

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

(By Video Conferencing)

Original Application No. 274/2020

(With report dated 28.07.2021)

In re: News item published in the “Indian Express” dated 23.11.2020 entitled “Maharashtra: Two Killed, eight injured in methane gas leak in sugar factory”

Date of hearing: 16.08.2021

**CORAM: HON’BLE MR. JUSTICE ADARSH KUMAR GOEL, CHAIRPERSON
HON’BLE MR. JUSTICE SUDHIR AGARWAL, 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. Mukesh Verma, Advocate for MPCB
Mr. R.B. Mahabal, Advocate for Lokenete Bapurao Patil Agro Industries Ltd.

ORDER

1. Proceedings in this matter have been initiated on the basis of media report of deaths and injuries on account 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.

2. The matter was earlier dealt with vide order dated 18.12.2020. After notice of the proceedings to the statutory authorities and the industry in question and after considering the pleadings of the parties, the Tribunal held that there was clear nexus of the death of two persons with the activities of the factory which entitled the heirs of the deceased to compensation. It was further held that apart from remedial measures for restoration of the environment, there was need to identify measures to prevent reoccurrence of such incidents in future. The operative part of the order is reproduced below:-

9. From the material on record, it is clear that the unit is engaged in producing and dealing with the methane and ethanol which are covered by the Manufacture, storage and Import of Hazardous Chemicals Rules, 1989. The Rules require the occupier of the industrial activity inter-alia to prepare an on-site emergency plan which should include mock-drill every six months. There is also requirement to prepare an off-site emergency plan by the Authority. **It is not shown by any of the parties whether this aspect has been looked into and whether there is compliance of this mandate.** Learned counsel for the industrial unit submitted that the location where the accident took place is outside the manufacturing area. However, definition of “site”, under Rule 2(m), includes whole area under the control of the occupier. The said Rule is as follows:

“2. Definitions.

xxx

xxx

xxx

(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;”

10. **The accident has clear nexus to the activities of the occupier. Though two persons have died, compensation claimed to have been paid (@ Rs. 10 lakhs each to the kins of the deceased), is highly inadequate by any standard, either as per the parameters of the Workmen Compensation Act, 1923 or under the common law. The object of compensation is to place the victim in the position which he would have been, but for the incident. The principle of ‘Absolute Liability’ applies to such cases, as per law laid down by the Hon’ble Supreme Court in M.C Mehta v. Union of India, (1987) 1 SCC 395. There is also failure to comply with the mandate of statutory rules in mainlining safety norms and compensation is required to be paid for damage to the environment, which may need to be assessed. There is also need to have authentic report about the facts on the spot.**

11. The Tribunal has recently dealt with the issue of Industrial Safety and accountability for such failures in terms of compensating the victims, restoring the environment and taking preventive measures for future.

- 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 damage¹;
- ii. Order dated 08.06.2020, relating to incident dated 03.06.2020 in a chemical factory, **Yashyashvi Rasayan Pvt. Ltd.** at

¹ OA No. 73/2020, In re: Gas Leak at LG Polymers Chemical Plant in RR Venkatapuram Village Visakhapatnam in Andhra Pradesh

- Dahej, District Bharuch, Gujarat resulting in deaths and injuries and other damage²;
- iii. Order dated 02.07.2020, 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 environment³.
 - iv. Order dated 06.07.2020, 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 Vishakhapatnam⁴;
 - v. Order dated 06.07.2020, relating to accident of **Ammonia gas leakage at Nandyal in Kurnool District, Andhra Pradesh in Spy Agro Industry** on 26.06.2020 resulting in death of one person and injury to three workers.⁵
 - vi. Order dated 08.07.2020, 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**⁶ and;
 - vii. Order dated 23.07.2020, 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 injuries⁷.
 - viii. 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 persons⁸.

