

To,
The Registrar(General),
National Green Tribunal
Principal bench,
New Delhi

No. OA-304/12/S37/2022

Date 12/07/2022

Subject : Site visit of a joint committee of CPCB, State PCB, District Magistrate and Director Industrial Safety U.P. in compliance of order dated 28-04-2022 passed by NGT on OA No 304/2022 (News item published in the Times of India dated 28-04-2022 titled Massive fire breaks out at Meerut Chemical factory; no casualties reported).

Sir,

In the above case Hon'ble Tribunal has directed that Let a joint Committee of CPCB, State PCB, District Magistrate, Meerut and Director, Industrial Safety, U.P. undertake visit to the site, ascertain the cause of the incident, the status of compliance of the statutory environmental safety norms, remedial action and steps to prevent such incidents and furnish a report to this Tribunal within one month by e-mail at judicial-ngt@gov.in preferably in the form of searchable PDF/OCR Support PDF and not in the form of Image PDF. The Committee may interact with the stake holders, including the project proponent. It will be free to take assistance of any other expert/institution/department.

In pursuant to said directions a joint Committee of CPCB, State PCB, District Magistrate, Meerut and Director, Industrial Safety, U.P. has been visited M/s Aadi Chemical solvents Mawana, District Meerut, U.P. on dated 27-05-2022 and report has been submitted by the above team on dated 06-07-2022 in State PCB for submission to Hon'ble NGT. Accordingly Joint report of above committee is being submitted for kind perusal and further action in this regard.

With regards,
Enclosure : Joint report of committee.

Your's faithfully,

(Vjay)

Regional Officer

Copy :

1. Member Secretary U.P. Pollution Control board Lucknow.
2. District magistrate Meerut.

/

Regional Officer

Joint Inspection Report

of

M/s AADI Solvent Recyclers Private Limited, Khasra No. – 506/1,2,3,4,505,

Nangli Isha, Mawana, Meerut - 250002

(27th May 2022)

In Original Application No. 304/2022

titled

**In re: News item published in The Times of India dated 28.04.2022 titled
“Massive fire breaks out at Meerut Chemical factory; no casualties
reported”**

-Prepared by-

**The Joint Committee of CPCB, UPPCB, Industrial Safety-Meerut & SDM-
Sadar, Meerut.**

Constituted by

Hon'ble National Green Tribunal

(Order dated 28th April 2022)

Inspection report of M/s AADI solvent Recyclers private limited, Khasra No. – 506/1,2,3,4,505, Nangli Isha, Mawana, Meerut – 250002 in compliance to Hon’ble NGT order dated 28.04.2022 in Original Application No. 304/2022, carried out by Joint Committee of CPCB, UPPCB, Fire Department-Meerut, Industrial Safety-Meerut & SDM-Sadar, Meerut on 27th May, 2022

1. Background

The matter in Original Application No. 304/2022, has been initiated in the light of captioned media report to the effect that a massive fire broke out in Aadi Chemical Solvents in Mawana, District Meerut, U.P. (herein after referred as ‘the unit’), due to blast which resulted in air pollution.

Hon’ble NGT passed the following directions vide order dated 28.04.2022 in the said matter:

“.....Let a joint Committee of CPCB, State PCB, District Magistrate, Meerut and Director, Industrial Safety, U.P. undertake visit to the site, ascertain the cause of the incident, the status of compliance of the statutory environmental safety norms, remedial action and steps to prevent such incidents and furnish a report to this Tribunal within one month by e-mail at judicial-ngt@gov.in preferably in the form of searchable PDF/ OCR Support PDF and not in the form of Image PDF. The Committee may interact with the stake holders, including the project proponent. It will be free to take assistance of any other expert/institution/department.”

In compliance to Hon’ble NGT order, a joint inspection of the unit was carried out on 27th May, 2022 by Joint Committee comprising officials from CPCB, UPPCB, Fire Department-Meerut, Industrial Safety-Meerut & SDM-Sadar, Meerut.

The detailed report of the Joint Committee is as follows:

INDUSTRY INSPECTION FORMAT (CHEMICAL)

Date of inspection: 27.05.2022

General section

1.	Name of the unit with complete postal address:	M/s AADI solvent Recyclers private limited, Khasra No. – 506/1,2,3,4,505, Nangli Isha, Mawana, Meerut - 250002
2.	Spatial Co-ordinates (Latitude & longitude) in Decimal format only	29°04'46.7"N 77°50'29.4"E
3.	Name of Contact person with designation Phone & Email:	Mr Gautam Jain Owner +91-9837777002
4.	Year of commissioning	2020
5.	Industry Operational status	Operational

Consent section

(Attach valid copies, or if expired then attach recent expired copies along with copy of application)

6.	Air consent (Validity with date/Expired/Applied for renewal/First time applied/Never applied)	15/04/2022 to 31/07/2025
7.	Water consent (Validity with date /Expired/Applied for renewal/First time applied/Never applied)	15/04/2022 to 31/07/2025
8.	Hazardous waste authorization (Validity with date /Expired/Applied for renewal/First time applied/Never applied)	22/04/2020 to 21/04/2025
9.	NOC from CGWA/other authorized body (Validity with date /Expired/Applied for renewal/First time applied/Never applied)	-----

Production section

10.	Name of Final Products (separately mention name and quantity of byproducts also, if any)	THINNER ACETONE TOLUENE IPA ETHYL ACETATE
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11.	Consented production capacity (TPD)	25 TPD
12.	Production on previous day of inspection (TPD)	No logbook found
13.	Production (in MT for last three months)	No logbook found
14.	Process details: -Recovery of solvent from mixed solution by simple distillation process	

Water section

15.	<i>Source of freshwater</i>	
	River	Specify whether flow meter with totalizer installed at line carrying freshwater- No Flowmeter was Installed Logbook maintained: No Logbook was Found
	Borewell	No. of Borewell as per CGWA NOC: No CGWA/UPGWD permission was available No. of Borewell having flow meter with totalizer installed: No flowmeter was installed Logbook maintained: No Logbook was found

Effluent management section

16.	Sources of effluent generation	Effluent generated during the process. No flowmeters were found installed so quantity can't be determined.	
17.	Flow meters at sources of effluent generation	No Flowmeter was found installed	
18.	ETP status	Installed (Yes/No) : Yes Operational (Yes/No) : Yes	
19.	Flow meter/ v-notch installed at ETP inlet	No Flowmeter/ V-notch installed at ETP inlet	
20.	Flow meter/ v-notch installed at ETP outlet	No Flowmeter/ V-notch installed at ETP outlet	
21.	Effluent generation quantity (KL) (to be calculated from ETP inlet logbook)- Total of last three months	No Logbook was maintained	
	On the day of visit	No Flowmeter and no logbook were found	
22.	Recycled water consumption (KL) (Total of last three months)	In production	Others

	Overall in KLD & KL/MT of product	No Logbook was maintained		No Logbook was maintained
	On the previous day of visit (KLD)	No Logbook was maintained		No Logbook was maintained
23	Effluent discharge quantity (KL) (to be calculated from ETP outlet logbook)- Total of last three months	No Logbook was maintained		
26	Mode of discharge	Treated effluent was found stored in treated water storage tank of capacity around 40000ltrs. No discharge of treated effluent was observed however a provision of discharge towards the backside chhoiya drain was noticed. (Fig-10)		
27	Effluent characteristics			
	Parameter	ETP outlet	Norms as per consent	Compliance w.r.t. consent
	pH	7.8	6.5-8.5	Complying
	Oil & Grease	4.6	10	Complying
	Suspended Solids	34.8	100	Complying
	BOD	18.1	30	Complying
	COD	172	250	Complying

ETP section

28	Installed capacity (KLD): 10 KLD ETP comprises of O&G trap → Primary settling tank → Bio-reactors(2Nos) → Secondary clarifier → treated water tank → Sludge drying beds	
29	Sludge management:	
	On the day of visit (kg/day)	No record was found
	Mode of sludge disposal	Sludge is disposed through TSDF, however no record of sludge disposal were found.
30	Name of chemical consumed at ETP along with quantity (kg/day)	No record maintained
31	Total electric Consumption (KWh/day) (average of last three months)	No record available

Air Pollution – Emission Sources & Control

32	Sources of air pollution	Chimney Details	APC Equipment	Emission Quality as per the stack monitoring carried out by UPPCB
	Wood fired Boiler of 2 Tonne capacity	110 feet stack	Cyclone dust collector	SPM – 545.45mg/Nm ³ against the prescribed norm of 800mg/Nm ³

