.Jagadesh	
	Designation	Production Manager	
	Name	3) Sri K.ShanmukaRaju	
	Designation	Senior Executive	
Ameliorative Measures	ESI	--	
	Ex-gratia	--list enclosed--	
	Medical Exp	--	
	Job	--	
Causes of accident	Root Cause	Incident	<ol style="list-style-type: none"> <li>1. Failed to provide Rotometersto the receivers for to control (Regulate) nitrogen pressure.</li> <li>2. Failed to test the pipe lines carrying the Hazardous chemicals like MTBE solvent with the competent person approved by the Director of Factories, A.P, Vijayawada once in two years to find out the defects in the pipe lines and joints.</li> <li>3. Failed to examine all the parts of the equipment and machinery, failure which can rise to emergency shall be got identified and examined by competent person once in a</li> </ol>

			<p>month, a record shall be maintained.</p> <p>4. Failed to keep the electrical MCC panel board in a separate room which was installed on the ground floor just below the solvent transpiring pipe line joints.</p> <p>5. Failed to close the cable opening cut on the first floor after installation of the solvent transfer pipe lines and electric cables.</p> <p>6. Failed to follow preventive maintenance schedule of the pipe lines as per the SOP and also failed to adopt and appoint cross check mechanism with the senior officers in the factory.</p> <p>7. Failed to declare emergency and evacuate all the workers working in the entire production block immediately after noticing the leak of highly flammable solvent MTBE, to avoid human loss. ( 12 minutes time from 2.08 PM to 2.20 PM)</p> <p>8. Failed to provide detectors with alarms in all the floors of the production block for early detection of the solvent vapours.</p>				
		Injury	List Enclosed (Total 39 workers)				
		Supplementary, If any					
	Action Taken	Issued Prohibitory order and Show Cause Notice along with Inspection Orders to both the Occupier and Manager of the factory by the Deputy Chief Inspector of Factories, Vijayanagaram.					
	Enclosures (Copies Only)	Form no -18	✓	Photos	✓	FIR	✓
		PM Report	--	Statements	✓	Sketch	--
		SCN	--	I.Os	--	P. Os	✓

## PART-II

### 1) INFORMATION

I have received a telephonic call from the management of M/S Atchyuta Laboratories pvtLtd., Atchutapuram at about 03:05 PM on 21-08-2024 ,informing that a blast occurred in Escientia Advanced Sciences Pvt Ltd., Atchutapuram in which 15 workers were affected and are shifting to the hospitals. Immediately I have informed the same to the Deputy Chief Inspector of Factories, Vizianagaram, the Deputy Chief Inspector of Factories, Vizianagaram stated that they have already received message from Zonal Manager APIIC, Atchutapuram and are rushing to the factory along with Inspector of Factories, Visakhapatnam-II, both Deputy chief Inspector of Factories, Vizianagaram& Inspector of Factories, Visakhapatnam-II went to parawada for to attend a meeting in Parawadacalled by the Collector and District Magistrate Anakapalli District . The Deputy Chief Inspector of Factories, Vizianagaram& Inspector of Factories, Visakhapatnam-II reached to the spot at about 03:15 PM mean while they have contacted nearby factories for fire tenders as well as ambulance vans. After receiving the information I have rushed to the factory from Visakhapatnam and reached at 04.30 PM. When I reached to the spot, fire was controlled and a little bit smoke is emanating from the floors due to burning of electrical cables and other materials. The Fire department officials are extinguishing the fire, the other government departments like revenue, Police, Factories, PollutionControl Board, Industries, Labour, APIIC and drug departments are helping in emergency operations. The Collector and District Magistrate AnakapalliDistrict and Superintendent of Police AnakapalliDistrict have monitored the emergency operations from the time of incident to 5.30 AM on 22-08-2024.

### 2) ABOUT THE FACTORY

M/s. Escientia Advanced Sciences Private Limited, Plot No: 11,11A,12 & 12, APSEZ, Atchutapuram, AnakapalliDt, is an existing MAH-B category factory i.e. 2m(i) factory with R. No. 104374, the manufacturing process in the factory is manufacturing of Bulk Drug Intermediates. The license limits are 2438 HP electrical power and to employee maximum of 500 workers. Sri Kiran Reddy Pendri, age 36 Years, S/o P. Sri. Yadagiri Reddy is the Occupier of the factory (Cell number is 9849009666) and Sri Uppalapati. Appala NarasimhaRaju, Age 52 years, S/o Sri

Uppalapati. Satyanarayana Rajuis the manager of the factory (Cell number is 9849002336). The plans of the factory were approved vide Lr no: D.Dis No: A1/VSP-II/03/2018, dt: 02-01-2018 by the Director of Factories, A.P, Vijayawada and further revised plans were approved for installation of additional machinery and Construction of buildings by the Director of Factories, A.P, Vijayawada Vide Lr no: LAE05-11021(35)/24/2024-A SEC-DOF, dt:13-03-2024. This factory was registered under factories Act 1948 on 02-02-2018 by the then Deputy chief inspector of Factories Visakhapatnam and is working regularly up to the date of accident.

### 3) INCIDENT

In this factory there was only one production block consisting of 4 suits with 3 floors, in the 4<sup>th</sup> suit QA, QC, & Pilot plants are existing and in 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> floors in all suits reactors are installed. On 21-08-2024 in 2<sup>nd</sup> floor in suit-II while performing FCP-3 process, Methyl tert butyl Ether (MTBE) solvent is under distillation in reactor R 2220, which is of capacity 3KL, the distilled solvent is collecting in vacuum receiver VR-2220, under vacuum which is of capacity 0.5 KL. The receiver is located at the back side of the reactor (R-2220). The distilled solvent which was collecting from the receiver in second floor, and was pumping to the separate storage tank (MLST-340) which was located in the ground floor west side outside of the production block, which is of capacity 10 KL.

During transferring of the distillate from vacuum receiver to the storage tank through one and half inch SS pipe line by applying nitrogen pressure there was a leak of solvent (MTBE) was observed in the 1<sup>st</sup> floor technical area in suit-II, near the flange joint, the flange joint is 3 m away from the 1<sup>st</sup> floor (1<sup>st</sup> floor flooring to leakage flange height) adjoining south side wall of the production block. The leaked solvent which was leaking from the flange joint was fell on the 1<sup>st</sup> floor and on electrical panel board directly which was located on the ground floor, meanwhile MTBE solvent vapours are sucked into the entire air handling unit (AHU) duct system in first floor, and ground floor, the AHU was installed on the ground floor. When the leaked solvent fell on the electrical panel board either friction while falling solvent on the electrical panel board or due to heat on the electrical panel board, or due to static spark was generated and electrical panel board blasted with big sound, simultaneously the solvent vapours which was accumulated in the duct in the first floor and ground floor also caught the spark and exploded with big sound, due to

vapour cloud formed in the ducts in ground floor and in first floor, in this blast the brick walls were collapsed and the false ceiling was collapsed and fell down on the ground floor, due to this explosion some of the workers were trapped in the fire, brick walls , smoke, and 17 workers were died,and 39 workers were injured due to fire, broken of window glasses, smoke andbreaking of brick walls and were admitted in different hospitals i.e., 1) Usha Prime Hospital, Anakapalli, 2) PawanSai Hospital, Vadlapudi, Visakhapatnam. 3) KIMS Icon Hospital, SheelaNagar, Visakhapatnam. 4) Medicovert Hospital, Venkojipalem, Visakhapatnam, and 5) Arka hospital Gajuwaka, Visakhapatnam, and are undergoing treatment.

