IN THE HON'BLE NATIONAL GREEN TRIBUNAL, SOUTHERN ZONE BENCH, CHENNAI

ORIGINAL APPLICATION NO. 115 of 2025

IN THE MATTER OF: -

Tribunal on its own motion SUO MOTU based on the news item in English National Daily Time of India dt: 30.06.2025, under the caption "Reactor blast in Telangana: 12 killed after fire breaks out in pashamylaram; PM Modi announces ex gratia"

Versus

Telangana State Pollution Control board and ors …. Respondents

REPLY AFFIDAVIT FILED BY THE RESPONDENT No. 3

Filed by:
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BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL
SOUTHERN ZONE BENCH, CHENNAI
OA NO. 115 OF 2025

IN THE MATTER OF:

Tribunal on its own motion SUO MOTU based on the News Item in English National Daily Time of India dt: 30.06.2025, under the caption "Reactor blast in Telangana: 12 killed after fire breaks out in pashamylaram; PM Modi announces ex gratia"

VERSUS

Telangana State Pollution Control Board & Ors. ...Respondent(s)

REPLY AFFIDAVIT ON BEHALF OF THE MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE

MOST RESPECTFULLY SHOWETH:

I, Tarun Kathula S/o Shyamala Rao , aged about 48 years, currently working as Scientist 'G' in the Sub Office, Ministry of Environment, Forest and Climate Change (MoEF&CC), Hyderabad do solemnly affirm and declare as under: -

1. That I am, the above-named deponent, authorized and well conversant with the facts and circumstances of the present case and thus competent to swear the present affidavit.

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वैज्ञानिक 'जी' / Scientist 'G'
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पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय
Ministry of Environment, Forest and Climate Change
उप कार्यालय, हैदराबाद/Sub Office, Hyderabad.
तेलंगाना/Telangana

2. That, the Ministry of Environment, Forest and Climate Change ('**answering respondent**') are filing an affidavit at this stage and it craves leave and liberty to file any further affidavit to the aforesaid application, as and when required.

3. That, the present matter has been initiated suo-moto by the Hon'ble National Green Tribunal ('**Hon'ble NGT**') on the basis of news item relating to Reactor blast in Telangana resulting in 12 deaths after a fire breaks out in Pashamylaram.

4. That, the respondent Ministry *vide* S.O. 966 (E) dated 27.11.1989 had notified the Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989 ('**MSIHC Rules, 1989**'). These rules have been notified to put in place a regulatory mechanism aimed at putting in place an operational safety framework in industries dealing with hazardous chemicals thereby avoiding chemical accidents. Copy of MSIHC rules, 1989 is marked and annexed herewith as **Annexure-R1.**

5. That, the Rule 2 of the MSIHC Rules, 1989 deals with the 'definition clause' and further defines the '*Major accident'* as – an accident involving loss of life inside or outside the installation, or ten or more injuries inside and/or one or more injuries outside or release of toxic chemicals or explosion or fire or spillage of hazardous chemicals resulting in on-site or off-site emergencies or damage to equipment leading to stoppage of process or adverse effects to the environment.

6. That, Rule 5 of MSIHC Rules, 1989 provides for *'Notification of Major Accident'* which inter-alia includes the following:

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Ministry of Environment, Forest and Climate Change
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i. Where a major accident occurs on a site or in a pipe line, the occupier shall within 48 hours notify the concerned authority as identified in Schedule 5 of that accident, and furnish thereafter to the concerned authority a report relating to the accidents in instalments, if necessary, in Schedule 6.

ii. The concerned authority shall on receipt of the report in accordance with sub-rule 1 of this rule, shall undertake a full analysis of the major accident and sent the requisite information within 90 days to the Ministry of Environment and Forests through appropriate channel.

iii. An occupier shall notify the concerned authority, steps taken to avoid any repetition of such occurrence on a site.

iv. The concerned authority shall compile information regarding major accidents and make available a copy of the same to the Ministry of Environment & Forests through appropriate channel.

v. The concerned authority shall in writing inform the occupier, of any lacunae which in its opinion needs to be rectified to avoid major accidents.

7. It is submitted that Schedule 5 of the MSIHC Rules, 1989 provides the duties of various authorities including Central Pollution Control Board ('**CPCB**') or State Pollution Control Board or Committee ('**SPCB/PCC**') under Environment (Protection) Act, 1986 in respect of isolated storage of hazardous chemicals and Chief Inspector of Factories (CIF) appointed under the Factories Act, 1948 for enforcement of directions and procedures in

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respect of industrial installations and isolated storage covered under Factories Act, 1948 dealing with hazardous chemicals and pipelines including inter-state pipelines inter-alia regarding-

(i) Notification of major accidents as per Rules 5(1) and 5(2).

(ii) Notification of sites as per Rules 7 to 9.

(iii) Safety reports in respect of isolated storages as per Rule 10 to 12.

(iv) Preparation of on-site emergency plans as per Rule 13.

8. That, the answering respondent on 04.07.2025 received a preliminary report from the concerned authority, wherein it has been mentioned that the accident occurred in Sigachi Industries Ltd. on 30.06.2025 at 9:25AM whle manufacturing Micro Crystalline Cellulose Powder (MCCP), which is used in tablets and capsules as binding agent. It has been informed that at the time of explosion 143 persons were inside the factory premises which resulted in the death of 39 person (including manager), injuries to 34 (11 discharged) and 9 person are missing. The chief inspector of factories issued an order to occupier for prohibiting the usage of factory from carrying out the manufacturing process. Moreover, the Government of Telangana has constituted an expert committee to enquire in to the major explosion and fire in the said factory. Copy of the Report shared by Director of Factories, Govt. of Telangana is annexed herein as **Annexure-R2.**

9. That, the answering respondent has also sent a letter dated 31.07.2025 to Director of Factories, Govt. of Telangana seeking full analysis report and

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action taken pursuant to provisions of MSIHC Rules, 1989. Copy of Letter dated 31.07.2025 is annexed herein as **Annexure-R3.**

10. That, in compliance to the directions of the Hon'ble NGT in the matter of *O.A. No. 60/2021 (related to the chemical accident at M/s UPL Limited, Bharuch, Gujarat in Feb-2021*), the answering respondent and Central Pollution Control Board (‘**CPCB**’) had prepared guidelines on the safety audit of chemical industries. The compilation was submitted as 'Integrated Guidance Framework for Chemicals Safety in respect of Isolated Storage(s) and Industries covered under MSIHC Rules, 1989' and duly taken on record by Hon'ble NGT. Thereafter, the framework was shared with all States for implementation. A copy of the framework is attached at **Annexure-R4**.

11. That, the answering respondent had also notified the Public Liability Insurance Act, 1991 (‘**PLI Act**’) *vide* notification dated 23.01.1991 as amended from time to time. The said Act was published to provide for public liability insurance for the purpose of providing immediate relief to the persons affected by accident (other than workman) occurring while handling any Hazardous Substance and for matters connected therewith or incidental thereto. A copy of the PLI Act is annexed herein as **Annexure-R5.**

12. It is respectfully submitted that in view of the above submissions, this Hon’ble Tribunal may pass such order(s) as deemed fit and proper in the facts and circumstances of the case.

DEPONENT

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VERIFICATION

Verified at Hyderabad on 29th day of August,2025 that the contents of this affidavit based on official record(s) maintained and information available in the office are true and correct, no part of it is false and nothing has been concealed there from.

DEPONENT

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THE MANUFACTURE, STORAGE AND IMPORT OF HAZARDOUS CHEMICAL RULES, 1989

MINISTRY OF ENVIRONMENT & FORESTS

(Department of Environment, Forests and Wildlife)

NOTIFICATION

(New Delhi, the 27th November 1989)

***S.O.966(E)** - In exercise of the powers conferred by Section 6, 8 and 25 of the Environment (Protection) Act, 1986 (29 of 1986), the Central Government hereby makes the following rules, namely :

1. SHORT TITLE AND COMMENCEMENT –

(1) These rules may be called the Manufacture, Storage and Import of Hazardous Chemical Rules, 1989.

(2) They shall come into force on the date of their publication in the Official Gazette.

2. DEFINITIONS - In these rules, unless the context otherwise requires, -

(a) "Act" means the Environment (Protection) Act, 1986 (29 of 1986);

(b) "Authority" means an authority mentioned in Column 2 of Schedule 5;

(c) "export" with its grammatical variations and cognate expression, means taking out of India to a place outside India;

(d) "exporter" means any person under the jurisdiction of the exporting country and includes the exporting country, who exports hazardous chemical;

(e) "Hazardous Chemical " means -

(i) any chemical which satisfies any of the criteria laid down in Part I of [1][Schedule 1 or] listed in Column 2 of Part II of this Schedule ;

(ii) any chemical listed in Column 2 of Schedule 2;

(iii) any chemical listed in Column 2 of Schedule 3;

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* The principal rules were published in the Gazette of India vide number S.O. 966(E), dated 27.11.1989 and subsequently amended vide: S.O.115 (E), dated 05.02.1990; GSR 584, dated 09.09.1990; S.O.2882, dated 03.10.1994; and S.O. 57(E), dated 19.01.2000.

1 Substituted by Rule 2(i) of the Manufacture, Storage and Import of Hazardous Chemical(Amendment) Rules, 2000 notified vide S.O. 57(E), dated 19.1.2000.

(f) "import" with its grammatical variations and cognate expression, means brining into India from a place outside India;

(g) "importer" means an occupier or any person who imports hazardous chemicals;

(h) "industrial activity" means-

i. an operation or process carried out in an industrial installation referred to in Schedule 4 involving or likely to involve one or more hazardous chemicals and includes on-site storage or on-site transport which is associated with that operation or process, as the case may be; or

ii. isolated storage; or

iii. pipeline ;

(i) "isolated storage" means storage of a hazardous chemical, other than storage associated with an installation on the same site specified in Schedule 4 where that storage involves atleast the quantities of that chemical set out in Schedule 2;

[1][(j) "major accident" means -an incident involving loss of life inside or outside the installation, or ten or more injuries inside and/or one or more injuries outside or release of toxic chemicals or explosion or fire or spillage of hazardous chemicals resulting in on-site or off-site emergencies or damage to equipment leading to stoppage of process or adverse affects to the environment ;

(ja) "major accident hazards (MAH) installations" means - isolated storage and industrial activity at a site handling (including transport through carrier or pipeline) of hazardous chemicals equal to or, in excess of the threshold quantities specified in, Column 3 of schedule 2 and 3 respectively;]

(k) "pipeline" means a pipe (together with any apparatus and works associated therewith) or system of pipes (together with any

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1 Substituted by Rule 2(ii) of the Manufacture, Storage and Import of Hazardous Chemical (Amendment)Rules, 2000 notified vide S.O.57(E), dated 19th January, 2000.

apparatus and work associated therewith) for the conveyance of a hazardous chemical other than a flammable gas as set out in Column 2 of Part II of Schedule 3 at a pressure of less than 8 bars absolute; the pipeline also includes inter - state pipelines;

(l) "Schedule" means Schedule appended to these rules;

(m) "site" means any location where hazardous chemicals are manufactured or processed, stored, handled, used, disposed of and includes the whole of an area under the control of an occupier and includes pier, jetty or similar structure whether floating or not;

(n) "Threshold quantity" means, -

(i) in the case of a hazardous chemical specified in Column 2 of Schedule 2, the quantity of that chemical specified in the corresponding entry in Columns 3 and 4 ;

(ii) in the case of a hazardous chemical specified in Column 2 of Part I of Schedule 3, the quantity of that chemical specified in the corresponding entry in Columns 3 & 4 of that part;

(iii) in the case of substances of a class specified in Column 2 of Part II of Schedule 3, the total quantity of all substances of that class specified in the corresponding entry in Columns 3 and 4 of that part.

[1][3. DUTIES OF AUTHORITIES –

The concerned authority shall, -

(a) inspect the industrial activity at least once in a calendar year;

(b) except where such authority is the Ministry of Environment and Forests, annually report on the compliance of the rules by the occupiers to the Ministry of Environment and Forests through appropriate channel ;

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[1] Substituted by Rule 2 of the MSIHC (Amendment) Rules, 1994 notified vide S.O.2882, dated 3.10.1994.

(c) subject to the other provisions of these rules, perform the duties specified in column 3 of Schedule 5.]

4. GENERAL RESPONSIBILITY OF THE OCCUPIER DURING INDUSTRIAL ACTIVITY -

(1) these rules shall apply to, -

(a) an industrial activity in which a hazardous chemical, which satisfies any of the criteria laid down in Part I of Schedule 1 [1][or listed] in Column 2 of Part II of this Schedule is, or may be, involved; and

[2][(b) isolated storage of a hazardous chemical listed in Schedule 2 in a quantity equal to or more than the threshold quantity specified in Column 3, thereof.]

(2) An occupier who has control of an industrial activity in terms of sub-rule (1) shall provide evidence to show that he has, -

(a) identified the major accident hazards; and

(b) taken adequate steps to -

(i) prevent such major accidents and to limit their consequences to persons and the environment;

(ii) provide to the persons working on the site with the information, training and equipment including antidotes necessary to ensure their safety.

4. NOTIFICATION OF MAJOR ACCIDENT -

(1) Where a major accident occurs on a site or in a pipe line, the occupier shall [3][within 48 hours notify] the concerned authority as identified in Schedule 5 of that accident, and furnish thereafter to the concerned authority a report relating to the accidents in installments, if necessary, in Schedule 6.

(2) The concerned authority shall on receipt of the report in accordance with sub-rule 1 of this rule, shall undertake a full analysis of the major accident and sent the [4][requisite information within 90 days to the Ministry] of Environment and Forests through appropriate channel.

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1 Substituted by Rule 3(i) of the MSIHC (Amendment) Rules, 1994 notified vide S.O.2882, dated 3.10.1994.

2 Substituted by Rule 3(ii), ibid.

3 Substituted by Rule 3(a) of the MSIHC (Amendment) Rules, 1994 notified vide S.O.2882, dated 3.10.1994.

4 Substituted by Rule 3(b) ibid.

[1][(3) An occupier shall notify to the concerned Authority, steps taken to avoid any repetition of such occurrence on a site.]

[2][(4) The concerned Authority shall compile information regarding major accidents and make available a copy of the same to the Ministry of Environment & Forests through appropriate channel.

(5) The concerned Authority shall in writing inform the occupier, of any lacunae which in its opinion needs to be rectified to avoid major accidents.]

6. INDUSTRIAL ACTIVITY TO WHICH RULES 7 TO 15 APPLY -

(1) Rules 7 to 15 shall apply to, -

(a) an industrial activity in which there is involved a quantity of hazardous chemical listed in Column 2 of Schedule 3 which is equal to or more than the quantity specified in the entry for that chemical in Column 3 & 4 (Rules 10-12 only for Column 4); and

(b) isolated storage in which there is involved a quantity of a hazardous chemical listed in Column 2 of Schedule 2 which is equal to or more than the quantity specified in the entry for that chemical in Column [3][3 & 4 (rules 10-12 only for column 4).]

(2) For the purpose of rules 7 to 15,

(a) "new industrial activity" means an industrial activity which, –

(i) commences after the date of coming into operation of these rules; or

(ii) if commenced before that date, is an industrial activity in which a modification has been made which is likely to cover major accident hazards, and that activity shall be deemed to have commenced on the date on which the modification was made;

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1 Substituted by Rule 3(c) of the Manufacture, Storage and Import of Hazardous Chemical (Amendment) Rules, 1994 notified vide S.O. No.2882, dated 3.10.1994.

2 Inserted by Rule 3(d); ibid.

3 Substituted by Rule 4; ibid.

(b) an "existing industrial activity" means an industrial activity which is not a new industrial activity.

7. [1][APPROVAL AND] NOTIFICATION OF SITES -

(1) An occupier shall not undertake any industrial activity [2][unless he has been granted an approval for undertaking such an activity and has submitted] a written report to the concerned authority containing the particulars specified in Schedule 7 at least 3 months before commencing that activity or before such shorter time as the concerned authority may agree and for the purpose of this paragraph, an activity in which subsequently there is or is liable to be a threshold quantity or more of an additional hazardous chemical shall be deemed to be a different activity and shall be notified accordingly.

[3][(2) The concerned Authority within 60 days from the date of receipt of the report shall approve the report submitted and on consideration of the report if it is of the opinion that contravention of the provisions of the Act or the rules made thereunder has taken place, it shall issue notice under rule 19].

8. UPDATING OF THE SITE NOTIFICATION FOLLOWING CHANGES IN THE THRESHOLD QUANTITY -

Where an activity has been reported in accordance with rule 7(1) and the occupier makes a change in it (including an increase or decrease in the maximum threshold quantity of a hazardous chemical to which this rule applies which is or is liable to be at the site or in the pipeline or at the cessation of the activity) which affects the particulars specified in that report or any subsequent report made under this rule, the occupier shall forthwith furnish a further report to the concerned authority.

9. TRANSITIONAL PROVISIONS-

Where. –

(a) at the date of coming into operation of these rules, an occupier is in control of an existing industrial activity which is required to be reported under rule 7(1); or

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1 Substituted by Rule 5 of the MSIHC (Amendment) Rules, 2000 notified vide S.O.57(E), dated 19.1.2000.

2 Substituted by Rule 4 (a) of MSIHC (Amendment) Rules, 1994 notified vide S.O.2882, dated 3.10.1994.

3 Substituted by Rule 4(b), ibid.

(b) within 6 months after that date, an occupier commence any such new industrial activity;

it shall be a sufficient compliance with that rule if he reports to the concerned authority as per the particulars in Schedule 7 within 3 months after the date of coming into operation of these rules or within such longer time as the concerned authority may agree in writing.

10. SAFETY REPORTS [1][AND SAFETY AUDIT REPORTS] -

(1) Subjects to the following paragraphs of this rule, an occupier shall not undertake any industrial activity to which this rule applies, unless he has prepared a safety report on that industrial activity containing the information specified in Schedule 8 and has sent a copy of that report to the concerned authority at least ninety days before commencing that activity.

(2) In the case of a new industrial activity which an occupier commences, or by virtue of sub-rule (2) (a) (ii) of rule 6 is deemed to commence, within 6 months after coming into operation of these rules, it shall be a sufficient compliance with sub-rule (1) of this rule if the occupier sends to the concerned authority a copy of the report required in accordance with that sub-rule within ninety days after the date of coming into operation of these rules.

[2][(3) In case of an existing industrial activity, the occupier shall prepare a safety report in consultation with the concerned authority and submit the same within one year from the date of commencement of the Manufacture, Storage and Import of Hazardous Chemicals (Amendment) Rules, 1994 to the concerned Authority.]

[3][(4) After the commencement of the Manufacture, Storage and Import of Hazardous Chemicals (Amendment) Rules, 1994, the occupier of both the new and the existing industrial activities shall carry out an independent safety audit of the respective industrial activities with the help of an expert, not associated with such industrial activities.

(5) The occupier shall forward a copy of the auditor's report along with his comments to the concerned Authority within 30 days after the completion of such Audit.]

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1 Substituted by Rule 6 of the MSIHC (Amendment) Rules, 2000 notified vide S.O.57(E), dated 19.1.2000.

2 Substituted by Rule 5(a) of the MSIHC (Amendment) Rules, 1994 notified vide S.O.2882, dated 3.10.1994.

3 Inserted by Rule 5(b), ibid.

[1][(6) The occupier shall update the safety audit report once a year by conducting a fresh safety audit and forward a copy of it with his comments thereon within 30 days to the concerned Authority.

(7) The concerned Authority may if it deems fit, issue improvement notice under rule 19 within 45 days of the submission of the said report.]

11. UPDATING OF REPORTS UNDER RULE 10-

(1) Where an occupier has made a safety report in accordance with sub-rule (1) of rule 10 he shall not make any modification to the industrial activity to which that safety report relates which could materially affect the particulars in that report, unless he has made a further report to take account of those modifications and has sent a copy of that report to the concerned authority at least 90 days before making those modifications.

(2) Where an occupier has made a report in accordance with rule 10 and sub - rule (1) of this rule and that industrial activity is continuing the occupier shall within three years of the date of the last such report, make a further report which shall have regard in particular to new technical knowledge which has affected the particulars in the pervious report relating to safety and hazard assessment and shall within 30 days [2][***] send a copy of the report to the concerned authority.

[3][12. REQUIREMENT FOR FURTHER INFORMATION TO BE SENT TO THE AUTHORITY -

Where, in accordance with rule 10, an occupier has sent a safety report and the safety audit report relating to an industrial activity to the concerned Authority, the concerned Authority may, by a notice served on the occupier, require him to provide such additional information as may be specified in the notice and the occupier shall send that information to the concerned Authority within 90 days].

13. PREPARATION TO ON-SITE EMERGENCY PLAN BY THE OCCUPIER -

(1) An occupier shall prepare and keep up-to-date [4][an on-site emergency plan containing details specified in Schedule II and detailing] how major accidents will be dealt with on the site on which the industrial activity is carried

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1 Inserted by Rule 5(b) of the MSIHC (Amendment) Rules, 1994 notified vide S.O.2882, dated 3.10.1994.

2 Omitted by Rule 6, ibid.

3 Substituted by Rule 7, ibid.

4 Substituted by Rule 8(a), ibid.

on and that plan shall include the name of the person who is responsible for safety on the site and the names of those who are authorized to take action in accordance with the plan in case of an emergency.

(2) The occupier shall ensure that the emergency plan prepared in accordance with sub-rule (1) takes into account any modification made in the industrial activity and that every person on the site who is affected by the plan is informed of its relevant provisions.

(3) The occupier shall prepare the emergency plan required under sub-rule (1),-

(a) in the case of a new industrial activity, before that activity is commenced;

(b) in the case of an existing industrial activity within 90 days of commencing into operation of these rules.

[1][(4) The occupier shall ensure that a mock drill of the on-site emergency plan is conducted every six months;

(5) A detailed report of the mock drill conducted under sub-rule (4) shall be made immediately available to the concerned Authority.]

14. PREPARATION OF OFF-SITE EMERGENCY PLAN BY THE AUTHORITY -

(1) It shall be the duty of the concerned authority as identified in Column 2 of Schedule 5 to prepare and keep up-to-date [2][an adequate off-site emergency plan containing particulars specified in Schedule 12 and detailing] how emergencies relating to a possible major accident on that site will be dealt with and in preparing that plan the concerned authority shall consult the occupier, and such other persons as it may deem necessary.

(2) For the purpose of enabling the concerned authority to prepare the emergency plan required under sub-rule (1), the occupier shall provide the concerned authority with such information relating to the industrial activity under his control as the concerned authority may require, including the nature, extent and likely effects off-site of possible major accidents and the authority shall

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1 Inserted by Rule 8(b) of the MSIHC (Amendment) Rules, 1994 notified vide S.O.2882, dated 3.10.1994.

2 Substituted by Rule 9 (a), ibid.

provide the occupier with any information from the off-site emergency plan which relates to his duties under rule 13.

(3) The concerned authority shall prepare its emergency plan required under sub-rule (1),-

(a) In the case of a new industrial activity, before that activity is commenced;

(b) In the case of an existing industrial activity, within six months of coming into operation to these rules.

[1][(4) The concerned authority shall ensure that a rehearsal of the off-site emergency plan is conducted at least once in a calendar year.]

15. INFORMATION TO BE GIVEN TO PERSONS LIABLE TO BE AFFECTED BY A MAJOR ACCIDENT -

(1) The occupier shall take appropriate steps to inform persons outside the site either directly or through District Emergency Authority who are likely to be in an area which may be affected by a major accident about, -

(a) the nature of the major accident hazard; and

(b) the safety measures and the "Do's' and 'Don'ts" which should be adopted in the event of a major accident.

(2) The occupier shall take steps required under sub-rule (1) to inform persons about an industrial activity, before that activity is commenced, except, in the case of an existing industrial activity in which case the occupier shall comply with the requirements of sub-rule (1) within 90 days of coming into operation of these rule.

16. **DISCLOSURES OF INFORMATION** -

Where for the purpose of evaluating information notified under rule 5 or 7 to 15, the concerned authority discloses that information to some other person, that other person shall not use that information for any purpose except for the purpose of the concerned authority disclosing it, and before disclosing the information the concerned authority shall inform that other person of his obligations under this paragraph.

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[1] Inserted by Rule 9(b) of the MSIHC (Amendment) Rules, 1994 notified vide S.O.2882, dated 3.10.1994.

17. COLLECTION, DEVELOPMENT AND DISSEMINATION OF INFORMATION -

(1) This rule shall apply to an industrial activity in which a hazardous chemical which satisfies any of the criteria laid down in part I of Schedule 1 [1][or listed] in Column 2 of Part II of this Schedule is or may be involved.

(2) An occupier, who has control of an industrial activity in term of sub-rule 1 of this rule, shall arrange to obtain or develop information in the form of safety data sheet as specified in Schedule 9. The information shall be accessible upon request for reference.

(3) The occupier while obtaining or developing a safety data sheet as specified in Schedule 9 in respect of a hazardous chemical handled by him shall ensure that the information is recorded accurately and reflects the scientific evidence used in making the hazard determination. In case, any significant information regarding hazard of a chemical is available, it shall be added to the material safety data sheet as specified in Schedule 9 as soon as practicable.

(4) Every container of a hazardous chemical shall be clearly labelled or marked to identify -

(a) the contents of the container ;

(b) the name and address of manufacturer or importer of the hazardous chemical ;

(c) the physical, chemical and toxicological data as per the criteria given at Part I of Schedule 1.

(5) In terms of sub rule 4 of this rule where it is impracticable to label a chemical in view of the size of the container or the nature of the package, provision should be made for other effective means like tagging or accompanying documents.

18. IMPORT OF HAZARDOUS CHEMICALS -

(1) This rule shall apply to a chemical which satisfies any of the criteria laid down in Part I of Schedule 1 [2][or listed] in Column 2 of Part II of this Schedule.

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1 Substituted by Rule 7 of the MSIHC (Amendment) Rules, 2000 notified vide S.O.57(E), dated 19.1.2000.

2 Substituted by Rule 8(a), ibid.

(2) Any person responsible for importing hazardous chemicals in India shall provide [1][before 30 days or as reasonably possible but not later than] the date of import to the concerned authorities as identified in Column 2 of Schedule 5 the information pertaining to, -

(i) the name and address of the person receiving the consignment in India;

(ii) the port of entry in India;

(iii) mode of transport from the exporting country to India;

(iv) the quantity of chemical (s) being imported; and

(v) complete product safety information.

[2](3) If the Concerned Authority of the State is satisfied that the chemical being imported is likely to cause major accidents, it may direct the importer to take such safety measures as the concerned Authority of the State may deem appropriate.]

[3][(3A) In case the concerned Authority of the State is of the opinion that the chemical should not be imported on safety or on environmental considerations, such Authority may direct stoppage of such import.]

(4) The concerned Authority at the State shall simultaneously inform the concerned Port Authority to take appropriate steps regarding safe handling and storage of hazardous chemicals while off-loading the consignment within the port premises.

(5) Any person importing hazardous chemicals shall maintain the records of the hazardous chemicals imported as specified in Schedule 10 and the records so maintained shall be open for inspection by the concerned authority at the State or the Ministry of Environment and Forests or any officer appointed by them in this behalf.

(6) The importer of the hazardous chemical or a person working on his behalf shall ensure that transport of hazardous chemicals from port of entry to the ultimate destination is in accordance with the Central Motor Vehicles Rules, 1989 framed under the provisions of the Motor Vehicles Act, 1988.

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1 Substituted by Rule 10(a) of the MSIHC (Amendment) Rules, 1994 notified vide S.O.2882, dated 3.10.1994.

2 Substituted by Rule 10(b), ibid.

3 Inserted by Rule 10(c), ibid.

19. IMPROVEMENT NOTICES -

(1) if the concerned authority is of the opinion that a person has contravened the provisions of these rules, the concerned authority shall serve on him a notice (in this para referred to as " an improvement notice") requiring that person to remedy the contravention or, as the case may be, [1][the matters occasioning it within 45 days.]

(2) A notice served under sub-rule (1) shall clearly specify the measures to be taken by the occupier in remedying said contraventions.

20. POWER OF THE CENTRAL GOVERNMENT TO MODIFY THE SCHEDULES -

The Central Government may, at any time, by notification in the Official Gazette, make suitable changes in the Schedules.

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[1] Substituted by Rule 11 of MSIHC Rules, 1994 notified vide S.O.2882, dated 3.10.1994.

[1][SCHEDULE 1]

[See rule 2e (i), 4 (1)(a), 4(2), 17 and 18]

[Part -I]

(a) ***Toxic Chemicals***: Chemicals having the following values of acute toxicity and which owing to their physical and chemical properties, are capable of producing major accident hazards:

S.No.	Toxicity	Oral toxicity LD_{50}(mg/kg)	Dermal toxicity LD_{50}(mg/kg)	Inhalation toxicity LC_{50}(mg/l)
1.	Extremely toxic	>5	<40	<0.5
2.	Highly toxic	>5-50	>40-200	<0.5-2.0
3.	Toxic	>50-200	>200-1000	>2-10

(b) ***Flammable Chemicals :***

(i) flammable gases: Gases which at 20°C and at standard pressure of 101.3KPa are :-

(a) ignitable when in a mixture of 13 percent or less by volume with air, or ;

(b) have a flammable range with air of at least 12 percentage points regardless of the lower flammable limits.

Note : The flammability shall be determined by tests or by calculation in accordance with methods adopted by International Standards Organization ISO Number 10156 of 1990 or by Bureau of Indian Standard ISI Number 1446 of 1985.

(ii) ***extremely flammable liquids*** : chemicals which have flash point lower than or equal to 23°C and boiling point less than 35°C.

(iii) ***very highly flammable liquids*** : chemicals which have a flash point lower than or equal to 23°C and initial boiling point higher than 35°C.

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1 Substituted by Rule 9 of the MSIHC (Amendment) Rules, 2000 notified vide S.O.57(E), dated 19.1.2000.

(iv) ***highly flammable liquids*** : chemicals which have a flash point lower than or equal to 60^{o}C but higher than 23^{o}C.