Hazardous waste section

33	Name of HW generated	Category	Authorised Quantity	Quantity Generated	Source of generation	HW Disposal	Copy of agreement with recyclers /TSDF
	a. Spent Solvent	Schedule – I, Cat. – 20.2	100 KL / Annum	No Details Provided	Distillation	TSDF	Annexed

Fuel/power consumption

34	Type of fuel used	Wood
35	Fuel consumption (mention units)	No Logbook was found

36	<p>Specific observations:</p> <ol style="list-style-type: none"> 1. The unit was inspected on 27th May, 2022 in compliance to NGT order in OA no. 304/2022 by Joint team comprising of officials from CPCB, UPPCB, Industrial safety, Fire department and District administration. 2. At the time of inspection unit was found operational. 3. The unit is engaged in recovery of solvent from mixed solvent by simple distillation method. 4. Unit is having valid consent from UPPCB under Air and Water Act and the same was valid upto 31/07/2025. 5. The unit have valid authorization under Hazardous & Other Wastes (Management & Transboundary Movement) Rules, 2016 upto 21/04/2025. 6. -The unit has four raw material storage tanks for storing mixed chemicals having capacity of 50 KL(2Nos) and 30 KL (2Nos). 7. The unit produces Thinner, Acetone, Toluene, IPA, Ethyl Acetate as finished product.
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8. The unit has 12 Tank of total 235 KL for storage of finished goods, out of 12 tanks five were of 12 KL, One of 15 KL, two of 20 KL, one of 25 KL, two of 30 Kl and one of 35 KL.
9. No hazardous waste display board was found at entry gate of the Unit.
10. Unit has installed one borewell for meeting freshwater requirement but CGWA/UPGWD permission was not available with the unit.
11. No flowmeter was installed at borewell and no logbook for keeping record of freshwater consumption was found.
12. The unit has one wood fired boiler of two tonne capacity with cyclone dust collector as air pollution control device.
13. No data of fuel consumption (wood consumption in boiler) was available with the unit
14. The unit has ETP of 10 KL capacity. ETP comprises of O&G trap →Primary settling tank →Bio-reactors(2Nos) →Secondary clarifier →treated water tank→ Sludge drying beds - The ETP was found operational at the time of inspection.
15. As per unit the ETP treated water has been recycled within the Unit's premises but no data of recycled water was available with the unit. Also, no such recycling/ reuse of treated effluent was observed at the time of visit by the joint team.
16. No flowmeters were found installed at the ETP inlet & outlet of ETP. Also no logbooks were found maintained at ETP regarding effluent treatment & chemical consumption.
17. Colored effluent & sludge was observed to be scattered in and around ETP area.
18. Unit is having an agreement dated 24.5.2022 with M/s UPWMP (CHW-TSDF) Site, Kanpur Dehat [Membership No UPWMP-KNP-HzW-CHW-TSDF-1993].
19. The unit has Authorization of hazardous and other waster valid till 21/04/20225 with a quantity of total 100 KL/annum of waste but till now no data of waste or sludge disposal was available with the unit.
20. -The unit was found complying w.r.t. the prescribed norms as per the consent granted by UPPCB. [pH 7.8 against 6.5 -8.5; Oil & grease 4.6 mg/l against 10 mg/l; suspended solids – 34.8 mg/l against 100 mg/l; BOD 18.1 mg/l against 30 mg/l and COD – 172 mg/l against 250 mg/l]
21. UPPCB officials carried out stack monitoring and the SPM – 545.45mg/Nm³ was found against the prescribed norm of 800mg/Nm³.
22. It was observed that highly flammable raw material is not stored properly as it was kept outside without shade even during sunny summer day.
23. Loading and Unloading of raw material was observed to be improper as very highly flammable raw material stored in container were rolled over on concrete surface.

As per Report sent by Assistant Director, Factory dated 07.06.2022, following were the observations (Annexure-I):

1. At the time of fire incident dated 27.04.2022 at 12:40 PM, raw material i.e. Spent Heptane + Toluene (Mix Solvent) from tanker were unloading in the drum and kept outside shade/ raw material storage room.
2. The unit had several 200 liter drum of very highly flammable raw material kept outside shade in sunny summer day.
3. The leakage from tanker spread over warm road and get fire which spread from tanker, godown and office.
4. On site emergency plan (Annexure-II) was provided by the unit but no emergency plan mock-drill were shown.

- As per report of Fire Department, Meerut dated 27.05.2022 (Annexure-III)

1. The unit has 2 lakh liter capacity underground water tank which was empty at the time of inspection
2. Near underground water tank two electrical pump of capacity – 2280 LMPO, one diesel pump of capacity – 2280 and two jockey pump of capacity 180 LMP were not present.
3. Yard hydrant was available but not functional.
4. The unit does not have terrace tank of capacity 20000 liters.
5. The unit doesn't have Automatic detection and fire alarm and Manually operated fire alarm and automatic sprinkler system
6. The unit's 1000 liter foam compound (ARAFFF) for fire safety was burnt in fire which was supposed to be kept in other room.
7. The medium velocity water spray for cooling radiation hazards and foam porer on tanks were not available in the unit premises.
8. Long range foam monitor was not installed in the unit premises.

37 Specific recommendations/suggestions:

1. Unit shall install flowmeters at all water abstraction points.
2. Unit shall install flowmeters at ETP inlet & outlet.
3. Unit shall maintain proper record for fresh water consumption, chemical consumption at ETP, effluent generation & discharge, fuel consumption in boiler.
4. Unit shall maintain proper logbook for raw material consumption & final product.
5. Unit shall make separate arrangement for storage of Hazardous Waste in ETP area in compliance to HW Rules,2016.
6. Unit shall obtain permission from CGWA/UPGWD for ground water abstraction.
7. Unit shall ensure proper handling & storage of Hazardous chemicals in accordance with Rules.
8. Unit shall ensure and adopt all the necessary fire safety and management measures to prevent and control any kind of fire incident in future.