12. **The Tribunal constituted Committees of Experts in first seven cases to find out the sequence of events, persons responsible, extent of damage, steps to be taken for restoration and other remedial measures. In the present case also, it needs to be done.**

13. Accordingly, in the present case also we constitute a six-member Expert committee comprising the MoEF&CC, CPCB, State PCB, NEERI, Nagpur, IIT, Mumbai and the District Magistrate, Solapur. The State PCB will be the nodal agency for coordination and compliance. The District Magistrate, Solapur may extend all logistic support for functioning of the Committee. The Committee may meet physically or by video conferencing and may also undertake visit the site and give a report on the following:

- a. The sequence of events;
- b. Causes of failure and persons and authorities responsible therefor;

² OA No. 22/2020(WZ) (Earlier OA 22/2020)(wz), Aryavart Foundation through its President vs. Yashyashvi Rasayan Pvt. Ltd. & Anr.

³ OA No. 43/2020(EZ), Bonani Kakkar vs. Oil India Limited & Ors.

⁴ 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..."

⁵ OA 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"

⁶ 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"

⁷ 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"

⁸ OA No. 272/2020, News item published in the "Times of India" dated 20.11.2020 entitled "Six killed as blast tears through Malda Pastic recycling factory"

- c. *Extent of damage to life, human and non-human; public health; and environment – including, water, soil, air;*
- d. *Steps to be taken for compensation to victims and restitution of damaged property and environment, including the land, soil, groundwater and surface water, and the cost involved;*
- e. *Remedial measures to prevent recurrence;*
- f. *Any other incidental or allied issues found relevant.*

14. *The Committee may also suggest guidelines for safety measures to be adopted in the setting up and maintenance of biodigesters. The Committee may also consider reports furnished in incidents in first seven cases, mentioned in Para 11 above which are available with the CPCB. The Committee will be at liberty to associate any other expert or institution. The Committee may interact with all concerned stakeholders. The Committee may give its report within three months sent 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.*

15. *Vide order dated 08.06.2020 in O.A. No. 22/2020 (WZ), Aryavart Foundation through its President v. Yashyashvi Rasayan Pvt. Ltd. and Anr., we determined the interim compensation at Rs. 15 lakhs in the case of death, Rs. 5 lakhs in the case of serious injury and Rs. 2.5 lakhs to any other injured as follows:*

“6. ... we assess interim compensation for death to be 15 lacs each (taking into account multiplier of around 16 and loss of earning of about one lac a year, taking the minimum wage, apart from conventional sums), for grievous injury Rs. 5 lac per person, for other injuries of persons hospitalized Rs. 2.5 lac per person and for displacement at Rs. 25000/- per person.”

16. *Accordingly, the said scale needs to be applied to the present case. Final compensation may be suggested by the Committee, including for restoration of environment. The industrial unit may deposit appropriate amount to cover interim compensation (deficit amount remaining to be paid) with the District Magistrate within one month, failing which, the District Magistrate may recover the same by coercive measures, as per law. The District Magistrate may ensure disbursement of the amount of interim compensation to the victims, excluding the payment already made. We request the District Legal Authority, Solapur to provide assistance to the victims in accessing legal remedies. **This order will be without prejudice to liability under the Criminal Law.**”*

3. In pursuance of above, the six members Expert Committee has given its interim report, filed on 28.07.2021. The report notes the failure of the factory in observing safeguards leading to damage to the soil and deals with the environmental impact of spent wash on soil environment and remedial measures to be adopted in terms of restoration steps and

preventive safeguards. The Committee has also suggested a further detailed study to prepare DPR for remedial action.

4. The relevant extracts from the report are reproduced below. The conclusions and the recommendations in the report are as follows:-

