

**BEFORE THE NATIONAL GREEN TRIBUNAL
BENCH, EASTERN ZONE, KOLKATA
OA No. 19/2025 (EZ)**

IN THE MATTER OF:

Shukadev Mohanty

... Applicant

Versus

State of Odisha

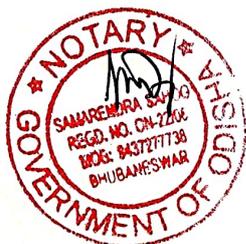
...Respondent(s)

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Place: *Bhubaneswar*

Dated: *27/05/2025*



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IN THE MATTER OF:

Shukadev Mohanty

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State of Odisha

....Respondent(s)

**REPLY AFFIDAVIT ON BEHALF OF THE MINISTRY OF
ENVIRONMENT, FOREST AND CLIMATE CHANGE
(RESPONDENT NO. 11)**

MOST RESPECTFULLY SHOWETH:

I, M. Rajeshwar Prasad S/o M. Bhaskar Rao aged about 58 , currently working as Scientist "C" in the Ministry of Environment, Forest and Climate Change (MoEF&CC), Regional Office, Bhubaneswar , 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.
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 application has been filed by the applicant before the Hon'ble National Green Tribunal ('Hon'ble NGT')

M. Rajeshwar Prasad.



MMS 27.5.2025

**SAMARENDRA SAHOO
NOTARY, BHUBANESWAR
GOVT. OF ODISHA, INDIA
REGD NO:- 22/08
MOBILE: 9437277738**



challenging the installation of CNG station and DRS in residential areas of Bhubaneswar in violation of CPCB Guidelines dated 7th January 2020.

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, Rule 2(h) of the MSIHC Rules, 1989 defines "industrial activity" as- (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;*
6. That, Rules 2(i) of the MSIHC Rules, 1989 defines (i) "isolated storage" as *"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."*
7. That, Rule 4(2) of the MSIHC Rules, 1989 talks about the general responsibility of the occupier during industrial activity that an occupier who has control of an industrial activity in



M. Rajeshwar Prasad.

X

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.



8. That, Rule 10 of the MISHC Rules, 1989 talks about the Safety Reports and Safety Audit Reports, which reads as under:

“(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

M. Rajeshwar Prasad.

accordance with that sub-rule within ninety days after the date of coming into operation of these rules.

[(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.]

[(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.]

[(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.”



M. Rajeshwar Prasad.



9. That Rule 13 & 14 of the MSIHC Rules, 1989 talks about the Preparation of On-site and Off-site Emergency Plan by the Authority. Further, Rule 15 of the MSIHC Rules talks about the Information to be Given to Persons Liable to be Affected by a Major Accident, which reads as under:

“(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.

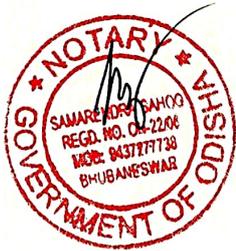
(2) The occupier shall take steps required under sub-rule (1) to inform persons about an industrial activity, before that activity is commenced, except, in the case of an existing industrial activity in which case the occupier shall comply with the requirements of sub-rule (1) within 90 days of coming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



M. Rajeshwar Prasad.

10. That, the Petroleum and Explosives Safety Organization (PESO), has also been made the nodal agency to approve and notify the sites of pipelines carrying hazardous chemicals including inter-^tstate pipelines. The PESO has also been mandated to accept On-site Emergency Plans, review the safety reports and safety audit reports submitted by occupiers. PESO is also mandated to enforce directions and procedures under the Explosives Act, 1884 as well as the Petroleum Act, 1934.

11. That, the PESO and the Chief Inspector of Factories (CIFs) or Director, Industry Safety and Health (DISH), while giving approvals to industrial units, transportation pipelines and isolated storage are expected to ensure preparation of on-site emergency plans & safety reports by units, reviewing the details of mock-drills conducted and implementation of Standard Operating Procedures (SOPs) of industrial operation by the unit from industrial safety point of view.
12. 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 respondent Ministry 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/ UTs for implementation. A copy of the framework is attached at **Annexure-R2**.
13. It is to be stated that CPCB has issued guidelines for setting up of new Petrol Pumps vide OM dated 07.01.2020. In furtherance an Addendum to the guidelines has also been issued vide OM dated 16.08.2021 and an OM dated 16.09.2024 was also issued by CPCB to all the State Pollution Control Board/Committee (SPCBs/PCCs) on the similar aspect. Copy of the CPCB guidelines is annexed herein as **Annexure-R3**.



M. Rajeshwar Purohit.

14. 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.



M. Rajeshwar Prasad.
DEPONENT

एम. राजेश्वर प्रसाद
M. RAJESHWAR PRASAD
वैज्ञानिक 'सी' / SCIENTIST 'C'
भारत सरकार / Govt. of India
पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय
Ministry of Environment, Forest & CC
क्षेत्रीय कार्यालय / Regional Office
भुवनेश्वर / Bhubaneswar

VERIFICATION

Verified at Bhubaneswar on this day of May, 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.

M. Rajeshwar Prasad.
DEPONENT

एम. राजेश्वर प्रसाद
M. RAJESHWAR PRASAD
वैज्ञानिक 'सी' / SCIENTIST 'C'
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Ministry of Environment, Forest & CC
क्षेत्रीय कार्यालय / Regional Office
भुवनेश्वर / Bhubaneswar

27.5.2025
SAMARENDR SAAHOO
NOTARY, BHUBANESWAR
GOVT. OF ODISHA, INDIA
REGD NO:- 22/08
MOBILE: 9437277738

The Manufacture, Storage and Import of Hazardous Chemical Rules, 1989^{*}

(Manufacture, Storage and Import of Hazardous Chemical Rules, 1989)
[27th November, 1989]

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;
- (f) "import" with its grammatical variations and cognate expression, means bringing 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;
- ²[(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 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.

³[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;
- (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 ⁴[or listed] in Column 2 of Part II of this Schedule is, or may be, involved; and
- ⁵[(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 ⁶[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 ² [requisite information within 90 days to the Ministry] of Environment and Forests through appropriate channel.

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

⁹[(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 ¹⁰[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;

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

7. ¹¹[Approval and] Notification of Sites.—(1) An occupier shall not undertake any industrial activity ¹²[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.

¹³[(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

(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 ¹⁴[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.

¹⁵(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.]

¹⁶(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.]

¹⁷(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 ¹⁸ [***] send a copy of the report to the concerned authority.

¹⁹[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 ²⁰[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 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.

²¹[(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 ²²[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 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.

²³[(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.

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 ²⁴[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 ²⁵[or listed] in Column 2 of Part II of this Schedule.

(2) Any person responsible for importing hazardous chemicals in India shall provide ²⁶[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.

²⁷(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.]

²⁸[(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.

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, ²⁹[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.

³⁰[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/1)
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.

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

(v) *flammable liquids* : chemicals which have a flash point higher than 60°C but lower than 90°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	63.	Benzoquinone-P
24.	Aluminium phosphide	64.	Benzotrighloride
25.	Amino diphenyl	65.	Benzoyl chloride
26.	Amino pyridine	66.	Benzoyl peroxide
27.	Aminophenol-2	67.	Benzyl chloride
28.	Aminopterin	68.	Beryllium (Powder)
29.	Amiton	69.	Bicyclo (2, 2, 1) Heptane -2- carbonitrile
30.	Amiton dialate	70.	Biphenyl
31.	Ammonia	71.	Bis (2-Chloroethyl) sulphide
32.	Ammonium chloro platinate	72.	Bis (Chloromethyl) Ketone
33.	Ammonium nitrate	73.	Bis (Tert-butyl peroxy) cyclohexane
34.	Ammonium nitrite		

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| 35. Ammonium picrate | 74. Bis (Terbutylperoxy) butane |
| 36. Anabesine | 75. Bis(2,4, 6-Trinitrophenylamine) |
| 37. Aniline | 76. Bis (Chloromethyl) Ether |
| 38. Aniline 2,4, 6-Trimethyl | 77. Bismuth and compounds |
| 39. Anthraquinone | 78. Bisphenol-A |
| 40. Antimony pentafluoride | 79. Bitoscanate |

S. No.	NAME OF CHEMICALS	HAZARDOUS	S. No.	NAME OF CHEMICALS	HAZARDOUS
80.	Boron Powder		124.	Chloroacetal chloride	
81.	Boron trichloride		125.	Chloroacetaldehyde	
82.	Boron trifluoride		126.	Chloroaniline -2	
83.	Boron trifluoride methylether, 1:1	comp. With	127.	Chloroaniline -4	
84.	Bromine		128.	Chlorobenzene	
85.	Bromine pentafluoride		129.	Chloroethyl chloroformate	
86.	Bromo chloro methane		130.	Chloroform	
87.	Bromodialone		131.	Chloroformyl morpholine	
88.	Butadiene		132.	Chloromethane	
89.	Butane		133.	Chloromethyl methyl ether	
90.	Butanone-2		134.	Chloronitrobenzene	
91.	Butyl amine tert		135.	Chlorophacinone	
92.	Butyl glycidal ether		136.	Chlorosulphonic acid	
93.	Butyl isovalerate		137.	Chlorothiophos	
94.	Butyl peroxy maleate tert		138.	Chloroxuron	
95.	Butyl vinyl ether		139.	Chromic acid	
96.	Butyl-n-mercaptan		140.	Chromic chloride	
97.	C.I. Basic green		141.	Chromium powder	
98.	Cadmium oxide		142.	Cobalt carbonyl	
99.	Cadmium stearate		143.	Cobalt compound	Nitrilmethylidyne
100.	Calcium arsenate		144.	Cobalt (Powder)	
101.	Calcium carbide		145.	Colchicine	
102.	Calcium cyanide		146.	Copper and Compounds	
103.	Camphechlor (Toxaphene)		147.	Copperoxychloride	
104.	Cantharidin		148.	Coumafuryl	
105.	Captan		149.	Coumaphos	
106.	Carbachol chloride		150.	Coumatetralyl	
107.	Carbaryl		151.	Crimidine	
108.	Carbofuran (Furadan)		152.	Crotonaldehyde	
109.	Carbon tetrachloride		153.	Crotonaldehyde	
110.	Carbon disulphide		154.	Cumene	
111.	Carbon monoxide		155.	Cyanogen bromide	
112.	Carbonphenothion		156.	Cyanogen iodide	
113.	Carvone		157.	Cyanophos	
114.	Cellulose nitrate		158.	Cyanothoate	
115.	Chloroacetic acid		159.	Cyanuric fluoride	
116.	Chlordane		160.	Cyclo hexylamine	
117.	Chlorofenvinphos		161.	Cyclohexane	
			162.	Cyclohexanone	

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| 118. Chlorinated benzene | 163. Cycloheximide |
| 119. Chlorine | 164. Cyclopentadiene |
| 120. Chlorine oxide | 165. Cyclopentane |
| 121. Chlorine trifluoride | 166. Cyclotetramethyl enetetranitramine |
| 122. Chlormephos | 167. Cyclotrimethylen etrinnitranine |
| 123. Chlormequat chloride | |

S. No.	NAME OF CHEMICALS	HAZARDOUS	S. No.	NAME OF CHEMICALS	HAZARDOUS
168.	Cypermethrin		209.	Dimethyl nitrosoamine	
169.	DDT		210.	Dimethyl P phenylene diamine	
170.	Decaborane (1 : 4)		211.	Dimethyl phosphoramidi cyanidic acid (TABUM)	
171.	Demeton		212.	Dimethyl phosphorochloridothioate	
172.	Demeton S-Methyl		213.	Dimethyl sulfolane (DMS)	
173.	Di-n-propyl peroxydicarbonate (Conc = 80%)		214.	Dimethyl sulphide	
174.	Dialifos		215.	Dimethylamine	
175.	Diazodinitrophenol		216.	Dimethylaniline	
176.	Dibenzyl peroxydicarbonate (Conc >= 90%)		217.	Dimethylcarbonyl chloride	
177.	Diborane		218.	Dimetilan	
178.	Dichloroacetylene		219.	Dinitro O-cresol	
179.	Dichlorobenzalkonium chloride		220.	Dinitrophenol	
180.	Dichloroethyl ether		221.	Dinitrotoluene	
181.	Dichloromethyl phenylsilane		222.	Dinoseb	
182.	Dichlorophenol – 2, 6		223.	Diniterb	
183.	Dichlorophenol – 2, 4		224.	Dioxane-p	
184.	Dichlorophenoxy acetic acid		225.	Dioxathion	
185.	Dichloropropane – 2, 2		226.	Dioxine N	
186.	Dichlorosalicylic acid-3, 5		227.	Diphacinone	
187.	Dichlorvos (DDVP)		228.	Diphosphoramide octamethyl	
188.	Dicrotophos		229.	Diphenyl methane di-isocynate (MDI)	
189.	Dieldrin		230.	Dipropylene Glycol Butyl ether	
190.	Diepoxy butane		231.	Dipropylene glycolmethyl ether	
191.	Diethyl carbamazine citrate		232.	Disec-butyl peroxydicarbonate (Conc. >80%)	
192.	Diethyl chlorophosphate		233.	Disufoton	
193.	Diethyl ethtanolamine		234.	Dithiazamine iodide	
194.	Diethyl peroxydicarbonate (Conc=30%)		235.	Dithiobiurate	
195.	Diethyl phenylene diamine		236.	Endosulfan	
196.	Diethylamine		237.	Endothion	
197.	Diethylene glycol		238.	Endrin	
198.	Diethylene glycol dinitrate		239.	Epichlorohydrine	
199.	Diethylene triamine		240.	EPN	
200.	Diethleneglycol butyl ether		241.	Ergocalciferol	
201.	Diglycidyl ether		242.	Ergotamine tartarate	
202.	Digitoxin		243.	Ethanesulfenyl chloride, 2 chloro	

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| 203. Dihydroperoxypropane
(Conc >=30%) | 244. Ethanol 1-2 dichloracetate |
| 204. Diisobutyl peroxide | 245. Ethion |
| 205. Dimefox | 246. Ethoprophos |
| 206. Dimethoate | 247. Ethyl acetate |
| 207. Dimethyl dichlorosilane | 248. Ethyl alcohol |
| 208. Dimethyl hydrazine | 249. Ethyl benzene |
| | 250. Ethyl bis amine |

S. No.	NAME OF CHEMICALS	HAZARDOUS	S. No.	NAME OF CHEMICALS	HAZARDOUS
251.	Ethyl bromide		292.	Furan	
252.	Ethyl carbamate		293.	Gallium Trichloride	
253.	Ethyl ether		294.	Glyconitrile (Hydroxyacetonitrile)	
254.	Ethyl hexanol -2		295.	Guanyl-4-nitrosaminoguynyl-1-tetrazene	
255.	Ethyl mercaptan		296.	Heptachlor	
256.	Ethyl mercuric phosphate		297.	Hexamethyl terta-oxyacyclononate (Conc 75%)	
257.	Ethyl methacrylate		298.	Hexachlorobenzene	
258.	Ethyl nitrate		299.	Hexachlorocyclohexan (Lindane)	
259.	Ethyl thiocyanate		300.	Hexachlorocyclopentadiene	
260.	Ethylamine		301.	Hexachlorodibenzo-p-dioxin	
261.	Ethylene		302.	Hexachloronapthalene	
262.	Ethylene chlorohydrine		303.	Hexafluoropropanone sesquihydrate	
263.	Ethylene dibromide		304.	Hexamethyl phosphoromide	
264.	Ethylene diamine		305.	Hexamethylene diamine N N dibutyl	
265.	Ethylene diamine hydrochloride		306.	Hexane	
266.	Ethylene flourohydrine		307.	Hexanitrostilbene 2, 2, 4, 4, 6, 6	
267.	Ethylene glycol		308.	Hexene	
268.	Ethylene glycol dinitrate		309.	Hydrogen selenide	
269.	Ethylene oxide		310.	Hydrogen sulphide	
270.	Ethylenimine		311.	Hydrazine	
271.	Ethylene di chloride		312.	Hydrazine nitrate	
272.	Femamiphos		313.	Hydrochloric acid (Gas)	
273.	Femitrothion		314.	Hydrogen	
274.	Fensulphothion		315.	Hydrogen bromide	
275.	Fluemetil		316.	Hydrogen cyanide	
276.	Fluorine		317.	Hydrogen fluoride	
277.	Fluoro2-hyrdoxy butyric acid amid salt ester		318.	Hydrogen peroxide	
278.	Fluoroacetamide		319.	Hydroquinone	
279.	Fluoroacetic acid amide salts and esters		320.	Indene	
280.	Fluoroacetylchloride		321.	Indium powder	
281.	Fluorobutyric acid amide salt esters		322.	Indomethacin	
282.	Fluorocrotonic acid amides salts esters		323.	Iodine	
283.	Fluorouracil		324.	Iridium tetrachloride	
284.	Fonofos		325.	Ironpentacarbonyl	
285.	Formaldehyde		326.	Iso benzan	