Photographs

Fig.1: Entrance gate

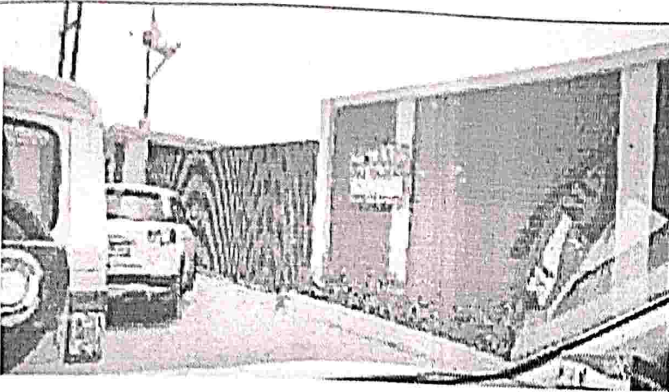


Fig.2: Manufacturing process area

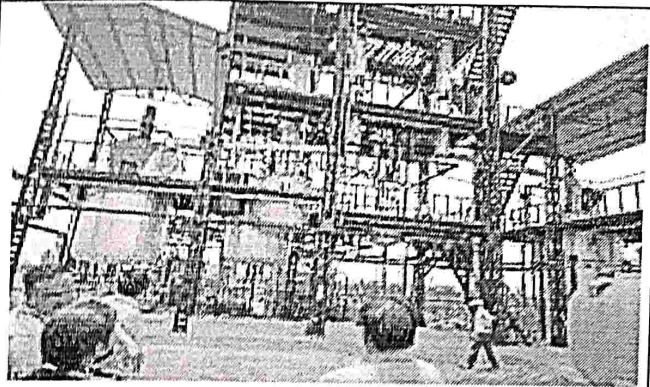


Fig.3: Final Product Storage

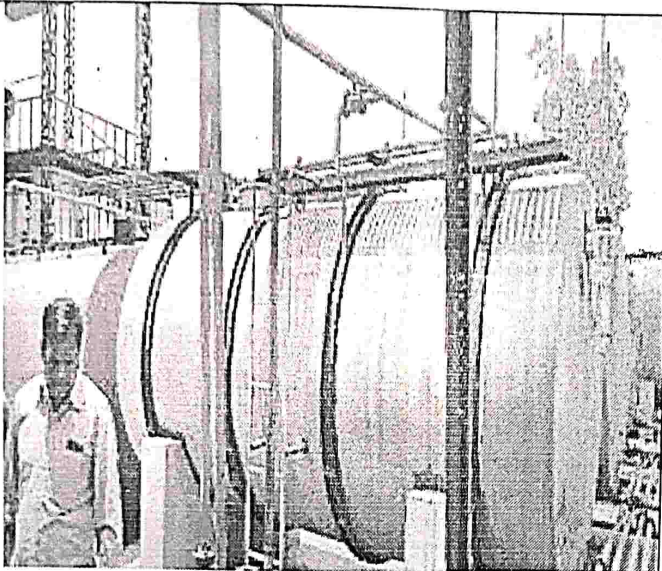


Fig.4: ETP inlet

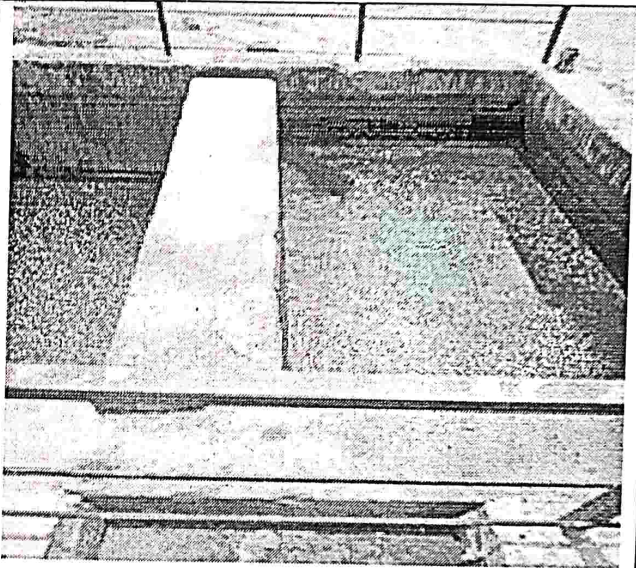


Fig.5: Aeration tank



Fig.6: Recipient drain



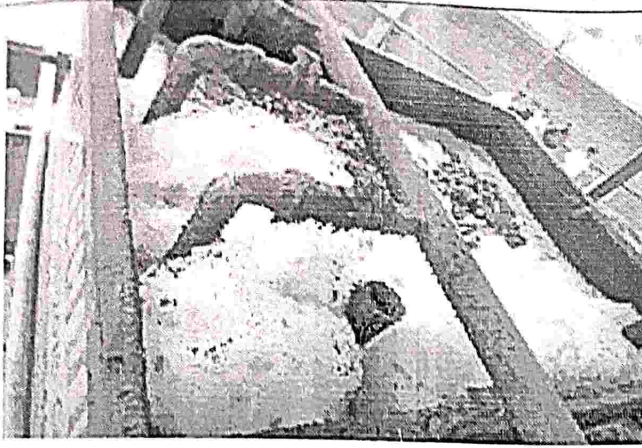


Fig.7: Inspection team

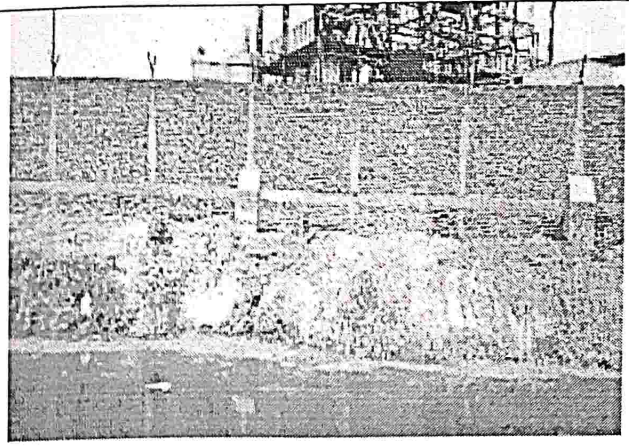


Fig. 8: Raw Material

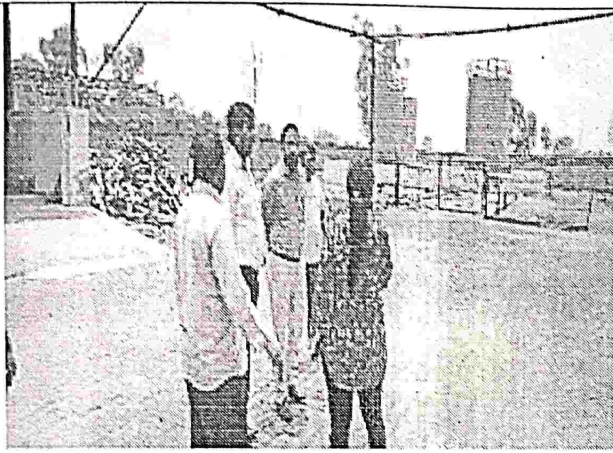


Fig. 9: Unit Premise

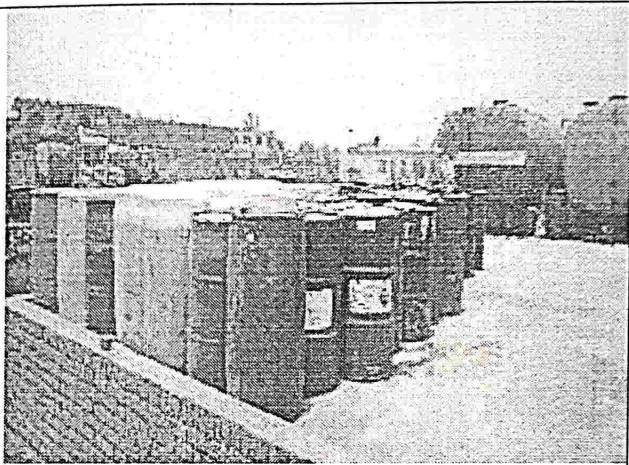




Fig. 10: Discharge point towards Chhoiya drain



List of members ..

Sr. No.	Members	Signature
1.	SDM, Sadar, District- Meerut	
2.	Mrs. Reena Satavan. Scientist 'D', CPCB, Delhi	Reena 4/7/22
3.	Regional Officer, UPPCB, Regional Office- Meerut	Handwritten signature
4.	Shri Ravi Prakash Singh, Asst Dir., Factory (UP)	Ravi 04/7/22
5.	Chief Fire Officer. Fire department, Meerut	 6.7.22
6.	Dr Prabhat Ranjan, Scientist - B, CPCB, Delhi	

ईमेल

कार्यालय— सहायक निदेशक कारखाना, उ0प्र0 मेरठ क्षेत्र, मेरठ।

संख्या 316 एडीएफ/जांच रिपोर्ट,

दिनांक 07.06.2022

क्षेत्रीय अधिकारी,

उ0 प्र0 प्रदूषण नियंत्रण बोर्ड, मेरठ।

कृपया दिनांक 27.04.2022 मैसर्स— आदि साल्वेन्ट रिसाईकल्स प्रा0लि0, खसरा न0 506/1/2/3/4/505, ग्राम—नंगली ईसा, मवाना, मेरठ में हुई अग्निकाण्ड के सम्बन्ध में जिलाधिकारी मेरठ के आदेश सं0 185/जी/ओए—304/आदि साल्वेन्ट/2022 दिनांक 07.05.2022 एवं निदेशक कारखाना, उ0 प्र0, कानपुर के पत्र सं0 263एफ/अग्निकाण्ड—2022, दिनांक 19.05.2022 के अनुपालन में दिनांक 27.05.2022 को संयुक्त टीम द्वारा कारखाने की विजिट की गयी।

अतः इस पत्र के साथ कारखाने की जांच रिपोर्ट आपको संलग्न कर सूचनार्थ प्रेषित की जा रही है।

संलग्न :- उपरोक्तान।

(विश्वेश्वर)
07-06-2022
(विवेक सारस्वत)

सहायक निदेशक कारखाना, उ0प्र0

मेरठ क्षेत्र, मेरठ।

पृष्ठांकन सं0 316 (1) एडीएफ/ जांच रिपोर्ट,

दिनांक 07.06.2022

प्रतिलिपि— निदेशक कारखाना, उ0 प्र0, कानपुर को सूचनार्थ प्रेषित।

(विश्वेश्वर)
07-06-2022
(विवेक सारस्वत)