“4.0 CONCLUSIONS

- (i) *As per Excise register, the industry started its distillery operation w.e.f. 02.11.2020 and as per the record of Police Department accident happened on 21.11.2020. The average production of ethyl alcohol is 28.123 m³/day against the consented capacity of 30 m³/day and corresponding daily spent wash generation is 280 to 295 m³/day. Total spent wash generated w.e.f. 02.11.2020 to 21.11.2020 is about 5,600 m³.*
- (ii) ***The industry has violated by not stabilizing the biodigester using organic matter, active culture, etc. prior to the operation of the distillery unit and hence was not having necessary preparedness to meet the required treatment of spent wash prescribed under the consent issued by MPCB.***
- (iii) *The industry has provided two 5 days and 30 days spent wash impervious (concrete) lagoons of 1,500 and 9,000 m³ capacity, respectively as per conditions of CREP norms and Environmental Clearance dated 19.05.2008. However, it is gathered that 30 days spent wash impervious (concrete) lagoon was found filled with raw spent wash of 3,380 m³ without treatment in the biodigester. **Hence the industry is non-complied w.r.t. specific conditions of S. no. viii of the Environment Clearance (EC) granted by MoEF&CC vide F.no. J-11011/473/2006-IA-II (I), dated 19.05.2008.***
- (iv) *As per CC&A conditions, the industry has provided biodigester for the treatment of distillery effluent @ 295 m³/day followed by bio-composting on 7.5 acre of land to achieve ZLD conditions. The design capacity of biodigester is 400 m³/day and the volumetric design capacity of biodigester is 9,600 m³. The biodigester was filled with previous season's (i.e. 2018-19) spent wash of 5,780 m³ i.e. ~60% of biodigester capacity and present season's (w.e.f. 02.11.2020 to 21.11.2020) fresh spent wash of 720 m³, which amounts to be total 6,500 m³ of spent wash in the biodigester.*
- (v) *After the accident, the aforesaid 6,500 m³ of spent wash from the biodigester has reportedly been spread within the industry premises. **The spilled area has been reported of about 06 acres and their approx. break-ups are as below:***

(a) Bagasse yard: 1 acre;

(b) Mango orchard: 1 acre;

- (c) Bio-compost yard: 1 acre;**
- (d) Distillery premises: 1 acre, and;**
- (e) Cane yard: 2 acres**

However, the areas of excavated earthen pits, drains/nalah and constructed bunds may also have been affected due to contact with spent wash. Details of the same have not yet been accounted by the industry.

- (vi) Approximately 4,400 m³ of spent wash was re-collected by excavating two nos. of temporary earthen pits and in addition to 600 m³ of spent wash was recollected from the nalah by constructing temporary bunds.*

It has also been reported that spilled spent wash did not escape from the industry premises due to containment of the spent wash by constructing the said temporary pits and bunds.

- (vii) The re-collected spent wash in the tune of 5,000 m³ was pumped and stored in the existing 30 days spent wash impervious (concrete) lagoon of 9,000 m³ capacity. The details of spent wash storage in the said lagoons are as below:*

Item	Spent wash storage and utilization					
	Prior to accident on 02.11.2020			After the accident and collection of spilled spent wash		
	05 days lagoon	Bio-digester	30 days lagoon	05 days lagoon	Bio-digester	30 days lagoon
Spent Wash stored (in m ³)	1,500	5,780 + 720 = 6500	3,380 as raw spent wash and bypassed without imparting bio methanation	1,500	Not applicable	3,380 + 5,000 = 8,380
spent wash utilized (in m ³)	3,568 spent wash was utilized for preparation of bio-compost along with press mud @ 1: 0.42 (1 MT of press mud requires 0.42 m ³ of spent wash. Hence, total 8,480 MT of press mud was consumed.			6,312 spent wash was utilized for preparation of bio-compost along with press mud @ 1: 0.42 (1 MT of press mud requires 0.42 m ³ of spent wash. Hence, total 15,001 MT of press mud was consumed.		
net spent available (in m ³)	Out of 11,380 total spent wash, 9,880 spent wash was utilized for preparation of bio-compost and 1,500 spent wash was recovered/re-collected as soil-soaked spent wash and utilized as soil amendment for the preparation of bio-compost.					

- (viii) The remaining spilled spent wash of about 1,500 m³ either seeped into soil or evaporated or both at the aforesaid affected areas.**

- (ix) Top surface i.e. 10 cm of the soil was scrapped from the said affected area of about 6 acres and also from the nalah Quantity of the said top layer excavated soil contaminated with spent wash has been reported to be total of about 5,750 MT.**