(v) ***flammable liquids*** : chemicals which have a flash point higher than 60^{o}C but lower than 90^{o}C.

(c) ***Explosives*** : explosives mean a solid or liquid or pyrotechnic substance (or a mixture of substances) or an article.

(a) which is in itself capable by chemical reaction of producing gas at such a temperature and pressure and at such a speed as to cause damage to the surroundings ;

(b) which is designed to produce an effect by heat, light, sound, gas or smoke or a combination of these as the result of non-detonative self sustaining exothermic chemical reaction.

PART II
LIST OF HAZARDOUS AND TOXIC CHEMICALS

S. No.	NAME OF HAZARDOUS CHEMICALS	S. No.	NAME OF HAZARDOUS CHEMICALS
1.	Acetaldehyde	41.	Antimycin A
2.	Acetic acid	42.	ANTU
3.	Acetic anhydride	43.	Arsenic pentoxide
4.	Acetone	44.	Arsenic trioxide
5.	Acetone cyanohydrin	45.	Arsenous trichloride
6.	Acetone thiosemicarbazide	46.	Arsine
7.	Acetonitrile	47.	Asphalt
8.	Acetylene	48.	Azinpho-ethyl
9.	Acetylene tetra chloride	49.	Azinphos methyl
10.	Acrolein	50.	Bacitracin
11.	Acrylamide	51.	Barium azide
12.	Acrylonitrile	52.	Barium nitrate
13.	Adiponitrile	53.	Barium nitride
14.	Aldicarb	54.	Benzal chloride
15.	Aldrin	55.	Benzenamine,3-Trifluoromethyl
16.	Allyl alcohol	56.	Benzene
17.	Allyl amine	57.	Benzene sulfonyl chloride
18.	Allyl chloride	58.	Benzene. 1- (chloromethyl)-4 Nitro
19.	Aluminium (powder)	59.	Benzene arsenic acid
20.	Aluminium azide	60.	Benzidine
21.	Aluminium borohydride	61.	Benzidine salts
22.	Aluminium chloride	62.	Benzimidazole. 4, 5-Dichloro-2 (Trifluoromethyl)
23.	Aluminium fluoride		
24.	Aluminium phosphide	63.	Benzoquinone-P
25.	Amino diphenyl	64.	Benzotrichloride
26.	Amino pyridine	65.	Benzoyl chloride
27.	Aminophenol-2	66.	Benzoyl peroxide
28.	Aminopterin	67.	Benzyl chloride
29.	Amiton	68.	Beryllium (Powder)
30.	Amiton dialate	69.	Bicyclo (2, 2, 1) Heptane -2-carbonitrile
31.	Ammonia		
32.	Ammonium chloro platinate	70.	Biphenyl
		71.	Bis (2-Chloroethyl) sulphide
33.	Ammonium nitrate	72.	Bis (Chloromethyl) Ketone
34.	Ammonium nitrite	73.	Bis (Tert-butyl peroxy) cyclohexane
35.	Ammonium picrate	74.	Bis (Terbutylperoxy) butane
36.	Anabasine	75.	Bis(2,4, 6-Trimitrophenylamine)
37.	Aniline	76.	Bis (Chloromethyl) Ether
38.	Aniline2,4, 6-Trimethyl	77.	Bismuth and compounds
39.	Anthraquinone	78.	Bisphenol-A
40.	Antimony pentafluoride	79.	Bitoscanate

80. Boron Powder
81. Boron trichloride
82. Boron trifluoride
83. Boron trifluoride comp. With methylether, 1:1
84. Bromine
85. Bromine pentafluoride
86. Bromo chloro methane
87. Bromodialone
88. Butadiene
89. Butane
90. Butanone-2
91. Butyl amine tert
92. Butyl glycidal ether
93. Butyl isovalarate
94. Butyl peroxymaleate tert
95. Butyl vinyl ether
96. Butyl-n-mercaptan
97. C.I.Basic green
98. Cadmium oxide
99. Cadmium stearate
100. Calcium arsenate
101. Calcium carbide
102. Calcium cyanide
103. Camphechlor (Toxaphene)
104. Cantharidin
105. Captan
106. Carbachol chloride
107. Carbaryl
108. Carbofuran (Furadan)
109. Carbon tetrachloride
110. Carbon disulphide
111. Carbon monoxide
112. Carbonphenothion
113. Carvone
114. Cellulose nitrate
115. Chloroacetic acid
116. Chlordane
117. Chlorofenvinphos
118. Chlorinated benzene
119. Chlorine
120. Chlorine oxide
121. Chlorine trifluoride
122. Chlormephos
123. Chlormequat chloride
124. Chloroacetal chloride
125. Chloroacetaldehyde
126. Chloroaniline -2
127. Chloroaniline -4
128. Chlorobenzene
129. Chloroethyl chloroformate
130. Chloroform
131. Chloroformyl morpholine
132. Chloromethane
133. Chloromethyl methyl ether
134. Chloronitrobenzene
135. Chlorophacinone
136. Chlorosulphonic acid
137. Chlorothiophos
138. Chloroxuron
139. Chromic acid
140. Chromic chloride
141. Chromium powder
142. Cobalt carbonyl
143. Cobalt Nitrilmethylidyne compound
144. Cobalt (Powder)
145. Colchicine
146. Copper and Compounds
147. Copperoxychloride
148. Coumafuryl
149. Coumaphos
150. Coumatetralyl
151. Crimidine
152. Crotenaldehyde
153. Crotonaldehyde
154. Cumene
155. Cyanogen bromide
156. Cyanongen iodide
157. Cyanophos
158. Cyanothoate
159. Cyanuric fluoride
160. Cyclo hexylamine
161. Cyclohexane
162. Cyclohexanone
163. Cycloheximide
164. Cyclopentadiene
165. Cyclopentane
166. Cyclotetramethyl enetetranitramine
167. Cyclotrimethylen etrinnitranine

168. Cypermethrin
169. DDT
170. Decaborane (1 :4)
171. Demeton
172. Demeton S-Methyl
173. Di-n-propyl peroxydicarbonate (Conc = 80%)
174. Dialifos
175. Diazodinitrophenol
176. Dibenzyl peroxydicarbonate (Conc>= 90%)
177. Diborane
178. Dichloroacetylene
179. Dichlorobenzalkonium chloride
180. Dichloroethyl ether
181. Dichloromethyl phenylsilane
182. Dichlorophenol – 2, 6
183. Dichlorophenol – 2, 4
184. Dichlorophenoxy acetic acid
185. Dichloropropane – 2, 2
186. Dichlorosalicylic acid-3, 5
187. Dichlorvos (DDVP)
188. Dicrotophos
189. Dieldrin
190. Diepoxy butane
191. Diethyl carbamazine citrate
192. Diethyl chlorophosphate
193. Diethyl ethtanolamine
194. Diethyl peroxydicarbonate (Conc=30%)
195. Diethyl phenylene diamine
196. Diethylamine
197. Diethylene glycol
198. Diethylene glycol dinitrate
199. Diethylene triamine
200. Diethleneglycol butyl ether
201. Diglycidyl ether
202. Digitoxin
203. Dihydroperoxypropane (Conc >=30%)
204. Diisobutyl peroxide
205. Dimefox
206. Dimethoate
207. Dimethyl dichlorosilane
208. Dimethyl hydrazine
209. Dimethyl nitrosoamine
210. Dimethyl P phenylene diamine
211. Dimethyl phosphoramidi cyanidic acid (TABUM)
212. Dimethyl phosphorochloridothioate
213. Dimethyl sufolane (DMS)
214. Dimethyl sulphide
215. Dimethylamine
216. Dimethylaniline
217. Dimethylcarbonyl chloride
218. Dimetilan
219. Dinitro O-cresol
220. Dinitrophenol
221. Dinitrotoluene
222. Dinoseb
223. Diniterb
224. Dioxane-p
225. Dioxathion
226. Dioxine N
227. Diphacinone
228. Diphosphoramide octamethyl
229. Diphenyl methane di-isocynate (MDI)
230. Dipropylene Glycol Butyl ether
231. Dipropylene glycolmethyl ether
232. Disec-butyl peroxydicarbonate (Conc.>80%)
233. Disufoton
234. Dithiazamine iodide
235. Dithiobiurate
236. Endosulfan
237. Endothion
238. Endrin
239. Epichlorohydrine
240. EPN
241. Ergocalciferol
242. Ergotamine tartarate
243. Ethanesulfenyl chloride, 2 chloro
244. Ethanol 1-2 dichloracetate
245. Ethion
246. Ethoprophos
247. Ethyl acetate
248. Ethyl alcohol
249. Ethyl benzene
250. Ethyl bis amine

251. Ethyl bromide
252. Ethyl carbamate
253. Ethyl ether
254. Ethyl hexanol -2
255. Ethyl mercaptan
256. Ethyl mercuric phosphate
257. Ethyl methacrylate
258. Ethyl nitrate
259. Ethyl thiocyanate
260. Ethylamine
261. Ethylene
262. Ethylene chlorohydrine
263. Ethylene dibromide
264. Ethylene diamine
265. Ethylene diamine hydrochloride
266. Ethylene flourohydrine
267. Ethylene glycol
268. Ethylene glycol dinitrate
269. Ethylene oxide
270. Ethylenimine
271. Ethylene di chloride
272. Femamiphos
273. Femitrothion
274. Fensulphothion
275. Fluemetil
276. Fluorine
277. Fluoro2-hyrdoxy butyric acid amid salt ester
278. Fluoroacetamide
279. Fluoroacetic acid amide salts and esters
280. Fluoroacetylchloride
281. Fluorobutyric acid amide salt esters
282. Fluorocrotonic acid amides salts esters
283. Fluorouracil
284. Fonofos
285. Formaldehyde
286. Formetanate hydrochloride
287. Formic acid
288. Formoparanate
289. Formothion
290. Fosthiotan
291. Fuberidazole
292. Furan
293. Gallium Trichloride
294. Glyconitrile (Hydroxyacetonitrile)
295. Guanyl-4-nitrosaminoguynyl-1-tetrazene
296. Heptachlor
297. Hexamethyl terta-oxyacyclononate (Conc 75%)
298. Hexachlorobenzene
299. Hexachlorocyclohexan (Lindane)
300. Hexachlorocyclopentadiene
301. Hexachlorodibenzo-p-dioxin
302. Hexachloronapthalene
303. Hexafluoropropanone sesquihydrate
304. Hexamethyl phosphoromide
305. Hexamethylene diamine N N dibutyl
306. Hexane
307. Hexanitrostilbene 2, 2, 4, 4, 6, 6
308. Hexene
309. Hydrogen selenide
310. Hydrogen sulphide
311. Hydrazine
312. Hydrazine nitrate
313. Hydrochloric acid (Gas)
314. Hydrogen
315. Hydrogen bromide
316. Hydrogen cyanide
317. Hydrogen fluoride
318. Hydrogen peroxide
319. Hydroquinone
320. Indene
321. Indium powder
322. Indomethacin
323. Iodine
324. Iridium tetrachloride
325. Ironpentacarbonyl
326. Iso benzan
327. Isoamyl alcohol
328. Isobutyl alcohol
329. Isobutyro nitrile
330. Isocyanic acid 3, 4-dichlorophenyl ester
331. Isodrin

332. Isofluorophosphate
333. Isophorone diisocyanate
334. Isopropyl alcohol
335. Isopropyl chlorocarbonate
336. Isopropyl formate
337. Isopropyl methyl pyrazolyl dimethyl carbamate
338. Juglone (5-Hydroxy Naphthalene-1,4 dione)
339. Ketene
340. Lactonitrile
341. Lead arsenite
342. Lead at high temp (molten)
343. Lead azide
344. Lead styphanate
345. Leptophos
346. Lenisite
347. Liquified petroleum gas
348. Lithium hydride
349. N-Dinitrobenzene
350. Magnesium powder or ribbon
351. Malathion
352. Maleic anhydride
353. Malononitrile
354. Manganese Tricarbonyl cyclopentadiene
355. Mechlor ethamine
356. Mephospholan
357. Mercuric chloride
358. Mercuric oxide
359. Mercury acetate
360. Mercury fulminate
361. Mercury methyl chloride
362. Mesitylene
363. Methaacrolein diacetate
364. Methacrylic anhydride
365. Methacrylonitrile
366. Methacryloyl oxyethyl isocyanate
367. Methanidophos
368. Methane
369. Methanesulphonyl fluoride
370. Methidathion
371. Methiocarb
372. Methonyl
373. Methoxy ethanol (2-methyl cellosolve)
374. Methoxyethyl mercuric acetate
375. Methyacrylol chloride
376. Methyl 2-chloroacrylate
377. Methyl alcohol
378. Methyl amine
379. Methyl bromide (Bromomethane)
380. Methyl chloride
381. Methyl chloroform
382. Methyl chloroformate
383. Methyl cyclohexene
384. Methyl disulphide
385. Methyl ethyl ketone peroxide (Conc.60%)
386. Methyl formate
387. Methyl hydrazine
388. Methyl isobutyl ketone
389. Methyl isocyanate
390. Methyl isothiocyanate
391. Methyl mercuric dicyanamide
392. Methyl Mercaptan
393. Methyl Methacrylate
394. Methyl phencapton
395. Methyl phosphonic dichloride
396. Methyl thiocyanate
397. Methyl trichlorosilane
398. Methyl vinyl ketone
399. Methylene bis (2-chloroaniline)
400. Methylene chloride
401. Methylenebis-4,4(2-chloroaniline)
402. Metolcarb
403. Mevinphos
404. Mezacarbate
405. Mitomycin C
406. Molybdenum powder
407. Monocrotophos
408. Morpholine
409. Muscinol
410. Mustard gas
411. N-Butyl acetate
412. N.-Butyl alcohol
413. N-Hexane
414. N- Methyl-N, 2, 4, 6-Tetranitroaniline

415. Naphtha
416. Nephtha solvent
417. Naphthalene
418. Naphthyl amine
419. Nickel carbonyl/nickel tetracarbonyl
420. Nickel powder
421. Nicotine
422. Nicotine sulphate
423. Nitric acid
424. Nitric oxide
425. Nitrobenzene
426. Nitrocellulose (dry)
427. Nitrochlorobenzene
428. Nitrocyclohexane
429. Nitrogen
430. Nitrogen dioxide
431. Nitrogen oxide
432. Nitrogen trifluouide
433. Nitroglycerine
434. Nitropropane-1
435. Nitropropane-2
436. Nitroso dimethyl amine
437. Nonane
438. Norbormide
439. O-Cresol
440. O-Nitro Toluene
441. O-Toludine
442. O-Xylene
443. O/P Nitroaniline
444. Oleum
445. OO Diethyl S ethyl suph. methyl phos
446. OO Diethyl S propythio methyl phosdithioate
447. OO Diethyl s ethtylsulphinyl methylphosphorothioate
448. OO Diethyl s ethylsulphonyl methylphosphorothioate
449. OO Diethyls ethylthiomethylphospho-rothioate
450. Organo rhodium complex
451. Orotic acid
452. Osmium tetroxide
453. Oxabain
454. Oxamyl
455. Oxetane, 3, 3-bis(chloromethyl)
456. Oxidiphenoxarsine
457. Oxy disulfoton
458. Oxygen (liquid)
459. Oxygen difluoride
460. Ozone
461. P-nitrophenol
462. Paraffin
463. Paraoxon (Diethyl 4 Nitrophenyl phosphate)
464. Paraquat
465. Paraquat methosulphate
466. Parathion
467. Parathion methyl
468. Paris green
469. Penta borane
470. Penta chloro ethane
471. Penta chlorophenol
472. Pentabromophenol
473. Pentachloro naphthalene
474. Pentadecyl-amine
475. Pentaerythaiotol tetranitrate
476. Pentane
477. Pentanone
478. Perchloric acid
479. Perchloroethylene
480. Peroxyacetic acid
481. Phenol
482. Phenol, 2, 2-thiobis (4, 6-Dichloro)
483. Phenol, 2, 2-thiobis (4 chloro 6-methyl phenol)
484. Phenol, 3-(1-methyl ethyl) methylcarbamate
485. Phenyl hydrazine hydrochloride
486. Phenyl mercury acetate
487. Phenyl silatrane
488. Phenyl thiourea
489. Phenylene P-diamine
490. Phorate
491. Phosazetin
492. Phosfolan
493. Phosgene
494. Phosmet
495. Phosphamidon

496. Phosphine
497. Phosphoric acid
498. Phosphoric acid dimethyl (4-methyl thio)phenyl
499. Phosphorthioic acid dimethyl S(2-Bis) Ester
500. Phosphorothioic acid methyl (ester)
501. Phosphorothioic acid, OO Dimethyl S-(2-methyl)
502. Phosphorothioic, methyl-ethyl ester
503. Phosphorous
504. Phosphorous oxychloride
505. Phosphorous pentaoxide
506. Phosphorous trichloride
507. Phosphorous penta chloride
508. Phthalic anhydride
509. Phylloquinone
510. Physostignine
511. Physostignine salicylate (1:1)
512. Picric acid (2, 4, 6- trinitrophenol)
513. Picrotoxin
514. Piperdine
515. Piprotal
516. Pirinifos-ethyl
517. Platinous chloride
518. Platinum tetrachloride
519. Potassium arsenite
520. Potassium chlorate
521. Potassium cyanide
522. Potassium hydroxide
523. Potassium nitride
524. Potiassium nitrite
525. Potassium peroxide
526. Potassium silver cyanide
527. Powdered metals and mixtures
528. Promecarb
529. Promurit
530. Propanesultone
531. Propargyl alcohol
532. Propargyl bromide
533. Propen-2-chloro-1 ,3-diou diacetate
534. Propiolactone beta
535. Propionitrile
536. Propionitrile, 3-chloro
537. Propiophenone, 4-amino
538. Propyl chloroformate
539. Propylene dichloride
540. Propylene glycol, allylether
541. Propylene imine
542. Propylene oxide
543. Prothoate
544. Pseudosumene
545. Pyrazoxon
546. Pyrene
547. Pyridine
548. Pyridine, 2-methyl-3-vinyl
549. Pyridine, 4-nitro-1-oxide
550. Pyridine, 4-nitro-1-oxide
551. Pyriminil
552. Quinaliphos
553. Quinone
554. Rhodium trichloride
555. Salcomine
556. Sarin
557. Selenious acid
558. Selenium Hexafluoride
559. Selenium oxychloride
560. Semicarbazide hydrochloride
561. Silane (4-amino butyl) diethoxy-meth
562. Sodium
563. Sodium anthra-quinone-1-sulphonate
564. Sodium arsenate
565. Sodium arsenite
566. Sodium azide
567. Sodium cacodylate
568. Sodium chlorate
569. Sodium cyanide
570. Sodium fluoro-acetate
571. Sodium hydroxide
572. Sodium pentachloro-phenate
573. Sodium picramate
574. Sodium selenate
575. Sodium selenite
576. Sodium sulphide
577. Sodium tellorite

578. Stannane acetoxy triphenyl
579. Stibine (Antimony hydride)
580. Strychnine
581. Strychnine sulphate
582. Styphinic acid (2, 4,6-trinitroresorcinol)
583. Styrene
584. Sulphotec
585. Sulphoxide, 3-chloropropyl octyl
586. Sulphur dichloride
587. Sulphur dioxide
588. Sulphur monochloride
589. Sulphur tetrafluoride
590. Sulphur trioxide
591. Sulphuric acid
592. Tellurim (powder)
593. Tellurium hexafluoride
594. TEPP (Tetraethyl pyrophosphate)
595. Terbufos
596. Tert-Butyl alcohol
597. Tert-Butyl peroxy carbonate
598. Tert-Butyl peroxy isopropyl
599. Tert-Butyl peroxyacetate (Conc >=70%)
600. Tert-Butyl peroxypivalate (Conc >=77%)
601. Tert-Butyl peroxyiso-butyrate
602. Tetra hydrofuran
603. Terta methyl lead
604. Tetra nitromethane
605. Tetra-chlorodibenzo-p-dioxin, 1, 2, 3, 7, 8(TCDD)
606. Tetraethyl lead
607. Tetrafluoriethyne
608. Tetramethylene disulphotetramine
609. Thallic oxide
610. Thallium carbonate
611. Thallium sulphate
612. Thallous chloride
613. Thallous malonate
614. Thallous sulphate
615. Thiocarbazide
616. Thiocynamicacid, 2(Benzothiazolyethio) methyl
617. Thiofamox
618. Thiometon
619. Thionazin
620. Thionyl chloride
621. Thiophenol
622. Thiosemicarbazide
623. Thiourea (2 chloro-phenyl)
624. Thiourea (2-methyl phenyl)
625. Tirpate (2,4-dimethyl-1,3-di-thiolane)
626. Titanium powder
627. Titanium tetra-chloride
628. Toluene
629. Toluene -2,4-di-isocyanate
630. Toluene 2,6-di-isocyanate
631. Trans-1,4-di chloro-butene
632. Tri nitro anisole
633. Tri (Cyclohexyl) methylstannyl 1,2,4 triazole
634. Tri (Cyclohexyl) stannyl-1H-1, 2, 3-triazole
635. Triaminotrinitrobenzene
636. Triamphos
637. Triazophos
638. Tribromophenol 2, 4, 6
639. Trichloro napthalene
640. Trichloro chloromethyl silane
641. Trichloroacetyl chloride
642. Trichlorodichlorophenylsilane
643. Trichloroethyl silane
644. Trichloroethylene
645. Trichloromethane sulphenyl chloride
646. Trichloronate
647. Trichlorophenol 2, 3, 6
648. Trichlorophenol 2, 4, 5
649. Trichlorophenyl silane
650. Trichlorophon
651. Triethoxy silane
652. Triethylamine
653. Triethylene melamine
654. Trimethyl chlorosilane
655. Trimethyl propane phosphite
656. Trimethyl tin chloride
657. Trinitro aniline
658. Trinitro benzene

659. Trinitro benzoic acid
660. Trinitro phenetole
661. Trinitro-m-cresol
662. Trinitrotoluene
663. Tri-orthocreysyl phosphate
664. Triphenyl tin chloride
665. Tris(2-chloroethyl)amine
666. Turpentine
667. Uranium and its compounds
668. Valino mycin
669. Vanadium pentaoxide
670. Vinyl acetate mononer
671. Vinyl bromide
672. Vinyl chloride
673. Vinyl cyclohexane dioxide
674. Vinyl fluoride
675. Vinyl norbornene
676. Vinyl toluene
677. Vinyledene chloride
678. Warfarin
679. Warfarin Sodium
680. Xylene dichloride
681. Xylidine
682. Zinc dichloropentanitrile
683. Zink phosphide
684. Zirconium & compounds

SCHEDULE 2

[See rule 2(e)(ii),4(1)(b), 4(2) (1) and 6 (1) (b)]

ISOLATED STORAGE AT INSTALLATIONS OTHER THAN THOSE COVERED BY SCHEDULE 4

(a) The threshold quantities set out below relate to each installation or group of installation belonging to the same occupier where the distance between installation is not sufficient to avoid, in foreseeable circumstances, any aggravation of major accident hazards. These threshold quantities apply in any case to each group of installations belonging to the same occupier where the distance between the installations is less than 500 metres.

(b) For the purpose of determining the threshold quantity of a hazardous chemical at an isolated storage, account shall also be taken of any hazardous chemical which is :-

(i) in that part of any pipeline under the control of the occupier having control of the site, which is within 500 metres of that site and connected to it;

(ii) at any other site under the control of the same occupier any part of the boundary of which is within 500 meters of the said site; and

(iii) in any vehicle, vessel, aircraft or hovercraft, under the control of the same occupier which is used for storage purpose either at the site or within 500 metres of it;

but no account shall be taken of any hazardous chemical which is in a vehicle, vessel, aircraft or a hovercraft used for transporting it.

S.No	Chemicals	Threshold Quantities (tonnes) [1][For application of rules 4,5,7 to 9 and 13 to 15	[2][For application of rule 10 to 12]
1	2	3	4
1.	Acrylonitrile	350	5,000
2.	Ammonia	60	600
3.	Ammonium nitrate (a)	350	2,500
4.	Ammonium nitrate fertilizers (b)	1,250	10,000
5.	Chlorine	10	25
6.	Flammable gases as defined in Schedule 1, paragraph (b) (i)	50	300
[3][7.	Extremely flammable liquids as defined in Schedule 1, paragraph (b) (ii)	5000	50,000]
8.	Liquid oxygen	200	2000
9.	Sodium chlorate	25	250
10.	Sulphur dioxide	20	500
11.	Sujphur trioxide	15	100
[4][12.	Carbonyl chloride	0.750	0.750
13.	Hydrogen Sulphide	5	50
14.	Hydrogen Fluoride	5	50
15.	Hydrogen Cyanide	5	50
16.	Carbon disulphide	20	200
17.	Bromine	50	500
18.	Ethylene oxide	5	501
19.	Propylene oxide	5	50

[1] Substituted by Rule 10(i) (a) of the MSIHC (Amendment) Rules, 2000 notified by S.O.57(E), dated 19.1.2000 ;
[2] Substituted by Rule 10(i) (b), ibid;
[3] Substituted entry 7 by Rule 10(ii), ibid ;
[4] Inserted entries 12 to 27 by Rule 11 of the MSIHC (Amendment) Rules, 1994 notified vide S.O.2882,dated 3.10.1994.

S.No	Chemicals	Threshold Quantities (tonnes) [1][For application of rules 4,5,7 to 9 and 13 to 15	[2][For application of rule 10 to 12]
1	2	3	4
20.	2-Propenal (Acrolein)	20	200
21.	Bromomethane (Methyl bromide)	20	200
22.	Methyl isocyanate	0.150	0.150
23.	Tetraethyl lead or tetramethyl lead	5	50
24.	1,2 Dibromoethane (Ethylene dibromide)	5	50
25.	Hydrogen chloride (liquefied gas)	25	250
26.	Diphenyl methane di-isocyanate (MDI)	20	200
27.	Toluene di-isocyanate (TDI)	10	100]
[1][28.	Very highly flammable liquids as defined in Schedule 1, paragraph (b) (iii)	7,000	7,000]
29.	Highly flammable liquids as defined in Schedule 1, paragraph (b) (iv)	10,000	10,000
30.	Flammable liquids as defined in Schedule - 1, paragraph (b) (v)	15,000	1,00,000]

(a) This applies to ammonium nitrate and mixtures of ammonium nitrates where the nitrogen content derived from the ammonium nitrate is greater than 28 per cent by weight and to aqueous solutions of ammonium nitrate where the concentration of ammonium nitrate is greater than 90 per cent by weight.

(b) This applies to straight ammonium nitrate fertilizers and to compound fertilizers where the nitrogen content derived from the ammonium nitrate is greater than 28 per cent by weight (a compound-fertilizer contains ammonium nitrate together with phosphate and/or potash).

[1] Inserted entries 28, 29 and 30 by 10(iii) of the HSIHC (Amendment) Rules, 2000 notified by S.O.57(E), dated 19.1.2000.

SCHEDULE 3

[See Rule 2(e)(iii), 5 and 6(1) (a)]

LIST OF HAZARDOUS CHEMICALS FOR APPLICATION OF RULES 5 AND 7 TO 15

(a) The quantities set-out-below relate to each installation or group of installations belonging to the same occupier where the distance between the installations is not sufficient to avoid, in foreseeable circumstances, any aggravation of major-accident hazards. These quantities apply in any case to each group of installations belonging to the same occupier where the distance between the installations is less than 500 metres.

(b) For the purpose of determining the threshold quantity of a hazardous chemical in an industrial installation, account shall also be taken of any hazardous chemicals which is :-

(i) in that part of any pipeline under the control of the occupier have control of the site, which is within 500 metres off that site and connected to it;

(ii) at any other site under the control of the same occupier any part of the boundary of which is within 500 metres of the said site ; and

(iii) in any vehicle, vessel, aircraft or hovercraft under the control of the same occupier which is used for storage purpose either at the site or within 500 metres of if;

but no account shall be taken of any hazardous chemical which is in a vehicle, vessel, aircraft or hovercraft used for transporting it.

