

BEFORE THE HONORABLE NATIONAL GREEN TRIBUNAL,  
WESTERN ZONE, BENCH, PUNE.

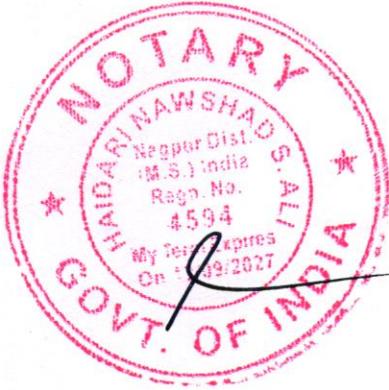
ORIGINAL APPLICATION NO. 28/2024 (WZ)

ORIGINAL APPLICATION NO.796/2023 (PB)

**APPLICANT:-** SUO MOTU

**: VERSUS :**

- RESPONDENTS:-**
- 1) Maharashtra Pollution Control Board,  
Through its Member Secretary
  - 2) Collector/District Magistrate, Nagpur,
  - 3) Solar Industries India Limited, Chakdoh,  
Nagpur
  - 4) The Chief Controller of Explosives, Nagpur



**[ COMPLIANCE AFFIDAVIT ON BEHALF OF RESPONDENTS NO. 2.]**

Respondents No.2 Collector/District Magistrate, Nagpur, do hereby submits as under.

- 1) I say that, I have been arrayed as Respondents No.2 in the present matter of which this Honble Tribunal has taken suo motu cognizance of the news appeared in the Hindu News Paper on 18.12.2023 regarding that "Nine Workers killed in blast in an

explosives factory near Nagpur” and in this background this Honble Tribunal issued notice against the respondents and as such listed the matter on 01.07.2024 before this Honble Tribunal.

- 2) It is submitted that on 17/12/2023 at Solar Industries India Limited, Mauja-Chakdoh, Taluka-Katol, District-Nagpur, 9 persons died due to explosion as per detailed report of the said incident submitted by Sub Divisional Police Officer, Katol Camp, Kondhali and Tahsildar, Katol.

**Brief information about the explosion on 17/12/2023**

Company name	Solar Industries India Limited, Chakdoh, Tahsil Katol District Nagpur (Maharashtra)
Establishment	Year 1995
Total area	570 acres
Products to be manufactured	Manufacturing of explosives and manufacturing of explosive by product
Name of the Chairman	Shri Satyanarayan Nuwal
Name of Director	Shri Milind Deshmukh
Name of Unit Head	Shri. P. P. Deotare
Date and place of incident	17/12/2023 around 9.00 AM
Place of incident	HRCPCU UNIT (HMX, RDX COMPOUNDED PRODUCT CASTING HOUSE) Building No.2
Manpower required for the unit	In A-Shift-11 Persons (from 06.00 AM to 2.30 PM)

Number of casualties	Male 3, Female 6. Total 09 Persons
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**Incident Details :**

HRCPCCH - Licensed for manufacture of building number 2 RDX / TNT pallets. On Sunday 17/12/2023 an explosion occurred in the above building while screening of INT was in progress, resulting in the death of 09 workers working in the plant.

**Names of Deceased:-**

1. Shri. Yuvraj Kishavji Charode, Male 31 years, R/o. Bazargaon, Nagpur Rural, Distt. Nagpur.
2. Shri. Omeshwar Kishanlal Machhirke, Male 25 years, R/o. Chakdoh, Katol, District, Wagpur
3. Shri. Mosam Rajkumar Patle, male 23 years, R/o. Pachgaon, Mohadi, Dist. Bhandara
4. Smt. Mita Pramod Uike, female 27 years, R/o. Ambada Sonak, T. Katol, District, Nagpur
5. Smt. Aarti Nilakant Sahare, female 20 years, R/o. Kamathi (Masod), t. Katol, Dist. Nagpur
6. Smt. Svetali Damodar Marbate, female 22 years, R/o. Kannamwar Village, Tahsil, Karanja, Distt. Wardha
7. Smt. Pushpa Sriramji Manapure, female 37 years, R/o. Telipura, Amravati, Dist. Amravati
8. Shrimati Bhagyashree Sudhakar Lonare, female 23 years R/o. Bhujatukum, Taluka Bramhapuri, Dist. Chandrapur
9. Mrs. Rumita Villas Uike, Female 31 years, R/o. Dhaga, Karanja, Dist. Wardha