**Details of Deceased Workers:**

S. No	Employee Name	Date of Birth	Age	Fathers Name	Department	Designation	Qualification	Gross Salary	Date Of Joining in to service	ESIC Number	PF Number
1	RAMI REDDY NEELAPU	20-08-1975	49	NarasimhaReddy	R&D-(PD Lab)	Associate General Manager/ Associate Director	Ph.D.,	2,02,458	04-07-2018	NA	10003672528
2	PRASANTH HAMSA	22-08-1990	34	Satyanarayana,	Production	Senior executive	B.Sc.,	39,819	05-11-2018	NA	1000159873924
3	NARAYANA RAO MAHANTI	25-06-1990	34	Satyam,	R&D-(PD Lab)	Assistant manager/ Team leader	M.Sc.,	62,023	28-08-2020	NA	100585664834
4	GANESH KUMAR KOPPARTI	20-08-1991	33	Satyanarayana	Production	Assistant manager/ Team leader	M.Sc.,	65,290	26-05-2021	NA	1001021628
5	HARIKA CHALLAPALLI	14-12-2002	21	Eswararao Late	R&D-(PD Lab)	Trainee Engineer	B.TECH.	19,033	04-09-2023	7011449272	101987640522
6	RAJASEKHAR PAIDI	7-08-2001	23	Dharamarao	Process Engineering	Trainee Process Engineer	B.TECH.	15,008	15-07-2024	NA	102067416466
7	SATISH MARISETTI	3-12-1993	30	Srinu	Production	Senior Executrive	B.Sc.,	68,227	24-07-2024	NA	100737265225
8	NAGABABU MONDI	20-02-1988	36	Satyanarayana	Production	Asst Manager	B.Sc.,	60,583	04-10-2023	NA	100780051691
9	NAGESWARA RAMACHANDRAR	2-12-1977	46	Satyam	Production	Assistant manager/ Team leader	M.Sc.,	65,290	26-05-2021	NA	100102162898
10	SANYASI NAIDU VEGI	1-01-1971	53	Pydithalli,	Engineer	HK Boy	8 <sup>th</sup> class	13,308	15-07-2019	7010704974	101509600623

**File No.FCTR-ACNT0FIR/3/2024-SA(A)-JCIFVSP**

11	CHINNARAOY ALLABILLI	3-10- 1990	33	Durgarao.	Engineer	painter	Inter	23,500	13-11-2018	701 049 347 4	101471 423308
12	PARDASARADI JAWADI	23-03- 1997	27	Koteswararao	Engineer	Fitter	ITI	23,000	21-09- 2022	NA	101180 967963
13	MOHAN DURGA PRASAD PUDI	29-08- 2005	19	Suryarao	PD Lab	HK boy	ITI	13,308	08-06-2024	701 158 867 2	102081 740295
14	ANANDA RAO BAMMIDI	1-02- 1988	36	B.Pothayya	Productio n	Asst Manager	B.Sc.,	64,369	21-10-2023	NA	100099 199636
15	SURENDRAM ARNI	24-12- 1987	36	Krishna Rao,	Productio n	Asst Manager/ Team leader	B.Sc.,	69,613	08-12-2016	NA	100629 058939
16	VENKATA SAI PUSARLA	5-07- 1997	27	P.M.V.Nagaapp alaSetti	Productio n	Senior Executive	B.VOC	41,376	07-10- 2020	NA	100643 072830
17	CHIRANJEEVIJ AVVADI	4-01- 2000	24	Satyanarayana,	Engineeri ng	Fitter	ITI	17,500	20-11- 2023	701 121 264 4	101621 573413