PART -I
NAMED CHEMICALS

S. No.	Chemicals	Threshold for application of Rules 5, 7-9 and 13-15	Quantity for application of Rules 10-12	CAS Number
(1)	(2)	(3)	(4)	(5)
GROUP 1-TOXIC SUBSTANCES				
1.	Aldicarb	100kg		116-06-3
2.	4-Aminodiphenyl	1 kg		96-67-1
3.	Amiton	1 kg		78-53-5
4.	Anabasine	100 kg		494-52-0
5.	Arseinc pentoxide, Arsenic (V) acid & salts	500 kg		
6.	Arsenic trioxide, Arsenic (III) acid & salts	100 kg		
7.	Arsine (Arsenic hydride)	10kg		7784-42-1
8.	Azinphos-ethyl	100kg		2642-71-9
9.	Azinphos-methyl	100 kg		86-50-0
10.	Benzidine	1 kg		92-87-5
11.	Bezidine salts	1 kg		
12.	Beryllium (powders, compounds)	10 kg		
13.	Bis (2-chloroethyl) sulphide	1 kg		505-60-2
14.	Bis (chloromethyl) ether	1 kg		542-88-1
15.	Carbophuran	100 kg		1563-66-2
16.	Carbophenothion	100 kg		786-19-6
17.	Chlorefenvinphos	100 kg		470-90-6
18.	4-(Chloroformyl) morpholine	1 kg		15159-40-7
19.	Chloromethyl methyl ether	1 kg		107-30-2
20.	Cobalt (metal, oxide, carbonates, sulphides, as powders)	1 t		
21.	Crimidine	100 kg		535-89-7
22.	Cynthoate	100 kg		3734-95-0
23.	Cycloheximide	100 kg		66-81-9
24.	Demeton	100 kg		8065-48-3
25.	Dialifos	100 kg		10311-84-9
26.	OO-Diethyl S-ethylsulphinylmethyl phosphorothiate	100 kg		2588-05-8
27.	OO-Diethyl S-ethylsulphonylmethyl phosphorothiate	100 kg		2588-06-9
28.	OO-Diethyl S-ethylthiomethyl Phosphorothioate	100 kg		2600-69-3

S. No.	Chemicals	Threshold for application of Rules 5, 7-9 and 13-15	Quantity for application of Rules 10-12		CAS Number
(1)	(2)	(3)	(4)		(5)
29.	OO-Diethyl S-isoprophylthiomethyl phosphorothiate	100 kg			78-52-4
30.	OO-Diethyl S-isopropylthiomethyl phosphorodithioate	100 kg			3309-68-0
31.	Dimefox	100 kg			115-26-4
32.	Dimethylcarbamoyl chloride	1 kg			79-44-7
33.	Dimethylnitrosamine	1 kg			62-75-9
34.	Dimethyl phosphoromidocynicidic acid	1 t			63917-41-9
35.	Diphacinone	100 kg			82-66-6
36.	Disulfoton	100 kg			298-04-4
37.	EPN	100 kg			2104-64-5
38.	Ethion	100 kg			563-12-2
39	Fensulfothion	100 kg			115-90-2
40.	Fluenetil	100 kg			4301-50-2
41.	Fluoroacetic acid	1 kg			144-49-0
42.	Fluoroacetic acid, salts	1 kg			
43.	Fluoroacetic acid, esters	1 kg			
44.	Fluoroacetic acid, amides	1 kg			
45.	4-Fluorobutyric acid	1 kg			462-23-7
46.	4-Fluorobutyric acid, salts	1 kg			
47.	4-Fluorobutyric acid, esters	1 kg			
48.	4-Fluorobutyric acid, amides	1 kg			
49.	4-Fluorobutyric acid	1 kg			37759-72-1
50.	4-Fluorocrotonic acid, salts	1 kg			
51.	4-Fluorocrotonic acid, esters	1 kg			
52.	4-Fluorocrotonic acid, amides	1 kg			
53.	4-Fluoro-2-hydroxybutyric acid, amides	1 kg			
54.	4-Fluoro-2-hydroxybutyric acid, salts	1 kg			
55.	4-Fluoro-2-hydroxybutyric acid, esters	1 kg			
56.	4-Fluoro-2-hydroxybutyric acid, amides	1 kg			
57.	Glycolonitrile (Hydroxyacetonitrile)	100 kg			107-16-4
58.	1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin	100 kg			194-8-74-3
59.	Hexmathylphosphoramide	1 kg			680-31-9
60.	Hydrogen selenide	10 kg			7783-07-5
61.	Isobenzan	100 kg			297-78-9
62.	Isodrin	100 kg			465-73-6
63.	Juglone (5-Hydroxynaphithalene 1,4 dione)	100 kg			481-39-0

S. No.	Chemicals	Threshold for application of Rules 5, 7-9 and 13-15	Quantity for application of Rules 10-12	CAS Number
(1)	(2)	(3)	(4)	(5)
64.	4,4-Methylenebis (2-chloroniline)	10 kg		101-14-4
65.	Mthyl isocynate	150 kg	150kg	624-83-9
66.	Mevinphos	100 kg		7786-34-7
67.	2-Naphthylamine	1 kg		91-59-8
68.	2-Nickel (metal, oxides, carbonates), sulphides, as powers)	1 t		
69.	Nickel tetracarbonyl	10 kg		13463-39-3
70.	Oxygendisulfoton	100 kg		2497-07-6
71.	Oxygen difluoride	10 kg		7783-41-7
72.	Paraxon (Diethyl 4-nitrophenyl phosphate)	100 kg		311-45-5
73.	Parathion	100 kg		56-38-2
74.	Parathion-methyl	100 kg		298-00-0
75.	Pentaborane	100 kg		19624-22-7
76.	Phorate	100 kg		298-02-2
77.	Phosacetim	100 kg		4104-14-7
78.	Phosgene (carbonyl chloride)	750 kg	750kg	75-44-5
79.	Phosphamidon	100 kg		13171-21-6
80.	Phosphine (Hydrogen phosphide)	100 kg		7803-51-2
81.	Promurit (1-(3,4 dichlorophenyl)-3-triazenthiocarboxamide)	100 kg		5836-73-7
82.	1,3-Propanesultone	1 kg		1120-71-4
83.	1-Propen-2-chloro-1,3diol diacetate	10 kg		10118-72-6
84.	Pyrazoxon	100 kg		108-34-9
85.	Selenium hexafluoride	10 kg		7783-79-1
86.	Sodium selenite	100 kg		10102-18-8
87.	Stibine (Antimony hydride)	100 kg		7803-52-3
88.	Sulfotep	100 kg		3689-24-5
89.	Sulphur dichloride	1 t		10545-99-0
90.	Tellurium hexafluoride	100 kg		7783-80-4
91.	TEPP	100 kg		107-49-3
92.	2,3,7,8,-Tetrachlorodibenzo-p-dioxin (TCDD)	1 kg		1746-01-6
93.	Tetramethylenedisulphotetramine	1 kg		80-12-6
94.	Thionazin	100 kg		297-97-2
95.	Tirpate (2,4-Dimethyl-1,3-dithiolane-2-carboxaldehyde O-methylcarbamoyloxime)	100 kg		26419-73-8

S. No.	Chemicals	Threshold for application of Rules 5, 7-9 and 13-15	Quantity for application of Rules 10-12	CAS Number
(1)	(2)	(3)	(4)	(5)
96.	Trichloromethanesulphonyl chloride	100 kg		594-42-3
97.	1-Tri (cyclohexyl) stannyl 1H-1,2,4-Triazole	100 kg		41083-11-8
98.	Triethylenemelamine	10 kg		51-18-3
99.	Warfarin	100 kg		81-81-2
GROUP -2 TOXIC SUBSTANCES				
100	Acetone cyanohydrin (2-Cyanopropan-2-ol	200 t		75-86-5
101	Acrolein (2-Propenal)	20 t	[1][200t]	107-02-8
102	Acrylonitrile	20 t	200t	107-13-1
103	Allyl alcohol (Propen-1-ol)	200 t		107-18-6
104	Alylamine	200 t		107-11-9
105	Ammonia	50 t	500t	7664-41-7
106	Bromine	40 t	[1][500t]	7726-95-6
107	Carbon disulphide	20 t	200t	75-15-0
108	Chlorine	10 t	25t	7782-50-5
109	Diphneyl ethane di-isocynate (MDI)	20 t	[1][200t]	101-68-8
110	Ethylene dibromide (1,2-Dibromoethane)	5 t	[1][50t]	106-93-4
111	Ethyleneimine	5 t		151-56-4
112	Formaldehyde (concentration <90%)	5 t	[1][50t]	50-00-0
113	Hydrogen chloride (liquified gas)	25 t	250t	7647-01-0
114	Hydrogen cyanide	5 t	20t	74-90-8
115	Hydrogen fluoride	5 t	50t	7664-39-3
116	Hydrogen sulphide	5 t	50t	7783-06-4
117	Methyl bromide (Bromomethane)	20 t	[1][200 t]	74-83-9
118	Nitrogen oxides	50 t		11104-93-1
119	Propylineimine	50 t		75-55-8
120	Sulphur dioxide	20 t	250t	7446-09-5
121	Sulphur trioxide	15 t	75t	7446-11-9
122	Tetraethyl lead	5 t	[2][200t]	78-00-2
123	Tetra methyl lead	5 t	[1][100t]	75-74-1
124	Toluene di-isocynate (TDI)	10 t		584-84-9

[1] Inserted by Rule14 (a to h) of MSIHC (Amendment) Rules, 1994 notified vide notification S.O.2882, dated 3.10.1994.

[2] Inserted by Rule14 (a to h) of MSIHC (Amendment) Rules, 1994 notified vide notification S.O.2882, dated 3.10.1994.

S. No.	Chemicals	Threshold for application of Rules 5, 7-9 and 13-15	Quantity for application of Rules 10-12	CAS Number
(1)	(2)	(3)	(4)	(5)
GROUP 3-HIGHLY REACTIVE SUBSTANCES				
125	Acetylene (ethyne)	5 t		74-86-2
126	a. Ammonium nitrate (1) b. Ammonium nitrate in form of fertilizer (2)	350t 1250 t	2500t	6484-52-2
127	2,2 Bis (tert-butylperoxy) butane) (concentration >70%)	5 t		2167-23-9
128	1, 1-Bis(tert-butylperoxy) cyclohexane (concentration > 80%)	5 t		3006-86-8
129	tert-Butyle proxyacetate (concentration ≤70%)	5 t		107-71-1
130	tert-Butyle peroxy isobutyrate (concentration >80%)	5 t		109-13-7
131	Tert-Butyl peroxy isopropyl carbonate (concentration ≥80%)	5 t		2372-21-6
132	Tert-Butyl peroxymaletate (concentration ≥80%)	5 t		1931-62-0
133	Tert-Butyl peroxypivalate (concentration ≥77%)	50 t		927-07-1
134	Dibenzyl peroxydicarbonate (concentration≥90%)	5 t		2144-45-8
135	Di-sec-butyl peroxydicarbonate (concentration ≥80%)	5 t		19910-65-7
136	Diethyl peroxydicarbonate (concentration ≥30%)	50 t		14666-78-5
137	2,2-dihydroperoxypropane (concentration≥30%)	5 t		2614-76-08
138	di-isobutyrl peroxide (concentration ≥50%)	50 t		3437-84-1
139	Di-n-propyl peroxydicarbonate (concentration≥80%)	5 t		16066-38-9
140	Ethyene oxide	5 t	50t	75-21-8
141	Ethyl nitrate	50 t		625-58-1
142	3,3,6,6,9,9 Hexamethyl - 1,2,4 5-tert oxacyclononane (concenttation ≥75%)	50 t		22397-33-7
143	Hydrogen	2 t	50 t	1333-74-0

S. No.	Chemicals	Threshold for application of Rules 5, 7-9 and 13-15	Quantity for application of Rules 10-12	CAS Number
(1)	(2)	(3)	(4)	(5)
144	Liquid Oxygen	200 t	[1][2000t]	7782-41-7
145	Methyl ethyl ketone peroxide (concentration ≥60%)	5 t		1338-23-4
146	Methyl isobutyl ketone peroxide (concentration ≥60%)	50 t		37206-20-5
147	Peracetic acid (concentration ≥60%)	50 t		79-21-0
148	Propylene oxide	5 t	[1][50t]	75-56-9
149	Sodium chlorate	25 t		7775-09-9
GROUP 4-EXPLOSIVE SUBSTANCES				
150	Barium azide	[1][100] kg		18810-58-7
151	Bis(2,4,6 -trinitrophenyl) amine	50 t		131-073-7
152	Chlorotrinitro benzene	50 t		28260-61-9
153	Cellulose nitrate (containing 12.6% Nitrogen)	50 t		9004-70-0
154	Cyclotetramethyleneteranitramine	50 t		2691-41-0
155	Cyclotrimethylenetiraniramine	50 t		121-82-1
156	Diazodinitrophenol	10 t		7008-81-3
157	Diethylene glycol dinitrate	10 t		693-21-0
158	Dinitrophenol, salts	50 t		
159	Enthylene glycol dinitrate	10 t		628-96-6
160	1-Gyanyl-4-nitrosaminoguanyl-1-tetrazene	[1][100 kg]		109-27-3
161	2, 2, 4, 4, 6, 6, -Hexanitositibene	50 t		20062-22-0
162	Hydrazine nitrate	50 t		13464-97-6
163	Lead azide	[1][100 kg]		13424-46-9
164	Lead Styphnate (Lead 2,4,6-trinitroresorcinoxide)	50 t		15245-44-0
165	Mercury fuliminate	10 t		20820-45-5 628-86-4
166	N-Methyl-N,2,4,6-tetranitroaniline	50 t		497-45-8
167	Nitroglycerine	10 t	10t	55-63-0
168	Pentacrythritol tetra nitrate	50 t		78-11-5

[1] Substituted by Rule 11(i) of the MSIHC (Amendment) Rules, 2000 notified vide S.O.57(E), dated 19.1.2000.

S. No.	Chemicals	Threshold for application of Rules 5, 7-9 and 13-15	Quantity for application of Rules 10-12	CAS Number
(1)	(2)	(3)	(4)	(5)
169	Picric acid, (2,3,6-Trinitrophenol)	50 t		88-89-1
170	Sodium picramate	50 t		831-52-7
171	Styphnic acid (2,4,6-Trinitroresorcinol)	50 t		82-71-3
172	1,3,5-Triamino-2,4,6-Trinitrobezene	50 t		3058-38-6
173	Trinitroaniline-	50 t		26952-42-1
174	2,4,6-Trinitroanisole	50 t		606-35-9
175	Trinitrobenze	50 t		25377-32-6
176	Trinitrobenzoic acid	50 t		35860-50-5 129-66-8
177	Trinitrocresol	50 t		28905-71-7
178	2,4,6-Trinitrophenitole	50 t		4732-4-3
179	2,4,6-Trinitrotoluene	50 t	50 t	118-96-7

[1][PART II

CLASSES OF SUBSTANCES AS DEFINED IN PART – I, SCHEDULE –1 AND NOT SPECIFICALLY NAMED IN PART –I OF THIS SCHEDULE

1	2	3	4
GROUP 5 - Flammable substances			
1.	Flammable Gases	15t	200t
2.	Extremely flammable liquids	1000t	5000t
3.	Very highly flammable liquids	1500t	10000t
4.	Highly Flammable liquids which remains liquid under pressure	25t	200t
5.	Highly Flammable liquids	2500t	20000t
6.	Flammable liquids	5000t	50000t]

(1) This applies to ammonium nitrate and mixtures of ammonium nitrate where the nitrogen content derived from the ammonium nitrate is greater than 28% by weight and aqueous solutions of ammonium nitrate where the concentration of ammonium nitrate is greater than 90% by weight.

(2) This applied to straight ammonium nitrate fertilizers and to compound fertilizers where the nitrogen content derived from the ammonium nitrate is greater than 28% by weight (a compound fertilizer contains ammonium nitrate together with phosphate and/or potash).

[1] Substituted by Rule 11(ii) of the MSIHC (Amendment) Rules, 2000 notified by S.O.57(E), dated 19.1.2000.

SCHEDULE -4

(See Rule 2(h) (i)

1. Installation for the production, processing or treatment of organic or inorganic chemicals using for this purpose, among others;

(a) alkylation
(b) Amination by ammonolysis
(c) carbonylation
(d) condensation
(e) dehydrogenation
(f) esterification
(g) halogenation and manufacture of halogens
(h) hydrogenation
(i) hydrolysis
(j) Oxidation
(k) Polymerziation
(l) Sulphonation
(m) desulphurization, manufacture and transformation of sulphur containing compounds
(n) nitration and manufacture of nitrogen containing compounds
(o) manufacture of phosphorous-containing compounds
(p) formulation of pesticides and of pharmaceutical products
(q) distillation
(r) extraction
(s) solvation
(t) mixing

2. Installation for distillation, refining or other processing of petroleum or petroleum products.

3. Installations for the total or partial disposal of solid or liquid substances by incineration or chemical decomposition.

4. Installations for production, processing, [1][use] or treatment of energy gases, for example, LPG, LNG, SNG.

5. Installation for the dry distillation of coal or lignite.

6. Installations for the production of metals or non-metals by a wet process or by means of electrical energy.

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[1] Inserted by Rule 12 of the MSIHC (Amendment) Rules, 2000 notified vide S.O.57(E), dated 19.1.2000.

SCHEDULE -5
(See Rules, 2(b) and 3)

S. No.	**Authority(ies) with legal backing**	**Duties and corresponding Rule**
(1)	**(2)**	**(3)**
1.	Ministry of Environment and Forests under Environment (Production) Act, 1986.	1. Notification of hazardous chemicals as per Rules 2(e)(i), 2(e) (ii) & 2(e) (iii)
2.	Chief Controller Imports & Exports under Import & Exports (Control) Act, 1947.	Import of hazardous chemicals as per Rule 18
3.	Central Pollution Control Board or State Pollution Control Board [1][or Committee] under Environment (Protection) Act, 1986 as the case may be.	(1) Enforcement of directions and procedures in respect of isolated storage of hazardous chemicals, regarding- (i) Notification of major accidents as per Rules 5(1) and 5(2) (ii) Notification of sites as per Rules 7 to 9. (iii) Safety reports in respect of isolated storages as per Rule 10 to 12. (iv) Preparation of on-site emergency plans as per Rule 13. (2) Import of hazardous Chemicals and enforcement of directions and procedures on import of hazardous chemicals as per Rule 18.
4.	Chief Inspector of Factories appointed under the Factories Act, 1948.	Enforcement of directions and procedures in respect of industrial installations and isolated storages covered under the Factories Act, 1948, dealing with hazardous chemicals and pipelines including inter-state pipelines regarding- (i) Notification of major accidents as per Rule 5(1) and 5 (2). (ii) Notification of sites as per Rules, 7 to 9. (iii) Safety reports as per Rules, 10 to 12. (iv) Preparation of on-site emergency plans as per Rule 13. Preparation of off-site emergency plans in consultation with District Collector or District Emergency Authority as per S. No. 9 of this schedule.

[1] Inserted by Rule 13(i) of the MSIHC (Amendment) Rules, 2000 notified vide S.O.57(E), dated 19.1.2000.

S. No.	Authority(ies) with legal backing	Duties and corresponding Rule
(1)	(2)	(3)
5.	Chief Inspector of Dock Safety appointed under the Dock Workers (Safety, Health and Welfare) Act, 1986.	Enforcement of directions and procedures in respect of industrial installations and isolated storages dealing with hazardous chemicals and pipelines [1][inside a port covered under the Dock Workers (Safety, Health and Welfare) Act, 1986] regarding- (i) Notification of major accidents as per Rules 5(1) and 5(2). (ii) Notification of sites as per Rules 7 to 9. (iii) Safety reports as per Rules 10 to 12. (iv) Preparation of on-site emergency plans as per Rule 13. (v) Preparation of off-site emergency plans in consultation with District Collector or District Emergency Authority as per S. No.9 of this Schedule.
6.	Chief Inspector of Mines appointed under the Mines Act, 1952	Enforcement of directions and procedures in respect of industrial installations and isolated storages dealing with hazardous chemicals [2][***] regarding - (i) Notification of major accidents as per Rules 5(1) and 5(2). (ii) Notification of sites as per Rules 7 to 9. (iii) Safety reports as per Rules 10 to 12. (iv) Preparation of on-site emergency plans as per Rule 13. (v) Preparation of off-site emergency plans in consultation with District Collector or District Emergency Authority as per S. No.9 of this Schedule.
7.	Atomic Energy Regulatory Board appointed under the Atomic Energy Act, 1972.	[3][Enforcement of directions and procedures regarding :- (a) Notification of major accidents as per rule 5(1) and 5(2) (b) Approval and Notification of Sites as per rule 7; (c) Safety report and safety audit

[1] Substituted by Rule 13(ii) of the MSIHC (Amendment) Rules, 2000 notified vide S.O.57(E), dated 19.1.2000;

[2] Omitted by Rule 13(iii), ibid;

[3] Substituted by Rule 13(iv), ibid.

S. No.	Authority(ies) with legal backing	Duties and corresponding Rule
(1)	(2)	(3)
		repots as per rule 10 to 12; (d) Acceptance of On-site Emergency plans as per rule 13; (e) Assisting the District Collector in the preparation of Off-Site emergency plans as per serial number 9 of this Schedule]
8.	Chief Controller of Explosives appointed under the Indian Explosive Act and Rules, 1983	Enforcement of directions and procedures as per the provisions of [1][(i) The Explosives Act, 1884(4 of 1884) and the rules made thereunder, namely:- (a) The Gas Cylinders Rules, 1981; (b) The Static and Mobile Pressure Vessel (Unified) Rules, 1981; (c) The Explosive Rules, 1984 (ii) The petroleum Act, 1934 (30 of 1934) and the Rules made thereunder, namely; (a) The Petroleum Rules, 1976; (b) The Calcium Carbide Rules, 1987]; [2][and in respect of Industrial installation and isolated storages dealing with hazardous chemicals and pipelines including inter-state pipelines regarding. : - (a) Notification of major accident as per rule 5; (b) Approval and notification of sites as per rule 7; (c) Safety report and safety audit reports as per rules 10 to 12; (d) Acceptance of On-site Emergency plans as per rule 13; (e) Assisting the District Collector in the preparation of Off-Site emergency plans as per serial number 9 of this Schedule.]

[1] Substituted by Rule 15 of the MSIHC (Amendment) Rules, 1994, notified vide S.O.2882, dated 3.10.1994.

[2] Inserted by Rule 13 (v) of the MSIHC (Amendment) Rules, 2000 notified vide S.O.57(E), dated 19.1.2000.

S. No.	**Authority(ies) with legal backing**	**Duties and corresponding Rule**
(1)	**(2)**	**(3)**
9.	District Collector or District Emergency Authority designated by the State Government	Preparation of off-site emergency plans as per Rule 14
[1][10.	[2][CENTRE FOR ENVIRONMENT AND EXPLOSIVE SAFETY (CEES), Defense Research and Development of Organisation (DRDO). Department of defence Research & Development, Ministry of Defence	Enforcement of directions and procedures in respect of laboratories, industrial establishment and isolated storages dealing with hazardous chemicals in the Ministry of Defence]

[1] Substituted by Rule 13(vi), of the MSIHC (Amendment) Rules, 2000 notified vide S.O.No.57(E), dated 19.1.2000.

[2] Inserted by G.S.R.584(E), dated 9th June, 1990.

SCHEDULE -6

[See Rule 5(1)]

INFORMATION TO BE FURNISHED REGARDING NOTIFICATION OF A MAJOR ACCIDENT

Report number ……
of the particular accident.

1. General data

(a) Name of the site
(b) Name and address of the manufacturer
(Also state telephone/telex number)
(c) (i) Registration number

(ii) Licence number

(as may have been allotted under any status applicable to the site, e.g.the Factories Act)
(d) (i) Nature of industrial activity (Mention what is actually manufactured, stored etc.)
(ii) National Industrial Classification, 1987 at the four digit level.

☐ ☐ ☐ ☐

2. Type of major accident

Explosion ☐ Fire ☐ Emission of dangerous substance ☐

Substance(s) emitted ……

3. Description of the major accident
   (a) Date, shift and hour of the accident
   (b) Department/Section and exact place where the accident took place
   (c) The process/operation undertaken in the Department/section where the accident took place. (attach a flow chart if necessary)
   (d) The circumstances of the accident and the dangerous substance involved

4. Emergency Measures taken and measures envisaged to be taken to alleviate short term effects of the accident.
5. Causes of the major accident.
   Known (to be specified) ☐
6. Not Known ☐
   Information will be supplied as soon as possible ☐

7. Nature and extent of damage

(a) Within the establishment - casualties ……Killed
……Injured
……Poisoned

Persons exposed to the major accident ……
material damaged ☐
danger is still present ☐
danger no longer exists. ☐

(b) Outside the establishment
casualties. ……Killed
……Injured
……Poisoned

Persons exposed to the major accident……
material damaged ☐
damage to environment ☐
the danger is still present ☐
the danger no longer exists ☐

8. Data available for assessing the effects
of the accident on persons and environment.

9. Steps already taken or envisaged

(a) to alleviate medium or long term effects of the accident
(b) to prevent recurrence of similar major accident
(c) Any other relevant information.

SCHEDULE -7

[See Rule 7(1)]

INFORMATION TO BE FURNISHED FOR THE NOTIFICATION OF SITES

PART -I

Particulars to be included in a notification of a site

1. The name and address of the employer making the notification.

2. The full postal address of the site where the notifiable industrial activity will be carried on.

3. The area of the site covered by the notification and of any adjacent site which is required to be taken into account by virtue of b(ii) of schedule 2 and 3.

4. The date on which it is anticipated that the notifiable industrial activity will commence, or if it has already commenced a statement to that effect.

5. The name and maximum quantity liable to be on the site of each dangerous substance for which notification is being made.

6. Organisation structure namely organisation diagram for the proposed industrial activity and set up for ensuring safety and health.

7. Information relating to the potential for major accidents, namely-

(a) identification of major accident hazards ;

(b) the conditions or the events which could be significant in brining one about;

(c) a brief description of the measures taken.

8. Information relating to the site namely-

(a) a map of the site and its surrounding area to a scale large enough to show any features that may be significant in the assessment of the hazard or risk associated with the site,-

(i) area likely to be affected by the major accident.

(ii) Population distribution in the vicinity.

(b) a scale plan of the site showing the location and quantities of all significant inventories of the hazardous chemicals;

(c) a description of the process or storage involving the hazardous chemicals and an indication of the conditions under which it is normally held;

(d) the maximum number of persons likely to be present on site.

9. The arrangement for training of workers and equipment necessary to ensure safety of such workers.

PART -II

Particulars to be included regarding pipeline-

1. The names and address of the persons making the notification.

2. The full postal address of the place from which the pipeline activity is controlled, addresses of the places where the pipeline starts and finishes and a map showing the pipeline route drawn to a scale of not less than 1:400000.

3. The date on which it is anticipated that the notifiable activity will commence, or if it is already commenced a statement to that effect.

4. The total length of the pipeline, its diameter and normal operating pressure and the name and maximum quantity liable to be in the pipeline of each hazardous chemical for which notification is being made.

SCHEDULE -8
[See Rule 10(1)]
INFORMATION TO BE FURNISHED IN A SAFETY REPORT

1. The name and address of the person furnishing the information.

2. Description of the industrial activity, namely-
   - (a) site,
   - (b) construction design,
   - (c) protection zones explosion protection, separation distances,
   - (d) accessibility of plant,
   - (e) maximum number of persons working on the site and particularly of those persons exposed to be hazard.

3. Description of the processes, namely -
   - (a) technical purpose of the industrial activity,
   - (b) basic principles of the technological process,
   - (c) process and safety -related data for the individual process stages,
   - (d) process description,
   - (e) Safety-related types of utilities.

4. Description of the hazardous chemicals, namely -
   - (a) chemicals (quantities, substance data, safety-related data, toxicological data and threshold values),
   - (b) the form in which the chemical may occur on or into which they may be transformed in the event of abnormal conditions,
   - (c) the degree of purity of the hazardous chemical.

5. Information on the preliminary hazard analysis, namely-

(a) types of accident
(b) system elements or events that can lead to a major accident,
(c) hazards,
(d) safety-relevant components.

6. Description of safety -relevant units, among others;

(a) special design criteria,
(b) controls and alarms,
(c) special relief systems,
(d) quick-acting valves,
(e) collecting tanks/dump tank,
(f) sprinkler system,
(g) fire fighting etc.

7. Information on the hazards assessment, namely-

(a) identification of hazards ,
(b) the cause of major accidents,
(c) assessment of hazards according to their occurrence frequency,
(d) assessment of accident consequences,
(e) safety systems,
(f) known accident history.

8. Description of information or organizational systems used to carry on the industrial activity safety, namely-

(a) maintenance and inspection schedules,
(b) guidelines for the training of personnel,
(c) allocation and delegation of responsibility for plant safety,
(d) implementation of safety procedure.

9. Information on assessment of the consequences of major accidents, namely-

(a) assessment of the possible release of hazardous chemicals or of energy,
(b) possible dispersion of released chemical,
(c) assessment of the effects of the releases (size of the affected area, health effects, property damage)

10. Information on the mitigation of major accidents, namely -

(a) fire brigade,
(b) alarm systems,
(c) emergency plan containing system of organisation used to fight the emergency, the alarm and the communication rules guidelines for fighting the emergency, information about hazardous chemicals, examples of possible accident sequences,
(d) coordination with the District Emergency authority and its off-site emergency plan,
(e) notification of the nature and scope of the hazard in the event of an accident,
(f) antidotes in the event of a release of a hazardous chemical.

SCHEDULE -9

(See Rule 17)

SAFETY DATA SHEET

1. CHEMICAL IDENTITY

Chemical Name			Chemical Classification
Synonyms			Trade Name
Formula	C.A.S.No		U.N. No.:
Regulated Identification	Shipping Name Codes/Lable		Hazchem No.:
	Hazardous Waste I.D. No.:		
Hazardous Ingredients	C.A.S. No.	Hazardous Ingredients	C.A.S No.:
1.		3.	
2.		4.	

2. PHYSICAL AND CHEMICAL DATA

Boiling Range/Point ^{o}C	Physical State	Appearance
Melting/Freezing Point ^{o}C	Vapour Pressure @ 35 ^{o}C mm/Hg	Odour
Vapour Density (Air=1)	Solubility in Water at 30^{o}C Others	
Specific Gravity Water =1	pH	

3. FIRE AND EXPLOSION HAZARD DATA

Flammability	Yes/No	*LEL*	%	Flash Point ^{o}C	Auto ignition Temperature ^{o}C
TDG Flammability		*UEL*	%	Flash Point ^{o}C	
Explosion Sensitivity to Impact			Explosion Sensitivity to Static Electricity		Hazardous Combustion Products
Hazardous Polymerisation					
Combustible Liquid		Explosive Material		Corrosive Material	
Flammable Material		Oxidiser		Others	
Pyrophoric Material		Organic Peroxide			

4. REACTIVITY DATA

Chemical Stability
Incompatibility With other Material
Reactivity
Hazardous Reaction Products

5. HEALTH HAZARD DATA

Routes of Entry					
Effects of Exposure/Symptoms					
Emergency Treatment					
TLV(ACGIH)	ppm	mg/m^3	STEL	ppm	mg/m^3

Permissible Exposure Limits LD_{50}	ppm	mg/m^3	Odour threshold LD_{50}	ppm	mg/m^3
NEPA Hazard Signals	Health		Flammability	Stability	Special

6. PREVENTIVE MEASURES

Personnel Protective Equipment

Handling and Storage Precautions

7. EMERGENCY AND FIRST AID MEASURE

Fire Extinguishing Media

FIRE

Special Procedures

Unusual Hazards

EXPOSURE

First Aid Measures

Antidotes/Dosages

SPILLS

Steps to be taken

Waste Disposal Method

8. ADDITIONAL INFORMATION / REFERENCES

9. MANUFACTURER / SUPPLIER DATA

Name of Firm	Contact Person in Emergency
Mailing Address	Local Bodies Involved
Telephone/Telex Nos.	Standard Packing
Telegraphic Address	Tremcard Details/Ref Other.