**Action taken after accident :-**

- As soon as the incident was reported, the accident area was demarcated as a restricted area.
- The factory and all operations in the factory were immediately shut down.
- All the workers were sent back to their homes.
- The company launched drones to conduct aerial surveys.
- Fire highlights were used to wet the area.
- BDDS team of police force immediately deployed and inspected the accident site for safe access to the accident area,
- PESO (Petroleum and Explosive Safety Organization) team reached to carry out the search operation after inspecting the incident site, guidelines were given.
- Forensic team collected samples from the spot for further investigation.
- A team of (SDRF) and police, along with company personnel, conducted a search operation, collected the body and samples of different body parts from the spot and sent it for post-mortem.
- Crime No.882/2023 under section 304 A, 286 of IPC was registered against unknown person at Police Station Kondhali.

**Public Assistance :-**

- 5 lakhs per deceased from the State Government were released to the kin of deceased
- 20 lakhs per deceased person from the company management were given
- Assurance of one employment to the dependents of the deceased from the company is given.

3) It is also submitted that the Deputy Chief Controller of Explosives

DTS Gondkhairi, Amravati Road Nagpur-440023 vide

communication dated 18.12.2023 to the office of answering respondent has informed to the M/s Solar Industries India Limited, Amravati Road, Nagpur that the site of incidence is no more suitable for manufacture/storage of explosives and therefore the licence no. E/HQ/MH/20/98 (E113453) is suspended as per the provisions of Section 6(E) of Explosives Act, 1884 and Rule 118 of Explosives Rules, 2008 with immediate effect as an interim measure in the interest of safety. By the said communication the said company has been issued a show cause as to why the license should not be cancelled. The copy of the said communication has been forwarded to the office of answering respondent as well as to the Chief Controller of Explosives West Circle, Navi Mumbai for information and necessary action.

- 4) It is further submitted that the answering respondent taking the cognizance of the above facts in exercise of the powers conferred upon the District Magistrate Nagpur under section 9(1) of the Explosives Act, 1884 issued an order on 19.12.2023 for a Magisterial enquiry into the said accident directing that the said Magisterial inquiry shall be conducted by the Sub-Divisional Magistrate Katol, in the manner prescribed U/s 9(2) of the Act



ibid. By the said order Sub-Divisional Magistrate Katol, is directed to conduct inquiry into the said accident in procedure, 1973 and the Explosives Rules, 2008 and submit a report stating the causes and the circumstances which led to the said accident.

- 5) It is submitted that the present O.A. was listed before the Hon'ble Tribunal on 01.07.2024 and during hearing this Hon'ble Tribunal vide direction contained in para no. 6 of order dated 01.07.2024 directed the answering respondent no. 2 District Collector, Nagpur to submit an outcome of the said inquiry report within a period of 4 weeks positively.
- 6) It is thus submitted that in pursuance of the said direction the answering respondent directed Sub Divisional Magistrate, Katol to submit the Magisterial Enquiry Report as early as possible in order to submit the same within a period of 4 weeks positively from the date of order dated 01.07.2024.
- 7) It is submitted that the Sub Divisional Magistrate, Katol by a communication dated 06.08.2024, received on 08.08.2024 has submitted Magisterial Enquiry Report and the following conclusions are made there under by the Sub Divisional

Magistrate, Katol regarding the causes and the circumstances which led to the said accident.