Sr.No	EmpNo	Name	Designation	Department	Injured Status	Hospital Name	Discharged on	ESIC/MEDICLAIM	ESIC Number	Shift	Contact Number	Compensation paid Rs in lakhs
1	E0269	GANGADHARTAM ARANA	Junior Chemist-Analytical	Quality Control	Injured	Pawan Sai-Vadlapudi	29-08-2024	ESIC	7010955761	AShift	9502080412	25,00,000
2	E0528	SASHIKANTHBANDI	Executive	Quality Control	Injured	Pawan Sai-Vadlapudi	26-08-2024	Medicclaim		BShift	8096765757	25,00,000
3	E0284	SAIKUMARGUDISA	Executive	Production	Injured	Pawan Sai-Vadlapudi	24-08-2024	Medicclaim		GEN	9491798690	25,00,000
4	E0014	JAGADEESH PONNADA	Manager/Group leader	Production	Injured	Pawan Sai-Vadlapudi	31-08-2024	Medicclaim		GEN	9849000682	50,00,000
5	E0109	SRINIVASARAOPANGA	Deputy Manager/Sr Team leader	Production	Injured	Pawan Sai-Vadlapudi	31-08-2024	Medicclaim		GEN	9676619970	50,00,000
6	E0433	PRAKASH JAGARAPU	Executive	Production	Injured	Pawan Sai-Vadlapudi	24-08-2024	Medicclaim		GEN	8978864827	25,00,000
7	E0216	KASINAIDUJEEREDDI	Senior Executive	R&D-(PDLab)	Injured	Pawan Sai-Vadlapudi	28-08-2024	Medicclaim		AShift	7893366832	25,00,000
8	E0314	SANTHOSHGEDDA	Executive	R&D-(PDLab)	Injured	Pawan Sai-Vadlapudi	28-08-2024	Medicclaim		BShift	9912138425	50,00,000
9	E0166	SATYANARAYANAVARAPRASADRAJUGANDRAJU	Senior Manager/Sr Group leader	Quality Assurance	Injured	KIMSICON - Sheelanagar	26-08-2024	Medicclaim		GEN	9000392223	25,00,000
10	E0500	ARUNAKUMARPOTTASIRI	Manager	Quality Assurance	Injured	KIMSICON - Sheelanagar	26-08-2024	Medicclaim		GEN	7013407930	25,00,000
11	E0567	BABASRINIVASAVARMADANDU	Senior Executive	Production	Injured	KIMSICON - Sheelanagar	29-08-2024	Medicclaim		BShift	9979949428	50,00,000
12	E0037	JAGADEESWARARAOPASUPUREDDI	Deputy Manager/Sr. Team leader	Production	Injured	Medicover-MVP	4-09-2024	Medicclaim		GEN	9441941325	50,00,000
13	IFS	BSivaVenkataRatnam	HK Helper	Production	Injured	Medicover-MVP	28-08-2024	ESIC	7011180979	GEN	7893243166	50,00,000
14	E0570	RAMBABUKONDRU	Senior Executive	Production	Injured	Medicover-MVP	2-09-2024	Medicclaim		GEN	6302446064	50,00,000
15	Charan	KChandraSekhar	Utility Operator	ESD	Injured	Medicover-MVP	2-09-2024	ESIC	7011230721	GEN	9100038769	50,00,000
16	Charan	YMaheshBabu	ESD	ESD	Injured	Medicover-MVP	5-09-2024	ESIC	7010649893	BShift	9652487225	50,00,000
17	E0234	NARAYANARAKONDALA	Asst. Manager/Team Leader	R&D-(PDLab)	Injured	Medicover-MVP	29-08-2024	Medicclaim		GEN	7013688706	50,00,000
18	E0227	DEMUDUPIKKI	Senior Engineer	Engineering	Injured	Medicover-MVP	Undergoing treatment	Medicclaim		GEN	8978408511	50,00,000
19	IFS	NPYDIKALYAN	HK	PD Kalyan	Injured	Medicover-MVP	2-09-2024	ESIC	7011500657	GEN	9515027074	50,00,000
20	Kapston	BSuribabu	HK Boy	Production	Injured	Medicover-MVP	4-09-2024	ESIC	701123048	GEN	8106914564	50,00,000
21	E0364	KIRANSATYANARAYANA MANDAPATI	Senior Executive	Production	Injured	Medicover-MVP	2-09-2024	Medicclaim		BShift	8331995134	50,00,000
22	E0250	VVLAKSHMICHAITANYAGANDRETI	Senior Executive	Production	Injured	RKHospital - Ghajuwaka	28-08-2024	Medicclaim		BShift	9110728489	25,00,000
23	E0415	SHANMUKHARAO KELLA	Chemist	Quality Control	Injured	UshaPrime -Anakapalli	26-08-2024	ESIC	7010992048	AShift	9010891367	25,00,000
24	E0535	DHANNJAYABODALA	Trainee Chemist	Quality Control	Injured	UshaPrime -Anakapalli	26-08-2024	ESIC	7011538630	AShift	9550129249	25,00,000
25	E0487	SHANMUKHARAJUKANCHU	Senior Executive	Production	Injured	UshaPrime -Anakapalli	28-08-2024	Medicclaim		AShift	9491106009	25,00,000
26	E0464	BANGARINAIDUCHHANDAKA	Executive	Production	Injured	UshaPrime -Anakapalli	24-08-2024	Medicclaim		BShift	9493436518	25,00,000
27	Kapston	ChApparao	HK Boy	Production	Injured	UshaPrime -Anakapalli	30-08-2024	ESIC	7010876274	GEN	8142445960	25,00,000
28	Kapston	GRajarao	HK Boy	Production	Injured	UshaPrime -Anakapalli	27-08-2024	ESIC	7010928442	GEN	9573970487	50,00,000
29	IFS	NApparao	HK Helper	Production	Injured	UshaPrime -Anakapalli	28-08-2024	ESIC	7011180899	GEN	9666356254	25,00,000
30	IFS	JVardhan	HK Helper	Production	Injured	UshaPrime -Anakapalli	28-08-2024	ESIC	7011237576	GEN	9391518791	50,00,000
31	IFS	RSatyanarayana	HK Helper	Production	Injured	UshaPrime -Anakapalli	2-09-2024	ESIC	7010215802	GEN	9676506833	50,00,000

32	E0452	YAAMINISARAGADAM	TraineeChemist	R&D-(PDLab)	Injured	UshaPrime-Anakapalli	26-08-2024	ESIC	7011235705	GEN	7337209643	50,00,000
33	E0316	PARAMESWARRAOALLAKA	Executive	R&D-(PDLab)	Injured	UshaPrime-Anakapalli	28-08-2024	Medicclaim		BShift	9966559215	25,00,000
34	Kapston	RamMeaharBabu	HKHelper	Production	Injured	UshaPrime-Anakapalli	27-08-2024	ESIC	7010833473	GEN	8639221871	25,00,000
35	E0355	VAMSISARAGADAM	JuniorChemist	Production	Injured	UshaPrime-Anakapalli	26-08-2024	ESIC	7011188828	BShift	9177804774	50,00,000
36	EBP	PrabathYadav	PRE	R&D-(HYD)	Injured	UshaPrime-Anakapalli	28-08-2024	Medicclaim		GEN	9701714673	50,00,000
37	CSF	DApparao	Security	Admin	Injured	UshaPrime-Anakapalli	28-08-2024	ESIC	6207879807	BShift	9959926360	25,00,000
38	SVEW	MNagabushanam	Painter	ESD	Injured	UshaPrime-Anakapalli	27-08-2024	ESIC	7010342907	GEN	9703553893	25,00,000
39	E0302	TEJESWARARAOYANDAVA	SeniorExecutive	Production	Injured	LVPPrasadEyeHospital	28-08-2024	Medicclaim		BShift	9440988544	50,00,000

The management has paid the above said amount for Deceased workers one crore to each , from the “ INDUS IND BANK , SARDAR VALLABHAI PATEL ROAD , BEGUMPETA , SECUNDERABAD- 500016 starting the check numbers from 121071 to 121087 , and for injured workers 50 lakhs to 21 workers and 25 lakhs to 18 workers ,the money is transferred through RTGS on 23-08-2024.

After knowing information myself, Deputy Chief Inspector of Factories, Vizianagaram& Inspector of Factories, Visakhapatnam-II has rushed to the factory, when we reached to the factory we came to know that only 04 workers were died and fifteen workers were injured and sent to the hospitals. Revenue department has got the Boom lift From M/S PidiliteAchyuthapuramand saved 13 workers who were struck on the third floor and were admitted in the hospital due to inhalation of heavy smoke.