सहायक निदेशक कारखाना, उ0प्र0

मेरठ क्षेत्र, मेरठ।

जांच रिपोर्ट

1. दिनांक 27.04.2022 को मैसर्स-आदि साल्वेन्ट रिसाईकल्स प्रा०लि०, खसरा न० 506/1/2/3/4/505, ग्राम-नंगली ईसा,मवाना,मेरठ में हुई अग्निकाण्ड के सम्बन्ध में जिलाधिकारी मेरठ के आदेश सं० 185/जी/ओए-304/आदि साल्वेन्ट/2022 दिनांक 07.05.2022 एवं निदेशक कारखाना,उ० प्र०,कानपुर के पत्र सं० 263 एफ/अग्निकाण्ड-2022,दिनांक 19.05.2022 के अनुपालन मेरे द्वारा संयुक्त टीम के साथ दिनांक 27.05.2022 को कारखाने की विजिट की गयी।
2. कारखाने में दिनांक 27.04.2022 को लगभग 12.40 पी०एम० पर अग्निकाण्ड के समय टैकर नं० यू०पी० 15AT 7088 जो कि SPENT HEPTANE+TOLUENE [MIX SOLVENT] से भरे टैकर को ड्रम में खाली किया जा रहा एवं भरे हुए ड्रमों को शेड के बाहर रखा गया शेड के समान्तर में एक अन्य टैकर खाली होने के लिए खडा हुआ था, जिसका न० यू०पी० 15BT 0377 था टैकर सं० यू०पी० 15AT 7088 लगभग खाली हो चुका था।
3. कारखाने में अति ज्वलनशील रसायन से भरे 200 लीटर के डमों को शेड के बाहर घूप में रखा गया था जिसमें से डम के लीकेज होने के कारण रसायन गर्म रोड पर फैल गया, जिसमें 12.40 पी०एम० पर आग लग गयी जिसकी चपेट में एक टैकर,गोदाम एवं आफिस का कुछ भाग जल गया।
4. विजिट के दौरान कारखानेदार के उपस्थित न होने के कारण कारखाने का आन साईट प्लान एवं अन्य दस्तावेज प्रस्तुत नहीं किया गया। जिसके लिए पत्र सं० 283 एडीएफ/अग्निकाण्ड/2022 दिनांक 28.05.2022 द्वारा सूचनाये कार्यालय में उपलब्ध कराने हेतु निर्देशित किया गया है। आन साईट इमरजेन्सी प्लान की माक ड्रिल की सूचना अब तक कभी भी कार्यालय को प्रेषित नहीं की गयी है।

(रवि प्रकाश सिंह)

सहायक निदेशक कारखाना,उ०प्र०

मेरठ क्षेत्र, मेरठ।

**ON SITE EMERGENCY
&
DISASTER MANAGEMENT PLAN**

OF

**AADI SOLVANT RCYCLERS PRIVATE LIMITED
Khasra No-506/1/2/3/4 & 505 Situated At
Vill-Isha, Mawana Meerut**


Month/Year: May 2021

Prepared in association with:



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	ON SITE EMERGENCY & DISASTER MANAGEMENT PLAN OF AADI SOLVANT RCYCLERS PRIVATE LIMITED	
	Ref No. TMIPL/ASRPL/OEP/18	MONTH / YEAR May / 2021

1.0 Name and address of the person furnishing the information

Shri Gautam Jain,
M/S AADI SOLVENT RECYCLERS PRIVATE LIMITED
6 A Jain Nagar, Meerut- 250001

(Signature & Seal)


2.0 Key personnel of the organization and responsibility assigned to them in case of an emergency

The following persons have been designated at the factory for the purpose of tackling any emergency and their responsibilities and duties are as under;

a.	Works Main Controller (WMC)	Mr. Gautam Jain Mr. Madhu Kant Jain
c.	Works Incident Controller (WIC)	Balvant Prasad (Plant In-charge)
d.	Immediate Works Incident Controller (IWIC)	Balvant Prasad (Plant In-charge) & Plant Operator staff
e.	Other key persons	All staff members including labors Watchman

I. Responsibilities and duties of Immediate Works Incident Controller (IWIC)

Operators of the factory will be the Immediate Works Incident Controller; In case of any emergency he will perform the following duties, till the arrival of the Works Incident Controller or Works Main Controller.


	<p style="text-align: center;">ON SITE EMERGENCY & DISASTER MANAGEMENT PLAN OF AADI SOLVANT RCYCLERS PRIVATE LIMITED</p>	
<p style="text-align: center;">Ref No. TMIPL/ASRPL/OEP/18</p>	<p style="text-align: center;">MONTH / YEAR May / 2021</p>	<p style="text-align: right;">Page 2 of 36</p>

- He will assess the situation and depending upon the severity of the accident, he will declare the emergency and communicate same to WMC/WIC.
- He will ensure all the machines/operations are safely shut down, and critical equipment have been isolated.
- He will communicate security at gate and to Works Incident Controller and Works Main Controller.
- He will instruct the essential technical persons of the works to control the situation.
- He will ensure that all non-essential workers have reached to the pre-designated assembly point, and head counts is done.
- He will direct staff from the plant and security staff to carry out firefighting operations.
 - He will perform all duties assigned to Works Incident Controller till his arrival.
- He will also direct the first aiders to perform their duties, if required.

II. Responsibilities and duties of Works Incident Controller (WIC)

Shri Gautam Jain has been designated as Works Incident Controller. As soon as they come to know of emergency, they will proceed to the site and carry out the following duties:

- He will ensure all the machines/operations are safely shut down, and critical equipment have been isolated; He will also ensure isolation of damage area.
- He will follow the emergency mitigation procedure as per the action plan.
- He shall ensure that firefighting and rescue operations are being carried out effectively and in proper manner.
- He shall ensure smooth flow of firefighting material for combating fire.


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- He will decide and order for safe evacuation of people from the plant depending upon severity of the incident.
- He will maintain close liaison with Works Main Controller.
- He will notify the adjacent factories and local administration, if required.
- He will enforce entry of persons with authorized duties from outside with due care.
- He will ensure the availability of the vehicles for transportation of victims.
- He will ensure for quick removal of victims to nearest hospitals.
- In case the situation is beyond the control of the plant, he will inform outside agencies for assistance.

III. Responsibilities and duties of Works Main Controller (WMC)

Director of the factory shall be the Works Main Controller (WMC) The moment reach the site they will takes the charge of Works Main Controller from Works Incident Controller. They will perform following duties:

- He will ensure that precautions and actions taken by the WIC have been taken care off.
- He will ensure the availability of the vehicles for transportation of victims.
- He will ensure that arrangements for quick removal of victims to nearest hospital have been made.
- He will ensure that effective firefighting operation is being carrying out.
- In case he finds the situation beyond the control of plant, he will ensure that information to the Fire Brigade for assistance has been sent.
- In case he feels that the population in, the nearby areas is likely to be affected, he shall seek assistance of local administration for evacuating people from nearby areas.

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- He will provide necessary coordination with the concerned authorities in performing their duties.
- He will also help the concerned authorities for carrying out the investigations.
- He will ensure that relatives of the victims have been informed.
- He will be responsible for the release of any statement to the press in coordination with local authorities.

IV. Responsibilities and duties of other key Persons

On hearing the siren for an emergency, they perform their following duties:


Electrical In charge/Mechanical Foreman

- He will rush at site with maintenance team for attending the emergency and providing technical guidance to the firefighters, accident attending staff and render help to IWIC.
- He will shut down the plant/ equipment in a safe manner with the help of supervisors/ operators of concerned section.
- He will also act in consultation with Works Incident Controller and provide all sort of technical advice for ensuring effectiveness of firefighting operations.

Account Manager

- Shall reach the Emergency Control Centre and take charge.
- Shall make payment for emergency expenditure in consultation with WMC/WIC.
- Shall act as center of emergency communications and keep all communication systems in readiness.

Purchase in charge

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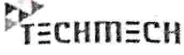
- He shall arrange to purchase equipment, if required.
- Shall arrange additional vehicles from outside or neighboring industries, if required.
- He will rush to the assembly points to attend the assembled persons
- He will make head count for the persons present at the assembly points and will inform the WMC.
- He will provide attendance of the assembled workers to the Emergency Control Room.
- He will arrange the transfer of victims to the hospitals/nursing homes, as required and keeping in view the injury with consultation of the Doctor.
- He will also deal with the relatives of the victims
- He will also inform to the concerned authorities about the incident, after approval of the Works Main Controller.

Security Watchman

- He will control the activities at main gate.
- He will arrange the traffic at main gate.
- He will control the movement of personnel etc.
- Will prevent the entry of unauthorized person and traffic.
- Will keep the road and main gate and exit gates free from obstacles for clear passage to the evacuation procedures.
- Will give information to nearby areas with the help of PA system after getting instruction from key officials.

V. Responsibilities and duties of Essential key persons

On hearing the siren for emergency, they perform following duties:

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Staff of each section of the shift

- Will remain calm and cool, they will show no panic.
- Will shut down the plant/equipment in a safe manner and will follow the instruction given by WIC/WMC/IWIC.

Maintenance Staff (Electrical/Mechanical)


- Will be ready to render services in controlling the situation to the WIC/IWIC.
- Will provide emergency equipment in readiness in case required.
- Will disconnect the electric supply of the affected area as per instructions.
- Will provide lighting and keep emergency generator ready, if required.
- Mechanical maintenance staff shall undertake any maintenance related work for controlling the emergency.