286.	Formetanate hydrochloride			327.	Isoamyl alcohol		
287.	Formic acid			328.	Isobutyl alcohol		
288.	Formoparanate			329.	Isobutyro nitrile		
289.	Formothion			330.	Isocyanic acid 3, 4-dichlorophenyl ester		
290.	Fosthiotan			331.	Isodrin		
291.	Fuberidazole						
S. No.	NAME OF CHEMICALS	OF	HAZARDOUS	S. No.	NAME OF CHEMICALS	OF	HAZARDOUS
332.	Isofluorophosphate			373.	Methoxy ethanol (2-methyl cellosolve)		
333.	Isophorone diisocyanate			374.	Methoxyethyl mercuric acetate		
334.	Isopropyl alcohol			375.	Methyacrylol chloride		
335.	Isopropyl chlorocarbonate			376.	Methyl 2-chloroacrylate		
336.	Isopropyl formate			377.	Methyl alcohol		
337.	Isopropyl methyl pyrazolyl dimethyl carbamate			378.	Methyl amine		
338.	Juglone (5-Hydroxy Naphthalene-1,4 dione)			379.	Methyl bromide (Bromomethane)		
339.	Ketene			380.	Methyl chloride		
340.	Lactonitrile			381.	Methyl chloroform		
341.	Lead arsenite			382.	Methyl chloroformate		
342.	Lead at high temp (molten)			383.	Methyl cyclohexene		
343.	Lead azide			384.	Methyl disulphide		
344.	Lead styphanate			385.	Methyl ethyl ketone peroxide (Conc.60%)		
345.	Leptophos			386.	Methyl formate		
346.	Lenisite			387.	Methyl hydrazine		
347.	Liquified petroleum gas			388.	Methyl isobutyl ketone		
348.	Lithium hydride			389.	Methyl isocyanate		
349.	N-Dinitrobenzene			390.	Methyl isothiocyanate		
350.	Magnesium powder or ribbon			391.	Methyl mercuric dicyanamide		
351.	Malathion			392.	Methyl Mercaptan		
352.	Maleic anhydride			393.	Methyl Methacrylate		
353.	Malononitrile			394.	Methyl phencapton		
354.	Manganese cyclopentadiene		Tricarbonyl	395.	Methyl phosphonic dichloride		
355.	Mechlor ethamine			396.	Methyl thiocyanate		
356.	Mephospholan			397.	Methyl trichlorosilane		
357.	Mercuric chloride			398.	Methyl vinyl ketone		
358.	Mercuric oxide			399.	Methylene bis (2-chloroaniline)		
359.	Mercury acetate			400.	Methylene chloride		
360.	Mercury fulminate			401.	Methylenebis-4,4(2-chloroaniline)		
361.	Mercury methyl chloride			402.	Metolcarb		
362.	Mesitylene			403.	Mevinphos		
363.	Methaacrolein diacetate			404.	Mezacarbate		
364.	Methacrylic anhydride			405.	Mitomycin C		
365.	Methacrylonitrile			406.	Molybdenum powder		
366.	Methacryloyl oxyethyl isocyanate			407.	Monocrotophos		
367.	Methanidophos			408.	Morpholine		
				409.	Muscinol		
				410.	Mustard gas		

368. Methane	411. N-Butyl acetate
369. Methanesulphonyl fluoride	412. N.-Butyl alcohol
370. Methidathion	413. N-Hexane
371. Methiocarb	414. N- Methyl-N, 2, 4, 6-
372. Methonyl	Tetranitroaniline

S. No.	NAME OF CHEMICALS	HAZARDOUS	S. No.	NAME OF CHEMICALS	HAZARDOUS
415.	Naphtha		454.	Oxamyl	
416.	Nephtha solvent		455.	Oxetane, 3, 3-bis(chloromethyl)	
417.	Naphthalene		456.	Oxidiphenoxarsine	
418.	Naphthyl amine		457.	Oxy disulfoton	
419.	Nickel carbonyl/nickel tetracarbonyl		458.	Oxygen (liquid)	
420.	Nickel powder		459.	Oxygen difluoride	
421.	Nicotine		460.	Ozone	
422.	Nicotine sulphate		461.	P-nitrophenol	
423.	Nitric acid		462.	Paraffin	
424.	Nitric oxide		463.	Paraoxon (Diethyl 4 Nitrophenyl phosphate)	
425.	Nitrobenzene		464.	Paraquat	
426.	Nitrocellulose (dry)		465.	Paraquat methosulphate	
427.	Nitrochlorobenzene		466.	Parathion	
428.	Nitrocyclohexane		467.	Parathion methyl	
429.	Nitrogen		468.	Paris green	
430.	Nitrogen dioxide		469.	Penta borane	
431.	Nitrogen oxide		470.	Penta chloro ethane	
432.	Nitrogen trifluouide		471.	Penta chlorophenol	
433.	Nitroglycerine		472.	Pentabromophenol	
434.	Nitropropane-1		473.	Pentachloro naphthalene	
435.	Nitropropane-2		474.	Pentadecyl-amine	
436.	Nitroso dimethyl amine		475.	Pentaerythaiotol tetranitrate	
437.	Nonane		476.	Pentane	
438.	Norbormide		477.	Pentanone	
439.	O-Cresol		478.	Perchloric acid	
440.	O-Nitro Toluene		479.	Perchloroethylene	
441.	O-Toludine		480.	Peroxyacetic acid	
442.	O-Xylene		481.	Phenol	
443.	O/P Nitroaniline		482.	Phenol, 2, 2-thiobis (4, 6-Dichloro)	
444.	Oleum		483.	Phenol, 2, 2-thiobis (4 chloro 6-methyl phenol)	
445.	OO Diethyl S ethyl suph. methyl phos		484.	Phenol, 3-(1-methyl ethyl) methylcarbamate	
446.	OO Diethyl S propythio methyl phosdithioate		485.	Phenyl hydrazine hydrochloride	
447.	OO Diethyl s ethylsulphinyl methylphosphorothioate		486.	Phenyl mercury acetate	
448.	OO Diethyl s ethylsulphonyl methylphosphorothioate		487.	Phenyl silatrane	
			488.	Phenyl thiourea	
			489.	Phenylene P-diamine	

449.	OO Diethyls ethylthiomethylphospho -rothioate	490.	Phorate
450.	Organo rhodium complex	491.	Phosazetin
451.	Orotic acid	492.	Phosfolan
452.	Osmium tetroxide	493.	Phosgene
453.	Oxabain	494.	Phosmet
		495.	Phosphamidon

S. No.	NAME OF CHEMICALS	HAZARDOUS	S. No.	NAME OF CHEMICALS	HAZARDOUS
496.	Phosphine		535.	Propionitrile	
497.	Phosphoric acid		536.	Propionitrile, 3-chloro	
498.	Phosphoric acid dimethyl (4-methyl thio)phenyl		537.	Propiophenone, 4-amino	
499.	Phosphorothioic acid dimethyl S(2- Bis) Ester		538.	Propyl chloroformate	
500.	Phosphorothioic acid methyl (ester)		539.	Propylene dichloride	
501.	Phosphorothioic acid, OO Dimethyl S -(2-methyl)		540.	Propylene glycol, allylether	
502.	Phosphorothioic, methyl-ethyl ester		541.	Propylene imine	
503.	Phosphorous		542.	Propylene oxide	
504.	Phosphorous oxychloride		543.	Prothoate	
505.	Phosphorous pentaoxide		544.	Pseudosumene	
506.	Phosphorous trichloride		545.	Pyrazoxon	
507.	Phosphorous penta chloride		546.	Pyrene	
508.	Phthalic anhydride		547.	Pyridine	
509.	Phylloquinone		548.	Pyridine, 2-methyl-3-vinyl	
510.	Physostigmine		549.	Pyridine, 4-nitro-1-oxide	
511.	Physostigmine salicylate (1: 1)		550.	Pyridine, 4-nitro-1-oxide	
512.	Picric acid (2, 4, 6- trinitrophenol)		551.	Pyriminil	
513.	Picrotoxin		552.	Quinaliphos	
514.	Piperdine		553.	Quinone	
515.	Piprotal		554.	Rhodium trichloride	
516.	Pirinifos-ethyl		555.	Salcomine	
517.	Platinous chloride		556.	Sarin	
518.	Platinum tetrachloride		557.	Selenious acid	
519.	Potassium arsenite		558.	Selenium Hexafluoride	
520.	Potassium chlorate		559.	Selenium oxychloride	
521.	Potassium cyanide		560.	Semicarbazide hydrochloride	
522.	Potassium hydroxide		561.	Silane (4-amino butyl) diethoxy- meth	
523.	Potassium nitride		562.	Sodium	
524.	Potiassium nitrite		563.	Sodium anthra-quinone-1- sulphonate	
525.	Potassium peroxide		564.	Sodium arsenate	
526.	Potassium silver cyanide		565.	Sodium arsenite	
527.	Powdered metals and mixtures		566.	Sodium azide	
528.	Promecarb		567.	Sodium cacodylate	
529.	Promurit		568.	Sodium chlorate	
530.	Propanesultone		569.	Sodium cyanide	
			570.	Sodium fluoro-acetate	
			571.	Sodium hydroxide	
			572.	Sodium pentachloro-phenate	

531. Propargyl alcohol
 532. Propargyl bromide
 533. Propen-2-chloro-1, 3-diou diacetate
 534. Propiolactone beta
573. Sodium picramate
 574. Sodium selenate
 575. Sodium selenite
 576. Sodium sulphide
 577. Sodium tellorite

S. No.	NAME OF CHEMICALS	HAZARDOUS	S. No.	NAME OF CHEMICALS	HAZARDOUS
578.	Stannane acetoxy triphenyl		618.	Thiometon	
579.	Stibine (Antimony hydride)		619.	Thionazin	
580.	Strychnine		620.	Thionyl chloride	
581.	Strychnine sulphate		621.	Thiophenol	
582.	Styphinic acid (2, 4, 6-trinitroresorcinol)	(2, 4, 6-)	622.	Thiosemicarbazide	
583.	Styrene		623.	Thiourea (2 chloro-phenyl)	
584.	Sulphotec		624.	Thiourea (2-methyl phenyl)	
585.	Sulphoxide, 3-chloropropyl octyl		625.	Tirpate (2,4-dimethyl-1,3-dithiolane)	
586.	Sulphur dichloride		626.	Titanium powder	
587.	Sulphur dioxide		627.	Titanium tetra-chloride	
588.	Sulphur monochloride		628.	Toluene	
589.	Sulphur tetrafluoride		629.	Toluene -2,4-di-isocyanate	
590.	Sulphur trioxide		630.	Toluene 2,6-di-isocyanate	
591.	Sulphuric acid		631.	Trans-1,4-di chloro-butene	
592.	Tellurim (powder)		632.	Tri nitro anisole	
593.	Tellurium hexafluoride		633.	Tri (Cyclohexyl) methylstannyl 1,2,4 triazole	
594.	TEPP (Tetraethyl pyrophosphate)		634.	Tri (Cyclohexyl) stannyl-1H-1, 2, 3-triazole	
595.	Terbufos		635.	Triaminotrinitrobenzene	
596.	Tert-Butyl alcohol		636.	Triamphos	
597.	Tert-Butyl peroxy carbonate		637.	Triazophos	
598.	Tert-Butyl peroxy isopropyl		638.	Tribromophenol 2, 4, 6	
599.	Tert-Butyl peroxyacetate (>=70%)	(Conc >=70%)	639.	Trichloro naphthalene	
600.	Tert-Butyl peroxy pivalate (>=77%)	(Conc >=77%)	640.	Trichloro chloromethyl silane	
601.	Tert-Butyl peroxyiso-butyrate		641.	Trichloroacetyl chloride	
602.	Tetra hydrofuran		642.	Trichlorodichlorophenylsilane	
603.	Terta methyl lead		643.	Trichloroethyl silane	
604.	Tetra nitromethane		644.	Trichloroethylene	
605.	Tetra-chlorodibenzo-p-dioxin, 1, 2, 3, 7, 8(TCDD)	1, 2, 3, 7, 8(TCDD)	645.	Trichloromethane chloride	sulphenyl
606.	Tetraethyl lead		646.	Trichloronate	
607.	Tetrafluoriethyne		647.	Trichlorophenol 2, 3, 6	
608.	Tetramethylene disulphotetramine		648.	Trichlorophenol 2, 4, 5	
609.	Thallic oxide		649.	Trichlorophenyl silane	
610.	Thallium carbonate		650.	Trichlorophon	
611.	Thallium sulphate		651.	Triethoxy silane	
612.	Thallos chloride		652.	Triethylamine	
613.	Thallos malonate		653.	Triethylene melamine	
614.	Thallos sulphate		654.	Trimethyl chlorosilane	

615.	Thiocarbazide			655.	Trimethyl propane phosphite		
616.	Thiocynamicacid, (Benzothiazolyethio) methyl		2	656.	Trimethyl tin chloride		
617.	Thiofamox			657.	Trinitro aniline		
				658.	Trinitro benzene		
S. No.	NAME OF CHEMICALS	OF	HAZARDOUS	S. No.	NAME OF CHEMICALS	OF	HAZARDOUS
659.	Trinitro benzoic acid			673.	Vinyl cyclohexane dioxide		
660.	Trinitro phenetole			674.	Vinyl fluoride		
661.	Trinitro-m-cresol			675.	Vinyl norbornene		
662.	Trinitrotoluene			676.	Vinyl toluene		
663.	Tri-ortho creysyl phosphate			677.	Vinyledene chloride		
664.	Triphenyl tin chloride			678.	Warfarin		
665.	Tris(2-chloroethyl)amine			679.	Warfarin Sodium		
666.	Turpentine			680.	Xylene dichloride		
667.	Uranium and its compounds			681.	Xylidine		
668.	Valino mycin			682.	Zinc dichloropentanitrile		
669.	Vanadium pentaoxide			683.	Zink phosphide		
670.	Vinyl acetate mononer			684.	Zirconium & compounds		
671.	Vinyl bromide						
672.	Vinyl chloride						

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)	
		³¹ [For application of rules 4,5,7 to 9 and 13 to 15]	³² [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
³³ [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
³⁴ 11.	Sulphur trioxide	15	100
[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
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
³⁵ 27.	Toluene di-isocyanate (TDI)	10	100]
[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).