<b>In this Fire incident the following Ambulance Vans were used</b>			
<b>S.No</b>	<b>Vehicle</b>	<b>Vehicle Number</b>	<b>Company name</b>
1	Ambulance	AP 39 VD 5531	Yokohmma
2	Ambulance	AP 39UT 8834	Rusel Décor
3	Ambulance	AP 39 TJ 1888	LarusLabs unit-II
4	Ambulance	AP 31 TH 0146	Laras Labs Unit-VI
5	Ambulance	AP 39 TM 1881	Saint Gobin
6	Ambulance	AP 39 Y 9501	Asian Paints
7	Ambulance	NA	Government 108
8	Ambulance	NA	Government 108
9	Ambulance	TS 07UF 8872	RAMKY
<b>In this Fire incident the following fire tenders were used</b>			
1	Fire tender	AP 39 BA 7796	Yokohamma
2	Fire tender	AP 31 TM 1814	Larus labs unti 4
3	Fire tender	AP 39 TF 5802	Asian Paints
4	Fire tender	AP 28TE 8936	Govt (Elamanchili)

5	Fire tender	AP 16 TH 2665	Govt ( pedagantyada)	
6	Fire tender	AP 31 TM 0299	APIIC	
7	Fire tender	AP31 TG 9218	NTPC Parwada	
8	Fire tender	GJW-27-14T-0006	Hetro-Nakkapalli	
9	Water tender	AP28TE8936	Yelamanchili	
10	Water tender	AP16TJ5794	Anakapalli	
11	Water Browser	AP07TH7491	Anakapalli	
12	MIST JEEP	AP28TE 8167	Anakapalli	
13	90 MtrsBranto Sky Lift	---	Visakhapatnam	
14	Foam tender	AP16TH2665	Pedagantyada	
15	Foam tender	AP31TE6035	Marripalem	
16	Water tender		Sabbavaram	
17	Multi Purpose Tender	AP31TM0299	APIIC SEZ,Atchutapuram	
18	Water tender	AP39UK5285	Ramky JNPC Lnkilapalem	
19	Water tender	---	IOCL Atchutapuram	
20	Water tender	AP39Y5802	Asian Paints Atchutapuram	
21	Water tender	---	LaurusUnitAtchutapuram	
22	Water tender	---	YokohomaAtchutapuram	
23	Vehicle		NDRF Team	
<b>In this Fire incident the following other Equipment's were used</b>				
1	Hydra-18T		From union	
2	Hydra-18T		From union	
3	Hydra-14 T		From union	
4	Hydra-14 T		From union	
5	Hydra-14 T		From union	
6	Bhoom lift		Pidilite	
7	Disater Management Rescue Vehicle		From Govt	
8	JCB		From union	
9	JCB		From union	
10	JCB		From union	
11	Bus	AP39P0033	NDRF	
12	Van	AP39P0022	NDRF	

After extinguishing the fire and stopping the smoke at about 06:30 PM on 21-08-2024 onwards the NDRF persons were started searching operation inside the plant and found nearly eight workers were trapped by falling the brick wall and false ceiling in the ground floor and also found some of the dead bodies nearby areas, and were shifted to (GGH) Government general hospital, Visakhapatnam for post-mortem. The last body was shifted at about 00:30 AM on 22-08-2024. The Director of factories AP Vijayawada visited the factory on 22-08-2024 at about 5.30 AM, and attended to the Hon'ble Chief Minister of Andhra Pradesh review meeting.

The Hon'ble Chief Minister of Andhra Pradesh Sri Nara Chandra Babu Naidu garu, has visited the factory on 22-08-2024 at about 02:30 PM and verified the accident spot. After verification convened a meeting with all the Government officials about the accident.

#### **4) INVESTIGATION**

After conducting preliminary enquiry on 21-08-2024 and continued further enquiry by me along with Deputy Chief Inspector of Factories, Vizianagaram & Inspector of Factories, Visakhapatnam-II on 22-08-2024, and again by the Deputy Chief Inspector of Factories, Vizianagaram & Inspector of Factories, Visakhapatnam-II on 24-08-2024 at about 03:00 PM and continued further enquiry and also obtained photographs Sri P. ChinnaRao, Inspector of Factories, Visakhapatnam-II has visited Medicover hospital on 25-08-2024 at about 04:30 PM and obtained statement from Sri KondalaNarayanaRao, age: 36 years, S/o K. Ramu, Assistant Manager, who is working in PD ( process development) lab since last 4 years. On 26-08-2024 at about 09:00 AM myself and Sri G.V.V.S.Narayana, Deputy Chief Inspector of Factories, Vizianagaram went to Medicover Hospital, Venkojipalem, Visakhapatnam, KIMS Icon Hospital, Sheelanagar, Visakhapatnam and PawanSaiHospital, Vadlapudi, Visakhapatnam interacted with the deceased workers and enquired about the facts of the accidents. Sri P. ChinnaRao, Inspector of Factories, Visakhapatnam-II has visited PawanSaihospital, Vadlapudi, Visakhapatnam on 26-08-2024 at about 05:00 PM and obtained statement from Sri Ponnada Jagadesh, Age:36 years, S/o Late Ramana Murthy, Production Manager who is working since last 7 years. Sri P. ChinnaRao, Inspector of Factories, Visakhapatnam-II, has visited Usha Prime hospital, Anakapalli on 27-08-2024 at about 10:00 AM and obtained statement from Sri Kanchu.SanmukaRaju, Age 35 years, S/o Late Mangayya.

On 26-08-2024 at about 09:00 AM myself and Sri G.V.V.S.Narayana, Deputy Chief Inspector of Factories, Vizianagaram went to the Medicover Hospital, Venkojipalem,

Visakhapatnam and enquired with 1) Sri Siva VenkataRatnam, production department working in clean room as a casual labour, he did not sensed any smell but, suddenly heard big sound due to that he got very minor injuries to his body and he is going to discharge on 26 th.2) Sri K.NarayanaRao, Assistant Manager working in PD Lab, said that his reliever came at 02:10 PM they sensed some smell and while his reliever is going to stop AHU and he is waiting near steps he heard big sound to that he has received very minor injuries and he is going to relieve from the hospital on 26<sup>th</sup> after doctor's permission. We also enquired with SuriBabu, helper who came in general shift and KiranSatyanarayana, senior executive who came in 2<sup>nd</sup> shift also stated the same words. Rest of the other 3 workers are sleeping on their beds with minor injuries. Two more workers are undergoing treatment in ICU due to burns the nurse stated that she will not allow any person inside ICU as per the instructions of the doctors for to avoid infections.

After that at about 11:00 AM we went to KIMS Icon Hospital, Sheelanagar, Visakhapatnam and enquired with 1) Sri Prasad Raju, QA, he said that he has not sensed any smell due to split A/c arranged to their rooms, he stated that due to dense smoke they did not came down side to the ground floor as the stair case was damaged, they moved upside and stayed in 2<sup>nd</sup> floor and inhaled heavy smoke. Further he stated that he has not heard emergency siren but heard fire alarm activated due to fire.2) Sri Srinivasa Varma stated the he came in 2<sup>nd</sup> shift, he is working in production department, due to broken of clean room glasses some of the pieces fell on his eye and received eye injury, after wearing PPE like suit and while walking through the steps explosion occurred.3) Sri P. Arun Kumar, QA manager stated that he came in general shift and came back to the department after taking lunch at about 01:50 PM and attended to his normal work, he has not sensed any smell but heard big sound of explosion at about 2.15 PM.