Security Men

- Shall raise emergency siren as per instructions of IWIC.
- Will start fire-fighting operations as per directions of IWIC/WIC/WMC.
- Will inform key officers/staff of factory and also to outside agencies, like fire brigade etc for help in consultation with WIC/WMC/IWIC.
- Will prevent the entry of unauthorized person and traffic.
- Will keep the road and main gate and exit gates free from obstacles for clear passage to the evacuation procedures.

First Aiders

On hearing the emergency alarm, they:

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- Will give first aid to all affected persons.
- Will consider sending casualties for further treatment, till the Medical Officer arrives.
- Will ensure that all the medicines are available in the first aid boxes.
- Will send the injured person to District hospital/Nursing Home, if required as directed by Medical Officer or WMC/WIC.

VI. Responsibilities and duties of other workers

All workers, including contract workers who have not been assigned any duty, will rush to the assembly point and remain there and wait for instructions from the WMC/WIC, and should render help if required and as per instructions.

3.0 Outside organization if involved in assisting during on-site emergency


Outside organizations are not envisaged to be involved during on site emergency.

a. Type of accidents

Classification of Emergencies:

- b. The probable emergencies at the unit have been categorized into three broad levels on the basis of seriousness and response requirements, which are given as under:

Categorization	Type of emergency
Level 1	Minor Emergency: Localized plant emergency No site emergency services required, only plant level response required

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	Major Emergency: Partial site emergency services required
Level 2	Onsite Emergency: Full site emergency service required. Mutual aid partner, if any may also be involved.
Level 3	Offsite Emergency: Full site emergency services including services of district administration required.


Various types of accidents at the plant can be as below:

Ingestion

Possible ingestion of toxic chemical by a plant employee which is, however, a remote possibility as all the employees are well aware of the toxicity hazards and there is a written down procedure for handling toxic chemicals.

Fire and explosion

- A fire or an explosion involving flammable liquid as consequent to its release due to leakage or failure of equipment.
- Spills of Spent Solvents etc without fire
- Storage tank fire
- Explosive vapour cloud formation with or without explosion.
- Catastrophic failure of storage tanks
- Leakage of flammable gases (Bio gas) into atmosphere with or without fire
- Fire in a process unit

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- Fire in any other section of unit like- Administration building, warehouse, laboratory, workshop etc.

It may, however, be noted that adequate precautions have been taken to ensure absence of any source of ignition in the plant.

Work injuries

Work injuries during jobs involving work at heights, transportation etc. Adequate precautions have been taken in jobs involving work at heights as well as transportation of material.

Skin burns and injuries

Contact with corrosives like acids, etc. during their unloading and handling. Ample fresh water has been provided for instant wash of affected body portions.

Runaway reactions

No runaway reaction in the plant.

A chemical accident may occur accompanied by any one or combination of above.


c. Responsibility assigned

Not applicable (No duties are assigned to outside organizations).

4.0 Details of liaison arrangement between the organizations

It is most important to plan out all type of liaison work quite in advance so that we may be in a position to face any type of future incidents. This liaison arrangement in the plant is divided into two-categories i.e.

- i. Liaison work inside the factory

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ii. Liaison work with external authorities

Director of the firm shall be the overall in-charge of liaison arrangement inside the factory and with local authorities. They will be assisted by number of officers to such duties are assigned.

Liaison work with External Authorities

Director will be assisted by officer shall make liaison with following statutory authorities:


District magistrate:

District Magistrate is to be made aware about the different emergency scenarios envisaged in the plant and possible physical damage, which may occur within and outside the factory. He shall be provided with any other information if required by him for developing proper "Off Site Emergency Plan" District Magistrate may also be contacted for advising other services like District Health Services, Hospitals, Police, Fire Services Department, Civil Defense under his control for mobilizing their resources whenever required.

Police department:

Police department shall be contacted in connection with the assistance that may be required in case of emergency. Police department will be involved in the rehearsals of Onsite Emergency Plan as in case of real emergency.

Fire services department:

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Fire department will always be kept in touch for incorporation/exchanging/up-dating information, facility available. They will be exposed about the envisaged emergency scenario. They will also be involved in mock drill/rehearsal of Onsite Emergency Plan.

District Medical Services:


District Medical Services will be kept informed about the various aspects of On Site Emergency Plan. They shall be informed about rehearsals and any change in the emergency plan.

5.0 Information on the preliminary hazard analysis

Preliminary hazard analysis (PHA) is a broad-based study carried out to identify potential hazards associated with various operations, process, nature of chemicals and other factors carried out at facilities. The objectives of the PHA are to further direct greater depth of analysis and suggest remedial measures for areas identified as having the greater hazard potential.

The criteria generally used for carrying out PHA sometimes known as Gross Hazards Evaluation (GHE) are given below:

- Area where large quantities of hazardous chemical are stored or processed.
- Area where operating temperature and pressure could be particularly high.
- Areas where flammable inventories exist. At times the flammable inventories may not be in itself hazardous but even a minor fire may be sufficient to cause knock on effect as in release of toxic chemicals.
- Specific operations associated with the high probability of failure.
- Areas where destructive and dangerous chemical reaction could take place resulting in major heat evaluation, release of toxic product in reaction where

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pipeline or tank failure would result in major release of the corrosive and toxic chemical.

- Areas where small quantities of highly dangerous chemicals are stored and handled wherein major toxic effect could result even due to the release of relatively small amount of the chemical due to the passive disposal.
- Areas where passive or active safety system are associated with a generally, high failure rate.


a. Type of accidents

The types of accidents possible in the plants are listed in Para 3 (a)

b. System elements or events that can lead to a major accident

Following elements/events can lead to a major accident:

- Release of flammable liquids (boiling or non-boiling) resulting in fire, explosion and gas clouds, thermal radiation and smoke.
- Release of flammable/ non-flammable/toxic gas, which may be due to leak, rupture etc. Massive releases can occur due to storage failure of chemicals, acid etc.
- Large spillage on ground or into water resulting in pollution/ contamination of air water etc.
- Structural and building collapses due to explosion or heat generated by release of chemicals leading to consequential problems.
- Release of high velocity fragments of ruptured vessels due to excessive pressure/overheating and thermal run-away conditions causing direct physical injuries.

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- Lack of adequate firefighting and personnel protective equipment arrangement available at different places of the plant such as loading/unloading area, processed areas, storage areas etc.
- Lack of Experience level of personnel involving and their capacity to cope with emergency situation.

Common causes:


The common causes of these accidents may be as follows:

- Equipment deficiency
- Unsafe acts caused by human error
- Design deficiency
- Equipment failure
- Corrosion
- Abnormalities in operation or in maintenance
- Some natural causes such as earthquake, lightning, sabotage, etc.

c. Hazards

The hazardous chemicals in the plant include flammable, combustible and corrosive. The release of such chemicals and consequential health effects and fires could produce large damage to people and property in the area, if not handled in accordance with the written down procedure. The following hazards are drawn in the plant with respect to health, flammability, and reactivity criteria (NFPA).

Flammability hazard

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The hazard rating for Spent Solvents is 3. Suitable personal protective equipment is provided to all employees engaged in handling of these chemicals. Ample fresh water is provided to facilitate a quick first-aid wash for the workers exposed to corrosive/toxic chemicals.

Reactivity Hazard


No item stored at factory has any significant reactivity hazard.

d. Safety relevant components

The plant has developed a detailed On Site Emergency Plan, which elaborates in-built as well as the operational safety measures being followed at the plant. The details of in-built & operational safety measure are as under:

In-built safety precautions

- Design of plant is such that no significant amount of toxic solid, liquid or gaseous effluent arises out of process operations.
- Plant site is located a quite distance away from residential areas
- Avoidance of low lying area, which facilitate accumulation of gases near storage/ process equipment and nearby places.
- Use of SRVs and other safety devices.
- Careful handling of toxic material is ensured to avoid spillage or leakage of the same.
- Standard design specification has been strictly followed as far as electrical equipment, pumps and vessels and other process equipment, etc. are concerned.
- All electrical equipment are properly earthed/ bonded.

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- Manual controls are rigidly exercised to avoid deviation of process parameters.
- Separate and well-ventilated storage is provided for flammable/toxic materials.
- All storage and process areas are kept free from combustible wastes and housekeeping standards are very high.
- Generator has been provided to run the critical drives emergency lighting etc. in case of power failure.
- Necessary fire extinguishers and adequate water supply is provided in all the areas for fire fighting.


It is also ensured by the plant that the procurement of equipment, being used in the plant, is being done strictly as per specifications/codes. Fabrication/erection of the equipment is also done under supervision of competent and experienced personnel.

Operational safety features

Some of the preventive and precautionary measures which are to be taken during operational life are as follows:

Safety measures: following safety tips are always borne in mind while working in the plant to avoid emergency & hazardous situation.