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 it;

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	Quantity	CAS Number
		for application of Rules 5, 7-9 and 13-15	for application of Rules 10-12	
(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	Arsenic 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
29	OO-Diethyl S-isopropylthiomethyl 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 phosphoromidocynidic 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	Hexamethylphosphoramide	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-Hydroxynaphthalene 1,4 dione)	100 kg		481-39-0
64	4,4-Methylenebis (2-chloroniline)	10 kg		101-14-4
65	Methyl isocyanate	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-triazenthio-carboxamide)	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
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	36 [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	37 [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	Propyleneimine	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
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 peroxyacetate (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 peroxyacetate (concentration > 80%)	5 t		1931-62-0
133	Tert-Butyl peroxyisobutyrate (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-isobutyl 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 (concentration > 75%)	50 t		22397-33-7
143	Hydrogen	2 t	50 t	1333-74-0
144	Liquid Oxygen	200 t	38 [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 fulminate	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
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-Trinitrobenzene	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

39 [PART II

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

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).

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) Polymerization
 - (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, ⁴⁰[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.

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 ⁴¹ [or Committee] under	(1) Enforcement of directions and procedures in respect of isolated storage of hazardous chemicals, regarding—

	Environment (Protection) Act, 1986 as the case may be.	<ul style="list-style-type: none"> (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. <p>(2) Import of hazardous Chemicals and enforcement of directions and procedures on import of hazardous chemicals as per Rule 18.</p>
4.	Chief Inspector of Factories appointed under the Factories Act, 1948.	<p>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-</p> <ul style="list-style-type: none"> (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. <p>Preparation of off-site emergency plans in consultation with District Collector or District Emergency Authority as per S. No. 9 of this schedule.</p>
5.	Chief Inspector of Dock Safety appointed under the Dock Workers (Safety, Health and Welfare) Act, 1986.	<p>Enforcement of directions and procedures in respect of industrial installations and isolated storages dealing with hazardous chemicals and pipelines ⁴²[inside a port covered under the Dock Workers (Safety, Health and Welfare) Act, 1986] regarding-</p> <ul style="list-style-type: none"> (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	<p>Enforcement of directions and procedures in respect of industrial installations and isolated storages dealing with hazardous chemicals ⁴³[***] regarding -</p> <ul style="list-style-type: none"> (i) Notification of major accidents as per Rules 5(1) and 5(2).

		<ul style="list-style-type: none"> (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.	<p>44[Enforcement of directions and procedures regarding:—</p> <ul style="list-style-type: none"> (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 reports 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	<p>Enforcement of directions and procedures as per the provisions of</p> <p>45[(i) The Explosives Act, 1884(4 of 1884) and the rules made thereunder, namely: -</p> <ul style="list-style-type: none"> (a) The Gas Cylinders Rules, 1981; (b) The Static and Mobile Pressure Vessel (Unified) Rules, 1981; (c) The Explosive Rules, 1984 <p>(ii) The petroleum Act, 1934 (30 of 1934) and the Rules made thereunder, namely;</p> <ul style="list-style-type: none"> (a) The Petroleum Rules, 1976; (b) The Calcium Carbide Rules, 1987]; <p>46[and in respect of Industrial installation and isolated storages dealing with hazardous chemicals and pipelines including inter-state pipelines regarding:—</p> <ul style="list-style-type: none"> (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.]
9.	District Collector or District	Preparation of off-site emergency plans as

	Emergency designated by the State Government	Authority per Rule 14
<u>47</u>	[10. <u>48</u> 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]

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

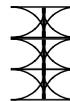
Information will be supplied as soon as possible

7. Nature and extent of damage

- (a) Within the establishment - casualtiesKilled
-Injured
-Poisoned

Persons exposed to the major accident

material damaged

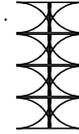


danger is still present
 danger no longer exists.



(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 bringing 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 °C	Physical State	Appearance
Melting/Freezing Point °C	Vapour Pressure	Odour
@ 35 °C mm/Hg		
Vapour Density (Air=1)	Solubility in Water at 30°C Others	
Specific Gravity Water =1	pH	

3. FIRE AND EXPLOSION HAZARD DATA

Flammability	Yes/No % <i>LEL</i>	Flash Point °C	Auto ignition Temperature °C
TDG Flammability	<i>UEL</i>	%	Flash Point °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/m³STEL

ppm mg/m³

Permissible

ppm mg/m³

Odour threshold

ppm

mg/m³

Exposure

Limits

LD₅₀

LD₅₀

NEPA

Hazard

Health

Flammability

Stability

Special

Signals

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

⁴⁹[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

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.

[50](#)[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.
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.]

* 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.
2. 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.
3. Substituted by Rule 2 of the MSIHC (Amendment) Rules, 1994 notified vide S.O.2882, dated 3.10.1994.
4. Substituted by Rule 3(i) of the MSIHC (Amendment) Rules, 1994 notified vide S.O.2882, dated 3.10.1994.
5. Substituted by Rule 3(ii), *ibid*.
6. Substituted by Rule 3(a) of the MSIHC (Amendment) Rules, 1994 notified vide S.O.2882, dated 3.10.1994.

7. Substituted by Rule 3(b) *ibid*.
8. 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.
9. Inserted by Rule 3(d); *ibid*.
10. Substituted by Rule 4; *ibid*.
11. Substituted by Rule 5 of the MSIHC (Amendment) Rules, 2000 notified vide S.O.57(E), dated 19.1.2000.
12. Substituted by Rule 4 (a) of MSIHC (Amendment) Rules, 1994 notified vide S.O.2882, dated 3.10.1994.
13. Substituted by Rule 4(b), *ibid*.
14. Substituted by Rule 6 of the MSIHC (Amendment) Rules, 2000 notified vide S.O.57(E), dated 19.1.2000.
15. Substituted by Rule 5(a) of the MSIHC (Amendment) Rules, 1994 notified vide S.O.2882, dated 3.10.1994.
16. Inserted by Rule 5(b), *ibid*.
17. Inserted by Rule 5(b) of the MSIHC (Amendment) Rules, 1994 notified vide S.O.2882, dated 3.10.1994.
18. Omitted by Rule 6, *ibid*.
19. Substituted by Rule 7, *ibid*.
20. Substituted by Rule 8(a), *ibid*.
21. Inserted by Rule 8(b) of the MSIHC (Amendment) Rules, 1994 notified vide S.O.2882, dated 3.10.1994.
22. Substituted by Rule 9 (a), *ibid*.
23. Inserted by Rule 9(b) of the MSIHC (Amendment) Rules, 1994 notified vide S.O.2882, dated 3.10.1994.
24. Substituted by Rule 7 of the MSIHC (Amendment) Rules, 2000 notified vide S.O.57(E), dated 19.1.2000.
25. Substituted by Rule 8(a), *ibid*.
26. Substituted by Rule 10(a) of the MSIHC (Amendment) Rules, 1994 notified vide S.O.2882, dated 3.10.1994.
27. Substituted by Rule 10(b), *ibid*.
28. Inserted by Rule 10(c), *ibid*.
29. Substituted by Rule 11 of MSIHC Rules, 1994 notified vide S.O.2882, dated 3.10.1994.
30. Substituted by Rule 9 of the MSIHC (Amendment) Rules, 2000 notified vide S.O.57(E), dated 19.1.2000.
31. Substituted by Rule 10(i)(a) of the MSIHC (Amendment) Rules, 2000 notified by S.O.57(E), dated 19.1.2000;
32. Substituted by Rule 10(i)(b), *ibid*;
33. Substituted entry 7 by Rule 10(ii), *ibid*
34. Inserted entries 12 to 27 by Rule 11 of the MSIHC (Amendment) Rules, 1994 notified vide S.O.2882, dated 3.10.1994.
35. 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.
36. Inserted by Rule 14 (a to h) of MSIHC (Amendment) Rules, 1994 notified vide notification S.O.2882, dated 3.10.1994.
37. Inserted by Rule 14 (a to h) of MSIHC (Amendment) Rules, 1994 notified vide notification S.O.2882, dated 3.10.1994.
38. Substituted by Rule 11(i) of the MSIHC (Amendment) Rules, 2000 notified vide S.O.57(E), dated 19.1.2000.
39. Substituted by Rule 11(ii) of the MSIHC (Amendment) Rules, 2000 notified by S.O.57(E), dated 19.1.2000.

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40. Inserted by Rule 12 of the MSIHC (Amendment) Rules, 2000 notified vide S.O.57(E), dated 19.1.2000.
41. Inserted by Rule 13(i) of the MSIHC (Amendment) Rules, 2000 notified vide S.O.57(E), dated 19.1.2000.
42. Substituted by Rule 13(ii) of the MSIHC (Amendment) Rules, 2000 notified vide S.O.57(E), dated 19.1.2000
43. Omitted by Rule 13(iii), *ibid*;
44. Substituted by Rule 13(iv), *ibid*
45. Substituted by Rule 15 of the MSIHC (Amendment) Rules, 1994, notified vide S.O.2882, dated 3.10.1994.
46. Inserted by Rule 13 (v) of the MSIHC (Amendment) Rules, 2000 notified vide S.O.57(E), dated 19.1.2000
47. Substituted by Rule 13(vi), of the MSIHC (Amendment) Rules, 2000 notified vide S.O.No.57(E), dated 19.1.2000.
48. Inserted by G.S.R.584(E), dated 9th June, 1990.
49. Inserted by Rule 16 of the MSIHC (Amendment) Rules, 1994 notified by S.O.2882, dated 3.10.1994
50. Inserted by Rule 16 of the MSIHC (Amendment) Rules, 1994 notified by S.O.2882, dated 3.10.1994.

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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 bringing 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 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 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.

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

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 reactors. 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 & Associates, 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/cm²). 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 °C., humidity 52.72 % etc.

Although the prevailing predominant wind direction during the two days period i.e. from the 22/23/02/2021, 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.

$$\text{Organic compound volatilized (kg/h/m}^2\text{)} = 0.00116 \times \text{MW} \times \text{P} \times \text{W}^{0.625} \quad \text{Equation. 1}$$

(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/m², 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 m².

Thus, total surface area from where toluene can volatilize = 4600 m².

Considering toluene volatilization rate of 0.95 kg toluene/h/m²,

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 (NO_x), 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	CO ₂ , kg	SO ₂ , kg	NO ₂ , kg	HCl, kg
C ₆ H ₁₂ OS	8500	8500	64.39	6	0	1	1	0	17000	4121	74	0
C ₆ H ₁₅ N	112	112	1.60	4	1	1	0	0	282	0	0	0
C ₂ H ₅ SH	1000	1000	16.13	2	0	0	1	0	1419	1032	605	0
C ₆ H ₁₃ N	1302	1302	13.15	6	1	0	0	0	3472	0	0	0
C ₇ H ₈	27000	18260	198.48	7	0	0	0	0	61131.9	0	0	0
C ₁₆ H ₂₄ O ₅ S	3666	3666	11.18	16	0	5	1	0	7868	715	0	0
C ₁₆ H ₂₄ O ₅ S	712	712	2.17	16	0	5	1	0	1528	139	4472	0
C ₃ H ₆ ONCl.H	14000	14000	97.22	3	1	1	1	2	12833	6222	4472	7097
C ₃ H ₆ ONCl.H	14000	14000	97.22	3	1	1	1	2	12833	6222	0	7097
C ₂ H ₅ OH	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, NO_x, 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, NO_x, 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	SO ₂	NO _x	HCl	CO ₂	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/cm² 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,

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

Where, Q = flow in m³/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 m³/s (48.24 m³/h) and 0.121 m³/s (435.6 m³/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 m³/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 Gumampura 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/-
<i>Sunita Tokas Vs. New India Insurance Co. Ltd</i>	Rs. 50,000/- (Loss of estate & funeral expense)
<i>Amrit Bhanu Shali & Ors Vs. National Insurance Co. Ltd. &Ors</i>	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.

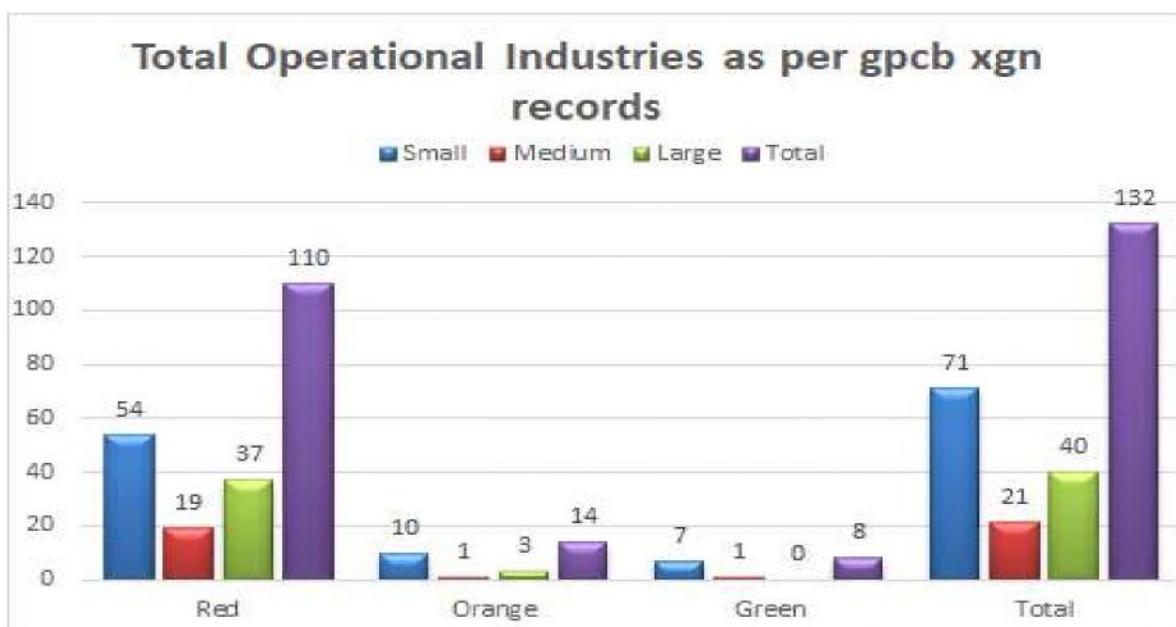
8.1 About Jhagadia Industrial Estate

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, 11 installation 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

threshold 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, Jhagadia 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 Invl. 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 Invl. Estate, Jhagadia, Bharuch-393 110
10	Upl Ltd (Unit-5).	750 GIDC Invl. 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, **the 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.***

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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. Safety audit:

- 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

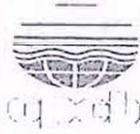
Sudhir Agarwal, JM

M. Sathyanarayanan, JM

Brijesh Sethi, JM

Dr. Nagin Nanda, EM

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



CENTRAL POLLUTION CONTROL BOARD

DELHI 110 032

B-13011/1/2019-20/AQM

10802-10847

January 07, 2020

OFFICE MEMORANDUM

Sub: Guidelines for Setting Up of New Petrol Pumps in Compliance of Hon'ble NGT order dated January 18, 2019 in OA No. 86/2019: Gyanprakash@ Pappu Singh vs Gol & Ors -regarding.

Hon'ble National Green Tribunal, vide order dated January 18, 2019 in OA No. 86/2019: Gyanprakash@ Pappu Singh vs Gol & Ors directed Central Pollution Control Board and MoPNG to look into the issue of setting up of large number of petrol pumps in the country and directed that appropriate guidelines be issued by the Central Pollution Control Board in exercise of statutory power.

An Expert Committee comprising of members from IIT Kanpur, NEERI, IIP, TERI, MoPNG and CPCB was constituted to frame Guidelines for setting up of new Petrol Pumps including siting criteria and pollution prevention and control measures

The guidelines were placed in public domain and comments/suggestions/objections were invited from public and concern stakeholder and these were reviewed and guideline have been finalised.

The final Guidelines prepared by Expert Committee are hereby circulated for implementation by concerned stakeholders. These guidelines are hereby issued with the approval of the Competent Authority.

(V.K. Shukla)

Additional Director, AQM Div.

Encl.: As Above

To.