After that at about 01:00 PM we went to PawanSai Hospital, Vadlapudi, Visakhapatnam and enquired with Sri P.Jagadesh, Production Manager, he came in general shift. After lunch he came back to his room at 02:00 PM and attending to his normal work in 2<sup>nd</sup> floor, suit-II, his subordinate and production in charge Sri J.Srinivas came and informed him that solvent is leaking on the 1<sup>st</sup> floor, he did not sensed any smell but as per the words of Sri J. Srinivas, they both went to 1<sup>st</sup> floor and observed the solvent leak. He said that he has observed the solvent leak on the floor but exactly he cannot say how much quantity of solvent leaked, but he heard that other workers who are standing their discussing that nearly 150 liters of solvent may be leaked, While making arrangements to arrest of solvent leak he heard big sound and tried to get down from the floor as the steps are damaged and due to dense smoke he went to 2<sup>nd</sup> floor. Sri Santosh working in PD Lab came to the 2<sup>nd</sup> shift and went to PD Lab at that time, he sensed some smell, due to opening of the PD lab door immediately he heard big sound, he is standing near the PD Lab and he got minor injuries. We also enquired

with Gangadhar working in QC and Sri Srinvas Rao, Deputy Manager Production in production department; they both stated the same words about the explosion.

Again on 28-08-2024 at about 10:30 AM I went to the factory and continued further enquiry during the course of our enquiry we enquired with 1) Sri U.A.N.Raju, age 52 years, S/o U. Satyanarayana Raju, Production head & Factory manager under factories act 1948, 2) Kondrathu Govind, age 36 years, S/o Thatha, Safety officer, 3) Sri Neelapu Ramana Reddy, age 38 years, S/o Nuka Raju, Manager Accounts & finance, and 4) Sri Sanjay Kumar Vaishnav, Age: 57 Years, S/o Dhayan Das Vaishnav unit head.

**The following points are revealed during enquiry:**

The Escientia factory Management decided to manufacture RGP (Remigepant Sulphate) bulk drug intermediate, for to complete RGP it requires total 8 stages. They are 1<sup>st</sup> stage FCP<sub>3</sub>, 2<sup>nd</sup> stage FCP<sub>4</sub>, 3<sup>rd</sup> Stage FCP, 4<sup>th</sup> Stage IPP<sub>2</sub>, 5<sup>th</sup> stage IPP, 6<sup>th</sup> stage RGP<sub>1</sub>, 7<sup>th</sup> stage RGP<sub>2</sub> and last stage i.e. 8<sup>th</sup> stage is RGP.

This factory was registered under factories Act 1948 on 02-02-2018 by the then Deputy chief inspector of factories Visakhapatnam, after registration and commencement of the production the management has prepared “ Emergency preparedness and Response Plan” in the year 2020 internally, and safety audit was conducted with “ Wisdom Safety” i.e. the industrial safety enhancement, Visakhapatnam in the year 2020. Prior to the registration of the factory the management has got prepared onsite emergency plan, Hazard Analysis and Risk Assessment with “ Proactioneering Consultants Safety”, Rajahmundry in the year 2017, recently in the year 2023 the management got prepared 3<sup>rd</sup> party safety Audit with “ Proactioneering Consultants Safety”, Rajahmundry.

The management has prepared HAZOP (Hazards and Operable) study internally for 11 products and submitted in the office of the Deputy Chief Inspector of Factories, Vizianagaram on 02-05-2024, but compliance report for recommendations made in the report are not submitted in the above said office so far.

For RGP (Remigepant Sulphate) out of 8 stages only 3 stages i.e. for 3<sup>rd</sup>, 5<sup>th</sup> & 8<sup>th</sup> stages has submitted HAZOP study on 02-05-2024, rest other 5 stages i.e., 1,2,4,6,7 has not submitted the HAZOP study to this department so far.

The Particular accident was occurred at the time of first stage i.e. FCP<sub>3</sub> for which the management has not submitted HAZOP ( Hazards operable ) study and did not included in the HARA(Hazard Analysis and Risk Assessment), Further it came to know that the management has not tested the pipe lines once in two years as per statutory which was already pointed out in the improvement notice issued on 25-03-2023, by the Deputy chief inspector of Factories Visakhapatnam.

**PD LAB AUTOCLAVE DETAILS**

<b>S.No</b>	<b>Name of the Equipment</b>	<b>ID No</b>	<b>Capacity</b>	<b>MOC</b>	<b>HP</b>
1	Autoclave	PDL/ACL-001	5 Liters	Stainless Steel	0.25 HP
2	Autoclave	PDL/ACL-001	0.5 Liter	Hastelloy	0.25 HP
3	Autoclave	PDL/ACL-001	1 Liter	Stainless Steel	0.25 HP
4	Autoclave	PDL/ACL-001	1 Liter	Stainless Steel	0.25 HP
5	Autoclave	PDL/ACL-001	1 Liter	Stainless Steel	0.25 HP

**Sequence of operations of FCP<sub>3</sub>:**

**Brief Manufacturing Process details of FCP3 up to Incident**

<b>Operation</b>	<b>Reactor number</b>	<b>Date</b>	<b>Time</b>		<b>Duration</b>
			<b>From (HH:MM)</b>	<b>To (HH:MM)</b>	
Charge 1400 L Dichloromethane into the reactor	R-3210	13.08.2024	12:00	14:25	02:25
Charge FCP1 into the reactor at 30±5 °C.		13.08.2024	14:25	15:00	00:35
Cool the mass and charge formic acid into the reactor at temperature -5 to 0 °C.		13.08.2024	15:00	23:00	08:00
Charge triethylamine into the reactor from feed vessel at temperature below 5 °C		13.08.2024/ 14.08.2024	23:05	01:08	02:03
Raise reaction mass temperature and charge Ru catalyst into the reactor at 27.5±2.5 °C.		14.08.2024	01:08	05:10	04:02
Maintain the reaction mass under stirring condition for still		14.08.2024/ 15.08.2024	05:10	07:20	26:10

Operation	Reactor number	Date	Time		Duration
			From (HH:MM)	To (HH:MM)	
completion of reaction.					
Wash the reaction mass with sodium bicarbonate solution & purified water and sodium chloride solution.		15.08.2024/ 16.08.2024	07:20	15:00	31:40
Distill the reaction mass at below 45 °C.	R-2210	16.08.2024/ 17.08.2024	15:05	04:00	12:55
Cool the mass to 30±5, Charge dichloromethane, charge triethylamine		17.08.2024	04:00	12:40	08:40
Add TOT1 into the reactor through feed vessel	R-2210	17.08.2024/ 18.08.2024	12:45	02:15	13:30
Maintain the reaction mass for 1 hour 30 minutes ± 10 minutes		18.08.2024	02:15	07:20	04:55
Wash the reaction mass with aq. ammonium chloride solution, sodium bicarbonate solution, purified water & sodium chloride solution.		18.08.2024/ 19.08.2024	07:20	11:00	27:40
Distil the solvent at below 45 °C under vacuum until no more solvent distills		19.08.2024/ 20.08.2024	11:00	02:20	15:20
Charge 700 L methyl tert-butyl ether into the reaction mass at 30±5 °C		20.08.2024	02:20	05:16	02:56
Reaction mass treat two times with 84.0 Kg activated Carbon & wash with 1120 L methyl tert-butyl ether		20.08.2024/ 21.08.2024	05:16	09:40	28:24
Apply vacuum and heat the mass to distill, continue the distillation of the mass (methyl tert-butyl ether) at below 45 °C under vacuum.	R-2220	21.08.2024	09:40	13:45	04:05
<b>Distilled MTBE transferred to MLST-3401 from vacuum receiver VR-2225.</b>		21.08.2024	14:00	Under process	