- To follow specified procedures and instructions for start-up, shut down and any maintenance work.
- To identify correctly the part of the plant in which work is to be done.
- To isolate the part of the plant in which work is to be done.
- To release pressure from the part of the plant on which work is to be done.
- To remove toxic gas thoroughly, in which work is to be done.

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- To use non-sparking tools in the area of flammable material either store or handle

Plant inspections: Regular plant inspections are carried out at the plant i.e. on-stream inspection & Shutdown inspection.

On -stream inspection:

- Plant In-charge at the factory carries out safety inspection on monthly basis.
- The safety inspection recommendations are submitted to concern section in charges who takes necessary action for implementation of the same.

Shutdown inspection:

- Opening up/dismantling of vital components of plant and machinery and preventive maintenance every year.
- Periodic testing of load lifting devices such as chain pulley blocks etc.
- Periodic testing of Pressure vessels.
- Air soap bubble testing to find out minor leakage in systems.


Performance and Condition Monitoring

- Lube oil change of rotary equipment as per schedule.
- Regular lubrication of all gearboxes and pump sets.

Preventive maintenance

The procedure for carrying out preventive maintenance is:

- Selection of critical equipment, which are to be covered under preventive maintenance schedule

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- Preparation of annual maintenance program of various critical equipment.
- Preparation of monthly maintenance schedule/ annual schedule.
- Preventive maintenance jobs are carried out by the operators with outside help as per schedule under the supervision of engineer.

Entry of personnel:

Entry of unauthorized personnel is strictly prohibited inside the premises. The persons entering the plant are not allowed to carry matches, lighters etc. and hot work is done in-designated areas with utmost precaution.

6.0 Details about the site

The plant site is located at Khasra No-506/1/2/3/4 & 505 Situated At Vill-Isha, Mawana Meerut, Uttar Pradesh, 250001. There are no archeological monuments, reserved forests, or sanctuaries in study area. Plant is easily accessible by road.


Neighborhood villages:

- Village – Nagli Isha
- Village – Bana
- Village – Masoori
- Village – Chota Mawana

Location of dangerous substances

The only chemical of concern at the factory is Ammonia which is stored in a shed away from main operational area.


Ammonia to the factory is brought in Drums .

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a. Seat of key personnel

As mentioned in above Para 2, following key personnel have been deployed to meet out any emergency and their seats are as under:

KEY PERSONNEL	SEAT
1. KEY PERSONS a. WORKS MAIN CONTROLLER (Director) b. WORKS INCIDENT CONTROLLER Engineer/Manager c. IMMEDIATE WORKS INCIDENT CONTROLLER [Operators]	Administrative building Administrative building Plant Administrative Building Respective sections
2. OTHER KEY PERSONS Account Manager Purchase Manager Warehouse In charge Security In charge Medical Officer Store In charge	Administrative Building Administrative Building Near Excise Office Gate Meerut City Store
3. ESSENTIAL KEY PERSONNEL Electrical Operator Mechanical Foreman/Operator Security Men First Aiders	Maintenance Deptt. Maint Deptt. At Security office (Gate) Plant

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d. Emergency Control Room

The Emergency Control Room is the office at the main gate of the plant, which is away from the fire prone area and at a safe distance. The facilities available in the emergency control room are as follows:

- List of key persons, their addresses and telephone numbers
- List of civil authorities, their addresses and telephone numbers
- P & T Line Facility
- One copy of Onsite Emergency Plan
- Attendance of the shift

7.0 Description of hazardous chemicals at plant site


a. Chemicals (quantities and toxicological data)

The hazardous chemicals handled in the plant are given in table 7.1 along with degree of purity, and hazard rating (NFPA). The explanation of the hazard rating is mentioned in table 7.2. MSDS of the only hazardous chemical, Ammonia is given in Annexure.


Table 7.1: NFPA rating of hazardous Chemicals

S.N.	Hazardous Chemicals	Degree of Purity	NFPA hazard classification			Maxm. Storage (MT)
			Toxicity	flammability	Reactivity	
1.	Spent Solvents	99%	3	1	0	100

Table 7.2: Explanation of NFPA Classification

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Hazard Classification	Definition
Health Hazard Classification	
4	Materials which on every short exposure could cause death or major residual injury even through prompt medical treatment were given
3	Materials which on short exposure could cause serious temporary or residual injury even through prompt medical treatment were given.
2	Materials which on intense or continued exposure could cause temporary incapacitation or possible residual injury unless prompt medical treatment is given.
1	Materials which on exposure could cause irritation but only, minor residual injury even if on treatment is given.
0	Material beyond that of ordinary combustible material.
Flammability Classifications	
4	Materials; which will rapidly or completely vaporize at atmospheric pressure and normal ambient temperature, or which are readily dispersed in air and which will burn readily.
3	Liquid and solids that can be ignited under almost all ambient temperature conditions.
2	Material that must be moderately heated or exposed to relatively high ambient temperature before ignition can occur
1	Material that must be preheated before ignition can occur.
0	Materials that will not burn.

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Reactivity classification	
4	Materials which in themselves are readily capable of detonation or of explosive decomposition or reaction at normal temperature and pressure
3	Materials which in themselves are capable of detonation or explosive reaction but require a strong initiating source or which must be heated under confinement before initiation or which react explosively with water
2	Materials which in themselves are normally unstable and readily undergo violent chemical change but do not detonate. Also materials which may react violently with water or which may form potentially explosive mixture with water.
1	Materials which in themselves are normally stable, but which can become unstable at elevated temperature and pressure or which may react with water with some release of energy but not violently.
0	Materials which in themselves are normally stable, even under fire exposure conditions, and which are not reactive with water.

b. Transformation if any, which could occur

Not applicable

c. Purity of hazardous chemicals

As given in table 7.1, Para 7(a).

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8.0 Likely dangers to plant

According to the raw materials and products in the plant following hazardous Chemicals may pose danger to the plant :

- Spent Solvents

The activities at the plant may cause any or all the following main hazards.


- High temperature and pressure.
- Fire & explosions (due to inflammable / combustible materials).
- Toxic and corrosive chemicals.
- Toxic and poisonous gases and dust.
- Electricity (Generation / Distribution).
- Disposal of wastes.
- Work at heights.
- Work in confined spaces / vessels / tank etc.
- Specific jobs carried under highly hazards atmosphere (flammable vapours etc.).
- Non-working of safety devices, inter locks, failure of high RPM machineries.
- Hazards during heavy equipment handling (Crane, etc.)
- Road accidents

9.0 Enumerate effects of:

a. Stress and strain caused during normal operation:

Following arrangements are made in the plant for the avoidance of any discomfort/stress & strain during the normal plant operation:

- The written safe procedures are available for all operations in the plant. The operating procedures are displayed on boards in English as well as in Hindi. All

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light, access, plate-form is used which is regularly checked and kept In good condition. Oiling and greasing points are located at safe places not liable to drip into walkways. All drains are covered.

- All the process shops are open types. The workers do not feel any discomfort condition of heat and humidity in the shop floors. Office, and plant are provided with effective ventilation system such as exhaust fan. The appropriate personal protective equipment is given to workers likely to expose to dust/fumes and gases.
- All work environments are found adequately illuminated. Sufficient and suitable lighting, natural or artificial or both have been provided. All light fittings are periodically checked and cleaned. There is no objectionable noise making in the plant.

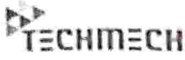
b. Fire and explosive inside the plant and effect if any of fire and explosion outside

Due to storage of Spent Solvents products at the premises, following may be the effect of fire and explosion inside or outside of the plant. :

- Jet Fire
- Flash Fire
- Pool Fire
- Vapour Cloud Explosion

Jet Fire

Release of a flammable material at high pressure due to hardware failure (leak) may lead to formation of jet, which may cause jet fire on immediate availability of ignition.


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The jet flame direction & tilt depend on prevailing wind direction & velocity. The Jet Fire could damage the neighbouring vessels / tanks by direct flame impingement. The thermal radiations may as well affect surrounding population. A jet or spray fire is a turbulent diffusion flame resulting from the combustion of a fuel continuously released with some significant momentum in a particular direction or directions. Jet fires can arise from releases of gaseous, flashing liquid (two phase) and pure liquid inventories. Jet fires represent a significant element of the risk associated with major accidents on onshore/offshore installations. The high heat fluxes to impinged or engulfed objects can lead to structural failure or vessel/pipework failure and possible further escalation. The rapid development of a jet fire has important consequences for control and isolation strategies.