1. As per List Enclosed

Copy to:

1. Joint Secretary
CP Division
Ministry of Environment, Forest and Climate Change
Indira Paryavaran Bhavan,
Jorbagh Road, New Delhi - 110 003
2. PS to CCB

3. PS to MS

MS
AQM
17/1/20

AEI

MS
SCC (CCP)

please circulate to all
R/S AGIC

17/1/20

GUIDELINES FOR SETTING UP OF NEW PETROL PUMPS

A. Containment and treatment of spillages from fuel filling operations at petrol pumps:

1. Petrol pumps located in areas with high groundwater table i.e. groundwater levels less than 04 meters shall have secondary containment by way of double walled tanks or concrete protection walls so as to minimize groundwater and soil contamination. It shall be the responsibility of OMC to properly get measured groundwater level at the site of proposed petrol pump and ensure implementation of these adequate protection measures for such sites. Details of measures taken by Oil Marketing Company shall be placed in public domain and in case of contradictory view, view of State/ Central Ground Water Board/ Authority will prevail.
2. All new retail outlets shall have underground tanks/ above ground tank and its ancillary components such as pipes, flexible connectors, pumps, fittings etc. protected from leaks due to corrosion by adopting materials (HDPE/ Mild Steel etc.) with required protective coating, as applicable, duly approved by PESO.
3. Any major leakage/ spillage of Petrol, Diesel, Lube Oil (more than 1 barrel-165 litres) occurs at fueling station, concerned OMC shall report to State Pollution Control Board, PESO and District Administration under intimation to CPCB within 24 hours of occurrence.

Operation of concerned underground storage tank (UST) and its ancillary components shall be stopped immediately and not be resumed till corrective measures to contain and stop leakage/ spillages are implemented to the satisfaction of PESO and concerned SPCB.

OMCs will be held liable for Environmental Compensation (imposed by SPCBs/PCCs) and assessment of environmental damage (depending on extent of contamination in soil and groundwater) and site remediation. Consultant/ Expert agency appointed by OMCs for damage assessment and site remediation shall have minimum national/ international experience of 5 years in this field. Various approved methods shall be considered for cleaning underground contaminants.

4. All DUs shall have Auto Cut off Nozzles which shuts dispensation of fuel if its level in customer fuel tank reaches full capacity.
5. Breakaways to be installed for all the hoses of dispensing units to reduce spillage in the event of customer vehicles moves away with nozzle still in the fueling position.

6. Single/ double plane swivel with breakaway coupling shall be installed for all the dispensing units for better positioning of nozzle while refueling so that it does not fall off accidentally.
7. In pressurized dispensation, all dispensing units shall be installed with shear valves to cut the fuel flow from pipe line immediately upon accidental knocking of dispensing units from its position.
8. In pressurized system all Submersible Turbine Pumps (STPs) are to installed with line leak detectors and in the event of pipeline leaks STPs shall stop pumping fuel from underground tanks.
9. Emergency stop button switch shall be provided on the Multi-Product Dispenser (MPD) to stop the dispensation in case of emergency.
10. Automation system shall be installed at all new retail outlets to alert in case of tank leak by way of auto gauging system approved by PESO.
11. All Retail Outlets shall provide overfill alarm through automation.
12. Measures for spill containment in fill point chambers and forecourt area shall be implemented as prescribed by PESO.

B. Check on leakages (Leakage Detection System) from underground storage tanks so as to prevent groundwater and soil contamination:

1. All new retail outlets will have automation system installed which will provide reports on volume balance after every day operation and records shall be maintained.
2. Manual gauging shall be done once in a month and compare the same with Automatic Tank Gauging for accuracy.
3. Daily MS and HSD loss shall not exceed MoPNG prescribed limits. In case of leakage beyond such limits, matter shall be got analyzed by OMCs and further action shall be taken for ascertaining the reasons of losses. In case of leakage resulting in soil / groundwater contamination:
 - a. Concerned OMC shall report to State Pollution Control Board, PESO and District Administration under intimation to CPCB within 24 hours of occurrence. Operation of such underground storage tank (UST) and its ancillary components shall be stopped immediately.
 - b. Fuel shall be removed immediately from underground storage tank to prevent further release to environment. Measures to prevent explosion due to vapors released due to leakage as recommended by PESO shall be implemented immediately.

- c. OMCs will be held liable for Environmental Compensation (imposed by SPCBs/PCCs) and assessment of environmental damage (depending on extent of contamination in soil and groundwater) and site remediation. Consultant/ Expert agency appointed by OMCs for damage assessment and site remediation shall have minimum national/ international experience of 05 years in this field. Various approved methods shall be considered for cleaning underground contaminants.
 - d. Operation of Underground tank and its ancillary components shall not be resumed till corrective measures to contain and stop leakages are implemented to the satisfaction of PESO and concerned SPCB.
4. All underground tanks and pipelines shall be subjected to test for leaks every 7 years.

C. Policy towards Treatment and disposal of sludge removed from underground tanks during cleaning:

Sludge shall be collected, stored and disposed as per Rule 8 of Hazardous Waste (Management and Transboundary) Rules, 2016 and amendments thereof and records shall be maintained.

D. Installation, Operation and maintenance of Vapour Recovery System:

1. All **new retail** outlets set up with sale potential of 300KL MS per month and setting up in cities with population more than 1 lakh will be provided with VRS. VRS should be functional by the time of sale of MS touch 300 KL. In case of failure of installation of VRS, Environment Compensation will be levied by SPCBs/ PCCs equivalent to the cost of VRS and this will further increase proportionate to the period of non-compliance.
2. Any **new retail** outlet set up in cities having population more than 10 lakh and having sale potential of 100 KL MS per month will be provided with VRS. VRS should be installed within a period 03 months from the day of sale of MS touch 100 KL. In case of failure of installation of VRS, Environment Compensation will be levied by SPCBs/ PCCs equivalent to the cost of VRS and this will further increase proportionate to the period of non-compliance.
3. In case of Stage II VRS, nozzle shall be provided with flexible cover flap or other alternative system for proper covering of filling tank and therefore proper recovery of vapors.
4. OMCs are responsible for maintaining installed VRS. They have to maintain periodic inspections for A/L regulator as prescribed by Legal Metrology. Proper record shall be maintained.

5. Working of dispenser shall be interlinked with VRS functioning. Online system shall be developed within 06 months to monitor status of operation of VRS. In case of non-operation of VRS, the same shall be automatically reported to concerned OMC. VRS shall be brought into operation immediately within 24 hrs and in any case within 72 hrs failing which sale of MS shall be stopped from the fueling station. Proper records of operation of VRS shall be maintained.
6. Work zone monitoring for Total VOC and Benzene shall be conducted by OMCs for petrol pumps selling more than 300 KL/ month and more than 10 lakh population (in first phase) by E(P)Act, 1986 approved labs once in a year to check compliance with OSHA norms (Time-Weighted Average) and report shall be submitted to SPCB. In addition, pilot study shall be conducted by OMCs through expert institutions for online monitoring of VOCs.
- E. Ground water and soil quality monitoring within petrol pump selling more than 300 KL/ month and more than 10 lakh population shall be conducted by OMCs once in two years through E(P)Act, 1986 approved labs for the following parameters from the nearest source and report submitted to SPCB:

Permissible Limit

Sr.No.	Parameter	Permissible Limit
1.	Total petroleum hydrocarbons	600µg/l
2.	BTEX	i. Benzene- 950µg/l ii. Toluene- 300µg/l iii. Xylenes- a. o-xylene- 350µg/l b. m & p- xylene- 200µg/l
3.	Ethanol	1400 µg/l
4.	Methyl Tertiary Butyl Ether	13µg/l
5.	PAH	0.0001µg/l

Enforcement agencies including SPCB can collect samples in and around petrol pump to check contamination.

F. Measures for protection of Worker's Health

1. All workers engaged at retail outlets may be covered under ESI. OMC dealers shall implement the personal protective equipment (PPE) as per labor laws.
2. IEC (Information Education Communication) activities should be organized by OMC dealers for workers at regular intervals in order to sensitize them about harmful impacts of VOC emissions.

G. Audit of all protection measures and monitoring system implemented at petrol pumps:

PESO shall conduct audit of tanks and fuel equipment including pipes, overfill protection equipment and alarm system on annual basis and maintain records.

H. Siting criteria of Retail Outlets:

In case of siting criteria for petrol pumps new Retail Outlets shall not be located within a radial distance of 50 meters (from fill point/ dispensing units/ vent pipe whichever is nearest) from schools, hospitals (10 beds and above) and residential areas designated as per local laws. In case of constraints in providing 50 meters distance, the retail outlet shall implement additional safety measures as prescribed by PESO. In no case the distance between new retail outlet from schools, hospitals (10 beds and above) and residential area designated as per local laws shall be less than 30 meters. No high tension line shall pass over the retail outlet.

These guidelines are supplementary to all existing relevant Rules, Guidelines, Orders etc.



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HARYANA STATE POLLUTION CONTROL BOARD

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C-11 Sector-6, Panchkula

Ph - 0172- 577870-73, Fax No. 2581201

E-mail- hspcbho@gmail.com

Website: hspcb.gov.in

No. HSPCB/PLG/2020/

Dated:

To

All Regional Officer in Field.

Sub: Guidelines for setting up of new petrol pumps in compliance of Hon'ble NGT order dated 18.01.2019 in OA No. 86/2019 Gayanaprakash @Pappu Singh Vs GOI & Ors -regarding.

Kindly refer to the subject noted above.

In this regard, it is intimated that the Central Pollution Control Board vide memorandum dated 07.01.2020 circulated guidelines for setting up of new petrol pumps to various concerned stakeholders for implementation and the copy of the same has been circulated to all Deputy Commissioner in the State of Haryana with a copy to Director, Town and country Planning Department and Director, Food and Supplies Department vide this office letter no. 831-854 dated 05.02.2020.

The subject cited guidelines were placed before Board of Directors and Board in its 187th meeting vide agenda item no. 187.19(S) has approved to adopt the above said guidelines received from CPCB related to SPCBs/PCCS only, for compliance. There are guidelines from A to H in said memorandum and SPCBs/PCCS has to take action on relevant part of guidelines from A to E.

In view of above, I have been directed to enclose herewith copy of said memorandum dated 07.01.2020 received from Central Pollution Control Board on the subject noted above for your information and further necessary action.

- DA/1. Guidelines for setting up of new petrol pumps.
2. Copy of Head Office letter dated 05.02.2020.

Sr. Env. Engineer (Plg)
For Chairman

Endst. No. HSPCB/PLG/2020/983-90

Dated: 13/3/20

A copy of the above is forwarded to the following for information and necessary action please:-

1. All section Incharges in Head Office of the Board.
2. Nodal Officer (IT) for uploading the order on the website of the Board.

DA/As above.

Sr. Env. Engineer (Plg)
For Chairman

Endst. No. HSPCB/PLG/2020/

Dated: 13/3/20

A copy of the above is forwarded to the following for information of the officers please:-

1. P.S. to Chairman.
2. P.A. to Member Secretary.

DA/ As above.

Sr. Env. Engineer (Plg)
For Chairman

ETMS
18/19

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CENTRAL POLLUTION CONTROL BOARD

DELHI 110 032

B-13011/1/2019-20/AQM 10809

January 07, 2020

OFFICE MEMORANDUM

Sub: Guidelines for Setting Up of New Petrol Pumps in Compliance of Hon'ble NGT order dated January 18, 2019 in OA No. 86/2019: Gyanprakash@ Pappu Singh vs Gol & Ors -regarding.

Hon'ble National Green Tribunal, vide order dated January 18, 2019 in OA No. 86/2019: Gyanprakash@ Pappu Singh vs Gol & Ors directed Central Pollution Control Board and MoPNG to look into the issue of setting up of large number of petrol pumps in the country and directed that appropriate guidelines be issued by the Central Pollution Control Board in exercise of statutory power.

An Expert Committee comprising of members from IIT Kanpur, NEERI, IIP, TERI, MoPNG and CPCB was constituted to frame Guidelines for setting up of new Petrol Pumps including siting criteria and pollution prevention and control measures.

The guidelines were placed in public domain and comments/suggestions/objections were invited from public and concern stakeholder and these were reviewed and guideline have been finalised.

The final Guidelines prepared by Expert Committee are hereby circulated for implementation by concerned stakeholders. These guidelines are hereby issued with the approval of the Competent Authority.



(V.K. Shukla)

Additional Director, AQM Div.

Encl.: As Above

- To
1. As per List Enclosed

List of Stakeholders

1. The Member Secretary Andhra Pradesh State Pollution Control Board D. No.33-26-14 D/2, Near Sunrise Hospital, Pushpa Hotel Centre, Chalmsvari Street, Kasturibaipet, Vijayavada-520010	2. The Member Secretary Arunachal Pradesh State Pollution Control Board 'Paryavaran Bhawan', Yippla Road, Papua Nallah, Naharlagun 791110 Arunachal Pradesh
3. The Member Secretary Assam State Pollution Control Board Bamuninaidan, Guwahati - 781021 Assam	4. The Member Secretary Bihar State Pollution Control Board Parivesh Bhawan, Plot No. N-B-1, Patliputra Industrial Area Patna-800023
5. The Member Secretary Chhattisgarh Environment Conservation Board Paryavas Bhawan, North Block Sector-19 Naya Raipur - 492 099 Chhattisgarh	6. The Member Secretary Goa State Pollution Control Board Nr. Pileme Industrial Estate, Opp. Saligao Seminary, Saligao - Bardez Goa - 403511
7. The Member Secretary Gujarat State Pollution Control Board Sector 10-A, Gandhi Nagar 382043 Gujarat	8. The Member Secretary Haryana State Pollution Control Board C-11, Sector 6, Panchsala, Haryana 134109 Haryana
9. The Member Secretary Himachal Pradesh State Pollution Control Board Paryavaran Bhawan, Phase III, New Shimla 171009 Himachal Pradesh	10. The Member Secretary J&K State Pollution Control Board, Parivesh Bhawan, Forest Complex, Glade - National Transport Nagar, Jammu (J&K)
11. The Member Secretary Jharkhand State Pollution Control Board T.A Building, HEC Campus, P.O. Dhurva Ranchi 834004 Jharkhand	12. The Member Secretary Karnataka State Pollution Control Board Parivara Bhawan, 4 & 5 floors, Church Street, Bangalore 560 001 Karnataka
13. The Member Secretary Kerala State Pollution Control Board Plamoudu Junction, Pattam Palace P.O. Thiruvananthapuram 695004 Kerala	14. The Member Secretary Maharashtra State Pollution Control Board Kalpatara Point, 3 & 4 floors, Sion Mangla Scheme Road No. 6 Opp. Cine Planet, Sion Circle, Sion (E), Mumbai 400 022, Maharashtra
15. The Member Secretary Madhya Pradesh State Pollution Control Board Paryavaran Purisar, H-5 Aera Colony Bhopal 462016 Madhya Pradesh	16. The Member Secretary Manipur State Pollution Control Board Lamphepat, Imphal West D.C. Office Complex - 795004 Manipur
17. The Member Secretary Meghalaya State Pollution Control Board Arden, Lumpyngpad, Shillong 793014 Meghalaya	18. The Member Secretary Mizoram State Pollution Control Board New Secretariat Complex, Khatla, Thlammual Panga, Aizawl Mizoram 796001
19. The Member Secretary Nagaland State Pollution Control Board Signal Point, Dimapur, Nagaland 797112 Nagaland	20. The Member Secretary Odisha State Pollution Control Board Parivesh Bhawan A-118, Nilakanta Nagar, Unit VIII, Bhubaneswar 751012 Odisha
21. The Member Secretary Punjab State Pollution Control Board Nabha Road, ITI Rd, Adarsh Nagar, Prem Nagar, Patiala - 147001 Punjab	22. The Member Secretary Rajasthan State Pollution Control Board A-4 Institutional Area, Jhalane Durgri Jaipur - 302004 Rajasthan
23. The Member Secretary Sikkim State Pollution Control Board State Land Use & Environment Cell Govt. of Sikkim, Deorali, Gangtok, Sikkim	24. The Member Secretary Tamil Nadu State Pollution Control Board No. 76, Mount Sagar, Guindy, Chennai 600032, Tamil Nadu