**Sequence of operations from the observation of solvent leakage:**

1. Solvent Methyl tert-Butyl ether (MTBE) is being transferred activity started from the Receiver VR-2225 capacity 500 Lt. to storage tank MLST-3401 capacity 10 KL at around 14:00Hrs in second floor.

2. Meanwhile Mr. B RamaChandraRao(Production-chemist) was informed to Mr. J SrinivasaRao (Production-Shift in-charge) that there is solvent leakage observed at ground floor suit-1 & suit-2 south technical area at around 14:08 Hrs.
3. Both Mr. B Ramachandrarao&Mr. J SrinivasaRao went to ground floor solvent leakage area and observed there is solvent leakage at around 14:10 Hrs.
4. Immediately Mr. J SrinivasaRao went to Second floor office room from ground floor to inform the same to Mr. P. Jagadesh (Production Manager) &JagadeswaraRao(Production in-charge) at around 14:12 Hrs.
5. parallely the leakage information is passed to the Mr K ShanmukhaRaju(Production-chemist) at around 14:15 Hrs by Mr P Demudu(Sr. Engineer) regarding the solvent leakage and enquired any solvents transfer is being processed.
6. Immediately Mr ShanmukhaRaju was responded to Mr Demudu, and he has stopped the solvent transfer from the Receiver VR-2225 capacity 500 Lt. to storage tank MLST-3401 capacity 10 KL at around 14:15 Hrs by closing the Receiver VR-2225 bottom valve parallely he stopped the nitrogen supply to the Receiver VR-2225.
7. Both Mr Shanmuka Raju and Mr Demudu went to the First floor to check the solvent leakage area by using south side staircase, meanwhile they saw Mr BhagyaRajuWho is manager of Production coming from technical area and informed that there is solvent leak happened at around 14:17 Hrs.
8. The same time Mr.JSrinivasarao, Mr. P Jagadeesh&JagadeswaraRao started to visit the leakage area through south technical area staircase by the time MrShanmukaRaju and MrDemudu also met at First floor and MrShanmukaRaju has told them stopped the MTBE transferring from the receiver at around 14:19 Hrs.
9. Explosion occurred at around 14:20 Hrs from the ground floor technical electrical panel area.
10. Immediately Emergency siren was activated to alert all employees at about 14:22 hrs.
11. Observed few of the injured persons running towards the Entry/Exit gate at around 14:25 hrs from the API Block (productionblock).
12. Meanwhile lot of Mist and dense smoke was observed from the incident area and alerted the ERT team and responsible Key persons to start the rescue operation and firefighting operations at around 14:30 Hrs.
13. Parallely one rescue team was acted to send the injured persons to the OHC.

14. Information given to some of the government authorities regarding the incident occurred at the premises at around 14:40 hrs.
15. Immediately all the injured persons were shifted to nearby emergency hospital for the further treatment by using ambulances and company vehicles.
16. Allowed neighbored industries and government authority emergency vehicles (ambulances and fire tenders) into the premises to fire fighting and start rescue operations at around 14:45 Hrs.
17. Meanwhile Government authorities like Collector, Police, Factories department, Fire department, Industries , APIIC Atchyuthapuram, pollution control board& Drug control department Etc. are visited the company to support fire fighting and rescue operations at around 15:30 Hrs.
18. Meanwhile informed to the Pidilite to send boom lift to bring down the persons who are stuck at 3<sup>rd</sup> floor and about 13 Employees were rescued safely from the 3<sup>rd</sup> floor by using the boom lift which was arranged by Pidilite company, at about 16.30 Hrs.
19. Arranged one JCB to remove the debris from the impacted areas to rescue/recover the infected Employees at around 16:30 Hrs.
20. 2 infected bodies were recovered from the process development debris and sent to the hospital with help of government/neighbored industry ambulances at around 18:30 Hrs.
21. With the help of fire tenders which received from the neighbored industries and government authorities continued the fire fighting and got controlled First floor and Second floor fire, hence the both the floors fire controlled at around 18:30 Hrs.
22. Meanwhile NDRF team was entered into the Premises to help in the rescue operations which are continuing by the Escientia team, neighbored industries.
23. All the API block glasses are broken with the help of Crane/Hydra to free from the accumulated vapours and smoke free from the building areas.
24. NDRF team was entered into the Ground floor area to check for any infected bodies and identified 10 bodies infected and one person with a live rescued and sends to the hospital for treatment.
25. All the areas are thoroughly inspected by the NDRF team, and the rescue operation was completed at around 22:10 Hrs.
26. Last dead body was shifted to the KGH( king George hospital) Visakhapatnam at about 00.30 AM on 22-08-2024.
27. Over all 17 employees were declared dead and 39 employees were bodily injured, and are admitted in different hospitals for treatment.

The Deputy Chief Inspector of Factories, Vizianagaram has issued Prohibitory Order to the Management vide Lr no: R.No:104374/2024/special, Dt: 24-08-2024.

**Prohibitory Order copy: (Annexure Enclosed)**

The entire production block was divided into 4 suits in between suit I, Suit-II, & Suit-III, suit-IV areas are utilized as technical area and in between suit-I, suit-IV and Suit II, suit-III it is used as corridor for walk ways.

The following equipment is available in the entire production block on all 3 floors including ground floor.