"i) It was revealed from reports of all agencies and reply from officials of Solar Industries India Limited village Chakdoh, Tah. Katol, Dist. Nagpur, that the explosion might have occurred due to initiation of accumulated TNT dust in and around the hopper of one of the sieving table. The source of initiation in TNT dust might be due to generation of spark due to discharge of accumulated static charges through the bodies of the workers or machinery. The explosion resulted in collapse of HR-CPCH-2 building and death of nine workers.

ii) It was revealed from reports that explosion might have caused due to generation of static charge. Though workers working in HR-CPCH-2 unit were trained regarding safety measures as conveyed by officials of solar industries, there was no proper authority from safety department to ensure that all safety precautions were strictly followed. This was necessary as this factory falls under the category of MAH (Major Accident Hazard) factory to which Maharashtra Factories (Control of Industrial Major Accident Hazard) Rules 2003 are applicable.



iii) It was revealed from reply of official of Solar Industry India Ltd, Chakdoh that the building was approved for processing of HMX/RDX compounded products and handling of HMX, RDX and TNT. The provision of inspection of TNT was covered in building HR-CPCH-2 which covers activities like sieving and sieving is mandatory to meet the specification of the product requirement as per Rule 33 of the Explosive Rule 2008 and that no specific permission was required for the sieving process. This was contravened by report from Dy. Controller of Explosive (PESO) which states that the building HR-CPCH-2 was approved for manufacture of HMX/RDX compound product and sieving operations of TNT was not the part of the process in the building. It means sieving activity that was being done in HRCPCH-2 building was illegal and without any authorized permission from PESO.

iv) The license of productions in HR-CPCH-2 plant was for manufacture of HMX/RDX compound product but it revealed from reports and reply of company official that there was no activity in the said building since last four months and TNT sieving operation was started in the building from 13.12.2023

and explosion took place on 17.12.2023. It was revealed that no permission for change in use of process in HR-CPCH-2 building was sought from officials of Solar Industries India Limited Chakdoh which was required as per rule 109 of Explosive Rules, 2008. So the machinery used for sieving operations in HR-CPCH-2 building was also not approved by PESO. That the change activities permission has not been obtained by occupier, as the original permission was also in the name of occupier. Therefore it seems that the occupier violets the provision of section 109 of Explosive Rules 2008.

v) It is revealed that mechanism for dissipation of static charge that could have generated causing explosion, could not have worked properly. It reveals from the reports of Dy. Director Industries Safety & Health that earthing wire connected to the leg of the sieving table by clamping the crocodile clip to the leg of the sieving table which was likely to disconnect during the cause of handling of TNT boxes/crates and manual sieving work of TNT flakes. Permanent fixed earthing connection was not provided for the sieving tables and also there was no mechanism to ensure that the static charge which is developed



is getting dissipated or grounded. This seems to be the failure of production and safety unit of the company.

vi) The HR-CPCH-2 building was not in operation from last four months and sieving operation of TNT was started on 13.12.2023. It revealed from reply from officials of Solar Industries Ltd that no safety SOP was designed for this sieving operations and last visit of safety official to HR-CPCH-2 plant was on 30.10.2023. But actual sieving process was started in HR-CPCH-2 building on 13.12.2023. So it seems that no inspection of HR-CPCH-2 building was done by safety officials of the company regarding safety precautions after sieving operation of TNT started in HR-CPCH-2 building

vii) It reveals from reply of officials of Solar Industry India Limited village Chakdoh Plant that they have taken many remedial steps after explosion, as preventive measures to avoid any such incident in future. These include stopping of manual sieving operation of TNT, automatic facility for TNT sieving, engagement of actual Process Safety Management (PSM) to enhance process safety, mechanical integrity, skill improvement, competency mapping and assessment of risk matrix. This seems

to be good initiative, but if this would have been followed earlier, the incident could have been averted. This was also revealed from reports of Dy. Director Industrial Safety & Health that the occupier has not furnished till the day of explosion i.e. 17.12.2023 to the inspector an updated on site emergency plan prepared by the factory containing the particulars specified in schedule 6 of the Maharashtra Factories (Control of Industrial Major Accident Hazard) Rules 2003 and dealing how major accidents will be dealt with in 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 plan in case of an emergency.