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25.	The Member Secretary Telangana State Pollution Control Board Paryavaran Bhavan A-3, Industrial Estate, Sanath Nagar, Hyderabad 500 018 Telangana	26.	The Member Secretary Tripura State Pollution Control Board Parivesh Bhawan Pt. Nehru Complex, Gorkhabasi P.O., Kunjaban, Agartala, West Tripura - 799 006 Tripura
27.	The Member Secretary Uttarakhand Environment Protection & Pollution Control Board 29/20, Nemi Road, Dehradun 248001 Uttarakhand	28.	The Member Secretary Uttar Pradesh State Pollution Control Board 3 rd floor, P.C.I.P. Bhavan, Vibhuti Khand, Gomti Nagar, Lucknow 226010 Uttar Pradesh
29.	The Member Secretary West Bengal State Pollution Control Board Paribosh Bhavan Building, No.10-A, Block I.A, Sector 3, Salt Lake City, Kolkata 700 091, West Bengal	30.	The Member Secretary Delhi Pollution Control Committee, Government of N.C.T. Delhi 4th Floor, ISBT Building, Kasemere Gate, Delhi-110006
	The Member Secretary Andaman & Nicobar Islands Pollution Control Committee, Department of Science & Technology, Dollygunj Van Sadan, Haddo P.O., Port Blair 744102	32.	The Member Secretary Chandigarh Pollution Control Committee, Paryavaran Bhawan, Ground Floor, Sector 19 B Madhya Marg, Chandigarh
33.	Member Secretary Daman, Diu & Dadra Nagar Haveli Pollution Control Committee, Office of the Deputy Conservator of Forests, Moti Daman, Daman 396220	34.	Member Secretary Lakshadweep Pollution Control Committee, Department of Science, Technology & Environment, Kavaratti-682335
35.	Member Secretary Pondicherry Pollution Control Committee, Housing Board Complex, Anna Nagar, Pondicherry-605 005	36.	Joint Secretary (Marketing) Ministry of Petroleum and Natural Gas, Govt. of India Shastri Bhawan, New Delhi - 110001
37.	Chief Controller of Explosives Petroleum and Explosive Safety Organization (PESO) A Block CGO Complex Fifth Floor Seminary Hills Nagpur-(Maharashtra) -440006	38.	Director Legal Metrology Ministry of Consumer Affairs, Food and Public Distribution Deptt. of Consumer Affairs, Room No-461-A, Krishna Bhawan, New Delhi - 110 001
39.	The Chairman, M/s. Bharat Petroleum Corporation Limited Bharat Bhavan, 4 and 6 Currimbhoy Road Ballard Estate, Mumbai 400 001	40.	The Chairman, Mrs. Hindustan Petroleum Corporation Limited Petroleum House, 17, Jambhdy Tata Road, Mumbai Maharashtra 400020
41.	The Chairman, M/s. Indian Oil Corporation Limited Indian Oil Bhawan, G9, Ali Yavar Jung Marg Bandra East, Mumbai, Maharashtra 400 051	42.	The Chairman and Managing Director, M/s. Shell India Pvt. Ltd. Plot No. 7, Bangalore Hardware Park, Devanahalli Industrial Park Mahadeva Kodigehalli Bangalore- 562 149, Karnataka
43.	The Chairman and Managing Director, M/s Reliance Industries Limited, Maker Chambers - IV Nariman Point Mumbai 400 021	44.	Chairman M/s. Nayara Energy Limited (Formerly Essar Oil Limited) 5th Floor, Jet Airways Godrej BKC, Plot No. C-68, G Block Bandra Kurla Complex, Bandra East Mumbai- 400 051
45.	General Manager (International Trade), Mangalore Refinery and Petrochemicals Limited, Core - 8, 7th Floor, Scope Complex, Lodhi Road, New Delhi - 110003		

GUIDELINES FOR SETTING UP OF NEW PETROL PUMPS

A. Containment and treatment of spillages from fuel filling operations at petrol pumps:

1. Petrol pumps located in areas with high groundwater table i.e. groundwater levels less than 04 meters shall have secondary containment by way of double walled tanks or concrete protection walls so as to minimize groundwater and soil contamination. It shall be the responsibility of OMC to properly get measured groundwater level at the site of proposed petrol pump and ensure implementation of these adequate protection measures for such sites. Details of measures taken by Oil Marketing Company shall be placed in public domain and in case of contradictory view, view of State/ Central Ground Water Board/ Authority will prevail.
2. All new retail outlets shall have underground tanks/ above ground tank and its ancillary components such as pipes, flexible connectors, pumps, fittings etc. protected from leaks due to corrosion by adopting materials (HDPE/ Mild Steel etc.) with required protective coating, as applicable, duly approved by PESO.
3. Any major leakage/ spillage of Petrol, Diesel, Lube Oil (more than 1 barrel-165 litres) occurs at fueling station, concerned OMC shall report to State Pollution Control Board, PESO and District Administration under intimation to CPCB within 24 hours of occurrence.

Operation of concerned underground storage tank (UST) and its ancillary components shall be stopped immediately and not be resumed till corrective measures to contain and stop leakage/ spillages are implemented to the satisfaction of PESO and concerned SPCB.

OMCs will be held liable for Environmental Compensation (imposed by SPCBs/PCCs) and assessment of environmental damage (depending on extent of contamination in soil and groundwater) and site remediation. Consultant/ Expert agency appointed by OMCs for damage assessment and site remediation shall have minimum national/ international experience of 5 years in this field. Various approved methods shall be considered for cleaning underground contaminants.
4. All DUs shall have Auto Cut off Nozzles which shuts dispensation of fuel if its level in customer fuel tank reaches full capacity.
5. Breakaways to be installed for all the hoses of dispensing units to reduce spillage in the event of customer vehicles moves away with nozzle still in the fueling position.

6. Single/ double plane swivel with breakaway coupling shall be installed for all the dispensing units for better positioning of nozzle while refueling so that it does not fall off accidentally.
 7. In pressurized dispensation, all dispensing units shall be installed with shear valves to cut the fuel flow from pipe line immediately upon accidental knocking of dispensing units from its position.
 8. In pressurized system all Submersible Turbine Pumps (STPs) are to installed with line leak detectors and in the event of pipeline leaks STPs shall stop pumping fuel from underground tanks.
 9. Emergency stop button switch shall be provided on the Multi-Product Dispenser (MPD) to stop the dispensation in case of emergency.
 10. Automation system shall be installed at all new retail outlets to alert in case of tank leak by way of auto gauging system approved by PESO.
 11. All Retail Outlets shall provide overflow alarm through automation.
 12. Measures for spill containment in fill point chambers and forecourt area shall be implemented as prescribed by PESO.
- B. Check on leakages (Leakage Detection System) from underground storage tanks so as to prevent groundwater and soil contamination:**
1. All new retail outlets will have automation system installed which will provide reports on volume balance after every day operation and records shall be maintained.
 2. Manual gauging shall be done once in a month and compare the same with Automatic Tank Gauging for accuracy.
 3. Daily MS and HSD loss shall not exceed MoPNG prescribed limits. In case of leakage beyond such limits, matter shall be got analyzed by OMCs and further action shall be taken for ascertaining the reasons of losses. In case of leakage resulting in soil / groundwater contamination.
 - a. Concerned OMC shall report to State Pollution Control Board, PESO and District Administration under intimation to CPCB within 24 hours of occurrence. Operation of such underground storage tank (UST) and its ancillary components shall be stopped immediately.
 - b. Fuel shall be removed immediately from underground storage tank to prevent further release to environment. Measures to prevent explosion due to vapors released due to leakage as recommended by PESO shall be implemented immediately.

- c. OMCs will be held liable for Environmental Compensation (imposed by SPCBs/PCCs) and assessment of environmental damage (depending on extent of contamination in soil and groundwater) and site remediation. Consultant/ Expert agency appointed by OMCs for damage assessment and site remediation shall have minimum national/ international experience of 05 years in this field. Various approved methods shall be considered for cleaning underground contaminants.
 - d. Operation of Underground tank and its ancillary components shall not be resumed till corrective measures to contain and stop leakages are implemented to the satisfaction of PESO and concerned SPCB.
4. All underground tanks and pipelines shall be subjected to test for leaks every 7 years.

C. Policy towards Treatment and disposal of sludge removed from underground tanks during cleaning:

Sludge shall be collected, stored and disposed as per Rule 8 of Hazardous Waste (Management and Transboundary) Rules, 2016 and amendments thereof and records shall be maintained.

D. Installation, Operation and maintenance of Vapour Recovery System:

1. All **new retail** outlets set up with sale potential of 300KL MS per month and setting up in cities with population more than 1 lakh will be provided with VRS. VRS should be functional by the time of sale of MS touch 300 KL. In case of failure of installation of VRS, Environment Compensation will be levied by SPCBs/ PCCs equivalent to the cost of VRS and this will further increase proportionate to the period of non-compliance.
2. Any **new retail** outlet set up in cities having population more than 10 lakh and having sale potential of 100 KL MS per month will be provided with VRS. VRS should be installed within a period 03 months from the day of sale of MS touch 100 KL. In case of failure of installation of VRS, Environment Compensation will be levied by SPCBs/ PCCs equivalent to the cost of VRS and this will further increase proportionate to the period of non-compliance.
3. In case of Stage II VRS, nozzle shall be provided with flexible cover flap or other alternative system for proper covering of filling tank and therefore proper recovery of vapors.
4. OMCs are responsible for maintaining installed VRS. They have to maintain periodic inspections for A/L regulator as prescribed by Legal Metrology. Proper record shall be maintained.

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5. Working of dispenser shall be interlinked with VRS functioning. Online system shall be developed within 06 months to monitor status of operation of VRS. In case of non-operation of VRS, the same shall be automatically reported to concerned OMC. VRS shall be brought into operation immediately within 24 hrs and in any case within 72 hrs failing which sale of MS shall be stopped from the fueling station. Proper records of operation of VRS shall be maintained.
6. Work zone monitoring for Total VOC and Benzene shall be conducted by OMCs for petrol pumps selling more than 300 KL/ month and more than 10 lakh population (in first phase) by E(P)Act, 1986 approved labs once in a year to check compliance with OSHA norms (Time-Weighted Average) and report shall be submitted to SPCB. In addition, pilot study shall be conducted by OMCs through expert institutions for online monitoring of VOCs.
- E. Ground water and soil quality monitoring within petrol pump selling more than 300 KL/ month and more than 10 lakh population shall be conducted by OMCs once in two years through E(P)Act, 1986 approved labs for the following parameters from the nearest source and report submitted to SPCB:

Permissible Limit

Sr.No.	Parameter	Permissible Limit
1.	Total petroleum hydrocarbons	600µg/l
2.	BTEX	i. Benzene- 950µg/l ii. Toluene- 300µg/l iii. Xylenes- a. o-xylene- 350µg/l b. m & p- xylene- 200µg/l
3.	Ethanol	1400 µg/l
4.	Methyl Tertiary Butyl Ether	13µg/l
5.	PAH	0.0001µg/l

Enforcement agencies including SPCB can collect samples in and around petrol pump to check contamination.

~~209~~**F. Measures for protection of Worker's Health**

1. All workers engaged at retail outlets may be covered under ESI. OMC dealers shall implement the personal protective equipment (PPE) as per labor laws.
2. IEC (Information Education Communication) activities should be organized by OMC dealers for workers at regular intervals in order to sensitize them about harmful impacts of VOC emissions.

G. Audit of all protection measures and monitoring system implemented at petrol pumps:

PESO shall conduct audit of tanks and fuel equipment including pipes, overflow protection equipment and alarm system on annual basis and maintain records.

H. Siting criteria of Retail Outlets:

In case of siting criteria for petrol pumps new Retail Outlets shall not be located within a radial distance of 50 meters (from fill point/ dispensing units/ vent pipe whichever is nearest) from schools, hospitals (10 beds and above) and residential areas designated as per local laws. In case of constraints in providing 50 meters distance, the retail outlet shall implement additional safety measures as prescribed by PESO. In no case the distance between new retail outlet from schools, hospitals (10 beds and above) and residential area designated as per local laws shall be less than 30 meters. No high tension line shall pass over the retail outlet.

These guidelines are supplementary to all existing relevant Rules, Guidelines, Orders etc.

X 6

Item No. 06

Court No. 1

**BEFORE THE NATIONAL GREEN TRIBUNAL
PRINCIPAL BENCH, NEW DELHI**

Original Application No. 86/2019

Gyanprakash @ Pappu Singh

Applicant(s)

Versus

Union of India & Ors.

Respondent(s)

Date of hearing: 18.01.2019

CORAM: HON'BLE MR. JUSTICE ADARSH KUMAR GOEL, CHAIRPERSON
HON'BLE MR. JUSTICE S.P. WANGDI, JUDICIAL MEMBER
HON'BLE MR. JUSTICE K. RAMAKRISHNAN, JUDICIAL MEMBER
HON'BLE DR. NAGIN NANDA, EXPERT MEMBER

For Applicant(s):
For Respondent(s):

ORDER

The issue raised in this application is to limit number of petrol pumps so as to avoid adverse impact on the environment.

The applicant has referred to news item dated 24.12.2018 in 'Live Mint' under the heading "Indian Oil, HP and BP's plan to open 80,000 petrol pumps hits land hurdle" to submit that large number of petrol pumps are being opened without any concern for environment and without any guideline about sustainability of such large number of petrol pumps.

Reference has been made to the guidelines issued by Indian Road Congress "General Conditions of Siting" laying down distance from the highways and distance between the two fuel stations. Photographs of unregistered and indigenously assembled vehicles have also been filed, with further averments that such vehicles create air pollution and safety hazardous.



~~121~~
HARYANA STATE POLLUTION CONTROL BOARD
C-11 Sector-6, Panchkula
Ph - 0172- 577870-73, Fax No. 2581201
E-mail- hspcbho@gmail.com
Website: hspcb.gov.in

~~293~~

No. HSPCB/PLG/2020/831-52

Dated: 5/2/20

To

All Deputy Commissioners in State of Haryana.

Sub: Guidelines for setting up of new petrol pumps in compliance of Hon'ble NGT order dated 18.01.2019 in OA No. 86/2019 Gayanaprakash a Pappu Singh Vs GOI & Ors -regarding.

Kindly refer to the subject noted above.

In this regard, I have been directed to enclose herewith copy of memorandum dated 07.01.2020 received from Central Pollution Control Board on the subject noted above for your information and further necessary action.
DA/ As above.

155-
Sr. Env. Engineer (Plg)
For Chairman 'p

Dated: 5/2/20

ip
Endst. No. HSPCB/PLG/2020/853-54

A copy of the above is forwarded to the following for information and necessary action please:-

1. Director, Town & Country Planning Department, Haryana.
2. Director, Food & Supply Department, Haryana.

DA/ As above.

155-
Sr. Env. Engineer (Plg)
For Chairman O

Ax



B-13011/1/2019-20/AQM

August 16, 2021

OFFICE MEMORANDUM

Sub: Addendum to the Guidelines for Setting Up of New Petrol Pumps issued on January 07, 2020 -regarding.

CPCB in compliance of the Hon'ble National Green Tribunal order dated January 18, 2019 in O.A. No. 86/2019: Gyanprakash @ Pappu Singh Vs UoI & Ors. issued guidelines for Setting Up of New Petrol Pumps vide O.M. No. B-13011/1/2019-20/AQM/10809 dated January 07, 2020.

Hon'ble NGT vide further orders dated 23.07.2020 and 09.10.2020, in the matter of Suresh Mandaloi Vs. State of M.P & Ors. (O.A. No. 61 of 2019 (CZ)), directed MoEF&CC and CPCB to submit a report with regard to the minimum distance from water bodies to the petrol pump.