The properties of jet fires depend on the fuel composition, release conditions, release rate, release geometry, direction and ambient wind conditions. Low velocity two-phase releases of condensate material can produce lazy, wind affected buoyant, sooty and highly radioactive flames similar to pool fires. Sonic releases of natural gas can produce relatively high velocity fires that are much less buoyant, less sooty and hence less radioactive.

Flash Fire

A Flash Fire is low-intensity combustion without explosion, whose effect zone is up to the LFL region of the cloud. A flash fire may occur if the gas cloud reaches a source of ignition and rapidly burns back to the source of release. Due to the short duration of a flash fire, only people within the fire path will be affected. In case of flammable material, the cloud dispersion simulation provides the distance (from the source/leak) at which the concentration of flammable material reaches its Lower Flammability Limit (LFL) value.

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Pool Fire

A pool fire is a turbulent diffusion fire burning above a horizontal pool of vaporising hydrocarbon fuel where the fuel has zero or low initial momentum. Fires in the open will be well ventilated (fuel-controlled), but fires within enclosures may become under-ventilated (ventilation-controlled). Pool fires may be static (e.g. where the pool is contained) or 'running' fires. Pool fires represent a significant element of the risk associated with major accidents on offshore installations, particularly for Northern North Sea (NNS) installations that may have large liquid hydrocarbon inventories.


Vapour Cloud Explosion

Explosion is a sudden and violent-release of energy, which may be in the form of physical energy or chemical energy. Continuous release of flammable material over a period may lead to formation of vapour cloud on unavailability of immediate ignition. This may lead to Vapour Cloud Explosion (VCE), if this cloud gets ignition before it is diluted to the concentration below the Lower Explosive Limit (LEL) in air. The explosion will cause overpressure resulting into damage to the surrounding buildings and equipments.

The most dangerous and destructive explosions in the chemical process industries are vapour cloud explosions (VCE).

These explosions occur by a sequence of steps:

- Sudden release of a large quantity of flammable vapour. Typically this occurs when a vessel, containing a superheated and pressurized liquid, ruptures.
- Dispersion of the vapour throughout the plant site while mixing with air.
- Ignition of the resulting vapour cloud.

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A large cloud of combustible material is very dangerous and almost impossible to control, despite any safety systems installed to prevent ignition.

10.0 Details regarding

i. Warning alarm and Safety and Security systems:

Chopra Ice Factory has following system of wailing fire alarm sound to indicate emergency. The wailing system adopted by the plant is as under:

Situation	Type	Pitch of warning system
1. Fire/ Ammonia leakage accident	Fire alarm	3 minutes continuous wailing of siren with pauses of 30 sec.
2. All clear Siren	-	Continuous wailing without pause.


For security of the plant, watchman is deployed round the clock.

ii. **Alarm and hazard control plans in line with disaster control and hazard control planning, ensuring the necessary technical and organizational precautions.**

Spent Solvents is the only likely danger to the plant. A hand siren is provided to communicate any emergency at the plant. Following directions are issued for handling, use, and storage of liquid Spent Solvents for the control of hazard.

Loading and unloading of Drums

- Loading and unloading should be done carefully under supervision.
- The Drums should never be dropped directly to the ground.
- Check Drums for leakage for leakage on its receipt.

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- The Drums should not be dumped against each other or against any other hard object.

Storage of full and empty Drums

- Do not store filled Drums in an open yard exposed to heat, sun and rain.
- Store empty and filled Drums separately.
- The Drums should be stored inside the shed of well-ventilated construction and away from inflammable materials.
- Filled Drums should never be stacked one above the other
- Open flame, welding, etc must be prohibited in close proximity to any Ammonia Drums.
- Filled Drums must have valve cap. As soon as it is consumed, the valve caps must be fitted back otherwise exposure to moist atmosphere will corrode the valve.
- Weight of the used empty Drums must match with the tare weight of the Drums.

Use of filled Drums to processes

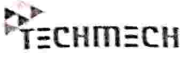
- Use Drums in order receipt.
- Use Ammonia Drums only in well ventilated areas.
- Use only approved tools for opening and closing. Never force connections that do not fit.
- Open the valve full; do not use it for controlling the Ammonia flow. The valve seat may get damaged by erosion due to high velocity of Ammonia gas. Provide a regulating valve for flow control.
- Never allow moisture and any other liquid to enter the Drums or Spent Solvents piping system while using the Drums . 1.0 kg/cm²(approx.)pressure should be left inside the Drums in order to avoid the back flow in the Drums.

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- For proper and leak proof connection use seamless copper tube, brass nipple and adopter, M.S. clamps and Teflon washer. Do not use rubber hose connection. Check the connection for leakage.
- Careful handling of flammable/toxic material is ensured to avoid spillage or leakage of the same.

Action to be taken during leakage or in emergency

- The most important consideration is to ensure that all emergency equipment that may be required are kept readily available.
- Emergency device for Drums are available in the market. They consist of steel bell and gasket fitted with a valve to close a broken Drums valve or one with uncontrollable leak.
- If valve is leaking from spindle, tight the gland nut.
- If Ammonia is leaking through valve seat (valve will not close tightly) gently open and close the valve to discharge from the valve seat. Or use emergency kit.
- If Ammonia is leaking through the fusible plug threads use emergency kit and control it by tightening the thread.
- If the Ammonia is leaking through valve inlet tighten the valve into Drums slowly and with steady pressure on it.
- If valve is broken off or is leaking then control the leak with the help of emergency kit.
- If Ammonia is leaking through the sides of the toner, use emergency kit to control it.
- In spite of all above efforts, if Ammonia gas is found leaking, it is best to either connect it up to the pressure or consume it up in process.

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- In case of leakage always approach from the windward side, so that escaping gas is carried downwind to a lower level. If the leakage is heavy, self-contained compressed air breathing apparatus, (SCBA) as per the requirement.
- It is ensured that the persons attending the situation are well-trained in use of the emergency kit and personal protective equipment.

First aid measures

- Evacuate the contaminated zone. If any person gets exposure of Ammonia, it will attack and destroy clothing and if such clothing is in contact with skin, it will lead to irritation and burning. The contaminated clothing should be removed immediately and wash the skin copiously with soap and large amount of water.
- In case of inhalation.
- If victim is conscious, transfer him to a quiet place and lay him down with upper part of the body elevated; loosen his clothing, particularly a tight collar or belt and cover him with blanket
- If victim is unconscious but breathing, give him oxygen therapy at low pressure unit the arrival of the doctor.
- If the victim is not breathing, quietly stretch him out on the ground, on a blanket, if available; loosen his collar and belt, and start artificial respiration without delay, with administration of oxygen and continue this till the arrival of the doctor.

iii. Reliable measuring instruments, control units and servicing of such equipment

All the measuring and control units such as safety valves, isolation valves, temperature gauges, pressure gauges, level meters are installed as required in the plant and these are periodically checked.

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iv. Precautions in designing of the foundation and load bearing parts of the building

Architectural and structural part of the entire building has been designed on the basis of calculations and safe in accordance with permissible stresses as laid down in regulations of Bureau of Standards.

The steel structure over RCC foundation is designed to sustain wind velocity and wind load based on IS-875 (revised edition) to maximum extent 170 km per hour at 10 m height.

Factory has provision to have approved building plans from the Directorate of factories, U.P. and Certificate of Stability of the entire building be obtained from the component person approved by Directorate of Factories U.P.

v. Continuous surveillance of operations


The plant is manned on continuous basic; the plant operates in two shifts namely A,B. All the processes are monitored by the operator in each shift and complete plant is under the control of plant in charge.

vi. Maintenance and repair work according to the generally recognized rule of good engineering practices

The duties of maintenance of the plant are performed by the engineer and operators with support from partners of the firm.

Two types of maintenance are being carried out in the plant.

- Preventive maintenance
- Shut down maintenance

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Preventive Maintenance

- Selection of critical equipment which are to be covered under preventive schedule.
- Preparation of annual maintenance programme of various critical equipment.
- Preparation of monthly/annual maintenance schedule.
- Preventive maintenance jobs are carried out by the operators as per schedule under the supervision of engineer.

Shut down maintenance

- If there is breakdown in machinery and stoppage is required for carrying out job. Director of the firm are intimated with probable period of stoppage by engineer.
- Major breakdowns are analyzed and necessary action is taken if required.
- The electrical operator carries out all the electrical maintenance.

11.0 Details of communication facilities available during emergency and those required for and off site emergency.

The mobile phone is primary mode of communication at Chopra Ice Factory. In case of emergency, a good number of mobile phones are available. Hand siren is available for sounding emergency.