viii) The report of Dy.S.P., Katol revealed that as conveyed by Sr. General Manager of Solar Industry India Pvt. Ltd, General Manager Production have given oral direction to Dy. Manager Production for making arrangement of sieving operation and Dy. Manager Production executed the same through lower staff. But considering the MAH (Major Accident Hazard) category of the factory, procedure for such type of oral instructions for



doing any activity regarding explosive material seems to be completely illegal as it can put system of operations in extreme danger. Any type of activity regarding explosive material to be carried out in explosive industry needs to be permitted by PESO by following due process of law.

ix) It was revealed in the report of PESO that the said sieving operation was undertaken since 13.12.2023. M/s Solar Industries India Ltd. had export orders in hand for export of TNT as per required specifications, the sieving operation was being carried out to meet the specification of the overseas consignment. Therefore there is possibility that the unauthorized sieving activities in the building might have caused the accident due to unsafe sieving operations of TNT.

That, on above inquiry it reveals that as per section 7A of Factories Act 1948, the occupier is responsible for the health, safety and welfare of all workers while they are at work in the factory and therefore the process done in the factory was without proper safety precaution, as unauthorised sieving activities seems to be done by the workers, which causes



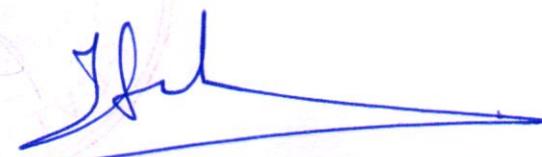
explosion in HR-CPCH-2 building of Solar Industry India Pvt. Ltd. Chakdoh, Tah. Katol, Dist. Nagpur.”

The copy of the Sub Divisional Magisterial Enquiry Report prepared by the Sub Divisional Magistrate, Katol (Page No.1-49) received on 08.08.2024 is annexed and marked herewith at **ANNEXURE-1** for the kind perusal of this Hon'ble Tribunal.

8) It is submitted that the Sub Divisional Magisterial Enquiry Report has been received on 08.08.2024 and after perusal of the same, Enquiry Report is being submitted to the Hon'ble Tribunal. However, there is some delay in submission of the report to the Hon'ble Tribunal as directed vide order dated 01.07.2024 which is not intentional or deliberate and therefore the inconvenience caused to Hon'ble Tribunal is highly regretted.

9) Hence the affidavit containing Sub Divisional Magisterial Enquiry Report is being submitted for due consideration of the Hon'ble Tribunal.

Place :Nagpur  
Dated: .08.2024

  
Collector and District Magistrate, Nagpur  
( Respondents No. 2)

**Collector, Nagpur.**

Solemn Affirmation

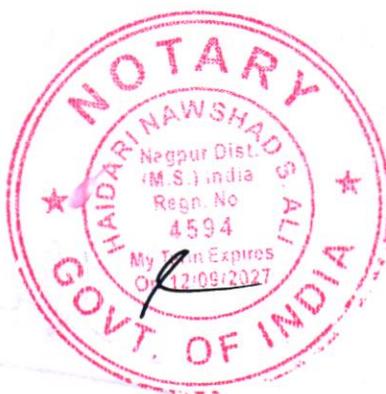
I Dr.Vipin Itankar, Aged about 39 years, Collector and District Magistrate, Nagpur do hereby take an oath and state on solemn affirmation that the contents as stated above are true and correct to the best of my knowledge and information received from official record and hence I have signed on this day of 12<sup>th</sup> August, 2024 at Nagpur.

*[Signature]*  
Collector, Nagpur.  
Deponent

I know the deponent.