The matter was referred to the Expert Committee and the draft guidelines for implementation in case of petrol pumps near water bodies were prepared. The guidelines also specify the groundwater and soil sampling protocol, frequency of sample collection and the prescribed parameters and screening values to be adopted. The same monitoring protocol and parameters/ values (except for monitoring frequency) need to be adopted for petrol pumps covered under the guidelines dated January 07, 2020.

These draft guidelines were placed in public domain for seeking comments/suggestions from public and concerned stakeholders. These were reviewed by the Expert Committee and the guidelines have been finalised and are hereby issued as addendum to the earlier CPCB Guidelines dated January 07, 2020 for implementation by concerned stakeholders.

This issues with the approval of the Competent Authority.



(P.K. Gupta)

Additional Director & Divisional Head
AQM Div.

Encl.: As Above

To

1. All SPCBs/ PCCs
(As per list enclosed)

with a request to circulate to Commissioner of civil supplies or other similar authorities who look after issues related to petrol pumps at State/ UT level and District Collectors/ Commissioners /Deputy Commissioners.

List of Stakeholders

1.	The Member Secretary Andhra Pradesh State Pollution Control Board D. No.33-26-14D/2, Near Sunrise Hospital, Pushpa Hotel Centre, Chalmvari Street, Kasturibaipet, Vijayavada-520010	2.	The Member Secretary Arunachal Pradesh State Pollution Control Board 'ParyavaranBhavan', Yupla Road, PappuNallah, Naharlagun - 791110 Arunachal Pradesh
3.	The Member Secretary Assam State Pollution Control Board Bamunimaidan, Guwahati - 781021 Assam	4.	The Member Secretary Bihar State Pollution Control Board Parivesh Bhawan, Plot No.N-B/2, Patliputra Industrial Area Patna-800023
5.	The Member Secretary Chhattisgarh Environment Conservation Board Paryavas Bhawan, North Block Sector-19 NayaRaipur - 492 099 Chhattisgarh	6.	The Member Secretary Goa State Pollution Control Board - Nr. Pilerne Industrial Estate, Opp. Saligao Seminary, Saligao - Bardez Goa - 403511
7.	The Member Secretary Gujarat State Pollution Control Board Sector 10-A, Gandhi Nagar - 382043 Gujarat	8.	The Member Secretary Haryana State Pollution Control Board C-11, Sector 6, Panchkula, Haryana 134109 Haryana
9.	The Member Secretary Himachal Pradesh State Pollution Control Board ParyavaranBhavan, Phase III, New Shimla - 171009 Himachal Pradesh	10.	The Member Secretary J&K State Pollution Control Board, Parivesh Bhawan, Forest Complex, Gladni, Narwal, transport Nagar, Jammu (J&K)
11.	The Member Secretary Jharkhand State Pollution Control Board T.A Building, HEC Campus, P.O. Dhurwa Ranchi - 834004 Jharkhand	12.	The Member Secretary Karnataka State Pollution Control Board ParisaraBhavan, 4 th & 5 th floors Church Street, Bangalore 560 001 Karnataka
13.	The Member Secretary Kerala State Pollution Control Board Plamoodu Junction, Pattam Palace P.O. Thiruvananthapuram - 695004 Kerala	14.	The Member Secretary Maharashtra State Pollution Control Board Kalpataru Point, 3 rd & 4 th floors Sion Matunga Scheme Road No. 6 Opp. Cine Planet, Sion Circle, Sion (E), Mumbai 400 022, Maharashtra
15.	The Member Secretary Madhya Pradesh State Pollution Control Board ParyavaranParisar, E-5 Arera Colony Bhopal - 462016 Madhya Pradesh	16.	The Member Secretary Manipur State Pollution Control Board Lamphepat, Imphal West D.C. Office Complex - 795004 Manipur
17.	The Member Secretary Meghalaya State Pollution Control Board Arden, Lumpyngngad, Shillong - 793014 Meghalaya	18.	The Member Secretary Mizoram State Pollution Control Board New Secretariat Complex, Khatla,Thlanmual Peng, Aizawl Mizoram 796001
19.	The Member Secretary Nagaland State Pollution Control Board Signal Point, Dimapur, Nagaland - 797112 Nagaland	20.	The Member Secretary Odisha State Pollution Control Board Paribesh Bhawan A-118, Nilakanta Nagar, Unit VIII, Bhubaneswar - 751012 Odisha
21.	The Member Secretary Punjab State Pollution Control Board Nabha Road, ITI Rd, Adarsh Nagar, Prem Nagar, Patiala - 147001, Punjab	22.	The Member Secretary Rajasthan State Pollution Control Board A-4 Institutional Area, JhalaneDungri Jaipur - 302004, Rajasthan

23.	The Member Secretary Sikkim State Pollution Control Board State land Use & Environment Cell Govt. of Sikkim, Deorali, Gangtok, Sikkim	24.	The Member Secretary Tamil Nadu State Pollution Control Board No. 76, Mount Salai, Guindy, Chennai - 600032 Tamil Nadu
25.	The Member Secretary Telangana State Pollution Control Board Paryavaran Bhavan A-3, Industrial Estate, Sanath Nagar, Hyderabad - 500 018 Telangana	26.	The Member Secretary Tripura State Pollution Control Board Parivesh Bhawan Pt. Nehru Complex, Gorkhabasti P.O., Kunjaban, Agartala, West Tripura - 799 006 Tripura
27.	The Member Secretary Uttarakhand Environment Protection & Pollution Control Board 29/20, Nemi Road, Dehradun - 248001 Uttarakhand	28.	The Member Secretary Uttar Pradesh State Pollution Control Board 3 rd floor, PICUP Bhavan, Vibhuti Khand, Gomti Nagar, Lucknow - 226010 Uttar Pradesh
29.	The Member Secretary West Bengal State Pollution Control Board Paribesh Bhavan Building, No.10-A, Block -LA, Sector 3, Salt Lake City, Kolkata - 700 091, West Bengal	30.	The Member Secretary Delhi Pollution Control Committee, Government of N.C.T. Delhi 4th Floor, ISBT Building, Kashmere Gate, Delhi-110006
31.	The Member Secretary Andaman & Nicobar Islands Pollution Control Committee, Department of Science & Technology, Dollygunj Van Sadan, Haddo P.O., Port Blair - 744102	32.	The Member Secretary Chandigarh Pollution Control Committee, Paryavaran Bhawan, Ground Floor, Sector 19 B Madhya Marg, Chandigarh
33.	Member Secretary Daman, Diu & Dadra Nagar Haveli Pollution Control Committee, Office of the Deputy Conservator of Forests, Moti Daman, Daman - 396220	34.	Member Secretary Lakshadweep Pollution Control Committee, Department of Science, Technology & Environment, Kavarati-682555
35.	Member Secretary Pondicherry Pollution Control Committee, Housing Board Complex, Anna Nagar, Pondicherry-600 005		---

2. Joint Secretary (Marketing)
Ministry of Petroleum and Natural Gas, Govt. of India
Shastri Bhavan,
New Delhi – 110001
3. Chief Controller of Explosives
Petroleum and Explosive Safety Organization (PESO)
A Block CGO Complex Fifth Floor Seminary Hills
Nagpur-(Maharashtra) -440006
4. Director
Legal Metrology
Ministry of Consumer Affairs, Food and Public Distribution Deptt. of Consumer Affairs,
Room No.461-A, Krishi Bhawan,
New Delhi - 110 001
5. The Chairman,
M/s. Bharat Petroleum Corporation Limited
Bharat Bhavan, 4 and 6 Currimbhoy Road
Ballard Estate, Mumbai 400 001
6. The Chairman,
M/s. Hindustan Petroleum Corporation Limited
Petroleum House, 17, Jamshedji Tata Road, Mumbai
Maharashtra 400020
7. The Chairman,
M/s. Indian Oil Corporation Limited
Indian Oil Bhawan, G9, Ali Yavar Jung Marg
Bandra East, Mumbai, Maharashtra 400 051
8. The Chairman,
M/s. Shell India Markets Pvt. Ltd.
Plot No. 7, Bangalore Hardware Park,
Devanahalli Industrial Park
MahadevaKodigehalli
Bangalore- 562 149, Karnataka.
9. The Chairman,
M/s Reliance Industries Limited,
Maker Chambers - IV
Nariman Point
Mumbai 400 021, India
10. The Chairman,
M/s. Nayara Energy Limited (Formerly Essar Oil Limited)
5th Floor, Jet Airways Godrej BKC,
Plot No. C-68, G Block
BandraKurla Complex, Bandra East
Mumbai- 450 051

Copy to:

1. Joint Secretary
CP Division
Ministry of Environment, Forest and Climate Change
Indira Paryavaran Bhavan,
Jorbagh Road, New Delhi – 110 003
2. Regional Director
Regional Directorate, Lucknow
PICUP Bhawan, Vibhuti Khand, Gomti Nagar,
Lucknow– 226010
3. Regional Director
Regional Directorate, Bengaluru
A-Block, Nisarga Bhavan,
1st and 2nd Floors, 7th D Cross, Thimmaiah Road, Shivanagar,
Bengaluru-560079
4. Regional Director
Regional Directorate, Bhopal
Parivesh Bhawan, Paryavaran
Parisar E-5, Aera Colony, Bhopal-462016
5. Regional Director
Regional Directorate, Vadodara
Parivesh Bhawan, Opp. Ward No. 10 VMC Office Subhanpura,
Vadodara –390023
6. Regional Director
Regional Directorate, Shillong
"TUM-SIR". Lower Motinagar,
Near Fire Brigade H.Q., Shillong–793014
7. Regional Director
Regional Directorate, Kolkata
'South end Conclave' Block-502, 5th & 6th Floor, 1582,
Razidanga, Main Road, Kolkata- 700107
8. Regional Director
Regional Directorate, Tamil Nadu
Second Floor, No.77-A, South Avenue Road, Ambattur Industrial Estate, Ambattur
Taluk, Thiruvallur District, Chennai- 600 058, Tamil Nadu.
9. Regional Director
Regional Directorate, Chandigarh
e-mail- gurnamsingh.cpcb@nic.in
10. Regional Director
Regional Directorate, Pune
e-mail - bksharma.cpcb@nic.in
11. PA to CCB
12. AO to MS
13. IT Division : for uploading on CPCB website

ADDENDUM TO GUIDELINES FOR SETTING UP OF NEW PETROL PUMPS

The Hon'ble NGT vide orders dated 23.07.2020 and 09.10.2020, in the matter of Suresh Mandaloi Vs. State of M. P. & Ors. (O.A. No. 61 of 2019 (CZ)), directed MoEF&CC and CPCB to submit a report with regard to the minimum distance from water bodies to the petrol pump.

The matter was subsequently referred to the Expert Committee constituted by CPCB earlier in the matter of guidelines for setting up of new petrol pumps and the following addendum guidelines (to guidelines dated 07.01.2020) have been finalised for implementation in case of petrol pumps near water bodies:

- a) All the surface water bodies irrespective of utility shall be protected from any possible contamination. These include lakes, ponds, streams, rivers, wetlands, canals and creeks, as per revenue records. Retail Outlets shall not be located within a distance of 50 meters from the nearest point of water bodies. In case of streams and rivers, the distance shall be considered from floodway. In case floodway is not defined, the distance shall be considered from firm banks/ edge of river. The siting criterion is to be implemented for all new petrol pumps where construction by OMCs starts post the issuance of these guidelines.
- b) Retail outlets coming within 50 meter to 100 meter from the nearest point of surface water body shall have secondary containment by way of double walled tanks or concrete protection walls around Underground Storage Tank (UST).
- c) Groundwater and soil quality monitoring near the premises of fuel retail outlets shall be conducted by OMCs once a year through E (P) Act, 1986 approved labs or labs with national/international accreditation. The monitoring shall be done for those Fuel Retail Outlets which are located within 100 meter from the nearest point of surface water bodies. These shall be applicable to all petrol pumps, regardless of the date of establishment. In case of any clarification and/or difficulty in obtaining samples for groundwater and soil quality monitoring, OMCs may seek

assistance of local administration/SPCB/PCC/CGWB. Protocol for soil and groundwater monitoring is annexed as Annexure-I.

- d) Groundwater and soil quality monitoring shall also be conducted by OMCs before installation of the new fuel retail outlet, for those retail outlets coming up within 100 meter from the nearest point of surface water bodies.

NOTE: These guidelines are supplementary to all existing relevant Rules, Guidelines, Orders, Notifications such as Wetlands (Conservation and Management) Rules, 2017, Coastal Regulation Zone (CRZ) Notification, 2011 etc. The other measures, prescribed in CPCB guidelines for setting up of new petrol pumps dated 07.01.2020, for containment and treatment of spillages, check on leakages from USTs, treatment and disposal of sludge removed from underground tanks during cleaning, measures for protection of workers' health, audit of all protection measures and monitoring system implemented at petrol pumps, shall also apply to the fuel retail outlets falling in the criteria specified above.

Monitoring protocol specifying the prescribed parameters and screening values annexed with these guidelines (other than the monitoring frequency), shall also be adopted for those retail outlets where CPCB guidelines dated 07.01.2020 are applicable.

These guidelines shall be reviewed from time to time.

Annexure-I**Protocol for monitoring quality of soil and groundwater near the premises of fuel retail outlets**

Samples of groundwater being used for drinking purposes shall be collected from at least three different directions with reference to the retail outlet. The sampling point should be preferably within 50m distance from the underground storage tank location at the retail outlet. The samples shall be analysed for the following parameters:

Table 1.

Sr. No.	Parameter	Screening Values
1.	Total petroleum hydrocarbons (C ₁₀ -C ₄₀)	0.6mg/L
2.	BTEX	i. Benzene- 0.01mg/L ii. Toluene- 0.7mg/L iii. Xylene-0.5mg/L
3.	Methyl Tertiary Butyl Ether	13µg/l
4.	Total PAH	0.0001mg/l

Further, soil sample shall be collected from a borehole within the premises of the fuel retail outlet adjacent to the Underground Storage Tank (UST) pit. The depth of bore hole should be up to 1m below the bottom of the storage tank level. Soil samples shall be analysed for the following parameters:

Table 2.

Sr. No.	Parameter	Screening Values(mg/kg)
1.	Total petroleum hydrocarbons (TPH)	5000
2.	Benzene	5
3.	Toluene	30
4.	Xylene	50
5.	Methyl Tertiary Butyl Ether	100
6.	Total PAH	40

Ground water and soil quality monitoring shall be conducted by OMCs once a year through E (P) Act, 1986 approved labs or labs with national/international accreditation and the reports are to be submitted to SPCB. The soil monitoring shall be done in first six months while groundwater monitoring shall be done in the next six months.

In case of exceedance of screening by any parameter, or in case of leakage resulting in soil/groundwater contamination, the measures/steps as prescribed in the guidelines for setting up of petrol pumps dated 07.01.2020 shall be taken up. Assessment and remediation shall be carried out as per the guidelines issued by MoEF&CC and CPCB.



CENTRAL POLLUTION CONTROL BOARD

DELHI 110032

B-13011/1/2020-21/AQM

January 29, 2021

OFFICE MEMORANDUM

Sub: Clarification with regard to cut-off date for applicability of siting criteria referred in Guidelines for Setting Up of New Petrol Pumps dated 07.01.2020

This is in reference to guidelines issued by CPCB on 07.01.2020 for setting up of new petrol pumps indicating the siting criteria to be got implemented for new Retail Outlets.

References/cases have been received with regard to applicability of CPCB siting criteria dated 07.01.2020, in case of Retail Outlets where Letter of Intents (LoIs) have been issued or applications have been made for obtaining NOC or prior clearance/ initial approval has been obtained from PESO.