10. DISCLAIMER

Information contained in this material data sheet is believed to be reliable but no representation, guarantee or warranties of any kind are made as to its accuracy, suitability for a particular application or results to be obtained from them. It is upto the manufacturer/seller to ensure that the information contained in the material safety data sheet is relevant to the product manufactured/handled or sold by him as the case may be. The Government makes no warranties expressed or implied in respect of the adequacy of this document for any particular purpose.

SCHEDULE -10

[See Rule 18(5)]

FORMAT FOR MAINTAINING RECORDS OF HAZARDOUS CHEMICALS IMPORTED

1. Name and address of the Importer:
2. Date and reference number of issuance of permission to import hazardous chemicals:
3. Description of hazardous chemicals:
   (a) Physical form:
   (b) Chemical form:
   (c) Total volume and weight (in kilogram's/ Tones)
4 Description of purpose of Import:
5. Description of storage of hazardous chemicals:
   (a) Date:
   (b) Method of storage

Note: Published in the Gazette No.787, dt.27.11.1989.
All correction made in the terms of corrigendum No.S.O.115(E), dt.5.2.1990 published in the Gazette No. 59 dt.5.2.1990.

[1][SCHEDULE –11]

[See Rule 13(1)]

DETAILS TO BE FURNISHED IN THE ON-SITE EMERGENCY PLAN

1. Name and address of the person furnishing the information.

2. Key personnel of the organization and responsibilities assigned to them in case of an emergency

3. Outside organization if involved in assisting during on-site emergency:

   (a) Type of accidents

   (b) Responsibility assigned

4. Details of liaison arrangement between the organizations.

5. Information on the preliminary hazard analysis:

   (a) Type of accidents

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

   (c) Hazards

   (d) Safety relevant components

[1] Inserted by Rule 16 of the MSIHC (Amendment) Rules, 1994 notified by S.O.2882, dated 3.10.1994.

6. Details about the site:

   (a) Location of dangerous substances
   (b) Seat of key personnel
   (c) Emergency control room

7. Description of hazardous chemicals at plant site:

   (a) Chemicals (Quantities and toxicological data)
   (b) Transformation if any, which could occur.
   (c) Purity of hazardous chemicals.

8. Likely dangers to the plant.

9. Enumerate effects of:

   (i) Stress and strain caused during normal operation:
   (ii) Fire and explosion inside the plant and effect if any, of fire and explosion out side.

10. Details regarding:

   (i) Warning, alarm and safety and security systems.

(ii) alarm and hazard control plans in line with disaster control and hazard control planning, ensuring the necessary technical and organizational precautions;

(iii) Reliable measuring instruments, control units and servicing of such equipments.

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

(v) Continuous surveillance of operations.

(vi) maintenance and repair work according to the generally recognized rules of good engineering practices.

11. Details of communication facilities available during emergency and those required for an off-site emergency.

12. Details of fire fighting and other facilities available and those required for an off-site emergency.

13. Details of first aid and hospital services available and its adequacy.

[1][SCHEDULE 12
[See Rule 14(1)]

DETAILS TO BE FURNISHED IN THE OFF-SITE EMERGENCY PLAN

1. The types of accidents and release to be taken into account.

2. Organisations involved including key personnel and responsibilities and liaison arrangements between them.

3. Information about the site including likely locations of dangerous substances, personnel and emergency control rooms.

4. Technical information such as chemical and physical characteristics and dangers of the substances and plant.

5. Identify the facilities and transport routes.

6. Contact for further advice e.g. meteorological information, transport, temporary food and accommodation, first aid and hospital services, water and agricultural authorities.

7. Communication links including telephones, radios and standby methods.

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[1] Inserted by Rule 16 of the MSIHC (Amendment) Rules, 1994 notified by S.O.2882, dated 3.10.1994.

8. Special equipment including fire fighting materials, damage control and repair items.

9. Details of emergency response procedures.

10. Notify the public.

11. Evacuation arrangements.

12. Arrangements for dealing with the press and other media interests.

13. Longer term clean up.]

Note: Principal rules were published in Gazette of India vide Notification S.O. 966(E), dated 27.11.1989. Amending rules were published vide GSR No.681, dated 9.6.1990, S.O.115 (E), dated 5.2.1990, S.O.2882, dated 3.10.1994 and S.O.57 (E), dated 19.1.2000.

By Registered post/ e-mail

GOVERNMENT OF TELANGANA
FACTORIES DEPARTMENT

From
B.Rajagopala Rao,B.Tech(Chem),
Director of Factories,
Telangana State,
Maitrivihar,Block No.304,3rd Floor,
Ameerpet,
Hyderabad- 500 038.
Telangana State.
e.Mail ID: doftelangana@gmail.com

To
The Secretary,
Government of India,
Ministry of Environment, Forests &
Climate Change, HSM Division,
Indira Paryavaran Bhavan,
Jal Wing, 2nd Floor,
Jor Bagh Road, Ali Ganj,
New Delhi-110 003.

Lr. No. MAH / 2826 / 2025, dated: 04.07.2025.

Sir,

Kind Attention: Shri Dinesh Runiwal, Scientist-E/Addl. Director(S), HSMD, MOEF&CC, GOI. (e-mail: d.runiwal@gov.in)

Sub: Factories Act, 1948 and rules made there under - The Chemical Accidents (E.P.P.R.) Rules, 1996 notified under the Environment (Protection) Act, 1986 – Major explosion and fire occurred in the factory namely SIGACHI INDUSTRIES LIMITED, Plot Nos. 20, 21, IDA, Phase-I, Pashamylaram, Patancheruvu Mandal, Sangareddy District on 30-06-2025 at about 9:25 A.M. – Preliminary enquiry report submitted - Regarding.

Ref: G.O.Rt.No.277 dated 02-07-2025 of the Labour, Employment & Training and Factories (Lab-II) Department, Government of Telangana constituting an expert Committee to enquire and submit a detailed report along with suggestions/ recommendations.

*** *** ***

I am to inform that a major explosion and fire occurred in the factory namely SIGACHI INDUSTRIES LIMITED, Plot Nos. 20, 21, IDA, Phase-I, Pashamylaram, Patancheruvu Mandal, Sangareddy District on 30-06-2025 at about 9:25 A.M, while

manufacturing Micro Crystalline Cellulose Powder (MCCP), which is used in tablets and capsules as binding agent.

At the time of the major explosion and fire, 143 (one hundred and forty three) persons are there inside the factory premises and it resulted in death of 39 (thirty nine) persons including the Manager of the factory, injuries to 34 persons (11 persons are discharged from the Hospitals out of the 34 persons) and 9 persons are missing.

A preliminary enquiry is conducted and an Order Prohibiting the usage of the factory from carrying out the manufacturing process is issued to the Occupier of the factory on 03.07.2025 by the Deputy Chief Inspector of Factories, Sangareddy.

In the reference mentioned above, the Government of Telangana has constituted an expert Committee to enquire in to the major explosion and fire in the above said factory and submit a detailed report alongwith suggestions/ recommendations within one month vide Gazette Order Rt. No. 277, dated 02-07-2025, LET&F (Lab-II) Department (copy enclosed) and the expert Committee have started the enquiry on 03.07.2025.

The detailed enquiry report on the major accident will be submitted after completion of the enquiry by establishing the cause(s) of accident and a Show Cause Notice is being issued to the Occupier of the above said factory.

Yours faithfully,

Encl: As above

Director of Factories

4/7/25

Copy submitted to the Principal Secretary, Labour, Employment & Training and Factories Department, Government of Telangana.

PRELIMINARY ENQUIRY REPORT ON THE MAJOR ACCIDENTOCCURED IN SIGACHI INDUSTRIES LIMITED, PLOT NO. 20, IDA PHASE - I, PASHAMYLARAM, PATANCHERU, SANGAREDDY - SUBMITTED

NAME OF THE FACTORY, Address &R.No	SIGACHI INDUSTRIES LIMITED Plot No. 20, IDA Phase - I, Pashamylaram, Patancheru, Sangareddy R.No.42472
Date of accident	On 30.06.2025 at about 9:20 A.M.
Date(s) of enquiry	On 30.06.2025
Nature of the accident	Fatal-12, Injured-34 sofar, 16 - are yet to be traced

*****

The above factory namely M/s. SIGACHI INDUSTRIES LIMITED Plot No. 20, IDA, Phase-I, Pashamylaram, PatancheruMandal, SangareddyDiastrict is a registered 2m(i) factory with R.No. 42472 and carrying on the manufacturing process of Micro Crystaline Cellulose Powder (MCCP)with the aid of 818 HPEM and about 200 workers. Sri Amit Raj Sinha, 51 Years, S/o R P Sinha is the occupier and Sri M E Elangovan, Age 52 Years, S/o M R Elumaiah is the manager of the factory.

Mycro Crystalline Cellulose is mainly used as a binder in Pharmaceutical industry. It is crucial component in the manufacture of tablets. The manufacturing process of MCC involves wood pulp treated with alkali hydrolysis at a temperature ranging from 25 to 70^{C}. This depolymerizes cellulose material. The alkaline pulp is then washed to remove excessive hydrolysis agent. The washed alkali hyrolyzed pulp is reacted with acid hydrolysis agent at about 80^{0}C and then washed with Ammonical water and normal water. The material is then dried in the drier, namely using - FBD-5 Nos spray drier01-No., Spin flash drier-01 nos., as per the customer / quality requirements. The hot air is used to dry the material in the above mentioned drier.

From the preliminary information it is assumed that the spray drier in the ground floor of production got exploded resulting in the complete collapse of RCC (G+1) building which accommodates production block.

The probable cause for the explosion may be due to the overheating / failure of temperature controls of the equipment resulting in increased pressure of the equipment.

Exact cause of the accident will be known after completion of the detailed enquiry. The final enquiry report will be submitted

At the time of incident 143 persons were there inside the factory premises. During the enquiry it is reported that 34 workers are injured and admitted in hospitals at Patancheru and Madinaguda, 12 workers died so far and 85 are safe and the where about of remaining 16 workers are yet to be known.

Director of Factories
Telangana

GOVERNMENT OF TELANGANA
FACTORIES DEPARTMENT

FROM:
K.GOURI SHANKER, B.TECH (MECH.),
DY. CHIEF INSPECTOR OF FACTORIES
SANGAREDDY AT
RAMACHANDRAPURAM,
BESIDE BHEL BUS DEPOT.

TO:
SRI AMIT RAJ SINHA, OCCUPIER
M/S. SIGACHI INDUSTRIES LIMITED
PLOT NO. 20 ,21, IDA, PHASE-I,
PASHAMYLARAM, PATANCHERU,
SANGAREDDY DISTRICT-502307.

Lr.No. A/92/2025, Dated: 03/07/2025

PROHIBITORY ORDERS

Sir,

Sub:- Factories Act 1948 – **M/S. SIGACHI INDUSTRIES LIMITED**, Plot No. 20, 21, IDA, PHASE-I, Pashamylaram, Patancheru, Sangareddy District – Major explosion and fire accident occurred on 30-06-2025 - Non-compliance of certain provisions of Factories Act 1948 - Imminent danger to the safety and health of the workers – PROHIBITORY ORDER - issued- Reg.

Ref:- Visit Dated:30/06/2025 & 01/07/2025

<<>><<>><<>>

Section 40(2):

On 30-06-2025 at about 9.30 a.m., an explosion of spray drier and fire accident occurred in your factory and caused the collapse of half of RCC Production block, which accommodates QC, packing material, fluid bed driers, spray drier etc., partial collapse of the adjacent blocks and engineering stores, Due to this and change of shift, number of workers working in this block got trapped and sustained serious injuries and fatalities.

As a sequel to the said explosion/fire accident, the thrown out debris and buckled structures, load bearing cross beams are laying down in a precarious condition, manufacturing of Micro Crystalline Cellulose Powder (MCCP) posing of an imminent danger to the human life and safety, to continue further usage of the buildings, sheds and equipment etc.

Hence , the usage of above mentioned equipment /machinery etc., in the production blocks ,adjacent sheds in the factory premises, for carrying on the manufacturing process in the factory is hereby prohibited, until prior clearance is obtained from the Factories Department, Telangana State, For carrying on the manufacturing process you are requested to provide the required (i) in-built safety devices, sensors with visual, audio alarms, auto controls and shut down systems and other necessary systems to ensure safety of human life and certificate to that effect has to be obtained from the independent competent safety expert (s) after thorough examination of the process, plant and equipment (ii)The HAZOP study report, Hazard Analysis and Risk Assessment report done for all the

SIGACHI INDUSTRIES LIMITED Hyderabad

products by independent competent safety expert (s) and compliance on the recommendation given in the reports and submitted to the Director of Factories, Telangana State. (iii) Test reports/certificates of all equipment by the Competent Persons / Responsible Person to ensure the safety of the Equipment. (iv) Develop Safe Operating Procedures, Do's and Don'ts etc., and also imparted adequate training to the workers on safety.

The prohibitory order will be in force until it revoked.

Yours faithfully

DY. CHIEF INSPECTOR OF FACTORIES,
SANGAREDDY AT R.C.PURAM.

3/7/2025

Submitted to the Director of Factories, T.G. Hyderabad.

Copy to the Inspector of Factories, Sangareddy at R.C.Puram for information

original copy received on 03/07/2025
Umapathi Reddy
DGM Khairon
7337094559

SIGACHI INDUSTRIES LIMITED Hyderabad

File No. HSM-14/5/2025-HSM
Government of India
Ministry of Environment, Forest and Climate Change
(HSM Division)
***

3rd Floor Jal Wing,
Indira Paryavaran Bhawan,
Aliganj Jor Bagh Road, New
Delhi 110003

Dated: 31st July, 2025

OFFICE MEMORENDUM

Subject: Accident at Sigachi Industires Pvt. Ltd in Telangana's Pashamylaram industrial area on 30.06.2025-Reg – Reg.

This with reference to your letter dated 4.07.2025 thereby submitting the preliminary report of the incident, which happened at Sigachi Industires Pvt. Ltd on 30.06.2025.

2. Attention is invited to Rule 5(1) of MSIHC Rules, 1989 as per which where a major accident occurs on a site or in a pipe line, the occupier shall forthwith notify the concerned authority as identified in Schedule 5 of that accident, and furnish thereafter to the concerned authority a report relating to the accidents in installments, if necessary, in Schedule 6.

3. Further, as per Rule 5 (2) of MSIHC Rules, 1989, the concerned authority shall undertake full analysis of the major accident and send the requisite information within 90 days to the Ministry through appropriate channel.

4 In view of the above, it is requested to submit the full analysis report and action taken pursuant to provisions of Manufacture, Storage and Import of Hazardous Chemical (MSIHC) Rules, 1989.

5. This issues with the approval of the Competent Authority.

31/7/25

(Amit Vashishtha)
Scientist-E (HSMD)
Email: amit.vashishtha@nic.in
Tele: +91-11-20819306

To,

Shri. B. Rajagopala Rao,
Director of Factories, Telangana State Block No. 304,
3rd Floor Maitrivihar Commercial Complex,
(Beside Aditya Trade Centre), Ameerpet, Hyderabad-500038.
Email Id: doftelangana@gmail.com, rajagopalarao8@gmail.com

Integrated Guidance Framework for Chemicals Safety in Respect of the Isolated Storages and Industries Covered Under Manufacture, Storage and Import of Hazardous Chemicals (MSIHC) Rules, 1989.

Background:

Hon'ble National Green Tribunal on 11.06.2021 in Original Application No. 60/2021 passed the order. The Para 12 of the aforementioned order read as follows:

"We also direct CPCB and MoEF&CC in coordination with other concerned authorities to consider issuing appropriate guidelines for conducting safety audits and taking other remedial measures throughout India in the light of present report as well as other recent reports in respect of industrial accidents so as to prevent such incidents and to save human lives and health."

In this regard, the guidelines are as follows:

A. Guidelines for Industries and Isolated Storages:

REPORTING

1. An occupier (of an industry or isolated storage) shall identify the major accident hazards and shall take adequate steps to prevent such major accidents and to limit their consequences to persons and the environment and shall provide the persons working on the site with the information, training and equipment including antidotes necessary to ensure their safety.
2. Where a major accident occurs on a site or in a pipe line, the occupier shall within 48 hours notify the concerned authority as identified in Schedule 5 (of the Manufacture, Storage and Import of Hazardous Chemical Rules, 1989 as amended) of that accident, and furnish thereafter to the concerned authority a report relating to the accidents in Schedule 6 (of the Manufacture, Storage and Import of Hazardous Chemical Rules, 1989 (as amended)). However, the concerned authorities, local crisis group, District emergency authorities etc. have to be informed by the occupier as early as possible.

3. The occupier shall not undertake any industrial activity or isolated storage unless he has been granted an approval for undertaking such an activity by the concerned authorities and has submitted a written report to the concerned authority containing the particulars specified in Schedule 7 of the Manufacture, Storage and Import of Hazardous Chemical Rules, 1989 as amended. In case of an activity in which subsequently there is or is liable to be a threshold quantity or more of an additional hazardous chemical shall be deemed to be a different activity and the occupier has to take a separate approval for undertaking such activity.
4. The occupier shall furnish a further report to the concerned authorities, in case the changes to the threshold quantity of hazardous chemicals are made.
5. An occupier shall not undertake any industrial activity or isolated storage to which the Manufacture, Storage and Import of Hazardous Chemical Rules, 1989 (as amended) applies, unless he has prepared a safety report on that industrial activity containing the information specified in Schedule 8 of the Manufacture, Storage and Import of Hazardous Chemical Rules, 1989 (as amended) and has sent a copy of that report to the concerned authority at least ninety days before commencing that activity.
6. The occupier of both the new and the existing industrial activities or isolated storage shall carry out an independent safety audit of the respective industrial activities with the help of an expert, not associated with such industrial activities. The occupier shall forward a copy of the auditor's report along with his comments to the concerned authorities within 30 days after the completion of such audit.
7. The occupier shall update the safety audit report once a year by conducting a fresh safety audit and forward a copy of it with his comments to the concerned authorities.
8. The occupier, within 30 days of the completion of the safety audit, shall send a report to the Chief Inspector of Factories with respect to the implementation of the audit recommendations.
9. The occupier shall not make any modification to the industrial activity or isolated storage to which that safety report relates which could materially affect the particulars in that report, unless he has made a further report to take

account of those modifications and has sent a copy of that report to the concerned authorities at least 90 days before making those modifications.

10. Where an occupier has made a safety report and that industrial activity or isolated storage is continuing, the occupier shall within three years of the date of the last such report, make a further report which shall have regard in particular to new technical knowledge which has affected the particulars in the previous report relating to safety and hazard assessment and shall within 30 days send a copy of the report to the concerned authority.
11. For the purpose of enabling the concerned authority to prepare the off-site emergency plan, the occupier shall provide the concerned authority with such information relating to the industrial activity or isolated storage under his control as the concerned authority may require, including the nature, extent and likely effects off-site of possible major accidents.
12. The occupier of an industry or isolated storage shall take appropriate steps to inform persons outside the site either directly or through District Emergency Authority who are likely to be in an area which may be affected by a major accident about the nature of the major accident hazard and the safety measures and the "Do's' and 'Don'ts" which should be adopted in the event of a major accident. The occupier of a new industry or isolated storage shall take these steps, before that activity is commenced.
13. The industries / isolated storages shall update the comprehensive safety audit, on-site emergency plans and risk analysis reports annually and ensure that the reports are furnished to the concerned authorities.
14. The industry or isolated storage shall conduct comprehensive hazard identification and risk assessment (HIRA) to identify the non-compliances and take corrective actions for the non-compliances identified. Emergency plans shall be established to deal with leakages / accidents. The safety & hazard audit should identify the control measures necessary to be taken during an emergency.
15. A detailed study on the risk assessment and disaster management shall be carried out by the industry / isolated storage. Hazard identification and evaluation in a local community, preparation of standard operating procedures for accident prevention, preparedness and response, onsite emergency plans etc. have to be reviewed at least once in a year.

16. In the industries / isolated storages where gas leakages are suspected, an emergency plan to vent out / neutralize the gases safely should be prepared.
17. All industries and isolated storages should have mitigation plans for spillages / leakages of hazardous chemicals, fires, explosion or any other accident.
18. Standard Operating Procedure (SOP) for the steps to be taken during emergency situations / accidents shall be prepared by all industrial activities / isolated storages that are handling hazardous chemicals.

TESTING

19. The pressure test and leak test must be ensured after replacement of valves, pipes, joints etc. as per the original equipment manufacturer (OEM) manual or as per standard established procedure.
20. Check valves, relief valves should be installed at appropriate locations. Flow meters, sensors, measuring devices have to be regularly calibrated. Vents from relief valves shall be directed to a safe place.
21. Seals, glands and gaskets shall be regularly inspected, without dismantling. Leak detectors should be provided for all piping, valves, seals, flanges, and other pertinent equipment.
22. All hazardous chemicals carrying piping should be periodically inspected for failed insulation/ vapour barrier, rust and corrosion. Damaged and deteriorated piping / equipment should be replaced.
23. Operation and process control systems like Supervisory Control and Data Acquisition (SCADA) and Leak Detection and Repair (LDAR) systems should be adopted by the major accident hazard installations.
24. The safety measures including valve regulated systems shall be regularly checked and the concerned workers involved in the activity shall be properly trained.
25. Periodic inspection of equipment and machineries w.r.t. safety aspects should be done.
26. Portable gas masks should be kept at critical locations for use in any emergency.
27. Material Safety Data Sheets of raw materials & products should be made available to all the concerned personnel.

28. The design of storage tanks, pressure vessels etc. should be as per applicable standards. The material of the storage tanks, pressure vessels etc. should be of adequate strength and chemically inert for the chemicals to be stored. The inspection of storage tanks, pressure vessels etc. should be as per standard protocols.
29. All the vessels should be examined periodically by a competent person under the Factory Act / applicable extant laws.
30. Blanketing of tanks for fire protection of volatile / flammable chemicals should be considered.
31. Free Fall of any flammable material in the vessel has to be avoided. All solvents and flammable material storage tanks should be at a safe distance from the Process plant and required quantity of material should be charged in reactor through appropriate safe mode.
32. Earth connection should be provided to all solvent handling equipment, pipelines, reactors, vessels etc. for protection from electric current/ static electricity.
33. Separate safety manual should be prepared for each equipment along with the emergency management plan.
34. Periodic testing of firefighting equipment should be conducted.

DUTIES

35. Mock drills must be conducted regularly at every six months by the industries / isolated storages in controlled environment on actions to be taken during accidents, gas leakage, failure of critical process parameters etc.
36. It shall be ensured that the chemical storage tanks should be appropriately located so that adequate space to take action during emergency situation is available.
37. A clear documented emergency procedure should be laid down which details the precise duties of all staff and arrangements for evacuation, rescue, first aid etc. during an emergency.
38. All pipework containing hazardous chemicals shall be identified by colour coding or labelling (as per standards notified by Bureau of Indian Standards) and shall be protected to prevent corrosion / damage. The practice to identify

the parts of the system that contain gas or liquid and the direction of flow should be followed.

39. The industry or isolated storage shall install sensors with alarm system for detecting leakage of hazardous chemicals. Emergency ventilation, electricity tripping system to stop the process, sprinkling system to contain the leaked hazardous chemicals / gases etc. may be interlinked with the sensors for taking a prompt action in case of leakage / emergency.

40. Suitable gas sensors and alarm system should be installed in the industrial unit / isolated storages at appropriate locations where emission of gas is suspected so that any leaked gas is detected and the employees are immediately alerted. In sensitive areas of the unit where gas leakages are suspected, the unit shall work out an emergency prepared plan to neutralize / vent out the gases safely.
41. The industries / isolated storages should install automatic alarming system to alert its personnel as well as surrounding localities simultaneously in case of emergency situation and likelihood of emergency situation if any process parameter goes out of control.
42. There should be auto alarm system to alert the employees in case of any deviations noticed in process parameter that may cause emergency.
43. Only fully trained and qualified operators shall be permitted to operate the industrial processes involving hazardous chemicals. Training to all employees on Standard Operating Procedures, production process, safety aspects etc. should be provided. Refresher trainings should be conducted at least every year regarding safety and emergency preparedness aspects associated with the industrial process / isolated storage. The employees shall be given hands on experience with the product process under the supervision of senior employees. The industries / isolated storages only after ensuring that adequate training is imparted to its employees should engage the employees for independent works.
44. The industries and isolated storages should impart regular training to the staff to make them aware about process details, process functionalities. The employees should be trained to deal with emergencies arising out of leakage, abnormal temperature & pressure, increased emissions, pump failures, failure

of air pollution control devices or effluent treatment plant, shock loads or any other accidents likely to occur. Overall the industries and isolated storages should be prepared for emergency response readiness & effectiveness in terms of major & minor accidents.

45. Any non-operational industry / isolated storage shall carry out proper risk study and safety audit before resuming the operations.
46. Hazard and operability study must be carried out strictly and regularly by the industries and isolated storages. The concerned personnel should be made aware of the hazard and safety aspects associated with the process and material handled by them.
47. The industry / isolated storage should procure chemicals from authorized dealers only. The spent solvents shall be procured from only those industries / solvent recyclers that are authorized by respective State Pollution Control Boards (SPCBs)/ Pollution Control Committees (PCCs).
48. The industry / isolated storage shall provide essential Personnel Protective Equipment (PPE) to all the concerned employees and make it mandatory that the employees have to wear PPE during working hours.
49. Occupational Health surveillance i.e., periodical health check-up of the employees should be conducted by the industries / isolated storage.
50. The industries / isolated storages have to ensure self-compliance regarding recruiting competent staff, imparting Industrial, Environmental and Safety training to the staff, conducting safety audit, onsite emergency plans with record maintenance and information to SPCBs/ PCCs/ concerned Authorities.
51. The distancing criteria for storage of hazardous chemicals have to be followed as per extant safety guidelines / rules. The chemicals should be stored as per compatibility and separate area for flammable, corrosive, explosive and toxic chemicals should be earmarked.
52. The labelling of hazardous chemical storing containers shall be as per extant rules. The concerned employees should be made aware of the risks associated with the stored hazardous chemicals and appropriate precautions that need to be taken.
53. To contain any spillage or leakage of hazardous chemicals or any uncontrolled reaction that may cause any emergency or accident, the industries / isolated storages should have sufficient stock of neutralizing

chemicals, absorbents, reaction quenchers with proper equipment and trained manpower.

54. Emergency ambulance services should be arranged in the industrial zones along with experienced doctors and paramedic staff.
55. Safety in operation greatly depends on proper commissioning of an industry / isolated storage and hence utmost care should be taken to monitor every aspect during erection and maintenance schedules or other areas which require proper planning.
56. The industries / isolated storages shall ensure that their premises should be constructed in accordance with the local government regulations.
57. A control room to deal with the emergencies should be commissioned by the industries / isolated storages. A quick response team of responsible officers should be constituted having duly assigned duties to be executed during emergencies.
58. The industry / isolated storage should conduct public awareness programmes in the surrounding localities about do's & don'ts during emergency situations on annual basis.
59. 'Mutual Aid Scheme' among industries to meet required response measures during chemical emergencies should be adopted.
60. Emergency contact numbers should be readily available at the isolated storages or industrial installations similar to 'Crisis Alert System' or Red Book.
61. Placing / indicating hazard signs at appropriate places in the isolated storage or industry or outside the shop floor (within the premises) should be done.
62. Increased automation that avoids physical handling of dangerous chemicals and substances should be brought into practice.
63. The industry / isolated storage should have proper firefighting arrangements in accordance with The Factories Act, 1948 / applicable extant laws.
64. All emergency valves and switches and emergency handling facilities should be easily accessible.
65. Safety audit reports shall be made online for public.
66. To ensure safety during operation/ handling / storage of hazardous chemicals, the industries/ isolated storages wherever and as applicable, shall obtain requisite clearances from The Chief Inspector, Factories and Boilers / Department of explosives / Fire Department etc. without fail.

67. The industries / isolated storages shall ensure that the effluent generated during any accident because of firefighting / decontamination activities etc. should be disposed in scientific manner after proper treatment. The hazardous wastes generated after any accident must be disposed in accordance with the extant rules.
68. Occupiers of storage installations like warehouses / tank farms are required to prepare an On-Site Emergency Plan and make available information regarding any possible off-site consequences to the District Collector to enable him to include the same in the Off Site Emergency Plan for the district or the particular area.
69. In order to avoid accidents, the following measures may be taken while establishing a warehouse/tank-farm. These should also be carried out in existing installations to enhance safety :
    i. Hazardous chemical storages should be located away from densely populated areas from drinking water sources, water bodies or from areas liable to flooding.
    ii. The location should have easy access for transport and emergency services.
    iii. Adequate emergency requirements like water for firefighting, drainage to prevent ground water contamination, standby source of electricity etc. should be provided.
    iv. The layout of warehouses should be designed in accordance with nature of materials to be stored. The construction material should be non-flammable.
    v. Floors should be impermeable to liquids and should be designed for easy cleaning.
    vi. Drains should not be connected directly to water ways or public sewers. The drains should be connected to an interceptor pit.
    vii. Proper embankments to contain any accidental spillage should be provided for all hazardous materials storages.
    viii. Loading and unloading operations are to be done with utmost care.
    ix. Procedure for receipt, despatch and transport should be clearly laid down.

x. Details of hazardous chemicals, access and escape routes, available emergency & firefighting equipment should be available.

xi. In addition to a storage plan, a safe operation of a storage facility should have planning for safety training, personal protective clothing and equipment, spillages and leaking containers, waste disposal, first aid, fire detection and protection equipment, environment protection, proper on site emergency plan etc.

70. Wherever applicable, the industries or the isolated storages shall invariably comply with the Manufacture, Storage and Import of Hazardous Chemical Rules, 1989 (as amended), The Major Accident Hazard Control Rules, 1997, The Factories Act, any other applicable rules or guidelines issued by the respective Government of State / Union Territory, The Ministry of Labour & Employment, Petroleum and Explosive Safety Organization, Oil Industry Safety Directorate etc.