- (x) It is informed by the industry that after the accident, proportionating of spent wash contaminated soil was done @ 20% along with the spent wash and press mud to prepare bio-compost. Accordingly, the industry has utilized 6,312 m³ of spent wash, 15,001 MT of press mud, 750 MT of boiler ash and 4,696.2 MT of spent wash contaminated soil to prepare the bio-compost. **Whereas, as per the above information, proportionating of spent wash contaminated soil was done @ 31.3% along with the spent wash and press mud to prepare bio-compost.**
- (xi) The produced Bio-compost samples were analysed only for pH, colour, odour, electrical conductivity, particle size, total nitrogen, potassium, phosphorous, C/N ratio, moisture content, bulk density and total organic carbon. Whereas other prescribed parameters i.e. total heavy metals (As, Cd, Cr, Cu, Pb, Hg, Ni & Zn) were not analysed. **Hence, the industry has non-complied w.r.t. the Office Memorandum of MoEF&CC vide F.No. J-11013/55/2017-IA-II (I), dated 04.09.2018.**
- (xii) The analysis results of the produced compost reveal that not all the parameters have been analysed as applicable under the FCO standards. **However, all the measured parameters are above the minimum required values or within the prescribed limits prescribed under FCO standards except electrical conductivity and moisture. The same were found to be 9.54 dS/m & 9.12 dS/m and 38% & 32% which are higher than the prescribed maximum limit of 4 dS/m and 25% prescribed for organic manure under the FCO standard.**
- (xiii) The industry has not yet provided the data on total quantity of bio-compost produced prior to the accident and also data on total quantity of bio-compost produced after the accident, their current storage in the premises and quantity sold.
- (xiv) Soil samples were collated from 8 different locations of the spent wash spilled affected areas due to the accident and also from one area not having any impact due to the accident as reference/background soil sample.
- (xv) **Analysis results of 8 soil samples taken from the spent wash spilled affected areas and the reference soil samples taken from non-impacted area reveal that, except pH and CEC, all the measured parameters (viz. electrical conductivity, organic carbon, available nitrogen, phosphorous, potassium, sulphur and sodium absorption ratio) have higher concentration in the spent wash spilled affected area when compared with the reference soil samples collected at surface level and at 20 cm and 40 cm depths. It may, therefore, be inferred that the affected spent wash spilled area still has impact of spent wash despite excavation of 10 cm soil after the spill. The concentration of such parameters was found to be significantly high at soil sampling locations S3, S4, S5 and S8 [viz. opp. distillery gate (North-eastern side of**

biodigester), Southern side of biodigester, Bitale Mohol Road, Near Kaccha Pit (Southern side of biodigester) and downstream of compost yard where bund was constructed].

5.0 RECOMMENDATIONS

In view of the observations/findings that:

- (i) surface soil and soil samples taken from 20 cm to 40 cm depth of the spent wash spilled affected areas have higher electrical conductivity and higher percentage of organic content, higher concentration of nitrogen, phosphorous and potassium (even after scrapping of 10 cm top soil layer) to that of unaffected soil samples indicating that there still exists impacts on soil;*
- (ii) no study has been conducted to assess impact on soil & other receptors due to higher concentration as (i) above and remedial measures required thereof;***

There is immediate need of carrying out detailed studies and take short-term measures to contain further impact, if any. The committee, therefore, recommends the following as immediate measures:

- 1. A detailed study shall be conducted through reputed institute like College of Engineering, Pune/ Mahatma Phule Krishi Vidyapeeth, Pune/etc. to prepare Detailed Project Report (DPR) which may include:***
 - (a) delineation of impacted area due to spillage of spent wash including pits/drains/nallahs/bunds;***
 - (b) detailed soil characteristics analysis/investigation with assessment of soil qualities in the affected areas and depth levels to which the same are affected;***
 - (c) The soil samples beneath the ground surface (up to 50 cm) should also be collected around 1 m from periphery of the affected area as after percolation, the wastewater will travel horizontally so the actual affected area needs to be determined.***
 - (d) receptors and pathways analysis;***
 - (e) requirement of remediation, if any, based on the above receptors and pathways analysis;***
 - (f) In case remediation is required, details of required remediation treatment such as in-situ treatment (bio-remediation/phyto-remediation/air purging/etc.) or off-site treatment (soil excavation and management of excavated soil) along with engineering details & time period and cost thereof with expected target quality/goals in terms of various parameters of concern.***

(g) Feasibility of utilizing the remaining 1,053.8 MT of excavated contaminated soil in bio-compost making ensuring compliance of all parameters stipulated under FCO standards. In case bio-composting is not feasible, details of alternate management options of the same be also provided.