In this regard, it is clarified that the siting criteria for new Retail Outlets is to be complied with in cases where construction of Retail Outlets by Oil Marketing Companies commenced on or after 07.01.2020. In other words, the siting criteria will not apply to those cases where PESO prior clearance/ initial approval has been obtained and subsequently construction has been started by the OMC before 07.01.2020.

This is issued with the approval of Competent Authority.

(P. K. Gupta)

Additional Director and Head
AQM division

To:

1. All SPCBs/PCCs - *With a request to circulate to Commissioner of civil supplies or other similar authorities who look after issues related to fuel Retail Outlets at State level and District Collectors.*
(As per list enclosed)
2. Ministry of Petroleum And Natural Gas
Joint Secretary (Marketing)
Ministry of Petroleum and Natural Gas, Govt. of India
Shastri Bhavan,
New Delhi – 110001

3. Petroleum And Explosives Safety Organisation
Chief Controller of Explosives
Petroleum and Explosive Safety Organization (PESO)
A Block CGO Complex Fifth Floor Seminary Hills
Nagpur-(Maharashtra) -440006
4. The Chairman,
M/s. Bharat Petroleum Corporation Limited
Bharat Bhavan, 4 and 6 Currimbhoy Road
Ballard Estate, Mumbai 400 001
5. The Chairman,
M/s. Hindustan Petroleum Corporation Limited
Petroleum House, 17, Jamshedji Tata Road, Mumbai
Maharashtra 400020
6. The Chairman,
M/s. Indian Oil Corporation Limited
Indian Oil Bhawan, G9, Ali Yavar Jung Marg
Bandra East, Mumbai, Maharashtra 400 051
7. General Manager (International Trade),
Mangalore Refinery and Petrochemicals Limited,
Core - 8, 7th Floor,
Scope Complex, Lodhi Road,
New Delhi – 110003
8. The Chairman and Managing Director,
M/s. Shell India Pvt. Ltd.
Plot No. 7, Bangalore Hardware Park,
Devanahalli Industrial Park
Mahadeva Kodigehalli
Bangalore- 562 149, Karnataka.
9. The Chairman and Managing Director,
M/s Reliance Industries Limited,
Maker Chambers - IV
Nariman Point
Mumbai 400 021
10. Chairman
M/s. Nayara Energy Limited (Formerly Essar Oil Limited)
5th Floor, Jet Airways Godrej BKC,
Plot No. C-68, G Block
Bandra Kurla Complex, Bandra East
Mumbai- 450 051

Copy to:

1. Regional Director
Regional Directorate, Bhopal
Third Floor Sahkar Bhawan
North T T Nagar
Bhopal 462003
2. Regional Director
Regional Directorate Bengaluru
A-Block, Nisarga Bhavan,
1st and 2nd Floors, 7th D Cross,
Thimmaiah Road, Shivanagar,
Bengaluru-560079
3. Regional Director
Regional Directorate, Chennai
No. 76, Mount Salai,
Guindy, Chennai-600032
4. Regional Director
Regional Directorate Kolkata
South end Conclave Block-502, 5th and 6th Floor,
1582, Razidanga, Main Road,
Kolkata-700107
5. Regional Director
Regional Directorate, Lucknow
PICUP Bhawan
Vibhuti Khand, Gomti Nagar
Lucknow - 226 010
6. Regional Director
Regional Directorate, Shillong
TUM-SIR. Lower Motinagar,
Near Fire Brigade H.Q., Shillong-793014
7. Regional Director
Regional Directorate, Vadodara
Parivesh Bhawan, Opp. Ward No. 10
VMC Office Subhanpura, Vadodara - 390 023
8. Regional Director
Regional Directorate, Pune
Row House No.1, Nisarg Vihar,
Balewadi, Pune -411045

List of SPCBs/ PCCs

1.	The Member Secretary Andhra Pradesh State Pollution Control Board D. No.33-26-14 D/2, Near Sunrise Hospital, Pushpa Hotel Centre, Chalmvari Street, Kasturibaipet, Vijayavada-520010	2.	The Member Secretary Arunachal Pradesh State Pollution Control Board 'Paryavaran Bhavan', Yupla Road, Pappu Nallah, Naharlagun - 791110 Arunachal Pradesh
3.	The Member Secretary Assam State Pollution Control Board Bamunimaidan, Guwahati - 781021 Assam	4.	The Member Secretary Bihar State Pollution Control Board Parivesh Bhawan, Plot No.N-B/2, Patliputra Industrial Area Patna-800023
5.	The Member Secretary Chhattisgarh Environment Conservation Board Paryavas Bhawan, North Block Sector-19 Naya Raipur - 492 099 Chhattisgarh	6.	The Member Secretary Goa State Pollution Control Board Nr. Pilerne Industrial Estate, Opp. Saligao Seminary, Saligao - Bardez Goa - 403511
7.	The Member Secretary Gujarat State Pollution Control Board Sector 10-A, Gandhi Nagar - 382043 Gujarat	8.	The Member Secretary Haryana State Pollution Control Board C-11, Sector 6, Panchkula, Haryana 134109 Haryana
9.	The Member Secretary Himachal Pradesh State Pollution Control Board Paryavaran Bhavan, Phase III, New Shimla - 171009 Himachal Pradesh	10.	The Member Secretary J&K State Pollution Control Board, Parivesh Bhawan, Forest Complex, Gladni, Narwal, transport Nagar, Jammu (J&K)
11.	The Member Secretary Jharkhand State Pollution Control Board T.A Building, HEC Campus, P.O. Dhurwa Ranchi - 834004 Jharkhand	12.	The Member Secretary Karnataka State Pollution Control Board Parisara Bhavan, 4 th & 5 th floors Church Street, Bangalore - 560 001 Karnataka
13.	The Member Secretary Kerala State Pollution Control Board Plamoodu Junction, Pattam Palace P.O. Thiruvananthapuram - 695004 Kerala	14.	The Member Secretary Maharashtra State Pollution Control Board Kalpataru Point, 3 rd & 4 th floors Sion Matunga Scheme Road No. 6 Opp. Cine Planet, Sion Circle, Sion (E), Mumbai 400 022, Maharashtra
15.	The Member Secretary Madhya Pradesh State Pollution Control Board Paryavaran Parisar, E-5 Arera Colony Bhopal - 462016 Madhya Pradesh	16.	The Member Secretary Manipur State Pollution Control Board Lamphelpat, Imphal West D.C. Office Complex - 795004 Manipur
17.	The Member Secretary Meghalaya State Pollution Control Board Arden, Lumpyngngad, Shillong - 793014 Meghalaya	18.	The Member Secretary Mizoram State Pollution Control Board New Secretariat Complex, Khatla, Thlanmual Peng, Aizawl Mizoram 796001
19.	The Member Secretary Nagaland State Pollution Control Board Signal Point, Dimapur, Nagaland - 797112 Nagaland	20.	The Member Secretary Odisha State Pollution Control Board Paribesh Bhawan A-118, Nilakanta Nagar, Unit -VIII, Bhubaneshwar - 751012 Odisha
21.	The Member Secretary Punjab State Pollution Control Board Nabha Road, ITI Rd, Adarsh Nagar, Prem Nagar, Patiala - 147001 Punjab	22.	The Member Secretary Rajasthan State Pollution Control Board A-4 Institutional Area, Jhalane Dungri Jaipur - 302004 Rajasthan

23.	The Member Secretary Sikkim State Pollution Control Board State land Use & Environment Cell Govt. of Sikkim, Deorali, Gangtok., Sikkim	24.	The Member Secretary Tamil Nadu State Pollution Control Board No. 76, Mount Salai, Guindy, Chennai – 600032, Tamil Nadu
25.	The Member Secretary Telangana State Pollution Control Board Paryavaran Bhavan A-3, Industrial Estate, Sanath Nagar, Hyderabad – 500 018 Telangana	26.	The Member Secretary Tripura State Pollution Control Board Parivesh Bhawan Pt. Nehru Complex, Gorkhabasti P.O., Kunjaban, Agartala, West Tripura - 799 006 Tripura
27.	The Member Secretary Uttarakhand Environment Protection & Pollution Control Board 29/20, Nemi Road, Dehradun – 248001 Uttarakhand	28.	The Member Secretary Uttar Pradesh State Pollution Control Board 3 rd floor, PICUP Bhavan, Vibhuti Khand, Gomti Nagar, Lucknow – 226010 Uttar Pradesh
29.	The Member Secretary West Bengal State Pollution Control Board Paribesh Bhavan Building, No.10-A, Block –LA, Sector 3, Salt Lake City, Kolkata – 700 091, West Bengal	30.	The Member Secretary Delhi Pollution Control Committee, Government of N.C.T. Delhi 4th Floor, ISBT Building, Kashmere Gate, Delhi-110006
31.	The Member Secretary Andaman & Nicobar Islands Pollution Control Committee, Department of Science & Technology, Dollygunj Van Sadan, Haddo P.O., Port Blair – 744102	32.	The Member Secretary Chandigarh Pollution Control Committee, Paryavaran Bhawan, Ground Floor, Sector 19 B Madhya Marg, Chandigarh
33.	Member Secretary Daman, Diu & Dadra Nagar Haveli Pollution Control Committee, Office of the Deputy Conservator of Forests, Moti Daman, Daman – 396220	34.	Member Secretary Lakshadweep Pollution Control Committee, Department of Science, Technology & Environment, Kavarati-682555
35.	Member Secretary Pondicherry Pollution Control Committee, Housing Board Complex, Anna Nagar, Pondicherry-600 005		



B-13011/1/2019-20/AQM

August 16, 2021

OFFICE MEMORANDUM

Sub: Addendum to the Guidelines for Setting Up of New Petrol Pumps issued on January 07, 2020 -regarding.

CPCB in compliance of the Hon'ble National Green Tribunal order dated January 18, 2019 in O.A. No. 86/2019: Gyanprakash @ Pappu Singh Vs UoI & Ors. issued guidelines for Setting Up of New Petrol Pumps vide O.M. No. B-13011/1/2019-20/AQM/10809 dated January 07, 2020.

Hon'ble NGT vide further orders dated 23.07.2020 and 09.10.2020, in the matter of Suresh Mandaloi Vs. State of M.P & Ors. (O.A. No. 61 of 2019 (CZ)), directed MoEF&CC and CPCB to submit a report with regard to the minimum distance from water bodies to the petrol pump.

The matter was referred to the Expert Committee and the draft guidelines for implementation in case of petrol pumps near water bodies were prepared. The guidelines also specify the groundwater and soil sampling protocol, frequency of sample collection and the prescribed parameters and screening values to be adopted. The same monitoring protocol and parameters/ values (except for monitoring frequency) need to be adopted for petrol pumps covered under the guidelines dated January 07, 2020.

These draft guidelines were placed in public domain for seeking comments/suggestions from public and concerned stakeholders. These were reviewed by the Expert Committee and the guidelines have been finalised and are hereby issued as addendum to the earlier CPCB Guidelines dated January 07, 2020 for implementation by concerned stakeholders.

This issues with the approval of the Competent Authority.



(P.K. Gupta)

Additional Director & Divisional Head
AQM Div.

Encl.: As Above

To

1. All SPCBs/ PCCs
(As per list enclosed)

with a request to circulate to Commissioner of civil supplies or other similar authorities who look after issues related to petrol pumps at State/ UT level and District Collectors/ Commissioners /Deputy Commissioners.

List of Stakeholders

1.	The Member Secretary Andhra Pradesh State Pollution Control Board D. No.33-26-14D/2, Near Sunrise Hospital, Pushpa Hotel Centre, Chalmvari Street, Kasturibaipet, Vijayavada-520010	2.	The Member Secretary Arunachal Pradesh State Pollution Control Board 'ParyavaranBhavan', Yupla Road, PappuNallah, Naharlagun - 791110 Arunachal Pradesh
3.	The Member Secretary Assam State Pollution Control Board Bamunimaidan, Guwahati - 781021 Assam	4.	The Member Secretary Bihar State Pollution Control Board Parivesh Bhawan, Plot No.N-B/2, Patliputra Industrial Area Patna-800023
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7.	The Member Secretary Gujarat State Pollution Control Board Sector 10-A, Gandhi Nagar - 382043 Gujarat	8.	The Member Secretary Haryana State Pollution Control Board C-11, Sector 6, Panchkula, Haryana 134109 Haryana
9.	The Member Secretary Himachal Pradesh State Pollution Control Board ParyavaranBhavan, Phase III, New Shimla - 171009 Himachal Pradesh	10.	The Member Secretary J&K State Pollution Control Board, Parivesh Bhawan, Forest Complex, Gladni, Narwal, transport Nagar, Jammu (J&K)
11.	The Member Secretary Jharkhand State Pollution Control Board T.A Building, HEC Campus, P.O. Dhurwa Ranchi - 834004 Jharkhand	12.	The Member Secretary Karnataka State Pollution Control Board ParisaraBhavan, 4 th & 5 th floors Church Street, Bangalore 560 001 Karnataka
13.	The Member Secretary Kerala State Pollution Control Board Plamoodu Junction, Pattam Palace P.O. Thiruvananthapuram - 695004 Kerala	14.	The Member Secretary Maharashtra State Pollution Control Board Kalpataru Point, 3 rd & 4 th floors Sion Matunga Scheme Road No. 6 Opp. Cine Planet, Sion Circle, Sion (E), Mumbai 400 022, Maharashtra
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17.	The Member Secretary Meghalaya State Pollution Control Board Arden, Lumpyngngad, Shillong - 793014 Meghalaya	18.	The Member Secretary Mizoram State Pollution Control Board New Secretariat Complex, Khatla,Thlanmual Peng, Aizawl Mizoram 796001
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27.	The Member Secretary Uttarakhand Environment Protection & Pollution Control Board 29/20, Nemi Road, Dehradun - 248001 Uttarakhand	28.	The Member Secretary Uttar Pradesh State Pollution Control Board 3 rd floor, PICUP Bhavan, Vibhuti Khand, Gomti Nagar, Lucknow - 226010 Uttar Pradesh
29.	The Member Secretary West Bengal State Pollution Control Board Paribesh Bhavan Building, No.10-A, Block -LA, Sector 3, Salt Lake City, Kolkata - 700 091, West Bengal	30.	The Member Secretary Delhi Pollution Control Committee, Government of N.C.T. Delhi 4th Floor, ISBT Building, Kashmere Gate, Delhi-110006
31.	The Member Secretary Andaman & Nicobar Islands Pollution Control Committee, Department of Science & Technology, Dollygunj Van Sadan, Haddo P.O., Port Blair - 744102	32.	The Member Secretary Chandigarh Pollution Control Committee, Paryavaran Bhawan, Ground Floor, Sector 19 B Madhya Marg, Chandigarh
33.	Member Secretary Daman, Diu & Dadra Nagar Haveli Pollution Control Committee, Office of the Deputy Conservator of Forests, Moti Daman, Daman - 396220	34.	Member Secretary Lakshadweep Pollution Control Committee, Department of Science, Technology & Environment, Kavarati-682555
35.	Member Secretary Pondicherry Pollution Control Committee, Housing Board Complex, Anna Nagar, Pondicherry-600 005		---

2. Joint Secretary (Marketing)
Ministry of Petroleum and Natural Gas, Govt. of India
Shastri Bhavan,
New Delhi – 110001
3. Chief Controller of Explosives
Petroleum and Explosive Safety Organization (PESO)
A Block CGO Complex Fifth Floor Seminary Hills
Nagpur-(Maharashtra) -440006
4. Director
Legal Metrology
Ministry of Consumer Affairs, Food and Public Distribution Deptt. of Consumer Affairs,
Room No.461-A, Krishi Bhawan,
New Delhi - 110 001
5. The Chairman,
M/s. Bharat Petroleum Corporation Limited
Bharat Bhavan, 4 and 6 Currimbhoy Road
Ballard Estate, Mumbai 400 001
6. The Chairman,
M/s. Hindustan Petroleum Corporation Limited
Petroleum House, 17, Jamshedji Tata Road, Mumbai
Maharashtra 400020
7. The Chairman,
M/s. Indian Oil Corporation Limited
Indian Oil Bhawan, G9, Ali Yavar Jung Marg
Bandra East, Mumbai, Maharashtra 400 051
8. The Chairman,
M/s. Shell India Markets Pvt. Ltd.
Plot No. 7, Bangalore Hardware Park,
Devanahalli Industrial Park
MahadevaKodigehalli
Bangalore- 562 149, Karnataka.
9. The Chairman,
M/s Reliance Industries Limited,
Maker Chambers - IV
Nariman Point
Mumbai 400 021, India
10. The Chairman,
M/s. Nayara Energy Limited (Formerly Essar Oil Limited)
5th Floor, Jet Airways Godrej BKC,
Plot No. C-68, G Block
BandraKurla Complex, Bandra East
Mumbai- 450 051