B. Guidelines on the On Site Emergency Plans (for industries and isolated storages):

1. The occupier of an industrial activity / isolated storage shall prepare and keep up-to-date an on-site emergency plan containing details specified in Schedule 11 of the Manufacture, Storage and Import of Hazardous Chemical Rules, 1989 (as amended) detailing how major accidents will be dealt with on the site on which the industrial activity is carried on and that plan shall include the name of the person who is responsible for safety on the site and the names of those who are authorized to take action in accordance with the plan in case of an emergency.
2. The occupier shall ensure that the emergency plan prepared takes into account any modification made in the industrial activity / isolated storage and that every person on the site who is affected by the plan is informed of its relevant provisions.
3. The occupier shall prepare the emergency plan in the case of a new industrial activity or isolated storage, before that activity is commenced.

4. The occupier shall conduct a mock drill of the on-site emergency plan every six months and a detailed report of the mock drill conducted shall be made immediately available to the concerned authorities as and when demanded.
5. With every change or modification made in a factory, operation or process, the on-site emergency plan may have to be modified and updated to keep it meaningful and effective. An on-site emergency plan should contain the following key elements:

    i. basis of the plan and hazard analysis;
    ii. accident prevention procedure/measures;
    iii. accident/emergency response procedure/measures; and
    iv. recovery procedure.

    Proper planning by industries / isolated storages helps in reducing the chances of accidents. For proper planning, the following needs to be considered:

    i. risk associated with the process technology;
    ii. safety measures;
    iii. siting and layout of industry / isolated storage ;
    iv. emergency preparedness; and
    v. compliance with the regulatory requirements.

Assessing the hazard potential of an installation is the first step in planning for emergencies. Preliminary Hazard Analysis which comprises hazard identification and vulnerability analysis should always be carried out at the conceptual stage for all installations including small and medium installation. However, Major Accident Hazard (MAH) installations, both existing and proposed ones, should carry out a risk analysis.

Hazard Analysis:

Hazard analysis is a critical component in planning for emergencies. To analyse the safety of a major installation as well as its potential hazards, a hazard analysis should be carried out covering the following areas:

i. The toxic, reactive, explosive or flammable substance in the installation that constitute a major hazard.
ii. The failures or errors that may cause abnormal conditions leading to a major accident.
iii. The consequences of a major accident for the workers, people living or working outside the installation and the environment.
iv. Preventive measures for accidents.
v. Mitigation of the consequences of an accident.

Vulnerability Analysis:

Considering the maximum loss scenario e.g. catastrophic vessel rupture, the occupier may estimate the vulnerable zone or the zones which will be affected by the release of hazardous chemicals. It should be borne in mind that every effort should be made to confine the vulnerable zone within the factory premises. In order to achieve this, the following could be adopted:

i. Reduce the quantity of hazardous substances stored.
ii. Split the hazardous storages into number of smaller ones.
iii. Isolate the storages that might lead to cascading effect.
iv. Substitute extremely hazardous substances with less hazardous substance.

Risk Analysis:

Risk analysis can provide a relative measure of the likelihood and severity of various possible hazardous events and enable the emergency plan to focus on the greatest potential risks. Risk analysis involves an estimate of the probability or likelihood that an event will occur.

C. Guidelines for the Concerned Authorities:

1. The State Pollution Control Boards (SPCBs)/ Pollution Control Committees (PCCs) shall ensure that while issuing Consent to Establish (CET) or Consent to Operate (CTO) or renewing CET / CTO accorded to a plant,

industry or process under the Water (Prevention & Control Of Pollution) Act, 1974 and the Air (Prevention & Control of Pollution) Act, 1981, details on Onsite Emergency Plan, Safety Reports and Safety Audit Reports in accordance with The Manufacture, Storage and Import of Hazardous Chemical Rules, 1989 (as amended), be compulsorily sought from occupier, industry or installation handling hazardous chemicals in quantity equal to or more than the threshold quantity specified in the said rules.

2. The concerned authorities shall seek report from the occupier of the site in the event of major accident and shall undertake a full analysis of the major accident and send the requisite information within 90 days to the Ministry of Environment, Forests and Climate Change.

3. The concerned authorities in the event of major accident shall seek report from the occupier of the site regarding steps taken to avoid any repetition of such occurrence of accident on the site and The concerned authorities shall in writing inform the occupier, of any lacunae which are needed to be rectified to avoid major accidents.

4. The concerned authorities shall ensure that any person responsible for importing hazardous chemicals in India shall provide before 30 days or as reasonably possible but not later than the date of import to the concerned authorities in accordance with Rule 18 of the Manufacture, Storage and Import of Hazardous Chemical Rules, 1989 (as amended).

5. The concerned authorities shall direct the importer to take appropriate safety measures if the concerned authorities are satisfied that the chemical being imported is likely to cause major accidents.

6. The concerned authorities shall direct stoppage of import of the chemical which it considers not to be imported on safety or on environmental considerations and the concerned authorities shall simultaneously inform the concerned Port Authority to take appropriate steps regarding safe handling and storage of hazardous chemicals while off-loading the consignment within the port premises.

7. The concerned authorities shall ensure that any person importing hazardous chemicals shall maintain the records of the hazardous chemicals imported as specified in Schedule 10 of The Manufacture, Storage and Import of Hazardous Chemical Rules, 1989 (as amended) and the records so maintained shall be open for inspection by the regulatory authorities.

8. The concerned authorities shall ensure that any industry / isolated storage involved in the manufacturing, storage and import of hazardous chemicals shall comply with the stipulated provisions of The Manufacture, Storage and Import of Hazardous Chemical Rules, 1989 (as amended).

9. The offsite emergency plans as well as the management of chemical accidents may be integrated with the district level disaster management plan.

10. Local administration / Directorate of Industrial Safety and Health, SPCBs/ PCCs should keep stringent surveillance to avoid accidents at industries / isolated storages and to prevent environment damage.

11. Periodic inspections including surprise inspections should be conducted by concerned authorities to assess the safety measures and documents maintained by the industry / isolated storage. If found not complying, necessary action shall be initiated against the industry / isolated storage.

12. Maintenance of buffer zone for all industries / isolated storages, stoppage of encroachments and policy of not allocating residential houses near to industries / isolated storages should be strictly followed by the concerned authorities of State / Union Territory / Central Government.

13. Risk assessment mapping of the industrial areas may be done w.r.t. gas leakages, fires, explosion etc.

14. Awareness of the public residing around the isolated storages, industrial areas or industrial accident prone regions to deal with emergency situations shall be done by the industries / isolated storages as well as the district administration.

15. Each industrial pocket shall have a Local Crisis Group which shall act as per the stipulations of The Chemical Accidents (Emergency Planning, Preparedness and Response) Rules, 1996.

16. The District crisis group, State Crisis Group and the Central Crisis Group should act in accordance with The Chemical Accidents (Emergency Planning, Preparedness and Response) Rules, 1996.

17. Industries / isolated storages shall not be allowed to operate in a non industrial zone. The District administration shall ensure that there shall not be any unauthorized storage of hazardous chemicals.

18. Land use planning decisions by public authorities should be taken after considering all aspects related to safety viz. possible hazards / anticipated accidents at the hazardous installations, cumulative risk of various hazardous installations situated in vicinity, safe distance for the surrounding localities, buffer zones, applicability of rescue plans in the eventuality of accidents etc.
19. State Government should devise their own system in accordance with the basic provisions provided in The Major Accident Hazard Control Rules (under Factories Act, 1948). As per these rules the safety audit should be conducted by an independent accredited auditor, and every time a fresh audit should be carried out with a periodicity of one year.
20. Special courses should be designed for auditing the industries / isolated storages to build competence and capabilities in our country which includes hazard identification and risk assessment.
21. Comprehensive safety audit must be carried out by trained professionals and the corrective actions recommended by them should be implemented in a time bound manner. The comprehensive safety audit should include policy, procedure and practices to minimise the risk of exposure of people and environment to potentially hazardous chemicals.
22. The states and districts which are lagging behind in conducting the safety audits of the industries / isolated storages should be prioritised.
23. The gap between two consequent audits can be further minimized by taking the entire procedure online so that the recommendations enumerated during

the audits are available for the next audit. In this way, if a new safety auditor will become well-versed with the points of previous audits.

24. A robust and updated online mapping system, portraying all the hazards happening in the country can prove to be an aide in conducting the safety audits. A GIS- based system can be developed mapping all the hazards occurring in the industries containing all the information about the incident, which can be harnessed to make proper evaluations. This information can also be shared by the administrative authorities so that a prompt action can be taken to minimize the damage caused by the accident.

D. Guidelines on the Off Site Emergency Plans (for Concerned Authorities):

1. The concerned authority (as identified in Column 2 of Schedule 5 of the Manufacture, Storage and Import of Hazardous Chemical Rules, 1989 (as amended)) shall prepare and keep up-to-date an adequate off-site emergency plan containing particulars specified in Schedule 12 (of the Manufacture, Storage and Import of Hazardous Chemical Rules, 1989 (as amended)) and detailing how emergencies relating to a possible major accident on that site will be dealt with and in preparing that plan the concerned authority shall consult the occupier, and such other persons as it may deem necessary.
2. For the purpose of enabling the concerned authority to prepare the off site emergency plan the occupier of an industrial activity / isolated storage shall provide the concerned authority with such information relating to the industrial activity under his control as the concerned authority may require, including the nature, extent and likely effects off-site of possible major accidents and the authority shall provide the occupier with any information from the off-site emergency plan which relates to his duties under rule 13 (of the Manufacture, Storage and Import of Hazardous Chemical Rules, 1989 (as amended)).
3. In the case of a new industrial activity, before that activity is commenced, the concerned authority shall prepare off site emergency plan.
4. The concerned authority shall ensure that a rehearsal of the off-site emergency plan is conducted at least once in a calendar year.

5. All districts having major hazard installation should have an off-site emergency plan.
6. The off site emergency plan should be updated from time to time, especially when a new process is started or new units are established.
7. An off site emergency plan should have the following important components :

    i. Aims & Objectives of the Plan
    ii. Planning Team
    iii. Hazard Analysis and Quantification
    iv. Assessment of Capabilities
    v. Information regarding relevant past incidents / anticipated incidents.
    vi. Authorities for responding
    vii. Names and addresses of the key personnel with contact numbers for emergency assistance
    viii. Response components viz. Control Room, Communication amongst responders, Warning System/Emergency Notification , Public information, Resources Mobilisation and Management, Health and Medical Response, Public protection including evacuation, firefighting and rescue plans, law and order, ongoing incident assessment.
    ix. Containment, clean up and disposal,
    x. Mechanisms for plan testing and updating, community awareness, preparedness and training.

E. Guidelines on Safety Audit:

1. The safety audits should be conducted by the competent agency to be accredited by an Accreditation Board to be constituted by the Ministry of Labour and Employment, Government of India in this behalf and in absence of such Accreditation Board by a competent agency approved by Chief inspector of Factories.
2. The qualifications and experience of safety auditor should be as per extant rules.

3. The safety auditor carrying out the safety audit under Rule 10 of the Manufacture, Storage and Import of Hazardous Chemical Rules, 1989 (MSIHC Rules, 1989) shall bring out the status of compliance by the occupier in his safety audit report in addition to the compliance of provisions of the MSIHC Rules, 1989 (as amended from time to time) and the state CIMAH Rules. A copy of the safety audit report to be forwarded by the safety auditor to the concerned authority as identified under schedule 5 of the MSIHC Rules, 1989.
4. The audit should be carried out as per IS 14489:2018 – Code of Practice on Occupational Safety & Health Audit (as amended time to time).
5. The broad areas to be covered in the Safety Audit should be:

    i. Occupational Health and Safety Management
    ii. Physical, Mechanical and Electrical Hazards and their Control Measures
    iii. Chemical Hazards and their Control Measures
    iv. Fire and Explosion Hazard and their Control Measures
    v. Industrial Hygiene/Occupational Health
    vi. Accident/Incident Reporting, Investigation and Analysis.
    vii. Emergency Preparedness (On-Site/ Off Site)
    viii. Safety Inspection

6. The Objectives of Safety Audit should be :
    i. To examine the existing procedures, system and control measures for hazards.
    ii. To assess the adequacy of hazard identification.
    iii. To identify potential hazards not covered by the existing safety systems, procedures and practices.
    iv. To identify the adequacy of the control measures put in place by the occupier.
    v. To bring out any deviation from the set procedures and statutory non-compliance.
    vi. To recommend improvements for better effectiveness of the existing safety system, procedures & practices and also other measures of hazards control.
    vii. To recommend system, procedure and control measures for identified hazards.

viii. To study compliance with statutory provisions and relevant codes of practice and recommend actions to be taken, wherever there is non-compliance.

ix. To identify the compliance with the provisions under these guidelines.

GLOSSARY

Authority means an authority mentioned in Column 2 of Schedule 5 of the Manufacture, Storage and Import of Hazardous Chemical Rules, 1989 (as amended).

Export with its grammatical variations and cognate expression, means taking out of India to a place outside India.

Exporter means any person under the jurisdiction of the exporting country and includes the exporting country, who exports hazardous chemical.

Hazardous Chemical means:

i. any chemical which satisfies any of the criteria laid down in Part I of Schedule 1 or listed in Column 2 of Part II of Schedule 1 of the Manufacture, Storage and Import of Hazardous Chemical Rules, 1989 (as amended);
ii. any chemical listed in Column 2 of Schedule 2 of the Manufacture, Storage and Import of Hazardous Chemical Rules, 1989 (as amended) ;
iii. any chemical listed in Column 2 of Schedule 3 of the Manufacture, Storage and Import of Hazardous Chemical Rules, 1989 (as amended) .

Import with its grammatical variations and cognate expression, means brining into India from a place outside India.

Importer means an occupier or any person who imports hazardous chemicals.

Industrial activity means an operation or process carried out in an industrial installation referred to in Schedule 4 involving or likely to involve one or more hazardous chemicals and includes on-site storage or on-site transport which is associated with that operation or process, as the case may be or isolated storage or pipeline.

Isolated storage means storage of a hazardous chemical, other than storage associated with an installation on the same site specified in Schedule 4 of the Manufacture, Storage and Import of Hazardous Chemical Rules, 1989 (as amended) where that storage involves at least the quantities of that chemical set out in Schedule 2 of the Manufacture, Storage and Import of Hazardous Chemical Rules, 1989 (as amended).

Occupier with its grammatical variations and cognate expression, means the person controlling the industrial activity or isolated storage.

Chemical accident means an accident involving a fortuitous, or sudden or unintended occurrence while handling any hazardous chemicals resulting in continuous, intermittent or repeated exposure to death, or injury to, any person or damage to any property but does not include an accident by reason only of war or radio-activity.

Major accident means an incident involving loss of life inside or outside the installation, or ten or more injuries inside and/or one or more injuries outside or release of toxic chemicals or explosion or fire or spillage of hazardous chemicals resulting in on-site or off-site emergencies or damage to equipment leading to stoppage of process or adverse effects to the environment.

Major Accident Hazards installations means - isolated storage and industrial activity at a site handling (including transport through carrier or pipeline) of hazardous chemicals equal to or, in excess of the threshold quantities specified in, Column 3 of schedule 2 and 3 [of the Manufacture, Storage and Import of Hazardous Chemical Rules, 1989 (as amended)] respectively.

Pipeline means a pipe (together with any apparatus and works associated therewith) or system of pipes (together with any apparatu s and work associated therewith) for the conveyance of a hazardous chemical other than a flammable gas as set out in Column 2 of Part II of Schedule 3 of the Manufacture, Storage and Import of Hazardous

Chemical Rules, 1989 (as amended)at a pressure of less than 8 bars absolute; the pipeline also includes inter state pipelines.

Site means any location where hazardous chemicals are manufactured or processed, stored, handled, used, disposed of and includes the whole of an area under the control of an occupier and includes pier, jetty or similar structure whether floating or not.

Threshold quantity means:

i. in the case of a hazardous chemical specified in Column 2 of Schedule 2 of the Manufacture, Storage and Import of Hazardous Chemical Rules, 1989 (as amended), the quantity of that chemical specified in the corresponding entry in Columns 3 and 4;

ii. in the case of a hazardous chemical specified in Column 2 of Part I of Schedule 3 of the Manufacture, Storage and Import of Hazardous Chemical Rules, 1989 (as amended) , the quantity of that chemical specified in the corresponding entry in Columns 3 & 4 of that part;

iii. in the case of substances of a class specified in Column 2 of Part II of Schedule 3 of the Manufacture, Storage and Import of Hazardous Chemical Rules, 1989 (as amended); the total quantity of all substances of that class specified in the corresponding entry in Columns 3 and 4 of that part.

Industrial pocket means any industrial zone ear-marked by the Industrial Development Corporation of the State Government or by the State Government.

Item No. 03 Court No. 1

BEFORE THE NATIONAL GREEN TRIBUNAL
PRINCIPAL BENCH, NEW DELHI

(By Video Conferencing)

Original Application No. 60/2021

(With report dated 17.04.2021)

In re: News item published in The Hindu dated 23.02.2021 titled "**Two dead, 5 missing in fire at UPL Plant**"

Date of hearing: 11.06.2021

CORAM: HON'BLE MR. JUSTICE ADARSH KUMAR GOEL, CHAIRPERSON
HON'BLE MR. JUSTICE SUDHIR AGARWAL, JUDICIAL MEMBER
HON'BLE MR. JUSTICE M. SATHYANARAYANAN, JUDICIAL MEMBER
HON'BLE MR. JUSTICE BRIJESH SETHI, JUDICIAL MEMBER
HON'BLE DR. NAGIN NANDA, EXPERT MEMBER

Respondent: Mr. Raj Kumar, Advocate for CPCB
Mr. Ankit Virmani, Advocate and Ms. Manasi Kumar, Advocate for UPL Ltd.
Mr. R.R. Vyas, RO, GPCB

ORDER

Introduction and procedural history

1. Proceedings have been initiated in the present matter on the basis of the media reports dated 23.02.2021 published in 'The Hindu' under the heading "Two dead, 5 missing in fire at UPL plant".[1] It is reported that fire broke out at 1.35 am on February 23 at UPL Ltd (United Phosphorus Ltd) after a blast and major fire at the company's Jhagadia plant which claimed two lives and injured 26. Five labourers are still missing. The unit was shut since February 5 for a planned annual boiler inspection. The Labour and Employment Department of Gujarat Government issued closure notice to the unit. The unit was directed by

[1] https://www.thehindubusinessline.com/news/national/fire-breaks-out-at-upls-jhagadia-plant-in-gujarat/article33910072.ece

the Gujarat Government to pay ex-gratia compensation to the next of the kin of the deceased workers. The report also gives version of the company that there was no chemical reaction as the plant was shut. Fire may have been caused due to fire/explosion in the solvent which could have been caused due to electric short circuit.

2. The matter was earlier considered on 25.02.2021 and it was found necessary to require status of compliance of the Manufacture, Storage and Import of Hazardous Chemical Rules, 1989 ("the 1989 Rules") and Chemical Accidents (Emergency Planning, Preparedness and Response) Rules, 1996 (The 1996 Rules) with a view to determine steps required to be taken for compensating the victims and restoration of the environment and preventing such occurrences in future. While issuing Notice to the UPL Ltd., Jhagadia, District Bharuch, Gujarat, Director, Industrial Safety and Health (DISH), Gujarat State PCB, CPCB, District Magistrate, Bharuch and the MoEF & CC, the Tribunal constituted a four Member Joint Committee comprising of the CPCB, State PCB, DISH and the District Magistrate, Bharuch. The Tribunal also noticed that in the recent past, 12 other incidents had taken place and it has been found that in most of the cases the safety norms have been breached in operating the industrial activities.

3. The observations in the said order are quoted below:-

> *"2. Above information gives rise to a substantial question of environment relating to compliance of the Manufacture, Storage and Import of Hazardous Chemical Rules, 1989 ("the 1989 Rules") and Chemical Accidents (Emergency Planning, Preparedness and Response) Rules, 1996 (The 1996 Rules), which have been framed under the Environment (Protection) Act, 1986 (EP Act), falling in schedule to the NGT Act, 2010. It is thus necessary to determine the above question and if necessary, award relief under Section 15 of the NGT Act to the victims and for restoration of the environment after determining the liability of the persons engaged in such activity as well as role of the statutory regulators in failing to prevent the*

same. Further question is preventive measures to avoid recurrence of such incidents in future in such activities.

3. Since the report shows that the unit is engaged in manufacture of chemicals attracting Manufacture, Storage and Import of Hazardous Chemical Rules, 1989 ("the 1989 Rules") requiring preparation of onsite and offsite plan and conducting of mock drills and as per law laid down in M.C Mehta v. UoI & Ors.[2], principle of 'Absolute Liability' is attracted in such cases to compensate the victims of such accidents as well as to compensate the environment, ***it is necessary to ascertain the cause of the incident, the extent of damage caused, the extent of compensation required to be paid for damage to the environment as well as for loss of lives, for the injuries and steps required to be taken for preventing any such occurrence in future on the same pattern as the Tribunal has dealt with such accidents in the recent past[3].***

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[2] (1987) 1 SCC 395

[3]

i. Order dated 01.06.2020, relating to incident of gas leak dated 07.05.2020 in **LG Polymers India Pvt. Limited** at Vishakhapatnam, resulting in death of 11 persons and injuries to more than 100, apart from other damage (OA No. 73/2020, In re: Gas Leak at LG Polymers Chemical Plant in RR Venkatapuram Village Visakhapatnam in Andhra Pradesh);
ii. Order dated 03.02.2021, relating to incident dated 03.06.2020 in a chemical factory, **Yashyashvi Rasayan Pvt. Ltd**. at Dahej, District Bharuch, Gujarat resulting in deaths and injuries and other damage (OA No. 85/2020) (Earlier OA 22/2020) (WZ), Aryavart Foundation through its President vs. Yashyashvi Rasayan Pvt. Ltd. & Anr.);
iii. Order dated 06.08.2020, in relation to incident of **oil well blow out on 27.05.2020 at Baghjan in the Tinsukia District of Assam** resulting in deaths, injuries and damage to the environment (OA No. 43/2020(EZ), Bonani Kakkar vs. Oil India Limited & Ors.).
iv. Orders dated 06.07.2020 and 22.12.2020, relating to incident dated 30.06.2020 on account of gas leakage at **Sainor Life Sciences** factory at Parawada in industrial area on the outskirts of Vishakhapatnam (OA No. 106/2020, News item published in the local daily "Economic Times" dated 30.06.2020 titled "Another Gas Leakage at Vizag Factory kills two, critically injures four…");
v. Orders dated 08.07.2020 and 22.12.2020, dealing with the incident dated 01.07.2020 resulting in death of 6 person and injury to 17 due to blast of boiler in **M/s Neyveli Thermal Power Station** (NLCIL), Cuddalore (OA No. 108/2020, News item published in the "Indian Express" dated 01.07.2020 titled "Tamil Nadu Neyveli boiler blast: 6 dead, 17 injured") and;
vi. Orders dated 23.07.2020 and 22.12.2020, in relation to incident of **fire engulfed the chemical plant** of **Visakha Solvents Ltd**, Vizag on 13.07.2020 at Ramky CETP Solvents building in Pharma City resulting in injuries (OA No. 134/2020, News item published on 13.07.2020 in the local daily named "India Today" titled "Massive fire engulf Vizag chemical plant, explosions heard, injuries reported").
vii. Order **dated 18.12.2020**, in relation to incident of **explosion in a plastic recycling factory at Sujapur in Malda on 1.12.2020** resulting in death of six persons, including two minors and serious injuries to four persons (OA No. 272/2020, News item published in the "Times of India" dated 20.11.2020 entitled "Six killed as blast tears through Malda Plastic recycling factory").
viii. Order dated **18.12.2020**, in relation to incident of **methane gas leak in a sugar factory** called Lokenete Bapurao Patil Agro Industries Ltd. in Mohol Taluka of Solapur District, Maharashtra on 21.11.2020 resulting in deaths and injuries and other damage (OA No. 274/2020, News item published in the "Indian Express" dated 23.11.2020 entitled "Maharashtra: Two Killed, eight injured in methane gas leak in sugar factory").
ix. Order dated 08.01.2021, in relation **to Gas Leak in Agro Company** (O.A No. 107/2020, In RE: News item published in the local daily "Indian Express Sunday Express" dated 28.06.2020 titled "Gas Leak in Agro Company Claims life of one")
x. Order dated 18.01.2021, in relation to News item published in Navbharat Times dated 24.12.2020 titled "**Gas leaks in IFFCO Plant**, 2 Officers dead" (O.A No. 04/2020, In re :

4. While directing issuance of notice to the UPL Ltd., Jhagadia, District Bharuch, Gujarat, Director, Industrial Safety and Health (DISH), Gujarat, State PCB, CPCB, District Magistrate, Bharuch and the MoEF & CC by e-mail, we constitute a four-member joint committee comprising of the CPCB, State PCB, DISH and the District Magistrate, Bharuch to give a report to this Tribunal. The nodal agency for coordination and compliance will be the CPCB and the State PCB. The committee may visit the site preferably within next one week and give its report with reference to issues mentioned in para 3 within one month by email at judicial-ngt@gov.in preferably in the form of searchable PDF/OCR Support PDF and not in the form of Image PDF. Simultaneously, the report may also be uploaded on the website of the State PCB to enable the concerned stakeholders to access the same and file their response, if any.

5. Except for visit to the site at least once, the Committee will be free to conduct its proceedings online. It will be free to take the assistance from any other expert/organization. The Committee may suitably interact with the stakeholders and, apart from considering the present incident, also consider remedial measures for preventing such incidents in the area or by other establishments even beyond the said area. The Committee may compile information about existence and working of onsite and offsite plans in terms of 1989 Rules and conducting of mock drills and safety SOPs., number of such units in the area and the carrying capacity of the area to sustain the same. Since in the recent past, the Tribunal has dealt with similar issues of industrial accidents resulting in deaths and injuries and Expert Committees in some of such accidents have given reports to this Tribunal, such reports may also be taken into account by the Committee to the extent relevant.

Report of the fact-finding Committee and consideration

4. Accordingly, the Committee has filed its report on 17.04.2021. The report shows that the Committee visited the site, interacted with the personnel of the unit, calculated compensation and assessed the safety preparations of the unit. Based on site visit and deliberations, the Committee has given its findings on factual aspects of cause of the accident and remedial measures by the unit and the regulatory

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News item published in Navbharat Times dated 24.12.2020 titled "Gas leaks in IFFCO Plant, 2 Officers dead")

xi. Order dated 11.02.2021, in relation to accident of toxic gas leak in Rourkela Steel Plant in Orissa" (O.A. No. 09/2021, In re: News item published in The Indian Express dated 07.01.2021 titled "Four workers dead due to toxic gas leak in Rourkela Steel Plant")

xii. Order dated 16.02.2021, in relation to accident of Virudhunagar firecracker factory blast (O.A. No. 44/2021, In re: News item published in The News Indian Express dated 12.02.2021 titled "At least 19 dead in Virudhunagar firecracker factory blast, more than 30 injured")

authorities. The Committee has also made recommendations for safeguards which need to be adopted to prevent such incidents in future.