The above studies be completed as early as possible preferably within two months and initiate necessary required remedial measures. A brief write-up on soil characteristics and removal mechanism of pollutants present in spilled spent wash is given at Annexure-II which may be helpful in preparing the said DPR.

2. **Till the above DPR is prepared and suggested remedial measures therein are implemented, necessary arrangement shall be made for temporary cover of the spilled spent wash affected area during rain/monsoon, wherever feasible. Otherwise, the runoff shall be contained by constructing suitable bunds/ periphery drains at slopes in the affected areas and preventing discharge of run-offs from the industry premises by channelizing & storing the collected run-offs to the 5 days or 30 days storage lagoons. In case expected run-off (based on local monsoon data) is more than the installed capacities of lagoons, a guard pond be constructed for the same.**

The contained water in lagoons/guard pond be analysed for various parameters as prescribed applicable for general standards for discharge of environmental pollutants notified under the Environment (Protection) Act, 1986, and be managed accordingly as per directions of MPCB.

3. **The industry should ensure to store the previously scrapped spent wash contaminated soil and the spent wash contaminated soil which is scrapped from the affected areas in an environmentally sound manner i.e. the spent wash contaminated soil should be stored and stockpiled under the covered shed on the impervious layer in order to prevent the leaching form the soil during monsoon season.**
4. **The industry shall provide information on total quantity of bio-compost produced prior to the accident and also data on total quantity of bio-compost produced after the accident, their current storage in the premises and quantity sold.**

The compost shall not be sold/used until the same meets the prescribed FCO standards.

5. **The industry should provide adequate leachate collection facility around the compost plant and leachate be collected and stored in 30 days storage**

lagoons followed by management of the same as per the norms.

- 6. Ground water quality monitoring in and around the industry premises shall be monitored at least two times year (pre-monsoon and post-monsoon) for a minimum period of 2 to 3 years. The no. of monitoring wells in and around the industry premises should be near as far as possible, at least 03 no. of monitoring wells should be so selected.***
- 7. The industry shall inventorise plants/greeneries damaged due to the accident and shall substantiate the same.”***

5. We have also received a report from the District Legal Services Authority dated 03.06.2021 on the subject of legal aid to the victims.

6. We have heard Learned Counsel for the parties.

7. Learned Counsel for the factory submitted that compensation in terms of order of this Tribunal dated 18.12.2020 has been paid and the factory has no objection to take remedial measures recommended in the interim report. The factory also has no objection to detailed study being conducted through a reputed Institute. However, the Institutes mentioned in the report are unable to undertake such studies.

8. Accordingly, while accepting the interim report, we issue directions in terms of the report. Further study in terms of recommendations of the Committee may be conducted by IIT Mumbai in coordination with such other Institutions/individuals as may be considered appropriate. The study may be completed within three months. The report of the IIT may be submitted to the Chairman State PCB. Final report of the Committee may also be submitted to the Chairman State PCB within three months. The Committee may also look into the monitoring of ground water in context of leaching of spent wash and piezometric monitoring. On that basis, recommendation be made to ensure that contaminated (monitored on the

basis of Colour with other parameters) water does not affect other wells of public use. The Chairman State PCB may, based on the final report of the Committee and the study report to be submitted by IIT Mumbai, ensure further remedial action. Compliance will be treated as a consent condition for functioning of the factory except that if it is aggrieved by final report or study report, it will be open to it to file objections before this Tribunal. CPCB may also issue guidelines on operation of Digesters with reference to safety.

9. The interim report and the final report may also be placed on the website of the CPCB for six months so that the same can be accessed by the concerned stakeholders. We place our appreciation on record for the work executed by the expert Committee which may be conveyed to the members by the CPCB.

The application is disposed of.

A copy of this order be forwarded to CPCB, State PCB, IIT, Mumbai, District Magistrate, Solapur, MoEF&CC, NEERI and the District Legal Authority, Solapur by email.

Adarsh Kumar Goel, CP

Sudhir Agarwal, JM

Brijesh Sethi, JM

Dr. Nagin Nanda, EM

August 16, 2021
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