Copy to:

1. Joint Secretary
CP Division
Ministry of Environment, Forest and Climate Change
Indira Paryavaran Bhavan,
Jorbagh Road, New Delhi – 110 003
2. Regional Director
Regional Directorate, Lucknow
PICUP Bhawan, Vibhuti Khand, Gomti Nagar,
Lucknow– 226010
3. Regional Director
Regional Directorate, Bengaluru
A-Block, Nisarga Bhavan,
1st and 2nd Floors, 7th D Cross, Thimmaiah Road, Shivanagar,
Bengaluru-560079
4. Regional Director
Regional Directorate, Bhopal
Parivesh Bhawan, Paryavaran
Parisar E-5, Aera Colony, Bhopal-462016
5. Regional Director
Regional Directorate, Vadodara
Parivesh Bhawan, Opp. Ward No. 10 VMC Office Subhanpura,
Vadodara –390023
6. Regional Director
Regional Directorate, Shillong
"TUM-SIR". Lower Motinagar,
Near Fire Brigade H.Q., Shillong–793014
7. Regional Director
Regional Directorate, Kolkata
'South end Conclave' Block-502, 5th & 6th Floor, 1582,
Razidanga, Main Road, Kolkata- 700107
8. Regional Director
Regional Directorate, Tamil Nadu
Second Floor, No.77-A, South Avenue Road, Ambattur Industrial Estate, Ambattur
Taluk, Thiruvallur District, Chennai- 600 058, Tamil Nadu.
9. Regional Director
Regional Directorate, Chandigarh
e-mail- gurnamsingh.cpcb@nic.in
10. Regional Director
Regional Directorate, Pune
e-mail - bksharma.cpcb@nic.in
11. PA to CCB
12. AO to MS
13. IT Division : for uploading on CPCB website

ADDENDUM TO GUIDELINES FOR SETTING UP OF NEW PETROL PUMPS

The Hon'ble NGT vide orders dated 23.07.2020 and 09.10.2020, in the matter of Suresh Mandaloi Vs. State of M. P. & Ors. (O.A. No. 61 of 2019 (CZ)), directed MoEF&CC and CPCB to submit a report with regard to the minimum distance from water bodies to the petrol pump.

The matter was subsequently referred to the Expert Committee constituted by CPCB earlier in the matter of guidelines for setting up of new petrol pumps and the following addendum guidelines (to guidelines dated 07.01.2020) have been finalised for implementation in case of petrol pumps near water bodies:

- a) All the surface water bodies irrespective of utility shall be protected from any possible contamination. These include lakes, ponds, streams, rivers, wetlands, canals and creeks, as per revenue records. Retail Outlets shall not be located within a distance of 50 meters from the nearest point of water bodies. In case of streams and rivers, the distance shall be considered from floodway. In case floodway is not defined, the distance shall be considered from firm banks/ edge of river. The siting criterion is to be implemented for all new petrol pumps where construction by OMCs starts post the issuance of these guidelines.
- b) Retail outlets coming within 50 meter to 100 meter from the nearest point of surface water body shall have secondary containment by way of double walled tanks or concrete protection walls around Underground Storage Tank (UST).
- c) Groundwater and soil quality monitoring near the premises of fuel retail outlets shall be conducted by OMCs once a year through E (P) Act, 1986 approved labs or labs with national/international accreditation. The monitoring shall be done for those Fuel Retail Outlets which are located within 100 meter from the nearest point of surface water bodies. These shall be applicable to all petrol pumps, regardless of the date of establishment. In case of any clarification and/or difficulty in obtaining samples for groundwater and soil quality monitoring, OMCs may seek

assistance of local administration/SPCB/PCC/CGWB. Protocol for soil and groundwater monitoring is annexed as Annexure-I.

- d) Groundwater and soil quality monitoring shall also be conducted by OMCs before installation of the new fuel retail outlet, for those retail outlets coming up within 100 meter from the nearest point of surface water bodies.

NOTE: These guidelines are supplementary to all existing relevant Rules, Guidelines, Orders, Notifications such as Wetlands (Conservation and Management) Rules, 2017, Coastal Regulation Zone (CRZ) Notification, 2011 etc. The other measures, prescribed in CPCB guidelines for setting up of new petrol pumps dated 07.01.2020, for containment and treatment of spillages, check on leakages from USTs, treatment and disposal of sludge removed from underground tanks during cleaning, measures for protection of workers' health, audit of all protection measures and monitoring system implemented at petrol pumps, shall also apply to the fuel retail outlets falling in the criteria specified above.

Monitoring protocol specifying the prescribed parameters and screening values annexed with these guidelines (other than the monitoring frequency), shall also be adopted for those retail outlets where CPCB guidelines dated 07.01.2020 are applicable.

These guidelines shall be reviewed from time to time.

Annexure-I**Protocol for monitoring quality of soil and groundwater near the premises of fuel retail outlets**

Samples of groundwater being used for drinking purposes shall be collected from at least three different directions with reference to the retail outlet. The sampling point should be preferably within 50m distance from the underground storage tank location at the retail outlet. The samples shall be analysed for the following parameters:

Table 1.

Sr. No.	Parameter	Screening Values
1.	Total petroleum hydrocarbons (C ₁₀ -C ₄₀)	0.6mg/L
2.	BTEX	i. Benzene- 0.01mg/L ii. Toluene- 0.7mg/L iii. Xylene-0.5mg/L
3.	Methyl Tertiary Butyl Ether	13µg/l
4.	Total PAH	0.0001mg/l

Further, soil sample shall be collected from a borehole within the premises of the fuel retail outlet adjacent to the Underground Storage Tank (UST) pit. The depth of bore hole should be up to 1m below the bottom of the storage tank level. Soil samples shall be analysed for the following parameters:

Table 2.

Sr. No.	Parameter	Screening Values(mg/kg)
1.	Total petroleum hydrocarbons (TPH)	5000
2.	Benzene	5
3.	Toluene	30
4.	Xylene	50
5.	Methyl Tertiary Butyl Ether	100
6.	Total PAH	40

Ground water and soil quality monitoring shall be conducted by OMCs once a year through E (P) Act, 1986 approved labs or labs with national/international accreditation and the reports are to be submitted to SPCB. The soil monitoring shall be done in first six months while groundwater monitoring shall be done in the next six months.

In case of exceedance of screening by any parameter, or in case of leakage resulting in soil/groundwater contamination, the measures/steps as prescribed in the guidelines for setting up of petrol pumps dated 07.01.2020 shall be taken up. Assessment and remediation shall be carried out as per the guidelines issued by MoEF&CC and CPCB.

Office Memorandum dated September 16, 2024 reg.

CPCB AQM Div <aqm.cpcb@gov.in>

Mon 9/16/2024 5:55 PM

To:membersecy <membersecy@appcb.gov.in>;arunachalspcb <arunachalspcb@gmail.com>;Member Secretary <membersecretary@pcbassam.org>;msbspcb bih <msbspcb_bih@gov.in>;hocecb <hocecb@gmail.com>;ms-gspcb goa <ms-gspcb.goa@nic.in>;membersecretarygpcb <membersecretarygpcb@gmail.com>;ms-gpcb <ms-gpcb@gujarat.gov.in>;hspcbms <hspcbms@gmail.com>;mспcb-hp <mспcb-hp@nic.in>;mshppcb <mshppcb@gmail.com>;Brij Sharma <membersecy.pcb@jk.gov.in>;membersecretaryjkspcb <membersecretaryjkspcb@gmail.com>;Ranchijspcb <ranchijspcb@gmail.com>;Srinivas ulu <ms@kspcb.gov.in>;ho <ho@kspcb.gov.in>;Sreekala <ms.kspcb@gov.in>;ms msoffice <ms-mppcb@mp.gov.in>;Ms <ms@mpcb.gov.in>;pcb-man <pcb-man@nic.in>;memsecy spcb-meg <memsecy.spcb-meg@gov.in>;duhawma15 <duhawma15@yahoo.com>;npcb2 <npcb2@yahoo.com>;Membersecretary <membersecretary@ospboard.org>;Member Secretary <msppcb@punjab.gov.in>;member-secretary <member-secretary@rpcb.nic.in>;spcbsikkim <spcbsikkim@gmail.com>;drgopalpradhan <drgopalpradhan@gmail.com>;MS TNPCB <memsec@tnpcb.gov.in>;Anil Vyasabhattu <ms-tspcb@telangana.gov.in>;tripuraspcb <tripuraspcb@gmail.com>;bishuk5 <bishuk5@gmail.com>;ms <ms@uppcb.in>;msdkpcb <msukpcb@yahoo.com>;Ms <ms@wbpcb.gov.in>;mspcbwb <mспcbwb@gmail.com>;msdpcc <msdpcc@nic.in>;Pondichery <ppcc.pon@nic.in>;Vivek Pandey <cpcc-chd@nic.in>;pccdddnh <pccdddnh@gmail.com>;fs-dmn-dd <fs-dmn-dd@nic.in>;dstpcc-andaman <dstpcc-andaman@nic.in>;dstandamans <dstandamans@gmail.com>;managingdirector2278 <managingdirector2278@gmail.com>;membersecretarylpcc <membersecretarylpcc@gmail.com> Cc:ps2mefcc <ps2mefcc@gov.in>;Chairman CPCB <ccb.cpcb@nic.in>;MEMBER SECRETARY CPCB <mсb.cpcb@nic.in>;Sujata Sharma <js.mkt-png@gov.in>;info <info@peso.gov.in>;A. K. Sharma <dirwm-ca@nic.in>;Chandra Babu Jathikartha <jcb.cpcb@nic.in>;Pentani Jagan <cpcb.bhopal@gov.in>;Mrinal Kanti Biswas <mkbiswas.cpcb@nic.in>;Kamal Kumar <kamalkumar.cpcb@nic.in>;CPCB RDNE <zoshillong.cpcb@nic.in>;PRASOON GARGAVA <prason.cpcb@nic.in>;Pratik Bharne <pratik.cpcb@gov.in>;VARALAXMI HOSOUR DEVAIAH <vlaxmi.cpcb@nic.in>;Narender Sharma <narendersharm.cpcb@gov.in>;Pankaj Agarwal <pagarwal.cpcb@gov.in>;Ankush Tewani <ankush.cpcb@nic.in>;Gautam Kumar Sharma <gautam.cpcb@gov.in>;Ajay Kumar <ajaykumar.cpcb@gov.in>

1 attachments (213 KB)

OM siting criteria for new petrol pump.pdf;

Sir/Madam,

I am directed to forward an office memorandum dated 16.09.2024 for perusal and necessary action, please

Regards,
PA to Head-AQM,
Central Pollution Control Board
Ministry of Environment, Forest and Climate Change

*Suraj Biswas OM
To upload in
Official website*

6/12

Pollution Control Board, Assam
Receipt No. 1531
Date 18/09/24
Signature *[Signature]*



केन्द्रीय प्रदूषण नियंत्रण बोर्ड
CENTRAL POLLUTION CONTROL BOARD
पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय, भारत सरकार
MINISTRY OF ENVIRONMENT, FOREST & CLIMATE CHANGE, GOVT. OF INDIA

EQ-11099/25/2021-AQM-HO-CPCB-HO

September 16, 2024

OFFICE MEMORANDUM

Sub: Siting criteria for setting up of new petrol pumps- reg.

The Hon'ble NGT vide order dated 01.07.2022 in OA no. 176 of 2020 (SZ): V.B.R. Menon v/s The Commissioner of Police, Tiruchirappalli and Ors. directed CPCB to revisit the siting criteria prescribed in CPCB guidelines dated 07.01.2020 for setting up of new petrol pumps, with respect to cases where no residential areas have been classified in the local laws or where there are non-planning areas under the local laws, and for Commercial Zone/Mixed Zone. The matter was also referred to the Expert Committee, constituted for framing guidelines for setting up of new petrol pumps.

02. Further, the Hon'ble Supreme Court has incorporated the said guidelines in its judgment dated 14.03.2023 in Civil Appeal no. 421 of 2022 and SPCBs/PCCs are required to ensure strict adherence to CPCB guidelines. Thereafter, CPCB had issued an OM directing all SPCBs/PCCs to ensure strict adherence to CPCB guidelines.

03. Considering the views of the Expert Committee, the following is recommended:
- i. SPCBs/PCCs to take up the matter for classification of areas in their State, under the extant Rules/Regulations/Byelaws for implementation of the siting criteria, with State Governments
 - ii. State Govt. to permit setting up of new petrol pumps strictly as per the siting criteria prescribed in local bye-laws (in case of unclassified areas, non-planning areas, mixed zone, commercial zone) and taking into account CPCB guidelines dated 07.01.2020
 - iii. SPCBs/PCCs to ensure implementation of all environment protection and control measures including VRS installation, provision of double containment walls, leakages and spillage detection and control systems, groundwater and soil quality monitoring, etc., as prescribed in CPCB guidelines dated 07.01.2020 and addendum dated 16.08.2021
 - iv. State Govt. to ensure implementation of various safeguards for safety, fire hazard, traffic movement, etc. prescribed by PESO or any other agency designated by the State Government for giving approvals for establishment of petrol pumps, besides additional measures as prescribed by SPCB/PCC.

This issues with the approval of Competent Authority.

(P. Agarwal)
Scientist 'F' and Head
Air Quality Management Division

'परिवेश भवन' पूर्वी अर्जुन नगर, दिल्ली-110032

Parivesh Bhawan, East Arjun Nagar, New Delhi - 110032

दूरभाष/Tel: 43102030, 22305792, वेबसाइट/Website : www.cpcb.nic.in

To:

All SPCBs and PCCs
(as per list enclosed)

: For necessary action and with a request to circulate the OM to Commissioner of Civil supplies or other similar authorities who look after issues related to petrol pumps at State/UT level and District Collectors/ Commissioners/ Deputy Commissioners

Copy to:

1. PS to Additional Secretary (CP)
Ministry of Environment, Forest and Climate Change
Indira Paryavaran Bhawan, Jorbagh Road, New Delhi – 110 003
2. PS to Chairman, CPCB
CPCB, Delhi
3. Joint Secretary (Marketing and Oil refinery)
Ministry of Petroleum & Natural Gas,
Shastri Bhavan, New Delhi – 110001
4. Chief Controller of Explosives
Petroleum and Explosive Safety Organisation (PESO)
A Block, CGO Complex, Fifth floor
Seminary Hills, Nagpur
5. Director- Legal Metrology
Deptt. of Consumer Affairs,
Room No.461-A, Krishi Bhawan,
New Delhi - 110 001
6. Regional Director
Central Pollution Control Board
Regional Directorate
1st & 2nd Floors, Nisarga Bhavan
A-Block, Thimmaiah Main Road
7th D Cross, Shivanagar,
Opp. Pushpanjali Theatre, Bangalore –560 010
7. Regional Director
Central Pollution Control Board
Regional Directorate
Parivesh Bhawan, Paryavaran Parisar,
E-5, Arera Colony,
Bhopal-462016, Madhya Pradesh
8. Regional Director
Central Pollution Control Board
Regional Directorate