5. The salient observations, conclusions and recommendations in the report of the Committee are as follows:-

> ***"5.1 Action taken by DISH***
>
> *The officials of DISH received information over telephone at around 02:15 Hrs dated 23/02/2021 regarding the accident at unit-5 of M/s. UPL Ltd, Jhagadia. The officials of DISH reach the site around 03:00 Hrs. DISH arranged additional fire tenders & ambulances from nearby industries located in Jhagadia GIDC & Disaster Prevention and Management Centre (hereinafter referred to as 'DPMC') located at Ankleshwar and Dahej.*
>
> *SDM & DISH has immediately served head-count notice on 23/02/2021 (Copy of the same is in **Annexure - 4**). The reply submitted by the unit is in **Annexure - 5**. As per the reply, total 2 persons reported dead and 5 persons were missing.*
>
> *DISH has also issued a letter on 23/02/2021, directing the unit to close down the manufacturing activities in all plants within the premises. (copy of the same is in **Annexure - 6**)*
>
> *DISH has given breach of law remarks under schedule 19 part (2), Rule 102, para no. 5 of The Gujarat Factory Rules- 1963 dated 05/03/2021 to M/s. UPL Ltd (Unit-5). Based on the submissions by unit, DISH has filed a criminal case against the occupier in the Additional Chief Judicial Magistrate court at Jhagadia (Breach of law remarks by DISH is as **Annexure - 7** and reply by unit in this regard is attached in **Annexure - 8**).*
>
> ***5.2 Action Taken by Local Police***
>
> *Jhagadia police station has registered the accidental death No. 6/2021 under section 174 of Criminal Procedure Code and prepared detailed 'Panchnama' of accidental location in vernacular language Gujarati dated 23/02/2021 at accident site during 16:30 to 18:30 Hrs. As per 'Panchnama', death of three persons & missing of four persons is reported. The investigation is still under progress.*
>
> ***5.3 Action Taken by GPCB***
>
> *After the accident, a team of officials from GPCB, Ankleshwar reached the place on 23/02/2021 at around 04:15 hrs. The officials of other departments present at the site were; 1) Sub Divisional Magistrate, Jhagadia, 2) Police officials, 3) Officers of DISH, 4) Officials of GIDC, 5) Mamlatdar, Jhagadia.*

- *On reaching the site, visual inspection of the area surrounding the unit was carried out considering the smoke emitted with plume direction and firefighting activity. Considering the prevailing wind direction during the accident from N-NE to S-SW, the GPCB monitored Ambient Air Quality for Volatile Organic Compound (VOC) and Hydrocarbons by a Handy VOC meter in the downwind direction of the location of the accident, which included the village habitation (details included in* ***Annexure-9****). During the monitoring VOC emission in prevailing wind direction was measured having maximum level @ 12.6 ppm. VOC of @ 23.8 ppm was measured outside the premises at the location, North of the CM-257 plant. General hydrocarbon at two locations i.e. near the main gate of the unit and at the back side of the unit i.e. in the downward wind direction it is observed @ up to 5 ppm. Based on these monitoring results, the local authorities i.e. SDM, Jhagadia & DISH decided that evacuation from nearby villages would not be required. The GPCB also monitored Ambient Air Quality with Respirable Dust Sampler (RDS) kept on the terrace of the Police station, located near the premises of the unit during 09:00 Hrs to 17:00 Hrs. on 23/02/2021, which did not show about any alarming situation.*

- *There was generation of contaminated wastewater during the firefighting operations. The contaminated wastewater accumulated in the storm water drains (hereinafter referred to as 'SWD') within the premises of the unit and subsequently, was observed flowing in dry GIDC storm water drain. The contaminated wastewater in the GIDC SWD is observed entering into a kutcha natural drain/trench starting near M/s Lanxess India Pvt. Ltd. and the same was observed to have reached till the portion of the natural drain/trench passing near village Gumanpura. Samples of contaminated wastewater generated during firefighting were collected from various locations within & outside the premises. It was observed that contaminated wastewater did not reach Boridra nalla, where this natural drain/trench leads to. The Boridra nalla is also observed dry. The unit was directed to collect the contaminated wastewater generated during the firefighting, that was accumulated within the premises and also that had flown outside the premises. Based on the instruction, the unit has started lifting wastewater from drains inside the premises and from the natural drain/trench by making a temporary bund in the natural drain/trench passing near Gumanpura Village. The wastewater was lifted, carried through tankers and stored in the guard pond sump near the ETP within the unit's premises. The unit also carried out scraping soil from natural drain at location i.e. near Gumanpura village road Bridge and sent the dredged soil to TSDF site at BEIL Ankleshwar, manifest copy of the same is attached in* ***Annexure - 10****. The unit has submitted photographic evidence for lifting of wastewater and dredging of soil.*

- *GPCB carried out post-monitoring of the accident on 02/03/2021 to verify action taken by the unit. During this visit GPCB visited the affected areas outside the premises (along with representatives from M/s. UPL Ltd (unit-5), Jhagadia) which*

include the route of earlier flowing contaminated wastewater, GIDC SWD leading to the natural drain and Boridra nalla. During the visit the stretch of GIDC SWD and the natural drain was found dry. One soil sample is also collected from above mentioned location (area of dredging) near Gumanpura village road Bridge location for analysis purpose. The detailed post monitoring inspection report along with analysis of sample collected are attached as ***Annexure - 9****.*

- *Based on the inspection report dt: 23/02/2021, the GPCB issued Closure Direction U/s 31 (A) of Air Act on 24/02/2021 (****Annexure - 11*** *) to M/s UPL Ltd (Unit-5) with reference to the accident occurred in CM-257 plant on 23/02/2021 at early morning hours in the unit. The direction also includes interim EDC of Rs. 1 Crore to be paid by UPL LTD (unit-5), which was subsequently paid by the unit on 25/02/2021*

5.4 Cause of accident as reported by the unit

The in-house investigation report submitted by the unit is attached as Annexure-12, wherein based on the list of damaged equipment probable cause of the accident was assessed by the unit. ***It was reported that leakage of brine (Methanol Water Mixture) took place in the reactor R-25001 which might have resulted in the triggering of exothermic reaction and blast in the reactor.*** *The unit has also submitted a list of equipment, materials which were lost due to the accident.*

5.5 Interaction of committee with officials present at the time of accident in the plant/unit.

During the first visit of the joint committee on 04/03/2021, the committee interacted with Shri Vamshi Krishna, night duty officer to get his narration about the accident. He informed that at the time of the blast he was in his controlled room located near the main gate of the unit. In an immediate response, he informed senior officials of the plant about the blast and rushed to the location. According to him, the fire fighters reached the location of the accident within 2 to 3 minutes and started firefighting & rescue activities.

The committee also interacted during the visit on 09/03/2021, with Shri Tejas Borse the shift in-charge of CM-257 plant present for night duty (22/02/2021 – 23/02/2021) on the day of accident. Shri Tejas informed that the plant was on shut down since 05/02/2021 and during the night shift only basic housekeeping was carried out. All the process parameters were under control and at around 01:45 Hrs when he was at the shift in-charge cabin located in the ground floor of the plant, there was a blast however, he could escape from the plant with minor injury. As per his statement, neither knocking nor any indications nor any alert was noticed there prior to the blast.

During the interaction with the firefighting team, present on the day of accident, it was informed by the team that the firefighting team started using fire tender within 4 to 5 minutes however, one of the main fire hydrant line near CM-257 plant was damaged due to blast and hence, the portion was isolated before starting the fire hydrant system. The portion of fire hydrant line located between the plant and tank farm was also not approachable to operate, which had resulted in delayed start of fire hydrant operation.

In addition to above, additional 18 fire tenders from nearby industries & DPMC Ankleshwar and Dahej were used. Moreover, in addition to water about 317 KL of foam was also used for controlling the fire. The fire was controlled at around 6:30 hrs. however, the water hydrant system was kept operational after fire control to cool down the structure till 8:30 hrs on 23/02/2021.

5.6 Probable cause of accident as per the Joint Committee

Based on the above submission of the unit about the accident, various study carried out by the unit for plant CM-257, HAZOP, safety audit report, accident report from DISH, discussion with the representatives of the unit and field visits, the joint committee draws following observations and conclusions regarding cause of accident:

- *The manufacturing process of clethodim was developed in-house by the unit at laboratory level. Studies regarding safety and risk at various stages before converting the lab scale study into kilo-level and pilot-level were not conducted. The reaction conditions maintained in a lab-scale glass reactor cannot be so easily maintained in a plant-scale reactor. The unit has submitted lab scale trial tech-pack documents wherein for an example, the cooling medium used in the laboratory to maintain reaction temp at 5 degree C was chilled water, while the one used in the plant was methanol. An impact / safety aspect of such a change in cooling medium (chilled water to methanol) was not studied during the R&D trials in the laboratory.*

- *It was informed that the basic engineering and detailed engineering of the plant for CM-257 was carried out in-house and was erected and commissioned in October 2020. The reactor has pressure variation from atmospheric reducing to 50 Torr(Vacuum) and temperature variation of 10 to 50 deg centigrade. As per the P&ID submitted by the unit for stage-I, "the P&ID was issued for approval/Engineering on 02/03/2019". Considering the above it is understood that the P&ID and detailed engineering was carried out by the unit for manufacturing of CM-257 in 2019. Later on, it was also explained by the unit that construction of the plant for the production of Clomazone and Mesotrion and was initiated during May 2019, then subsequently by Jan 2020 there was no demand for the said products hence, the plant was converted for the production of clethodim/glufosinate/glyphosate by Change-in-product mix permission which contradicts the submission of the unit regarding the commissioning of plant.*

- *The product developed at R&D stage is further studied and reviewed at various stage like pilot stage and further scale up at design and execution stage for assuring safety during commercial production. During these stages, various data and information are being collected, which require to set design parameters and safety aspects, for engineering design and its execution. Moreover, these data are very essential to design safety instrumentation for the process and are also required for HAZOP study, HAZAN, Qualitative & Quantitative Risk assessment studies and for thermal stability study in case of exothermic reaction. Reports regarding thermal stability, reactivity and other process hazards which may be envisaged at various stages of process is not available with the unit.*

- *HAZOP study has not covered the design data and operation data of this process such as process hazards pertaining to the exothermic reaction, run away reaction, thermal stability of the product at various stages, impact of utility services leakages, reaction between the reactants and the heating/cooling fluid, imbalance of stoichiometric quantities of various reactants in the reactor, deviation from defined storage conditions for various intermediate stages, mal-function of any instruments, chemical stability of the product at various stages like intermediate and finished stage, etc. These may have resulted in oversight of various process hazards which may occur as a dangerous occurrence like explosion, fire etc.*

- *As a part of safety and process requirements, the plant was having a DCS control system with multiple temperature, pressure, and level sensors for different rectors. During discussion* ***it is gathered that there were no distress signals before the blast in the DCS system. It is strange that none of the sensors provided for the R-25001 reaction vessel gave any prior distress signals about increase in levels of temperature or pressure due to leakage of methanol and its reaction with ETB mass which might have resulted in increase in temperature as claimed by the unit.***

- *The unit submitted photographs showing complete damage of the DCS system of CM-257 plant and hence no sensor data could be recovered. Moreover,* ***it was informed that the unit does not have a central DCS centre. Thus, it appears that the systems provided on R-25001 were not adequate in terms of type of sensors, its range, its MOC, DCS data transmission facility to central DCS control etc. Central DCS system, if provided by the unit, would have given very valuable information about changes in the process parameters (temperature, pressure, leakages etc.) which might have occurred resulting in the accident.***

- *The unit informed that the plant was under planned shutdown (due to boiler shutdown) and the reason for keeping the material (about 8.50 MT of ETB) in intermediate stage in the reactor no. R25001 of CM-257 plant was not justified by the unit. The unit has submitted various work permits of the plant as evidence of*

shut down. In general, during planned shutdowns for any chemical industry, it is a general practice that the reactors with products at intermediate stages are safely emptied and stored in safe conditions, depending upon the reactivity study/ instability study etc. and defined Standard Operating Procedures are in place for such shutdown and safe startup activities. However, such a study report or defined ***standard operating procedure (SOP) for safe start-ups and safe shutdown (emergency and planned) are not prepared by the unit****.*

- *The unit has carried out a safety audit from a third party namely M/s Naik & Associcates, Surat. The safety audit report though mentions about the audit carried out for CM-257 plant in page no.08, however, the process detail, manufacturing detail about CM-257 plant is not mentioned in the "Chapter 6 Process and Hazard Information" of the report. Also, detailed about the name of vessel and its location is not mentioned in the report in the section 6.3 - Operational and process hazards with control. As per details of chemical stored in the unit, the actual total stored quantity of toluene, n-Hexane and Methanol exceeds 143 kl (storage permission from PESO to the unit). However,* ***the safety audit report does not mention any observation regarding exceedance in stored quantity beyond permission limits of PESO. Thus, the safety audit carried out by the unit shows gaps and needs to be carried out again by a competent agency, accredited by an Accreditation Board as per Rule 68 j para 9 of the Gujarat Factory Rules, 1963.***

- *The unit has informed that many of the chemicals are recovered and the same will be disposed at Common Facility for incineration. One of such recovered chemicals was ETB stored in Tank T¬25002 at ground level vertically below R-25001. It was informed that entire quantity (about 9000 kg) of ETB was recovered after the accident and emptied and stored in 9 tanks (each of capacity about 1 T). Thus, the blast in the reactor due to trigger of temperature in the reactor where ETB was kept at intermediate stage cannot be justified as ETB stored in T-25002 could survive an explosion and significantly high ambient temperatures without catching fire or explosion.*

- *The committee has also collected design details of R25001 from the unit and using the information provided, an attempt is made to calculate the internal pressure built-up/developed responsible for the blast in such a reactor.*

Calculation of internal pressure required for explosion of the reactor:

Information provided by the unit:
Reactor No. R25001 (Stage I reactor, wherein the blast took place)
Reactor diameter = 2250 mm,
MOC: SS 316L, and
Wall thickness: 12 mm,
Considering the yield strength of SS 316L = 475 MPa (normally 450-500 MPa) and

Causes of pressurization of such reactor and its failure can be due to:

(1) Circumferential stress = pD/2t,
(2) Longitudinal stress = pD/4t, and
(3) Shear stress = pD/4t or pD/8t.

Here, D=diameter of cylinder, p = internal pressure, and t=thickness of wall.

Substituting details of reactor in above equations, the minimum internal pressure found for circumferential stress is 5.07 Mpa (51.7 kg/cm^2). If such minimum internal pressure is considered to be developed in the reactor and resulted in the blast, development of such a high pressure cannot be instantaneous and without any warning signal unless, either the DCS system was bypassed or non-working or the sensors provided were not adequate in terms of range, specification, safe to give the warning signal. Moreover, it was informed that the reactor is equipped with a vent after scrubber and thus it is not convincing that at a very high internal pressure in the reactor, no fumes/liquid/gas got vented through this vent, releasing the internal pressure and preventing the explosion.

Based on above mentioned observations it can be concluded that the probable reason for the accident i.e. leakage of methanol in the intermediate stage and reaction of methanol with ETB as considered by the unit may be logical in terms of reaction chemistry. However, sudden blast in the intermediate stage of reactor, when the reactor was not in operation and that too after about 18 days, without any sign of abnormality in terms of level, temperature or pressure indicators in DCS, indicates ineffectiveness of safety system provided or assessed by the unit for the plant CM-257. Thus, serious lapses in terms of safety study, reactivity study, compatibility test, development of standard operating procedure for planned and emergency shutdown, storing intermediate stage product during shutdown, gaps in HAZOP, safety audit, inadequacy of sensors provided for the reactor might have resulted in the accident.

6. ENVIRONMENT DAMAGE ASSESSMENT

- *The joint committee conducted visits to the unit and affected areas on 04/03/2021 and 09/03/2021. During the visits the committee also inspected the portion of natural drain from where, the unit had dredged soil and collected the samples of soil as detailed below:*

Table 5: Details of samples collected by joint committee on 04/03/2021

Sampling point	
W-1	Small patch of Wastewater observed in natural drain leading to in Gumanpura village (Lat: 21.6741970, Long: 73.1139060)
W-2	Wastewater collected from outside and stored in ETP guard pond of UPL Ltd.
H-1	Soil sample collected near Gumanpura village road bridge (Lat:21.674989, Long:73.113248) at nallah
H-2	Soil sample collected near Gumanpura village road bridge (Lat:21.6741970, Long:73.1139060)
H-3	Soil sample collected near Gumanpura village (Lat:21.6790079, Long:73.1074349)
H-4	Soil sample collected near Gumanpura village road bridge (Lat:21.6723874, Long:73.1165128)
H-5	Reference soil sample near Gumanpura village bridge (21.672544, 73.116402)

Analysis reports of the above mentioned samples collected by the committee are attached as ***Annexure- 9****.*

- *It was informed to the committee that the wastewater during firefighting reached a point up to location H3 (as shown in google image above) falling under revenue land of Gumanpura village area and had not reached to Boridra Nalla. The entire stretch of the natural trench/drain including Boridra nalla was dry before the accident.*
- *During the visit on 04/03/2021, it was observed that the unit had dredged the top layer of the soil in the natural trench/drain passing near Gumanpura village and as reported, 19 MT of contaminated soil was disposed to CHWTSDF, a scientific landfill site. It was also informed that the wastewater was lifted from the bridge on the natural drain near Gumanpura Village by constructing a temporary bund.*
- *The wastewater was transferred to a guard pond inside the premises of the unit. A sample of waste water from the guard pond was also collected during the visit. It was informed that about 3000 kl of wastewater from inside and outside was collected back.*

The soil samples collected from the dredged drain/trench were analysed for various parameters. From the analysis reports of the soil samples, It is found that the TOC in the soil sample varies from 0.0357 to 0.168 gm/kg. The soil sample (H5) was collected as reference from the ramp used by the unit for movement of tankers near Gumanpura village bridge as the same was not yet dredged and disposed off by the unit. Higher concentrations of almost all measured parameters were found in the

sample collected from Location H5 as compared to other soil samples. The unit needs to collect and dispose of the soil from this location to CHWTSDF site.

The analysis result of the sample is provided in Annexure – 9.

The accident was assessed in terms of the damage caused to the environment. Based on the information submitted by the unit about the accident, meteorological data, list of chemicals with quantity lost during accident, analysis of samples and considering the steps taken thereafter, by the unit, the components considered by the committee for calculating damage to the environment are mentioned in the subsequent paragraphs.

The damage caused to the environment is evaluated based on air, water and soil components considering the probable impact, steps taken by the unit to restore the same.

6.1 Meteorological data on 23/02/2021

Actual meteorological data obtained from M/s. DCM Shriram Alkalies Ltd., Jahagdia situated adjacent to the accident site during the period of accident on 23/02/2021, indicates average wind speed is @2.77 km/h, predominant wind direction is from N-NE to S-SW, Avg. Temperature 23 ^{0}C., humidity 52.72 % etc.

Although the prevailing predominant wind direction during the two days period i.e. from the 2223/02/2021, was from West to East, the actual predominant wind direction observed as per the tabular meteorological data for the period during which the fire accident continued i.e. 1:46 hrs to 6:30 Hrs on 23/02/2021 as from N-NE to S-SW direction. Meteorological data on 23/02/2021 is attached in ***Annexure - 14.***

6.2 Air Component

The unit has submitted a list of chemicals with quantity lost due to accident on 23/02/2021 early morning hours. The committee has referred to the methodology adopted for calculation of total quantum of chemicals converted using stoichiometry to various components of all the chemicals which were reportedly lost except for Toluene at various stages and ethanol water mixture. Portion of Toluene is considered burnt and remaining emitted as VOCs from the surface of the flowing water. Accordingly, evaluating damage for air components, two factors were considered i.e. complete combustion of chemicals and emission of VOCs due to toluene.

6.2.1 Estimation of amount of Toluene vaporized

The volatile organic compound such as toluene having low water solubility will be volatilized in air. After the accident, severe smell of toluene was felt by the people at and around the site. The volatility of a volatile organic liquid from a surface depends on vapour pressure of

compound, wind speed, and the ambient temperature. Since the specific gravity of toluene is less than water, the undissolved toluene will float on the surface of water.

The volatility of a volatile organic liquid from a surface may be estimated by the following method.

Organic compound volatilized (kg/h/m^2) = 0.00116xMWxPxW$_{0.625}$ Equation. 1

(Source: Evaporation Rate of volatile liquids, USEPA, 1989)

Where, W = wind speed in ft/min, P = vapor pressure of compound in inch Hg, MW = molecular weight of compound in gram.

Considering a wind speed of 0.5 km/h (27.9 ft/min) near ground surface corresponding to the wind speed of 2.5 km/h at 10 m at the time of accident, vapor pressure of toluene as 28 mm Hg (1.12 inch Hg) at 25 deg C, and molecular weight of toluene = 92 g/mole, equation (1) predicts the rate of toluene volatilization as 0.95 kg/h/m^2, respectively.

Estimation of the total surface area from where volatilization occurred can be obtained by calculating the surface area of drains as under:

1. *Total length of GIDC drains carrying fire-fighting water around unit = 700 m, average width 1.0 m, hence surface area = 700 m2*
2. *Total length of katchcha drains wherein fire-fighting water flowed = 3900 m of average width 1 m, hence surface area = 3900 m^2.*

Thus, total surface area from where toluene can volatilize = 4600 m^2.

Considering toluene volatilization rate of 0.95 kg toluene/h/m^2,

The total mass of toluene volatilized would be 4370 kg/h.

The total time for volatilization is difficult to predict since all the drain surface area does not become occupied at once. The committee has considered 2 hours for estimation of calculating quantum of toluene, which gives amount of toluene volatilized = 8740 kg. Such vapours of hydrocarbon can produce radicals and secondary pollutants in the sunlight which could be potentially hazardous. Thus for combustion calculation remaining quantum of toluene 18260 kg is considered.

- *Combustion of chemicals may have led to generation and release of various gaseous pollutants such as sulfur dioxide (SO2), hydrogen chloride (HCl), oxides of nitrogen (NOx), carbon di-oxide (CO2) etc from the chemicals lost during the blast and subsequent fire in the unit. The moles of chemical compounds were considered to calculate the mass of gaseous emissions as shown in Table below.*

Table 6:Calculation of Gaseous emissions due to combustion of chemicals during the accident

Chemical formula	Quantity Lost	Quantity Considered for calculation, kg	kilo moles	C	N	O	S	Cl	CO2, kg	SO2, kg	NO2, kg	HCl, kg
C6H12OS	8500	8500	64.39	6	0	1	1	0	17000	4121	74	0
C6H15N	112	112	1.60	4	1	1	0	0	282	0	0	0
C2H5SH	1000	1000	16.13	2	0	0	1	0	1419	1032	605	0
C6H13N	1302	1302	13.15	6	1	0	0	0	3472	0	0	0
C7H8	27000	18260	198.48	7	0	0	0	0	61131.9	0	0	0
C16H24O5S	3666	3666	11.18	16	0	5	1	0	7868	715	0	0
C16H24O5S	712	712	2.17	16	0	5	1	0	1528	139	4472	0
C3H6ONCl.H	14000	14000	97.22	3	1	1	1	2	12833	6222	4472	7097
C3H6ONCl.H	14000	14000	97.22	3	1	1	1	2	12833	6222	0	7097
C2H5OH	1500	750	12.10	2	0	1	0	0	1065	0	0	0
Total gaseous emissions in kg									**119431.**	**18452**	**9623**	**14194**

6.2.2 Estimation of Environmental Damage compensation due to release of gaseous emissions

To estimate the damage compensation due to air pollution, the methodology employed by the Committee constituted in case of Yashashvi Rasayan Pvt. Ltd., Dahej (OA NO. 22 of 2020), was adopted. The damage values per ton of SO2, NOX, HCl, and CO2 were taken as (Rs. in Lakh) 2.1989, 2.1729, 0.2189, and 0.0225 per MT of gas, respectively. No such damage value for the release of toluene is available to the best of Committee's knowledge. Therefore, ***considering the risk of production of secondary pollutants in air due to toluene vapour, a damage value of Rs. 2.1989 lakh per MT of toluene vapor (maximum value among SO2, NOX, HCl, and CO2) is taken as damage value of toluene. Based on these Damage values, the total damage cost due to air pollution caused by fire and explosion is estimated as shown in below table.***

Table 7: Estimation of Damage value due to Air pollution caused by fire

Air pollutant, MT	SO2	NOx	HCl	CO2	Toluene vapor
	18.452	9.623	14.194	119.432	8.74

Damage value, Rs. In	2.1989	2.1729	0.2189	0.0225	2.1989
Damage value, Rs. In Lakh	40.57	20.91	3.11	2.69	19.22
Total Damage value, Rs. in Lakh : 86.51					

Thus total amount of Rs. 86.51 lacs is calculated for environmental damages for air component.

6.3 Water and Soil Component

The explosion at UPL caused damage to all the compartments of environment emission/discharge of pollutants. Explosion followed by fire led to combustion of other chemicals and intermediates stored in the plant. The water used for fire-fighting contained foam used for fire fighting and the unburnt chemicals which flowed through GIDC drain from the premises to a point near M/s Lanxess followed by the katchcha drain/trench (after M/s Lanxess) and eventually accumulated on open land as the wastewater reportedly did not reach any natural water bodies (Boridra Nallah).

The committee calculated the firefighting water required and subsequent steps taken by the unit to calculate the damage to the environment for the water component.

6.3.1 Damage to Water Environment

Estimation of the amount of water used for fire-fighting

The unit informed that during fire fighting 18 numbers of 1" diameter and 3 numbers 3" diameter nozzle fire hydrants respectively with water pressure in the hydrant maintained at 6-7 kg/cm^2 were used. Considering co-efficient of discharge "Cd" of fire hydrant nozzles varies between 0.7-0.9 depending on the type of nozzle.

The discharge per nozzle can be given as,

$Q=Cd\times(\pi/4)x\ D^2\times\sqrt{(2gH)}$

Where, Q = flow in m^3/sec, D = diameter of nozzle in m, H = water head in m.

Taking value of Cd = 0.8, and water head of 60 m, the flow of water by one 1" (25 mm) and one 3" (75 mm) water hydrant nozzles will be 0.0134 m^3/s (48.24 m^3/h) and 0.121 m^3/s (435.6 m^3/h), respectively. Thus, calculatedly the total water discharged from all the fire hydrants (18 nos. of 1" and 3 nos. of 3" diameter) will be approximately 2175 m^3/h

Considering 6 hours of operation of fire hydrants total amount of water used for fire fighting will be: ~13000 KL (As per the information provided by the unit, the fire hydrants were operated for 6 hours)

GIDC drainage network are blocked for all seasons except monsoon and to monitor the same CCTV camera focused at the drain near M/s Lanxess India Pvt. Ltd. was provided. GIDC has concrete drainage network from the unit till the exit point of the GIDC drain after crossing M/s Lanxess India Pvt. Ltd. The GIDC drain is subsequently meeting an open kachcha drain/trench leading to Gumanpura village area. The committee has obtained CCTV Footage from the M/s Lanxess India Pvt. Ltd.and the time duration when the dry drainage network of GIDC Jhagadia near M/s Lanxess India Pvt. Ltd. has recorded flow, was considered by the committee.

- *It may be seen that the flow started in the GIDC storm water drain at 6 AM (~4 hours after the accident) and continued until 3 PM. The GPCB officers at the time of visit observed that the average flow velocity in the drain was 0.75 – 1.5 m/s and depth of flow 0.2 – 0.4 m. Taking the average width of cross section of water flow as 1 m, and considering average values of water depth and flow velocity, the total quantity of water flowing in the storm water drain would be approx. 10000 KL. As per report prepared by GPCB on 23/02/2021, wherein it is mentioned that the contaminated wastewater from the unit was found flowing downstream to a location in the Gumanpura village but did not reached to Natural Drain Boridra nalla.*

- *Based on instructions of GPCB, the unit later on, blocked the drain and started lifting fire-fighting water from the drain near Gumarnpura village on 23/02/2021. The unit reported that about 3000 KL water was lifted from UPL drains and GIDC drain and stored in the Guard pond within the unit. The water lifting work was reportedly completed on 24/02/2021. Thereafter the unit has started dredging of soil and lifting of soil from the area. The work of soil dredging and lifting was reportedly completed on 25/02/2021. Considering the lifting of 3000 KL runoff water by the unit about 10000 KL of fire-fighting runoff water out of total estimated quantity of 13000 KL, went to the natural drain/trench, further going all the way to Gumanpura village, about 5.7 km away from the unit (as per the Google earth image).*

The unit provided a list of chemicals lost during the accident as shown in Table 1. These chemicals are highly flammable and it was assumed that most of these chemicals would have been burnt during the fire. However, runoff of firefighting water sample collected by GPCB on 23/02/2021 and the sample of wastewater from guard pond collected by the joint committee on 04.03.2021 reveals that the wastewater has concentration of organics in terms of COD (1272-1932 mg/L) in addition to various other monitored parameters.

When fire-fighting water containing such chemicals is released in to natural environment, there are following possible fates of such chemicals

1) *The chemical dissolved in fire-fighting water can percolate in the soil causing land pollution and may contaminate groundwater*
2) *A part of volatile chemicals (such as toluene which is less soluble) volatilized in air and cause air pollution, and*

Considering lifting of firefighting water from natural trench and subsequently dredging of wet soil from the drain/trench and disposal of contaminated soil to CHWTSDF site (about 19 MT wet soil) by the unit, monitoring results of soil samples collected from the drain/trench on 04/03/2021, the committee is in view that the unit has taken possible steps however environmental damage due to spillage of contaminated runoff water cannot be ruled out.

The damage caused and the level of impact due to organic pollutant released is evaluated in monetary terms by the committee by considering two factors

- *the waste of natural resources i.e. fresh water used for fighting and cost of treatment of the wastewater generated as per the prevailing treatment cost as charged by the common effluent treatment plants (CETPs) and*
- *Liability towards the environmental damage due to spillage of contaminated runoff water.*

The total compensation towards environmental damage due to the discharge of fire-fighting water contaminated with hazardous chemicals (approx. quantity 10000 kL, COD 1272-1932 mg/L) is calculated in below table.

Table 8:Calculation of Environmental Damage

Valuation of environmental damages due to release of organic load in the wastewater	=	Rate of freshwater in the Jhagadia GIDC	+	Treatment cost of the contaminated wastewater generated from fire fighting	+	Liability and Remediation Cost in case of a Fire accident leading to spillage of hazardous waste/ contaminated runoff water*
		Rs. 40 per kl x 13000 kl = Rs.5.2 lac (Rs. 40 per kl GIDC water supply charge)	+	Rs.80 per kl x 10,000 kl = Rs.8 lac (Rs. 80 per kl CETP treatment charge for COD concentration of 2000 mg/l)	+	Rs. 120 lakh

**According to the CPCB "Guidelines on Implementing Liabilities for Environmental Damages due to Handling & Disposal of Hazardous Waste and Penalty".*

- *Thus, Total amount of Rs. 133.2 lacs calculated for environmental damages of water and soil component.*

The total cost of Environmental damage compensation due the accident at UPL sums up to Rs. 133.20 lakh (due to the discharge of contaminated fire-fighting water and soil) + Rs. 86.51 lakh (due to the air pollutant) = Rs. 219.71 lakh.

7. COMPENSATION TO DECEASED PERSONNEL

The compensation amount for the personnel who lost their lives due to the unfortunate fire accident on the intervening night of 22nd February and 23rd February 2021, three court cases i.e. "Sarla Verma & Ors. Vs. Delhi Transport Corporation & Anr.", "Sunita Tokas Vs. New India Insurance Co. Ltd." and "Amrit Bhanu Shali & Ors. Vs. National Insurance Co. Ltd. & Ors." to base the calculation for the payment of compensation considering the following components-

1. *Monthly salary of the deceased i.e. gross salary of deceased personnel as per the list provided by the unit.*
2. *Addition to income for future prospect: The committee has considered following criteria referring to the judgement order of Sarla Verma &Ors Vs. Delhi Transport Corporation &Anr., para 11, "In view of imponderables and uncertainties, we are in favour of adopting as a rule of thumb, an addition of 50% of actual salary to the actual salary income of the deceased towards future prospects, where the deceased had a permanent job and was below 40 years. [Where the annual income is in the taxable range, the words 'actual salary' should be read as 'actual salary less tax']. The addition should be only 30% if the age of the deceased was 40 to 50 years. There should be no addition, where the age of deceased is more than 50 years".*
3. *Deduction for personal and living expense: The committee has considered following criteria referring the judgement order of Sarla Verma &Ors Vs. Delhi Transport Corporation &Anr., Para 14, "Having considered several subsequent decisions of this court, we are of the view that where the deceased was married, the deduction towards personal and living expenses of the deceased, should be one-third (1/3rd) where the number of dependent family members is 2 to 3, one-fourth (1/4 th) where the number of dependant family members is 4 to 6, and one-fifth (1/5 th) where the number of dependant family members exceed six" and "Where the deceased was a bachelor and the claimants are the parents, the deduction follows a different principle. In regard to bachelors, normally, 50% is deducted as personal and living expenses, because it is assumed that a bachelor would tend to spend more on himself",*
4. *Multiplier: The committee has considered following criteria referring the judgement order of Sarla Verma &Ors Vs. Delhi Transport Corporation &Anr., para 21, " We therefore hold that the multiplier to be used should be as mentioned in column (4) of the Table above (prepared by applying Susamma Thomas, Trilok Chandra and Charlie), which starts with an operative multiplier of 18 (for the age groups of 15 to 20 and 21 to 25 years), reduced by one unit for every five years, that is M-17 for 26 to 30 years, M-16 for 31 to 35 years, M-15 for 36 to 40 years, M-14 for 41 to 45 years, and M-13 for 46 to 50 years, then reduced by two units for every five years, that is, M-11 for 51 to 55 years, M-9 for 56 to 60 years, M-7 for 61 to 65 years and M-5 for 66 to 70 years"*

5. *Expense towards love & affection*

The committee has referred three cases i.e. "Sarla Verma & Ors. Vs Delhi Transport Corporation & Anr", "Sunita Tokas Vs. New India Insurance Co. Ltd" and "Amrit Bhanu Shali & Ors Vs. National Insurance Co. Ltd. &Ors."