SI No	Floor	Suit-I	Suit-II	Suit-III	Suit-IV
1	Ground floor	Large Scale Powder processing Area(Sifter – 1 nos Air Jet Mill – 1 nos Blender – 1 nos Weighing Balance – 1 nos Dry Air Storage tank – 1 nos)	Large Scale Powder processing Area & PD Lab(Sifter – 1 nos Multi Miller – 1 nos Air Jet Mill – 1 nos Blender – 2 nos Weighing Balance – 2 nos <b>2. PD Lab</b> (Autoclaves – 5 nos Laminar Fume hoods – 08 nos)	1).Small Scale Powder processing Area. 2). Kilo Lab (2 no's Glass Reactors & Vacuum Tray Drier)(Sifter – 1 nos Air Jet Mill – 2 nos Weighing Balance – 1 nos <b>2.Kilo Lab</b> (Weighing Balance – 2 nos Glass Reactors – 2 nos Centrifuge – 1 nos Vacuum Tray Dryer – 1 nos Glass Column – 1 nos)	1). High point area ( Reactors, ANFD & powder process Equipment's)(Reactors – 4 nos Holding tank – 2 nos Vacuum Receiver – 4 nos Agitated Nutsche Filter Dryer – 1 nos Isolators – 2 nos Weighing Balance – 1 nos Fume hood – 1 nos)
2	1 <sup>st</sup> floor	Filtration area & Drying area ( Centrifuge, VTD, ANFD, receivers & RCVD) (Roto Cone Vacuum Dryer – 1 nos Agitated Nutsche Filter Dryer – 1 nos Vacuum Tray Dryer – 2 nos Centrifuge – 3 nos Pressure Nutsche Filter – 1 nos	Filtration area & Drying area ( Centrifuge, VTD, ANFD, receivers & RCVD)(Roto Cone Vacuum Dryer – 1 nos Agitated Nutsche Filter Dryer – 2 nos Vacuum Tray Dryer – 2 nos Centrifuge – 4 nos Holding Tank – 4 nos	Filtration area & Drying area ( Centrifuge, VTD, ANFD, receivers & RCVD)(Roto Cone Vacuum Dryer – 2 nos Agitated Nutsche Filter Dryer – 2 nos Pressure Nutsche Filter – 1 nos Vacuum Tray Dryer – 1 nos Centrifuge – 3 nos Holding Tank – 7 nos Centrifuge Storage tank – 1 nos)	Quality control department(QC) lab area

		Columns – 1 nos Holding Tank – 4 nos)	Centrifuge Storage tank – 1 nos Centrifuge Mother liquor tank – 1 nos)		
3	2 <sup>nd</sup> floor	1.Production area-reactors, receivers,feed vessels, condenser & Utilities. (Reactors – 6 nos, Vacuum Receivers – 6 nos, Holding tanks – 4 nos, Feed Vessels – 6 nos, Wash Tank – 1 nos, Condensers& Utilities.)	1.Production area-reactors, receivers,feed vessels, condenser & Utilities. (Reactors – 6 nos, Vacuum Receivers – 6 nos, Holding tanks – 2 nos, Feed Vessels – 6 nos, Wash Tank – 1 nos, Condensers& Utilities.)	1.Production area-reactors, receivers,feed vessels, condenser & Utilities.(Reactors – 6 nos, Vacuum Receivers – 6 nos, Holding tanks – 3 nos, Feed Vessels – 6 nos, Wash Tank – 4 nos, Condensers& Utilities.)	1.Quality control department(QC) lab area. 2.Quality assurance department(QA)
4	3 <sup>rd</sup> floor	1. Production area-reactors, receivers,feed vessels, condenser & Utilities.(Reactors – 4 nos, Vacuum Receivers – 4 nos, Feed Vessels – 4 nos, Condensers& Utilities.)	1. Production area-reactors, receivers,feed vessels, condenser & Utilities. (Reactors – 4 nos, Vacuum Receivers – 4 nos, Feed Vessels – 4 nos, Condensers& Utilities.)	1. Production area-reactors, receivers,feed vessels, condenser & Utilities. (Reactors – 5 nos, Vacuum Receivers – 5 nos, Feed Vessels – 5 nos, Condensers& Utilities.)	Pilot plant ( Reactors, centrifuge & VTD)(Reactors – 6 nos, Vacuum Receivers – 6 nos, Holding tanks – 6 nos, Centrifuge – 1 nos, Agitator Nutsche Filter dryer – 1 nos, Vacuum Tray Dryer – 1 nos, Feed Vessels – 6 nos, Condensers& Utilities.)
5	Location of the suit	East and south corner of the production block	south west corner of the production block	North west corner of the production block	North east corner of the production block

The particular accident took place in Suit-II, where MTBE solvent is distilled in 2<sup>nd</sup> floor in the reactor ( R2220) and collected in a receiver (VR-2220) in the 2<sup>nd</sup> floor and is transferring from the receiver 2<sup>nd</sup> floor to the storage tank on the ground floor which is located on the west side of the production block out side. The entire pipe line,(diameter one and half inch SS)is connected with 24 joints and the particular solvent leak occurred at 9<sup>th</sup> joint counting starting point from the receiver. The 9<sup>th</sup>

joint is over the first floor and below the 2<sup>nd</sup> floor in suite 2, i.e. in between 1<sup>st</sup> floor and 2<sup>nd</sup> floor where the pipe joint is taken to the outside from the production block. Below this pipe line in the 1<sup>st</sup> floor there is a cut of the first floor for to connect the cables in to the MCC electrical panel board which is located on the ground floor, even though after noticing the solvent smell at the time of minor leakage neglected to arrest the leak as it is a lunch time & shift change over time. The management failed to declare emergency even after noticing the MTBE solvent leak and also failed to evacuate the workers even after finding/noticing leak of highly flammable solvent. The boiling point of MTBE is 55<sup>0</sup>C and flash point is 28<sup>0</sup>C. The LEL & UEL are 1.6% and 15.1% respectively. MSDS (material safety data sheet) of MTBE is attached to the report separately.

After distilling the solvent by verifying the gauge of the receiver it is observed that 500LT of MTBE solvent is recovered & it will be transferred from the receiver 2<sup>nd</sup> floor to the storage tank on the ground floor by applying nitrogen pressure to the receiver. The nitrogen pressure is at about 2.5 Kg/cm<sup>2</sup> from the nitrogen line, by opening the valve slowly with a pressure of 0.5 Kg/cm<sup>2</sup> to 1Kg/cm<sup>2</sup> nitrogen will be applied to the receiver. May be if the worker has applied more nitrogen pressure to complete it as early as possible there is a chance of leakage of solvent from the flange joint where ever weak point. May be this is one of the main reason for a chance of leakage of solvent through the pipe line joint. The management failed to provide rotometer to the receiver for to control (regulate) the nitrogen with pressure.

### Probable Causes of the Accident

1. HARA (Hazard Analysis and Risk Assessment) report is not prepared/carry out by including the manufacturing of RGP (Remigepant Sulphate) product to know the risks involved in the process and also not submitted the report in the office of the Deputy Chief Inspector of Factories, Vizianagaram along with compliance report for the recommendations mentioned at least 15 days prior to the manufacturing process of RGP.
2. HAZOP (Hazardous operable) studies is not prepared/carry out for the product of RGP total 8 stages by considering the qualitative assessment of risk, to know the hazards in the process, Considering the risk due to MTBE solvent and also not submitted the report in the office of the Deputy Chief Inspector of Factories, Vizianagaram along with compliance report for the

recommendations mentioned atleast 15 days prior to the manufacturing process of RGP.