The address and telephone numbers of senior and responsible officers of the plant are as under:

S.N.	Name and designation S/Shri	Mobile No.
1.	Shri Gautam Jain	98377 77002

The address and telephone numbers of the offices and residence of various district officials are as under:

S.N.	Officer	STD Code	Telephone number		
			Office	Res.	Mobile no.
1	Director of Factories (U.P.) G.T. Road, Sarvodya Nagar, Kanpur	0512	2223886	2218502, 2219001	9650354423
2	District Magistrate, Meerut	0121	2623024	2642232	9454417566
3	SDM				9454416686
4	S.S.P. /S.P				9454400297
5	SP City	01232	2765355		9454401116
6	Police Control Room		100		
7	Fire Station		101		9454418779, 9454418211
8	Dy. Labour Commissioner, Meerut	0121	2663622		9412781913
9	Dy. Director of Factories, Shram Bhawan, Begum Bridge, Meerut	0121	2663622		
10	Asstt. Director of factories, Meerut				93050 70705
11	Chief Medical Officer, Meerut	01232	2716204	2715800	08005192683
12.	Govt Ambulance		102, 108		
13.	District Hospital Meerut	0121	2404850		

12.0 Details of firefighting and other facilities available and those required for an offsite emergency

The firefighting arrangements available within the plant are as under:

Fire Extinguishers:

Portable fire extinguishers are provided at the factory. These are regularly checked and tested as per norms.


S.No.	Type of fire extinguisher	Capacity	Qty.(nos.)
1	ABC/Dry Powder	10 Kgs	15

Other items:

- Sand buckets - 6 nos.

The factory has made the provision for the personnel protective equipment within the plant, which are regularly used by the workers and these can be useful in case of emergency also.

S.N.	PPEs	Quantity
1.	Apron	6 nos.
2.	Hand Gloves	15 pairs
3.	Goggles	5 pairs
4.	Self-Contained Breathing apparatus	01 no.
5.	Face Shield	1 no.
6.	Helmet	5

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Action Plan for personnel during fire/gas leak

Emergency calls shall be communicated to Security Gate, as it is manned round the clock. Emergency call shall specify the exact location/plant/building/section, and type of emergency. Person attending the security gate will perform following duties, the moment he comes to know about any emergency inside the plant:

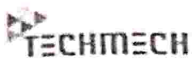
- To call Partners/ engineer/ manager of the factory using mobile phone, if not present in the factory.

The emergency action plan for the firefighting team will be as under:

- Out of staff, one member will sound and siren as per the code fixed for various types of emergencies.
- All staff led by operator will rush to the affected area to start firefighting/rescue or any other function depending upon the type of the emergency.
- one member will rush to start the water pump.
- If required, fire extinguishers will also be used.
- Staff shall control Ammonia leakage by using proper tools and personal protective equipment under supervision of Operator/ Engineer.
- Security guard will be at the gate.
- Salvage party will be deployed as soon as the situation becomes under control.
- Victims shall be shifted to main gate for first aid or for shifting to outside hospital.
- Once the situation becomes normal, security staff will sound siren to indicate "All CLEAR and NORMAL"

Other arrangement outside the factory

The fire station shall be called in case of fire or gas leak.

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Details of first aid and hospital services available and its adequacy

Chopra Ice Factory have provided the necessary first aid facilities at the plant. The first aid box is available at the factory all the time

There are number of private nursing homes nearby to take victims for medical care in emergency.

Medical Action Plan

All type of first aid shall be provided to the affected person. In case the condition of the affected person goes or seems beyond control the victim will be shifted to outside hospital for further necessary medical facilities under the supervision of factory owners.


Near Miss Accidents are also investigated by the owners of the factory.

This report is prepared for M/S Aadi Solvent Recyclers Private Limited Meerut (UP) by M/s Tech Mech International Pvt Ltd., Meerut who are approved by Director of Factories, UP under sec 21(2) of The Factory Act 1948.

Plant visit and report prepared by Er. Pushpendra Singh, M/s Tech Mech International Pvt. Ltd., having Good experience in this line of work. The report is based on the data provided by the management of the firm and plant visit and discussion with factory personnel.

(Er. PUSHPENDRA SINGH)

Date: 31.12.2018

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DISCLAIMER

This On-site Emergency & Disaster Management Plan has been prepared by M/s Tech Mech International (P) Ltd., Meerut with all reasonable skill, care and diligence, and taking account of the manpower and resources devoted to it at the request of the management of M/s Aadi Solvent Recyclers Private Limited Meerut. Furthermore, it should clearly be noted that the plan is based on information/data provided and discussions held with plant management and staff during preparation. The plan is indicative only and not comprehensive.

This report is confidential to M/s Aadi Solvent Recyclers Private Limited Meerut and its owners, and Tech Mech International (P) Ltd. accepts no responsibility whatsoever to third parties to whom this report, or any part, thereof, is made known.

Tech Mech International (P) Ltd disclaims any responsibility to M/s Aadi Solvent Recyclers Private Limited Meerut or its owners and others in respect of matters outside the scope of this report.

(PUSHPENDRA SINGH)

COMPETENT PERSON

Tech Mech International (P) Ltd.

Date: 24.05.2021

कार्यालय

मुख्य

अग्निशमन

अधिकारी

मेरठ ।

Phone No. - 01212973094,

Email ID- cfomeerut@gmail.com

/ cfofs.me-up@gov.in

पत्र संख्या: फा0स0 / सीएफओ-(विविध) / 22

दिनांक: मई 9 7, 2022

सेवा में,

उपजिलाधिकारी
सादर-मेरठ।

महोदय,

सादर अवगत कराना है कि आज दिनांक 27.05.2022 को एनजीटी के आदेश के अनुपालन में आपके आदेशानुसार संयुक्त कमेटी के साथ आदि सॉल्वेंट एण्ड रिसाईकलर प्रा0लि0, ग्राम नंगलीईशा थाना झौली, मवाना रोड मेरठ परिसर में स्थापित अग्निशमन व्यवस्था का निरीक्षण अधोहस्ताक्षरी द्वारा किया गया तो निरीक्षण आख्या निम्नवत है:-

1. प्रश्नगत औद्योगिक प्रतिष्ठान का प्रोविजनल अनापत्ति प्रमाण-पत्र कार्यालय उपनिदेशक फायर सर्विस मेरठ / सहारनपुर परिक्षेत्र महोदय के पत्र संख्या-16 / डी0डी0 / फा0स0 / मेरठ-18(मेरठ) / 02 दिनांक 20.10.2018 द्वारा इस शर्त के साथ निर्गत किया गया है कि भवन निर्माण के पश्चात तथा भवन के अधिमोग से पूर्व मानक के अनुरूप अग्निशमन व्यवस्थाये स्थापित कराकर अग्नि एवं जीव रक्षा प्रमाण-पत्र प्राप्त किया जाना था जिसका अनुपालन फैंक्ट्री स्वामी द्वारा नहीं किया गया है।
2. प्रोविजनल अनापत्ति प्रमाण-पत्र में अंकित शर्तों के अनुसार निरीक्षण के समय निम्न कमियाँ पायी गयी:-
 - फैंक्ट्री परिसर में 02 लाख लीटर क्षमता का भूमिगत टैंक बनाया गया है परन्तु पानी नहीं भरा गया है।
 - भूमिगत टैंक के पास 02 अदद इलै0 पम्प क्षमता-2280 एलपीएम, 01 अदद डीजल पम्प क्षमता-2280 एलपीएम व 02 अदद जॉकी पम्प क्षमता-180 एलपीएम स्थापित नहीं है।
 - वेटराईज / यार्ड हाईड्रेंट सिस्टम स्थापित है परन्तु कार्यशील दशा में नहीं है।
 - भवन में 20000 लीटर क्षमता का टैरिस टैंक स्थापित नहीं है।
 - भवन में ऑटोमैटिक डिडेक्शन एण्ड फायर अलार्म, एवं मैनुवली ऑपरेटिड फायर अलार्म सिस्टम तथा ऑटोमैटिक स्प्रिंकलर सिस्टम स्थापित नहीं है।
 - फैंक्ट्री परिसर में अग्निशमन कार्य हेतु रखा गया 1000 लीटर फोम कम्पउण्ड(ARAFFF)अग्निक्वॉण्ड में जल गया जिसको एक अलग कमरे में रखा जाना बाध्यकारी है।
 - संस्थान के टैंक फोम में सभी टैंकों पर फोम पोरेसर एवं रेडियेशन हैजार्ड को कूलिंग के लिये मीडियम वेलोसिटी वाटर स्प्रे स्थापित नहीं है।
 - संस्थान में टैंक के चारों ओर लॉग रेंज फोम मोनीटर स्थापित नहीं है।

अतः निरीक्षण आख्या आवश्यक कार्यवाही हेतु सादर सेवा में प्रेषित है।

मुख्य अग्निशमन अधिकारी,
मेरठ।