In which the court has taken different view on different cases depending upon the subjective merit of the case for expense towards love & affection.

Table 9: The amount of expense towards love and affection in the above-mentioned cases

Case	Expense towards love & affection
Sarla Verma & Ors. Vs Delhi Transport Corporation & Anr	Rs. 10,000/- (as loss of consortium)
Sunita Tokas Vs. New India Insurance Co. Ltd	Rs. 2,00,000/-
Amrit Bhanu Shali & Ors Vs. National Insurance Co. Ltd. &Ors	Rs. 1,00,000/- (Rs. 50,000/- to each dependent)

The committee is of the opinion to consider the expenses towards love and affection is 200000/-per case.

6. *Expense towards last rites- The committee has referred following three cases as tabulated below and considered Rs. 50,000/- as amount of expense towards last rites.*

Case	Expense towards last rites
Sarla Verma & Ors. Vs Delhi Transport Corporation & Anr	Rs. 5,000/-
Sunita Tokas Vs. New India Insurance Co. Ltd	Rs. 50,000/- (Loss of estate & funeral expense)
Amrit Bhanu Shali & Ors Vs. National Insurance Co. Ltd. &Ors	Rs. 10,000/-

Considering the above methodology the committee calculated the amount for deceased personnel and provided as ***Annexure – 15.*** *The unit has submitted details about the compensation paid to the diseased personnel to the SDM Office.*

Table 10:A comparative table of total compensation assessed by the committee and amount already paid by the unit is shown in table below:

S. N.	Name	Compensation estimated by the committee	TOTAL COMPENSATION ALREADY PAID BY THE UNIT				
			EX-Gratia	GPA	Term Insurance	Workmen Compensation	Total Amount
1	**Late Ketankumar Gevariya**	**61,48,342.90**	**3549000**	**1500000**	**1000000**	**0**	**60,49,000.00**
2	**Late Vanrajsinh Dodiya**	**47,31,523.00**	**3000000**	**1500000**	**1000000**	**0**	**55,00,000.00**
3	**Late Krunal Patel**	**36,34,360.00**	**3000000**	**900000**	**1000000**	**0**	**49,00,000.00**
4	**Lt Nehal Mehta**	**38,32,630.00**	**3000000**	**1300000**	**1000000**	**0**	**53,00,000.00**
5	**Late Kuvarlal Kasdekar**	**16,16,794.00**	**1500000**	**0**	**0**	**954101**	**24,54,101.00**
6	**Late Kamal Panse**	**16,16,794.00**	**1500000**	**0**	**0**	**932986**	**24,32,986.00**
7	**Late Maniram Dhikare**	**16,16,794.00**	**1500000**	**0**	**0**	**938634**	**24,38,634.00**

The unit paid total Rs. 2,90,74,721.00/- and has informed that in addition to the above Gratuity, EDLI and PF are also paid as per rules. Therefore, the committee is of the opinion that ***the unit has already paid compensation under various heads which is more than the compensation calculated by the committee referring the methodology as per orders of various matters of Hon'ble Supreme court of India and Hon'ble NGT except for Late Ketan Kumar Garviya. Therefore, the difference of the amount of Rs. 99342.00/- may be considered by Hon'ble Tribunal as additional compensation to be paid by the unit to the dependent of Late Ketan Kumar Gurviya***

Detailed Information regarding compensation paid by unit to Injured persons are enclosed in ***Annexure- 15****.*

8. CARRYING CAPACITY OF JHAGADIA GIDC

The committee has collected information about existence of various infrastructure facilities in GIDC Jhagadia with respect to number and types of industries, environment management facility, status of onsite and offsite plans in terms of 1989 Rules and mock drills, fire fighting facility, health care facility in the GIDC, details about the list of hazardous chemical storage permission to MAH units in the estate etc. to assess the present capacity in terms of safety of the area.

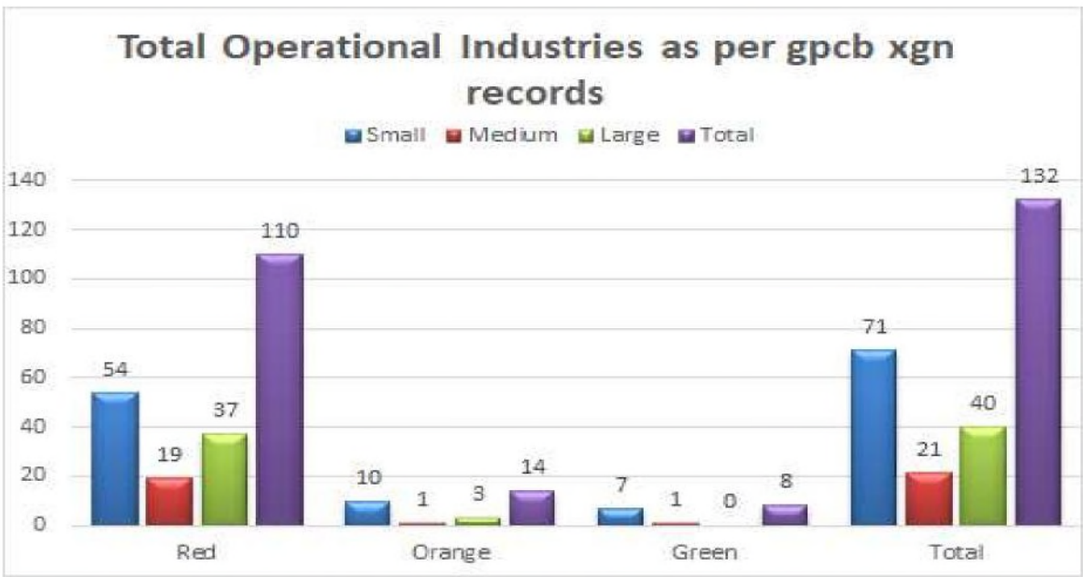
8.1 About Jhagadia Industrial Estate

Jhagadia Industrial Estate is situated in the golden corridor of south Gujarat is developed by Gujarat Industrial Development Corporation (GIDC) in 1993 at Jhagadia, Taluka Jhagadia, Dist. Bharuch. It is one of the largest agglomerations of industrial units and classified as Mega Industrial Estate is spread over an area of 1700 hectares of land divided into 285 plots. As per records of GIDC, out of total spread area about 1300 hectares are allotted. There are a total 285 plots in GIDC, out of which 275 plots are allotted and 10 plots are not allotted. Out of 275 allotted plots, status of 36 plots is under construction, 100 are open plots. The estate is located @ 16 km in north-east direction from Ankleshwar Industrial Area.

As per GPCB record, statistics of operational industries-category and scale wise and operational units are given below Table &graphs

Table 11: Statistics of total operational industries-category and scale wise

Scale → Category	**Small**	**Medium**	**Large**	**Total**
Red	54	19	37	110
Orange	10	1	3	14
Green	7	1	0	8
Total	**71**	**21**	**40**	**132**



Graphs showing Operational industrial statistics in Jhagadia Industrial Estate (Source: GPCB xgn).

8.2 Details of Present Infrastructure:

8.2.1 Environmental Infrastructure

Wastewater management

Individual industries located at Jhagadia Industrial estates discharges treated wastewater into GIDC drainage network form where it is collected in collection sump at Jhagadia from where it is transferred to Booster Pumping Station at Kantiajal. Booster Pumping Station at Kantiajal also receives wastewater from Final Effluent Treatment Plant (FETP) at Ankleshwar which receives industrial effluent from Ankleshwar and Panoli Industrial estates. Further, mixed effluent (Jhagadia, Anklehwar & Panoli) from collection Sump at Kantiajal, discharge to deep sea through marine outfall.

Air quality monitoring system (NAMP station, CAAQMS)

- *One NAMP station is operated by GPCB for collection of ambient air sampling as per the CPCB guidelines. The station is located at the terrace of Jhagadia Industrial Association (JIA) office in GIDC Jhagadia.*
- *CAAQMS facility is presently not available.*

8.3 Carrying Capacity

Carrying capacity in terms of safety provisions is assessed by the committee by collecting information about the availability and working of onsite and offsite emergency plan, mock drill, safety SOPs, availability of firefighting facility, health care facility in the GIDC, status of Major Accident Hazard (MAH) units in the GIDC Jhagadia etc.

Considering the definition of Major Accident and Major accidents Hazards installation, 11installation in the GIDC Jhagadia are classified as MAH Installation. Definition of Major accident and Major Accident Hazardous Installation is given below.

"Major Accident" means an accident involving loss of life inside or outside the site or ten or more injuries inside and/or one or more injuries outside or release of toxic chemical or explosion or fire of spillage of hazardous chemical resulting in 'on-site' or 'off-site' emergencies or damage to equipments leading to stoppage of process or adverse effects to the environment.

Definition of Major Accident Hazard (MAH) installation

"Major Accident Hazard (MAH) installation" means isolated storage and industrial activity at a site handling (including transport through carrier or pipeline) of hazardous chemicals equal to, or in excess of the

treshold quantities specified in COLUMN 3 OF SCHEDULE 2 and SCHEDULE 3 respectively.

List of MAH Installation in the GIDC Jhagadia is given in table below:

Table 12 : List of MAH Installation in the GIDC Jhagadia

SN	FACTORY NAME	ADDRESS
1	Air Liquid India Holding Pvt Ltd.	Plotno.38/1,GIDC, Jhgadia Dist-Bharuch.
2	Cheme Organic Chemicals.	Plot No. 758,GIDC Estate, Jhagadia,Bharuch.
3	Galaxy Surfactants Ltd.	892,GIDC Jhagadia, Dist-Bharuch.
4	J M Hubar India Pvt Ltd	754 Jhagadia Indl. Estate,GIDC Bharuch 393 110.
5	Klg Organic Ltd.	Plot No.759, GIDC, Jhagadia, Dist. Bharuch.
6	Lanxess India Pvt Ltd	748/2/A,748/3,748/4/A & B GIDC Jhagadia, Dist-Bharuch
7	Panoli Intermediate (India) Pvt. Ltd.	Plot No. 778/1, GIDC, Jhagadia,Bharuch-393 110
8	Saint Gobain Glass India Ltd	36, GIDC Jhagadia , Dist-Bharuch
9	Shriram Alkali & Chemicals (A unit of Dcm Shriram Consolidated) Ltd.	749 GIDC Indl. Estate, Jhagadia, Bharuch-393 110
10	Upl Ltd (Unit-5).	750 GIDC Indl. Estate, Jhagadia, Bharuch-393 110
11	Vardhman Acrylics Ltd.	755 GIDC Mega Estate, Jhaghadia, Dist. Bharuch

Detailed information about the list of hazardous chemicals with maximum storage quantity and availability of fire tenders with MAH unit wise is provided in ***Annexure – 16****.*

Working of Offsite, Onsite emergency plan and Mock drill

As informed by DISH,

- *District offsite plan is prepared for Bharuch District wherein GIDC Jhagadia is part of the plan. Offsite mock drill is one of the mandatory requirements to ascertain the working of the offsite plan as per MSIHC Rule under the chairmanship of Dist. Collector. Offsite mock drill was carried out at Jhagadia GIDC on 10/07/2020 at M/s DCM Jhagadia. The Mock drill was planned and carried out for fire in a hydrogen bank truck. Major aim of mock drills is to record the response time and steps to be taken to minimise the same.*

- *As per the District Off-Site plan, Jhagadia GIDC has Local Crisis Group comprising 14 members (representative from MAH units and other units).*
- *DISH informed that all MAH units have onsite emergency plans and a third party safety audit is also carried out and submitted to DISH by all MAH units in the GIDC. As per the statutory requirement, MAH units has to carry out in house mock drills twice in a year and mock drill reports are to be submitted to DISH. All MAH units regularly submitted mock drill reports to DISH.*

8.4 Present Capacity of GIDC in terms of safety infrastructure

Jhagadia GIDC Estate is growing with lots of new vulnerability of Risk, having more than one hundred thirty active industries spread in almost 1720 hectares of the land. The GIDC is surrounded by villages having almost 50,000 populations in the vicinity of about 10 kms radius. There are total 11 MAH units in the Jhagadia GIDC.

It can be seen that 09 MAH units located in close vicinity and accident in one unit likely to have adverse impact on surroundings and neighbouring units. The MAH units are mutually support each other during any accident in the area. There are only Five MAH units having Fire Tender vehicles with trained fire crew. At present, the available firefighting and allied facilities of the GIDC estate is not adequate even the local fire station of Jhagadia GIDC is also not well equipped and has only one fire tender. The scenario of accident of UPL indicates that the present infrastructure is not enough to handle such types of accident involving fire and explosion. As during the firefighting operation of almost 18 fire tenders from nearby industries of Jhagadia GIDC, from DPMC, Ankleshwar, DPMC-Dahej, GNFC-Bharuch were mobilised in addition to the in-house firefighting capability of the unit.

During the accident at UPL, the injured personnel were given first aid at the health centre of the unit and ambulances were mobilised for taking injured personnel to hospitals Smt. Jayaben Modi Hospital, Ankleshwar, as the area do not have any such facility. The available facilities are in Bharuch and Ankleshwar areas which are almost 25-30 kms away from Jhagadia GIDC estate.

Looking at the above facts, the committee is in the opinion that a review of fire load of individual industries and firefighting facility provided may need to be carried out by concerned authority considering IS13039:2014 and such standards provisions and also to establish a Disaster Prevention and Mitigation Centre (DPMC) type of infrastructure with well-equipped control room with all necessary fire & safety equipment and having trained firefighting staff, rescue workers and first-aiders personnel, deployed round the clock in Jhagadia GIDC, equipped with at least Four Water-cum-foam fire tenders and two HAZMAT vehicles to combat Chlorine and other toxic gas release. In addition to the above, a common water reservoir of adequate capacity with an advanced

pumping system in the area may also be planned. Health care facility is also required to be planned as presently the area is not having any such facility to provide even the primary treatment in case of such accident.

9. CONCLUSION

Hon'ble National Green Tribunal (NGT), Principal bench, New Delhi took up the matter on suo-moto basis in the application no. 60/2021 on 25/02/2021, and constituted a joint committee vide orders dated 25/02/2021 to submit a report on the accident that took place in M/s UPL Ltd. (Unit 5), GIDC Jhagadia on 23.02.2021. The accident took place in the manufacturing plant of the final product namely, Clethodim which is herbicide, in CM-257 plant at M/s UPL Ltd. (Unit 5), GIDC Jhagadia. The blast followed by massive fire in the premises of the unit took place on 23/02/2021 in the reactor (stage I, CM-257 Plant). During the accident, the plant process was under shutdown since 04/02/2021 owing to boiler maintenance and inspection. However, materials at intermediate reaction stages were stored in the different reactors of the plant. The reactor in which the blast took place was having about 8.0 MT of Ethyl Thio Butanol (ETB) which is the first stage intermediate product in the process of manufacturing Clethodim. ***The blast was so massive that it felt like anearthquake in the entire area resulting into death of 07 personnel working in the plant, injury to 53 personnel within the premises, damage of other reactors/tank form containing various chemicals, other infrastructure including the DCS building, sheds of other plants, glass of windows inside the premises of the unit etc****.*

The joint committee visited the unit on 04/03/2021 and again on 09/03/2021. During visit, the committee interacted with some of the concerned officials present on duty on the day of accident in the unit, representatives of the unit, collected various available reports and records from the unit. Referring to the reports prepared by DISH, GPCB and other authorities, action taken by different authorities, information collected & observations in connection with accident following conclusions were drawn by the committee:

- *The plant CM-257 was commissioned by the unit based on its in-house R&D Study, basic and detailed engineering. During such in-house development of products, more focus need to be given in conducting proper safety and stability test at various stages. However, in the plant stage serious lapses in HAZOP study, safety audit, non-availability of SOP for safe shutdown etc. were observed. The unit has not yet been able to identify the root cause of the accident. One of the probable reasons reported by the unit is leakage of methanol in the reactor containing ETB which might have triggered due to exothermic reaction and resulted in the blast. The reaction of methanol with ETB may be logical in terms of reaction chemistry. However, serious lapses in terms of safety study, reactivity study, compatibility test, development of*

standard operating procedure for planned and emergency shutdown, storing intermediate stage product during shutdown, gaps in HAZOP, safety audit, in adequacy of sensors provided for the reactor etc. might have resulted in the accident.

- *Considering the accident as reported in the social media, during manufacturing of similar product in China in 2019 and in the present case, the committee is in of the opinion that* ***detailed various studies w.r.t. the safety aspects as mentioned in the para above, needs to be carried out before reconsidering manufacturing of Clethodim, as there is a lack of information about thermal stability, reactivity at intermediate stages, and safety provisions as observed in the present case.***

- *The unit has submitted safety audit report, as per which, details of chemical stored in the unit, the actual total stored quantity of toluene, n-Hexane and Methanol exceeds 143 kl (storage permission from PESO to the unit). However, the safety audit report does not mention any observation regarding exceedance in stored quantity beyond permission limits of PESO. Moreover, the audit report has various gaps which includes lack of detailed process hazards from CM-257 Plant.* ***Thus, the safety audit carried out by the unit shows gaps and needs to be carried out again by a competent agency, accredited by an Accreditation Board as per Rule 68 j para 9 of the Gujarat Factory Rules, 1963 and restrict the storage of chemicals as per permission from PESO****.*

- *The committee is also of the opinion that the* ***unit needs to review entire safety aspects in terms of SOP, HAZOP study, Qualitative and Quantitative Risk assessment, fire load, etc. as gaps were identified during visits. The unit needs to take required measures to fulfil the gaps identified in the report.***

- *The committee has calculated Environmental Damage cost considering the air, water and soil component. The chemical lost during the accident were converted in terms of pollutants like sulphur-di-oxide, carbon-di-oxide, HCl etc. except a part of toluene considered to be emitted as VOC along with firefighting water. The quantity of firefighting water used is estimated and based on the concentration of COD, the water component is calculated in lieu of loss of natural resources and treatment cost. In addition, t****he liability towards damage in the area is also considered due to spread of contaminated water on soil. Considering above, the total cost of Environmental damage compensation due the accident sums up to Rs. 219.71 lakh which may be considered by Hon'ble Tribunal to be paid by the unit towards Environmental Damage compensation.***

- *The committee calculated compensation for the deceased personnel refereeing various orders of Hon'ble Supreme Court of India and various reports of Hon'ble NGT.* ***The committee is of the opinion that the unit has already paid about 290.74***

lakh towards compensation under various heads which is more than the compensation calculated by the committee except for in case of Late Shri Ketan Kumar Garviya. Therefore, the difference of the amount of Rs. 99,342.00/- may be considered by Hon'ble Tribunal as additional compensation to be paid by the unit to the dependent of Late Shri Ketan Kumar Gurviya*.*

- *The committee has also identified inadequacies in present infrastructure to combat the major accident scenario in the Jhagadia GIDC. Though it was informed that onsite emergency plan and mock drill is carried out by all 11 Major Accdient Hazardous (MAH) units in the estate as statutory requirement and local crises group is also there in the GIDC as per offsite plan of Bharuch District,* ***the committee is of the opinion that a safety review in terms of fire load of individual industries and firefighting facility provided by them needs to be carried out by concerned authority in compliance to the IS 13039:2014 and other similar standard provisions****.*

- *There is an urgent need of infrastructure like Disaster Prevention and Mitigation Centre (DPMC) with well-equipped control room, all necessary fire & safety equipment, trained firefighting staff, rescue workers and first-aiders personnel deployed round the clock in Jhagadia GIDC. The proposed DPMC should be equipped with at least Four Water-cum-foam fire tenders and two HAZMAT vehicles to combat Chlorine and other toxic gas release may be provided in the GIDC. In addition to the above, a common water reservoir of adequate capacity with an advanced pumping system in the area may also be planned.* ***Health care facility is also required to be planned in vicinity of the Jhagadia estate, as presently the area is not having any such facility to provide even the primary health treatment."***

Discussion and directions

6. We have heard learned Counsel for the CPCB, the Project Proponent and the representative of Gujarat State PCB. No one has entered appearance on behalf of the State. Questions for consideration are the cause of the incident and remedial measures, including compensation to the victims and restoration of environment.

Cause of the incident and remedial measures

7. We find that several accidents have recently taken place in the course of industrial activities on account of gas leak, blast, fire etc.. The details of some of such cases have been already mentioned in the earlier

order quoted above including an incident in same District - District Bharuch in a chemical factory Yashyashvi Rasayan Pvt. Ltd. In respect of the earlier incident dated 03.06.2020 in Yashyashvi Rasayan Pvt. Ltd, the Tribunal has dealt with the matter vide order dated 03.02.2021 in *O.A. No. 85 of 2020, Aryavart Foundation through its President v. Yashyashvi Rasayan Pvt. Ltd. & Anr.* in the light of report of the Expert Committee headed by Justice B.C. Patel, former Chief Justice of Delhi High Court. The Tribunal accepted the report of the said Committee which *inter-alia* recommended as follows:-

> "7. *Recommendations to avoid future incidents and other questions are as per the report Mark Annexure 28.*
>
> ***SECTION 8***
>
> ***STEPS REQUIRED TO AVOID SUCH INCIDENT (NATIONALDISASTER MANAGEMENT AUTHORITY)***
>
> *55. The question is how such accidents can be avoided. There is National Disaster Management Authority (NDMA) of the Government of India, which has issued guidelines for Chemical Disasters (Industrial).*
>
> *56. The common causes for chemical accidents, deficiencies, safety management system and human errors are noted. The chemical accidents fire, explosion and/or toxic release were resulting irreversible pain, suffering and death.* ***To minimise such accident and to improve emergency preparedness at all levels, substantial efforts are still required to predict the occurrence of disaster****. (Page xvii)*
>
> *57. It is also stated that it has been realised that* ***effective Chemical Disaster Management (CDM) is possible by the adoption of preventive and mitigation strategies as most chemical disasters are preventable in comparison to natural disasters that are difficult to predict and prevent. Statutory inspection, safety audit and testing of emergency plan, onsite emergency plan, offsite emergency plans, medical emergency plans, information on chemical, technical information have been given importance.***
>
> *xxx……xxx……xxx*

5. Shortage and training of manpower:

viii. It is necessary to appoint adequate number of Scientists and other officers as well as other staff considering the number of industries so as to effectively monitor the manufacturing units. Shortage of staff is also referred in the report of the Comptroller and Auditor General of India on Environmental Clearances and Post Clearance Monitoring 2016 that there are shortfalls in monitoring of environmental parameters. One of the reasons mentioned in the report is the shortfall/inadequate staff. Considering the numbers of Environmental clearance by MoEF & CC, New Delhi as well as SEIAA Gujarat (No. of ECs issued by MoEF & CC, New Delhi- Approx. 1500 & by SEIAA Approx. 8300 for the state of Gujarat only), the scientific staff in Ministry's regional offices should be strengthened for post EC monitoring at regular intervals. Thus, for having an eye over all the units, the Committee feels that the government should take appropriate steps for appointing adequate staff. The PESO also pointed out the same concerned the Gujarat being most industrialized state having about 40,000 licensed premises covered under various Acts and Rules including 1800 Major Accident Hazards premises, this is one of the pressing problems.

ix. *The manpower of the DISH in the industrial area must be related to the numbers of units in the area. Considering the incident and the quality of the inquiry made by DISH, it is desirable that proper training should be imparted to the officers of the DISH. This will improve the efficiency of DISH.*

6*….xxx…….xxx…….xxx*

7. Management & study:

xiii. HAZOP study direction / instruction must be carried out strictly and regularly by the unit.

xiv. Management to educate the staff on Materials Safety Data Sheet (MSDS) and engineers & operators in the plant must study the same.

7. DCG, Hospitals:

xv. All Industrial Zone/SEZ should have their own Local Crisis Group. The District Crisis Group should give surprise visit to the factories regularly at least once in a quarter and check the operation of factories. At the end of the visit, they should generate a report and submit to the State Crisis Group.

xvi. As per the Chemical Accidents (Emergency, Planning, Preparedness, Response) Rules, 1996, brought out under the Environment Protection Act 1986, it is mandatory to have

State Crisis Group (SCG) and District Crisis Group (DCG) to help the State Disaster Management Authority (SDMA) and District Disaster Management Authority (DDMA) under the Disaster Management Act, 2005 in advisory roles to deal with Chemical Disaster Management (CDM). There is no emergency response centre / disaster management centre within the SEZ. Therefore, the authorities must provide urgently such centers. As the Industry in the instant case failed to report in this behalf there must be a provision for not reporting immediately to the DCG and DDMA or at emergency control room for chemical disasters in the state (as in the instant case it is at Vadodara). The Rule making authority though having prescribed 48 hrs. time limit within which the competent authority is required to be informed but there is no provision for the breach with regard to non-informing immediately or within 48 hrs. (In the instant case it is admitted the report was submitted on 9th June, 2020 against the incident on 3rd June, 2020).

xvii. ***The requirement of a Hospital in an industrial zone or SEZ and particularly industries are engaged in hazardous chemicals is a must. Even Hospitals at distance of 50 kms are general hospitals and not specialised in chemical burns and injuries arising out of accident on account of hazardous materials.***

xviii. District crisis group must undertake mock drill under off site emergency plan and crisis management in every industrial cluster or SEZ on failure action should be taken against DCG. (In the instant case they were satisfied with mock drill in one place in a district. In the instant case in one district there are more cluster of industries. Therefore, in each cluster an exercise aforesaid is a must – DISH has admitted that such exercise is not carried out in all clusters).

xix. As at other places in the state of Gujarat in the industrial clusters, the GPCB has provided tower for air quality monitoring and same is being monitored by the GPCB. Dahej – I & II or the SEZ being an industrial town and factories are particularly engaged in hazardous chemicals, the committee is of the opinion that there should be Continuous Ambient Air Quality Monitoring Systems (CAAQMS) at all strategic locations. So that everyone in that area is aware about the air pollution.

8. <u>Safety audit:</u>

xx. *For the purpose of auditing the safety,* ***the government must make a panel of safety auditors to inspect the factory independently twice in a year and they should submit their report directly to the DISH. The safety auditor should be made answerable to the government.***

xxi. The committee is of the opinion that sub-rule (9) of Rule 68(J) of the Gujarat Factories Rules 1963, refers to safety report and safety audit reports, under that Rule sub rule 2 gives a choice to industry to select the auditor for the purpose of the safety audit. The committee of the opinion that the state government be requested to consider the case and particularly

safety report from independent auditor and to amend the Rule as below:

2). After the commencement of these Rules, the occupiers of both the new and existing industrial activities and isolated storage must be checked by the government through the safety auditor which is accredited by an accreditation board to be constituted by the Ministry of labour, Government of India.

3). The auditor within 30 days of audit shall send the report to the chief inspector with respect to the audit recommendations and which shall be examined by the government within a period of 1 month and the industry shall be directed to carry out within the period specified the recommendation that may be made by the Government in this behalf."

8. In the present case also we find similar recommendations. After consideration of the matter in the above earlier case, the Tribunal issued following directions in the said matter:-

"28. We do not find any tangible objections to the report of the Committee which stand accepted. The recommendations of the Committee need to be duly implemented which needs to be overseen by the statutory regulators. We note that in the recent past the Tribunal has come across the number of incidents of leakage of gases and handling of hazardous chemicals. On investigation, this Tribunal has found that most of the accidents are result of non-compliance of laid down safety norms under the 1989 Rules and the Chemical Accidents (Emergency Planning, Preparedness and Response) Rules, 1996 [1996 Rules]. There is, thus, need for the establishments handling hazardous chemicals to strictly follow the laid down norms, which need to be overseen by the statutory regulators.

29 to 31xxx……xxx……xxx

32. ***In view of frequent accidents resulting in deaths and injuries, the Chief Secretaries of all the States/UTs may evolve a mechanism to ensure that the companies dealing with hazardous substance must forthwith pay compensation for deaths and injuries to the victims at least as per Workmen Compensation Act, 1923 wherever applicable or the principle of restitution laid down in Sarla Verma (supra), National Insurance Company Ltd. v. Pranay Sethi, (2017) 16 SCC 680 to the victims either directly or through the District Magistrate.***

33. Conduct of safety audits of all establishments having potential for such accidents may be ensured. All States/UTs

may also ensure availability of healthcare facilities in the vicinity of such establishments. PCB and DM must assess cost of restoration of environment which should be recovered from company and spent on such restoration. The States and UTs in accordance with 1989 and 1996 Rules need to step up vigilance, surveillance and monitoring to avert such accidents. Preparedness to meet such eventualities be ensured. Regular mock drills may be ensured in respect of onsite and offsite emergency plans. We may also refer to the directions issued by this Tribunal to the MoEF&CC and all the States/UTs on the subject of strengthening regulatory and oversight measures, vide order dated 01.02.2021 in OA 837/2018, Sandeep Mittal vs. Ministry of Environment, Forests & Climate Change & Ors."

9. It is thus clear that there are violations in following requisite safety protocols and monitoring and absence of adequate health facilities in the vicinity. Learned Counsel for the Project Proponent fairly stated that the unit in question will follow all the recommendations of the Committee including payment of compensation for the damage to the environment, remedying the inadequacies in the infrastructure and all safety precautions for future. Entire safety aspects will be reviewed in terms of SOP, HAZOP, Qualitative and Quantitative Risk Assessment and other gaps identified by the Committee.