3. Pipe lines are not tested which are carrying Hazardous chemicals like MTBE solvent with the competent person approved by the Director of Factories, A.P, Vijayawada once in two years to find out the defects in the pipe lines and joints.
4. All the parts of equipment and machinery, failure which can rise to emergency are not identified, and not examined by the competent person once in a month, a record is not maintained, and also not produced the above record at the time of enquiry.
5. The electrical MCC panel board is not provided in a separate room which was installed on the ground floor just below the solvent transferring pipe line joints.
6. Cable opening cut is not closed on the first floor even after installation of the solvent transfer pipe lines and electric cables.
7. The preventive maintenance schedule of the pipe lines as per the SOP (standard operating procedure) is not followed and also not adopted and not appointed cross check mechanism with the senior officers in the factory.
8. On site emergency is not declared by using the manual call points (total 43 manual call points are available in the production block) even after finding/noticing the leakage of highly flammable MTBE (Methyle Tert-Butyle Ether) solvent.
9. Dampers interlink with sensors are not provided to the AHU ducts.
10. ON site emergency is not declared by blowing emergency siren and addressing with public address system (PAS) even after noticing of the solvent leak to save lives of the workers, instead of waiting up to caught on fire and explosion. Nearly 12 minutes (FROM 2.08 pm to 2.20 Pm) is not utilised for declaration of emergency.
11. Time spends in informing leak information to the authorities, instead of evacuating the workers from the production block to assembly point.
12. Balconies are not provided for all the elevated floors of the process buildings where hazardous chemicals are being used stored/processed.
13. Detectors are not provided along with alarms in all the floors of the production block for early detection of the solvent vapours.
14. Escape routes are not demarked from all the floors of the production block, and also awareness is not created on escape routes.

15. The departments like QA, QC and PD lab are not constructed away from the production block.
16. Rotometers are not provided to the receivers for to control (Regulate) nitrogen pressure.
17. Personnel protective equipment like fire resistant suits is not issued to the workers who were attended for arrest of leak, and also not insisted to wear and work while attending leak arrest of highly flammable solvents.

## 5) CASUAL FACTORS

- 1) Failed to prepare/carryout HARA (Hazard Analysis and Risk Assessment) report by including the manufacturing of RGP (Remigepant Sulphate) product and also failed to submit the report in the office of the Deputy Chief Inspector of Factories, Vijayanagaram along with compliance report for the recommendations mentioned at least 15 days prior to the manufacturing process of RGP.
- 2) Failed to prepare/carry out HAZOP (Hazardous operable) studies for the product of RGP total 8 stages by considering the qualitative assessment of risk. Considering the risk due to MTBE solvent and also failed to submit the report in the office of the Deputy Chief Inspector of Factories, Vizianagaram along with compliance report for the recommendations mentioned at least 15 days prior to the manufacturing process of RGP.
- 3) Failed to test the pipe lines carrying the Hazardous chemicals like MTBE solvent with the competent person approved by the Director of Factories, A.P, Vijayawada once in two years to find out the defects in the pipe lines and joints.
- 4) Failed to examine all the parts of equipment and machinery, failure which can rise to emergency shall be got identified and examined by the competent person once in a month and also failed to produce the above record at the time of enquiry.
- 5) Failed to keep the electrical MCC panel board in a separate room which was installed on the ground floor just below the solvent transpiring pipe line joints.
- 6) Failed to close the cable opening cut on the first floor after installation of the solvent transfer pipe lines and electric cables.

- 7) Failed to follow the preventive maintenance schedule of the pipe lines as per the SOP (standard operating procedure) and also failed to adopt and appoint cross check mechanism with the senior officers in the factory.
- 8) Failed to declare emergency by using the manual call points (total 43 manual call points are available in the production block) even after finding the leakage of highly flammable MTBE ( MethylTert-ButyleEather) solvent.
- 9) Failed to provide dampers inter locking with sensors to the AHU ducts.
- 10) Failed to declare emergency by blowing emergency siren and addressing with public address system (PAS) after noticing of the solvent leak to save lives of the workers, instead of waiting up to caught on fire and explosion.Nearly 12 minutes time spends (2.08 PM to 2.20 PM) in informing leak information to the authorities, instead of evacuating the workers from the production block to assembly point.
- 11) Failed to provide balconies for all the elevated floors of the process buildings where hazardous chemicals are being used stored/processed.
- 12) Failed to provide detectors with alarms in all the floors of the production block for early detection of the solvent vapours.
- 13) Failed to demarcate the escape routes from all the floors of the production block, and also failed to create awareness on escape routes.
- 14) Failed to keep away the departments like QA, QC and PD lab away from the production block.
- 15) Failed to provide Rotometers to the receivers for to control (Regulate) nitrogen pressure.
- 16) Failed to issue personnel protective equipment like fire resistant suits, Face Shields to the workers who were attended for arrest of leak, and also failed to insist to wear and work while attending leak arrest of highly flammable solvents.

## 6) CONCLUSION

### The accident could have been averted

- 1) If the Rotometers is provided to the receivers for to control (Regulate) nitrogen pressure.
- 2) If the pipe lines are tested with the competent person approved by the Director of Factories, A.P, Vijayawada once in two years to find out the defects in the pipe lines and joints which are carrying the Hazardous chemicals like MTBE solvents.

- 3) If all the parts of the equipment and machinery, failure which can rise to emergency shall be identified and examined by the competent person once in a month.
- 4) If the electrical MCC panel board is kept in separate room for to avoid falling of solvent leaks on MCC panel board.
- 5) If the cable opening cut on the first floor is completely closed without leaving the gap, the leaked solvent may not fall on the electrical MCC panel board.
- 6) If the preventive maintenance schedule of the pipe lines is followed as per the SOP and if the cross check mechanism is adopted with the senior officers in the factory to know whether preventive maintenance schedule is followed correctly or not as per SOP.
- 7) If the emergency is declared and evacuated all the workers working in the entire production block immediately after noticing the leak of highly flammable solvent MTBE, to avoid human loss.
- 8) If the detectors provided along with alarms in all the floors of the production block for early detection of the solvent vapours.

A Show cause notice is being issued by the Deputy Chief Inspector of Factories, Vizianagaram to the both occupier and manager of the factory for the contraventions under **Section 7A(2) read with Section 87 & Rule 95 Schedule XV Part II Para 5,10,11,12,13(1),15 and part III Para 7.**

The management has submitted Form No. 18 in the office of Deputy Chief Inspector of Factories, Vijayanagaram; we have obtained photographs of the scene of the accident and also obtained statement from the witness.

I am here with submitting Form No. 18 copy, photographs & witness statements for kind perusal.

Joint Chief inspector of factories  
Visakhapatnam

Submitted to the Director of factories AP Vijayawada,  
Copy to the Deputy Chief inspector of factories Vijayanagaram,  
Copy to the inspector of factories Visakhapatnam-II