Compensation to the victims and restoration of environment

10. While accepting the report, we note that substantially the compensation assessed has been already paid to the victims. Remaining amount, if any be paid. We further approve the compensation for damage to the environment and the same may be credited to a separate account by the industrial unit for being spent on restoration of the environment by preparing an action plan, to be approved by the State PCB and the CPCB. The plan may focus on developing relevant infrastructure to prevent such accidents and provide relief in case such untoward incident happens. The said step will be apart from other measures suggested by the Committee.

Compliance of recommendations for remedial action

11. We find that it is necessary to require an action taken report to be filed by the Chief Secretary, Gujarat who may hold a joint meeting with District Magistrate, Bharuch, the Director Industrial, Safety, the Member Secretary, State PCB and the GIDC within one month. The Chief Secretary may ensure that all the remedial measures have been adopted in terms of the report and file an action taken report within three months with the Tribunal 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 Chief Secretary, Gujarat may also issue instructions for requisite safety measures for all other industrial units in the State having potential for such accidents. The action taken report may include status of risk-policies taken by the industries to cover health and safety risks of persons engaged or likely to be affected and compliance of 1989 and 1996 Rules. The action taken report may also mention the remedial measures taken in respect of 11 other units mentioned in the report viz:-

1. Air Liquid India Holding Pvt Ltd.
2. Cheme Organic Chemicals
3. Galaxy Surfactants Ltd.
4. J M Hubar India Pvt Ltd.
5. Klg Organic Ltd.
6. Lanxess India Pvt Ltd.
7. Panoli Intermediate (India) Pvt. Ltd.
8. Saint Gobain Glass India Ltd.
9. Shriram Alkali & Chemicals (A unit of Dcm Shriram Consolidated) Ltd.
10. Upl Ltd. (Unit-5)
11. Vardhman Acrylics Ltd.

12. We also direct CPCB and MoEF&CC in coordination with other concerned authorities to consider issuing appropriate guidelines for conducting safety audits and taking other remedial measures throughout India in the light of present report as well as other recent reports in

respect of industrial accidents so as to prevent such incidents and to save human lives and health.

13. We place on record our appreciation for the task executed by the Committee. CPCB may convey this observation to the members of the Committee. The report of the Committee may be placed on websites of the State PCB and the CPCB for purpose of reference for six months.

The application is disposed of except for considering the action taken report which may be filed in pursuance of the above order.

The same may be put up for consideration on 09.11.2021.

A copy of this order be forwarded to the Chief Secretary, Gujarat, the District Magistrate, Bharuch, the Director Industrial, Safety, the Member Secretary, State PCB, the GIDC, MoEF&CC and the CPCB by e-mail for compliance.

Adarsh Kumar Goel, CP

Sudhir Agarwal, JM

M. Sathyanarayanan, JM

Brijesh Sethi, JM

Dr. Nagin Nanda, EM

June 11, 2021
Original Application No. 60/2021
SN

THE PUBLIC LIABILITY INSURANCE ACT, 1991

ARRANGEMENT OF SECTIONS

SECTIONS

THE PUBLIC LIABILITY INSURANCE ACT, 1991

ACT NO. 6 OF 1991

[22*nd January*, 1991.]

An Act to provide for public liability insurance for the purpose of providing immediate relief to the persons affected by accident occurring while handling any hazardous substance and for matters connected therewith or incidental thereto.

BE it enacted by Parliament in the Forty-first Year of The Republic of India as follows:—

1. Short title and commencement.—(*1*) This Act may be called the Public Liability Insurance Act, 1991.

(*2*) It shall come into force on such date[1] as the Central Government may, by notification, appoint.

2. Definitions.—In this Act, unless the context otherwise requires,—

[2][(*a*) "accident" means an accident involving a fortuitous or sudden or unintended occurrence while handling any hazardous substance resulting in continuous or intermittent or repeated exposure to death of, or injury to, any person or damage to any property but does not include an accident by reason only of war or radio-activity;]

(*b*) "Collector" means the Collector having jurisdiction over the area in which the accident occurs;

(*c*) "handling", in relation to any hazardous substance, means the manufacture, processing, treatment, package, storage, transportation by vehicle, use, collection, destruction, conversion, offering for sale, transfer or the like of such hazardous substance;

(*d*) "hazardous substance" means any substance or preparation which is defined as hazardous substance under the Environment (Protection) Act, 1986 (29 of 1986), and exceeding such quantity as may be specified, by notification, by the Central Government;

(*e*) "insurance" means insurance against liability under sub-section (*1*) of section 3;

(*f*) "notification" means a notification published in the official Gazette;

[3][(*g*) "owner" means a person who owns, or has control over handling, any hazardous substance at the time of accident and includes,—

(*i*) in the case of firm, any of its partners;

(*ii*) in the case of an association, any of its members; and

(*iii*) in the case of a company, any of its directors, managers, secretaries or other officers who is directly in charge of, and is responsible to, the company for the conduct of the business of the company;]

(*h*) "prescribed" means prescribed by rules made under this Act;

[4][(*ha*) "property" includes any private property or public property affected or damaged by any unit or undertaking, due to manufacture, processing, treatment, package, storage, transportation, use, collection, destruction, conversion, transfer or such other processes of hazardous substance;]

[5][[6][(*hb*)] "Relief Fund" means the Environmental Relief Fund established under section 7A];

(*i*) "rules" means rules made under this Act;

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1. 1st April, 1991, *vide* notification No. G.S.R 253, dated 27th March, 1991, *see* Gazette of India Ordinary, Part II sec. 3(*i*).
2. Subs. by Act 11 of 1992, s. 2, for clause (*a*) (w.e.f. 31-1-1992).
3. Subs. by s. 2, *ibid.*, for clause (*g*) (w.e.f. 31-1-1992).
4. Ins. by Act 18 of 2023, s. 2 and Schedule (w.e.f 1-4-2024).
5. Ins. by Act 11 of 1992, s. 2, (w.e.f. 31-1-1992).
6. Clause (*ha*) shall be renumbered as clause (*hb*) thereof by Act 18 of 2023, s. 2 and Schedule (w.e.f. 1-4-2024).

(*j*) "vehicle" means any mode of surface transport other than railways.

[1][(*k*) words and expressions used and not defined in this Act but defined in the Transfer of Property Act, 1882 (4 of 1882), and the Environment (Protection) Act,1986 (29 of 1986), shall have the meanings respectively assigned to them in those Acts.]

3. Liability to give relief in certain cases on principle of no fault.— [2][(*1*) Where death or injury to any person (other than a workman) or damage to any property has resulted from an accident, the owner shall be liable to reimburse such amount, or provide such other relief as may be prescribed, for—

(*a*) death due to fatal accident;

(*b*) medical expenses incurred due to total or partial disability;

(*c*) loss of wages due to partial disability;

(*d*) other injury or sickness;

(*e*) damage to private property;

or

(*f*) such other loss or damage, as may be prescribed.]

(*2*) In any claim for relief under sub-section (*1*) (hereinafter referred to in this Act as claim for relief), the claimant shall not be required to plead and establish that the death, injury or damage in respect of which the claim has been made was due to any wrongful act, neglect or default of any person.

Explanation.—For the purposes of this section,—

(*i*) "workman" has the meaning assigned to it in the Workmen's Compensation Act, 1923 (8 of 1923);

(*ii*) "injury" includes permanent total or permanent partial disability or sickness resulting out of an accident.

4. Duty of owner to take out insurance policies.—[2][(*1*) Every owner of any undertaking shall take out, before he starts handling any hazardous substance, one or more insurance policies for such undertaking or unit providing for contracts of insurance whereby he is insured against liability to give such relief or reimburse such amount referred to in sub-section (*1*) of section 3.

Explanation.—For the purposes of this sub-section, it is hereby clarified that any undertaking having separate consent to operate under—

(*i*) the Water (Prevention and Control of Pollution) Act, 1974 (6 of 1974); and

(*ii*) the Air (Prevention and Control of Pollution) Act, 1981 (14 of 1981), shall be treated as a separate unit:

Provided that any owner handling any hazardous substance immediately before the commencement of the *Jan Vishwas* (Amendment of Provisions) Act, 2023 shall take out such insurance policy or policies as soon as may be and in any case within a period of one year from commencement of that Act.]

(*2*) Every owner shall get the insurance policy, referred to in sub-section (*1*), renewed from time to time before the expiry of the period of validity thereof so that the insurance policies may remain in force throughout the period during which such handling is continued.

[3][[4][(*2A*) An insurance policy taken out or renewed by an owner for any undertaking or unit shall be for an amount which shall not be less than the amount of the paid-up capital of that undertaking or unit handling any hazardous substance owned or controlled by that owner and may extend to such amount as may be prescribed but not exceeding five hundred crore rupees.

1. Ins. by Act 18 of 2023, s. 2 and Schedule (w.e.f. 1-4-2024).
2. Subs. by s. 2 and Schedule, *ibid*., for sub-section (*1*) (w.e.f. 1-4-2024).
3. Ins. by Act 11 of 1992, s. 3 (w.e.f. 31-1-1992).
4. Subs. by Act 18 of 2013, s. 2 and Schedule (w.e.f. 1-4-2024).

Explanation.— For the purposes of this sub-section "paid-up capital", in relation to an owner not being a company, means the market value of all assets and stocks of the undertaking on the date of contract of insurance.]

(*2B*) The liability of the insurer under one assurance policy shall not exceed the amount specified in the terms of the contract of insurance in that insurance policy.

(*2C*) Every owner shall also, together with the amount of premium, pay to the insurer, for being credited to the Relief Fund established under section 7A, such further amount, not exceeding the sum equivalent to the amount of premium, as may be prescribed.

(*2D*) The insurer shall remit to the authority specified in sub-section (*3*) of section 7A the amount received from the owner under sub-section (*2C*) for being credited to the Relief Fund in such manner and within such period as may be prescribed and where the insurer fails to so remit the amount, it shall be recoverable from insurer as arrears of land revenue or of public demand.]

(*3*) The Central Government may, by notification, exempt from the operation of sub-section (*1*) any owner, namely:—

(*a*) the Central Government;

(*b*) any State Government;

(*c*) any corporation owned or controlled by the Central Government or a State Government; or

(*d*) any local authority:

Provided that no such order shall be made in relation to such owner unless a fund has been established and is maintained by that owner in accordance with the rules made in this behalf for meeting any liability under sub-section (*1*) of section 3.

5. Verification and publication of accident by Collector.—Whenever it comes to the notice of the Collector that an accident has occurred at any place within his jurisdiction, he shall verify the occurrence of such accident and cause publicity to be given in such manner as he deems fit for inviting applications under sub-section (*1*) of section 6.

6. Application for claim for relief.—(*1*) An application for claim for relief may be made—

(*a*) by the person who has sustained the injury;

(*b*) by the owner of the property to which the damage has been caused;

(*c*) where death has resulted from the accident, by all or any of the legal representatives of the deceased; or

(*d*) by any agent duly authorised by such person or owner of such property or all or any of the legal representatives of the deceased, as the case may be:

Provided that where all the legal representatives of the deceased have not joined in any such application for relief, the application shall be made on behalf of or for the benefit of all the legal representatives of the deceased and the legal representatives who have not so joined shall be impleaded as respondents to the application.

[1][(*1A*) Where any damage has been caused to any public property or private property due to manufacture, processing, treatment, package, storage, transportation, use, collection, destruction, conversion, transfer or such other processes, of such hazardous substance, an application for claim for restoration of the property may be made by the owner of the property or such other person, as may be prescribed, to the Collector.]

(*2*) Every application under sub-section (*1*) shall be made to the Collector and shall be in such form, contain such particulars and shall be accompanied by such documents as may be prescribed.

1. Ins. by Act 18 of 2023, s. 2 and Schedule (w.e.f. 1-4-2024).

(*3*) No application for relief shall be entertained unless it is made within five years of the occurrence of the accident.

7. Award of relief.—(*1*) On receipt of an application under sub-section (*1*) of section 6, the Collector shall, after giving notice of the application to the owner and after giving the parties an opportunity of being heard, hold an inquiry into the claim or, each of the claims, and may make an award determining the amount of relief which appears to him to be just and specifying the person or persons to whom such amount of relief shall be paid.

(*2*) The Collector shall arrange to deliver copies of the award to the parties concerned expeditiously and in any case within a period of fifteen days from the date of the award.

[1][(*3*) When an award is made under this section,—

(*a*) the insurer, who is required to pay any amount in terms of such award and to the extent specified in sub-section (*2B*) of section 4, shall, within a period of thirty days of the date of announcement of the award, deposit that amount in such manner as the Collector may direct;

(*b*) the Collector shall arrange to pay from the Relief Fund, in terms of such award and in accordance with the scheme made under section 7A, to the person or persons referred to in sub-section (*1*) such amount as may be specified in that scheme;

(*c*) the owner shall, within such period, deposit such amount in such manner as the Collector may direct.]

(*4*) In holding any inquiry under sub-section (*1*), the Collector may, subject to any rules made in this behalf, follow such summary procedure as he thinks fit.

(*5*) The Collector shall have all the powers of Civil Court for the purpose of taking evidence on oath and of enforcing the attendance of witnesses and of compelling the discovery and production of documents and material objects and for such other purposes as may be prescribed; and the Collector shall be deemed to be a Civil Court for all the purposes of section 195 and Chapter XXVI of the Code of Criminal Procedure,1973 (2 of 1974).

(*6*) Where the insurer or the owner against whom the award is made under sub-section (*1*) fails to deposit the amount of such award within the period specified under sub-section (*3*), such amount shall be recoverable from the owner, or as the case may be, the insurer as arrears of land revenue or of public demand.

(*7*) A claim for relief in respect of death of, or injury to, any person or damage to any property shall be disposed of as expeditiously as possible and every endeavour shall be made to dispose of such claim within three months of the receipt of the application for relief under sub-section (*1*) of section 6.

[2][(*8*) Where an owner is likely to remove or dispose of his property with the object of evading payment by him of any amount of award, the Collector may, in accordance with the provisions of rules 1 to 4 of Order XXXIX of the First Schedule to the Code of Civil Procedure, 1908 (5 of 1908), grant a temporary injunction to restrain such act.]

[3][(*9*) Where the environment is affected or damaged due to manufacture, processing, treatment, package, storage, transportation, use, collection, destruction, conversion, transfer or such other processes, of such hazardouss substance, the Central Government may, on an application made by the Central Pollution Control Board or the State Pollution Control Board, as the case may be, allocate the fund from the Environmental Relief Fund for restoration of the damage so caused in the manner as may be prescribed.]

[4][**7A. Establishment of Environmental Relief Fund**.—(*1*) The Central Government may, by notification, establish a fund to be known as the Environmental Relief Fund.

1. Subs. by Act 11 of 1992, s. 4, for sub-section (*3*) (w.e.f. 31-1-1992).
2. Ins. by s. 4, *ibid*. (w.e.f. 31-1-1992).
3. Ins. by Act 18 of 2023, s. 2 and Schedule (w.e.f. 1-4-2024).
4. Ins. by Act 11 of 1992, s. 5, (w.e.f. 31-1-1992).

[1][(*1A*) There shall be credited to the Relief Fund established under sub-section (*1*)—

(*a*) the amount referred to in sub-section (*2C*) of section 4;

(*b*) the amount of penalty imposed under this Act;

(*c*) the interest or other income received out of investments made from the Fund; and

(*d*) any other amount from such sources, as may be prescribed.]

(*2*) The Relief Fund shall be utilised for paying, in accordance with the provisions of this Act and the scheme made under sub-section (*3*), relief under the award made by the Collector under section 7.

(*3*) The Central Government may, by notification, make a scheme specifying the authority in which the Relief Fund shall vest, the manner in which the Relief Fund shall be administered, the form and the manner in which money shall be drawn from the Relief Fund and for all other matters connected with or incidental to the administration of the Relief Fund and the payment of relief therefrom.]

8. Provisions as to other right to claim compensation for death, etc.—(*1*) The right to claim relief under sub-section (*1*) of section 3 in respect of death of, or injury to, any person or damage to any property shall be in addition to any other right to claim compensation in respect thereof under any other law for the time being in force.

(*2*) Notwithstanding anything contained in sub-section (*1*), where in respect of death of, or injury to, any person or damage to any property, the owner, liable to give claim for relief, is also liable to pay compensation under any other law, the amount of such compensation shall be reduced by the amount of relief paid under this Act.

9. Power to call for information.—Any person authorised by the Central Government may, for the purposes of ascertaining whether any requirements of this Act or of any rule or of any direction given under this Act have been compiled with, require any owner to submit to that person such information as that person may reasonably think necessary.

10. Power of entry and inspection.—Any person, authorised by the Central Government in this behalf, shall have a right to enter, at all reasonable times with such assistance as he considers necessary, any place, premises or vehicle, where hazardous substance is handled for the purpose of determining whether any provisions of this Act or of any rule or of any direction given under this Act is being or has been compiled with and such owner is bound to render all assistance to such person.

11. Power of search and seizure.—(*1*) If a person, authorised by the Central Government in this behalf, has reason to believe that handling of any hazardous substance is taking place in any place, premises or vehicle, in contravention of sub-section (*1*) of section 4, he may enter into and search such place, premises or vehicle for such handling of hazardous substance.

(*2*) Where, as a result of any search under sub-section (*1*) any handling of hazardous substance has been found in relation to which contravention of sub-section (*1*) of section 4 has taken place, he may seize such hazardous substance and other things which, in his opinion, will be useful for, or relevant to, any proceeding under this Act:

Provided that where it is not practicable to seize any such substance or thing, he may serve on the owner an order that the owner shall not remove, part with, or otherwise deal with, the hazardous substance and such other things except with the previous permission of that person.

(*3*) He may, if he has reason to believe that it is expedient so to do to prevent an accident dispose of the hazardous substance seized under sub-section (*2*) immediately in such manner as he may deem fit.

(*4*) All expenses incurred by him in the disposal of hazardous substances under sub-section (*3*) shall be recoverable from the owner as arrears of land revenue or of public demand.

12. Power to give directions.—Notwithstanding anything contained in any other law but subject to the provisions of this Act, the Central Government may, in exercise of its powers and performance of its

1. Ins. by Act 18 of 2023, s. 2 and Schedule (w.e.f. 1-4-2024).

functions under this Act, issue such directions in writing as it may deem fit for the purposes of this Act to any owner or any person, officer, authority or agency and such owner, person, officer, authority or agency shall be bound to comply with such directions.

Explanation.—For the removal of doubts, it is hereby declared that the power to issue directions under this section includes the power to direct—

(*a*) prohibition or regulation of the handling of any hazardous substance; or

(*b*) stoppage or regulation of the supply of electricity, water or any other service.

13. Power to make application to Courts for restraining owner from handling hazardous substances.—(*1*) If the Central Government or any person authorised by that Government in this behalf has reason to believe that any owner has been handling any hazardous substance in contravention of any of the provisions of this Act, that Government or, as the case may be, that person may make an application to a Court, not inferior to that of a Metropolitan Magistrate or a Judicial Magistrate first class for restraining such owner from such handling.

(*2*) On receipt of the application under sub-section (*1*), the Court may make such order as it deems fit.

(*3*) Where under sub-section (*2*), the Court makes an order restraining any owner from handling hazardous substance, it may, in that order—

(*a*) direct such owner to desist from such handling;

(*b*) authorise the Central Government or, as the case may be, the person referred to in sub-section(*1*), if the direction under clause (*a*) is not complied with by the owner to whom such direction is issued, to implement the direction in such manner as may be specified by the Court.

(*4*) All expenses incurred by the Central Government, or as the case may be, the person in implementing the directions of Court under clause (*b*) of sub-section (*3*), shall be recoverable from the owner as arrears of land revenue or of public demand.

[1]**[14. Penalty for contravention.**— (*1*) Where any person contravenes any of the provisions of sub-section (*1*), sub-section (*2*), sub-section (*2A*) or sub-section (*2C*) of section 4, he shall be liable to penalty equal to the amount of annual premium for insurance policy and may extend to twice the amount of such premium.

(*2*) Where contravention under subsection (*1*) continues, an additional penalty may be imposed by the adjudicating officer, which shall not exceed the amount of premium to be paid, for each month or part thereof during which the contravention continues.

15. Penalty for non-compliance of directions.—(*1*) Where any person does not comply with any direction issued under section 12, he shall be liable to penalty which shall not be less than ten thousand rupees which may extend to fifteen lakh rupees.

(*2*) Where any person continues non-compliance under sub-section (*1*), he shall be liable to additional penalty to be imposed by the adjudicating officer, which shall not be less than ten thousand rupees for every day during which such non-compliance continues.

(*3*) Where any owner does not comply with the direction issued under section 9 or obstructs any person in discharge of his functions under section 10 or under sub-sections (*1*), (*2*) or (*3*) of section 11, he shall be liable to penalty which shall not be less than ten thousand rupees but which may extend to fifteen lakh rupees.

(*4*) Where any person continues non-compliance under sub-section (*3*), he shall be liable to additional penalty of ten thousand rupees for every day during which such non-compliance continues.

15A. Adjudicating officer.— (*1*) The Central Government, for the purposes of determining the penalties under sections 14 or 15, may appoint the District Magistrate having jurisdiction over the area or an officer not below the rank of Director to the Government of India or an officer not below the rank of

1. Subs. by Act 18 of 2023, s. 2 and Schedule for sections 14 and 15 (w.e.f. 1-4-2024).

Joint Secretary to the State Government, to be the adjudicating officer, to hold an inquiry and impose penalty in the manner, as may be prescribed:

Provided that the Central Government may appoint as many adjudicating officers as may be required.

(*2*) The adjudicating officer may summon and enforce the attendance of any person acquainted with the facts and circumstances of the case to give evidence or to produce any document, which in the opinion of the adjudicating officer, may be useful for, or relevant to, the subject matter of the inquiry and if, on such inquiry, he is satisfied that the person concerned has failed to comply with the provisions of sub-section (*1*), sub-section (*2*), sub-section (*2A*) or sub-section (*2C*) of section 4 and section 12, he may determine such penalty as he thinks fit under the provisions of sections 14 and 15:

Provided that no such penalty shall be imposed without giving the person concerned a reasonable opportunity of being heard.

15B. Appeal.—(*1*) Whoever aggrieved by the order, passed by the adjudicating officer under section 15A, may prefer an appeal to the National Green Tribunal established under section 3 of the National Green Tribunal Act, 2010 (19 of 2010).

(*2*) Every appeal under sub-section (*1*) shall be filed within sixty days from the date on which the copy of the order made by the adjudicating officer is received by the aggrieved person.

(*3*) The Tribunal may, after giving the parties to the appeal an opportunity of being heard, pass such order as it thinks fit, confirming, modifying or setting aside the order appealed against.

(*4*) Where an appeal is preferred against any order of the adjudicating officer under sub-section (*1*), such appeal shall not be entertained by the Tribunal unless such person has deposited with the Tribunal ten per cent. of the amount of the penalty imposed by the adjudicating officer.]

16. [Offences by companies.]—*Omitted by the Jan Vishwas (Amendment of Provisions) Act*, 2023 (18 *of* 2023), *s*. 2 *and Schedule* (*w.e.f.* 1-4-2024).

[1]**[17**. **Penalty for contravention by Government Department.**—(*1*) Where contravention of any provision of this Act has been committed by any Department of the Central Government or State Government, the Head of the Department shall be liable to penalty equal to one month of his basic salary:

Provided that he shall not be liable for such contravention, if he proves that the contravention was committed without his knowledge or instructions or that he exercised all due diligence to prevent such contravention.

(*2*) Where any contravention under sub-section (*1*) is attributable to any neglect on the part of, any officer, other than the Head of the Department, he shall be liable to penalty equal to one month of his basic salary:

Provided that he shall not be liable for the contravention, if he proves that he exercised all due diligence to avoid such contravention.

17A. Penalty amount to be credited to Environmental Relief Fund.—Where any penalty or additional penalty, as the case may be, is imposed under section 14 or section 15 or section 17, the amount of such penalty shall be credited to the Environmental Relief Fund established under section 7A.

17B. Offence for failure to pay penalty or additional penalty.—(*1*) Where any person fails to pay the penalty or additional penalty imposed for—

(*a*) contravention or continued contravention under section 14 or 17, as the case may be; or

(*b*) non-compliance of the directions issued under section 15, within ninety days of such imposition, he shall be liable for imprisonment which may extend to three years or with fine which may extend up to fifteen lakh rupees, or with both.

(*2*) Where any offence under subsection (*1*) has been committed by a company, every person who, at the time the offence was committed, was directly in charge of, and was responsible to, the company for

1. Subs. by Act 18 of 2023, s. 2 and Schedule for section 17 (w.e.f. 1-4-2024).

the conduct of the business of the company, as well as the company, shall be deemed to be guilty of such offence and shall be liable to be proceeded against and punished accordingly:

Provided that nothing contained in this sub-section shall render any such person liable to any punishment provided in this Act, if he proves that the offence was committed without his knowledge or that he exercised all due diligence to prevent the commission of such offence.

(*3*) Notwithstanding anything contained in sub-section (*2*), where an offence under this Act has been committed by a company and it is proved that the offence has been committed with the consent or connivance of, or is attributable to any neglect on the part of, any director,

manager, secretary or other officer of the company, such director, manager, secretary or other officer shall also be deemed to be guilty of that offence and shall be liable to be proceeded against and punished accordingly.

Explanation.—For the purposes of this section,—

(*a*) "company" means any body corporate and includes a firm or other association of individuals;

(*b*) "director" includes director of the company and in relation to a firm, a partner in the firm.]

18. Cognizance of offences.—No court shall take cognizance of any offence under this Act except on a complaint made by—

(*a*) the Central Government or any authority or officer authorised in this behalf by that Government; or

(*b*) any person who has given notice of not less than sixty days in the manner prescribed, of the alleged offence and of his intention to make a complaint, to the Central Government or the authority or officer authorised as aforesaid.

19. Power to delegate.—The Central Government may, by notification, delegate, subject to such conditions and limitations as may be specified in the notification, such of its powers and functions under this Act (except the power under section 23) as it may deem necessary or expedient to any person (including any officer, authority or other agency).

20. Protection of action taken in good faith.—No suit, prosecution or other legal proceeding shall lie against the Government or the person, officer, authority or other agency in respect of anything which is done or intended to be done in good faith in pursuance of this Act or the rules made or orders or directions issued thereunder.

21. Advisory Committee.—(*1*) The Central Government may, from time to time, constitute an Advisory Committee on the matters relating to the insurance policy under this Act.

(*2*) The Advisory Committee shall consist of—

(*a*) three officers representing the Central Government;

(*b*) two persons representing the insurers;

(*c*) two persons representing the owners; and

(*d*) two persons from amongst the experts of insurance or hazardous substances.

to be appointed by the Central Government.

(*3*) The Chairman of the Advisory Committee shall be one of the members representing the Central Government, nominated in this behalf by that Government.

22. Effect of other laws.—The provisions of this Act and any rules made thereunder shall have effect notwithstanding anything inconsistent therewith contained in any other law.

23. Power to make rules.—(*1*) The Central Government may, by notification, make rules for carrying out the purposes of this Act.

(*2*) In particular, and without prejudice to the generality of the foregoing power, such rules may provide for all or any of the following matters, namely—

[1][[2][(*a*) such amount under subsection (*2A*) of section 4;]

(*aa*) the amount required to be paid by every owner for being credited to the Relief Fund under sub-section (*2C*) of section 4;

(*ab*) the manner in which and the period within which the amount received from the owner is required to be remitted by the insurer under sub-section (*2D*) of section 4];

[3][(*ac*)] establishment and maintenance of fund under sub-section (*3*) of section 4;

(*b*) the form of application and the particulars to be given therein and the documents to accompany such application under sub-section (*2*) of section 6;

(*c*) the procedure for holding an inquiry under sub-section (*4*) of section 7;

(*d*) the purposes for which the Collector shall have powers of a Civil Court under sub-section (*5*) of section 7;

(*e*) the manner in which notice of the offence and of the intention to make a complaint to the Central Government shall be given under clause (*b*) of section 18;

[4][(*ea*) amount or relief and any other loss or damage under subsection (*1*) of section 3;

(*eb*) such other person under sub-section (*1A*) of section 6;

(*ec*) manner of allocation of fund for restoration of damage under sub-section (*9*) of section 7;

(*ed*) any other amount from other sources under clause (*d*) of subsection (*1A*) of section 7A;

(*ee*) manner of holding inquiry and imposing penalty under subsection (*1*) of section 15A;]

(*f*) any other matter which is required to be, or may be, prescribed.

(*3*) Every [5][rule or scheme] made under this Act shall be laid, as soon as may be after it is made, before each House of Parliament, while it is in session for a total period of thirty days which may be comprised in one session or in two or more successive sessions, and if, before the expiry of the session immediately following the session or the successive sessions aforesaid, both Houses agree in making any modification in the [5][rule or scheme] or both Houses agree that the [5][rule or scheme] should not be made, the [5][rule or scheme] shall thereafter have effect only in such modified form or be of no effect, as the case may be; so, however, that any such modification or annulment shall be without prejudice to the validity of anything previously done under that [5][rule or scheme].

1. Ins. by Act 11 of 1992, s. 7 (w.e.f. 31-1-1992).
2. Subs. by Act 18 of 2023, s. 2 and Schedule for clause (a) (w.e.f. 1-4-2024).
3. Clause (*a*) shall be re-lettered as clause (*ac*) by Act 11 of 1992, s. 7, (w.e.f. 31-1-1992).
4. Ins. by Act 18 of 2023, s. 2 and Schedule (w.e.f. 1-4-2024).
5. Subs. by Act 11 of 1992, s. 7, for "rule" (w.e.f. 31-1-1992).

THE SCHEDULE— *Omitted by the Jan Vishwas (Amendment of Provisions) Act*, 2023 (18 *of* 2023), *s.* 2 *and Schedule (w.e.f.* 1-4-2024*).*