*[Signature]*  
V. R. Bhute,  
Advocate.

NOTARY REG.  
ENTRY NO. 16302  
DATE 13/8/24



SWORN / SOLEMNLY AFFIRMED BY Dr. Vipin Itankar WHO IS PERSONALLY KNOWN TO ME / IDENTIFIED BY Adv. V. R. Bhute BEFORE ME THIS THE 13<sup>th</sup> DAY OF Aug. 24 AT NAGPUR

*[Signature]*  
HAIDARI NAUSHAD S. ALI  
NOTARY  
NAGPUR DIST. (M.S.) INDIA



### Inquiry Report

Subject :- Magisterial Inquiry in Connection with Explosion and unfortunate death of total 9 (nine) employees on 17/12/2023 in the Explosives Manufacturing unit of M/s Solar Industries India Private Ltd. Chakdoh, Ta. Katol, District- Nagpur.

A Magisterial Inquiry conducted as per the order of Hon'ble District Magistrate, Nagpur, vide it's order No. DM/Home 14(3)/WS-658/2023, Dated 19<sup>th</sup> December 2023. The inquiry was mainly focussed on following two points;

- A) What are causes of Explosion in the Explosives manufacturing unit Solar Industries India Ltd. Situated at Chakdoh, Tah. Katol, District Nagpur on 17/12/2023
- B) Whether Incident was deliberately negligent part of the Explosives manufacturing unit, Solar Industries India Ltd. Situated at Chakdoh, Tah. Katol, District Nagpur or not followed direction prescribed in the explosive rules.
- 1) The perusal of Investigation report of Police Department states that total 11 employees were working in HR- CPCH-Building No. 2 of Explosives manufacturing unit Solar Industries India Ltd. Situated at Chakdoh, Tah. Katol, District Nagpur and approximately during 8 to 9:30am a sudden explosion in the HR-CPCH-Building No. 2 Occurred and Building got collapsed.
- 2) Total 9 nine employees working inside the unit engaged in Tri Nitrotoluene (TNT) Inspecting/Sieving and Packing activity died in the Explosion/incident on 17/12/2023 in the HR-CPCH- Building No. 2 at Solar Industries India Ltd. Situated at Chakdoh, Tah. Katol, District Nagpur.

Details of deceased Workers is as followed :-

Sr. No	Name of Death employees	Gender	Age	Address
1	Shri Yuwraj Kisanji Charode	M	42	At.Po.Meth Hirj, Tah.Karanja, Dist. Wardha, At. Present Bajargaon, District Nagpur
2	Shri Omeshwar Kishanlal Machhirke	M	32	At Bamni, District Gondia, At Present Chakdoh .Po. Bazargaon, Tah. & Dist. Nagpur.
3	Meeta Pramod Ukey	F	29	At Ambada Sonak Tah. Katol, District Nagpur
4	Aarti Nilkanth Sahare	F	23	At. Kamptee, Post. Masod Tah. Katol Dist. Nagpur
5	Swetali Damodhar Marbate	F	23	At. Post. Kannamwar Gram Tah. Karanja District Wardha
6	Pushpa Shriramji Manapure	F	39	At. Po .Karanja, Dist. Wardha, W/o Shriramji Manapure Telipura Shirala ,District Amravati
7	Bhagyashri Sudhakar Lonare	F	25	At Post. Bhuj Tukum, Tah. Bramhpuri Dist. Chandrpur
8	Rumita Vilas Uikey	F	35	At. Dhaga Post. Kannamwar gram Tah. Karanja Dist. Wardha
9	Mosam Rajkumar Patle	M	23	At. Neharu Ward, Post Pachagaon Tah. Mohadi Dist. Bhandara

That accordingly for doing the inquiry, report was called from chief controller of Explosives, Petroleum and Safety Organisations (PESO), Tahasildar Katol, Dy. SP. Katol and Dy. Director, Industrial Safety and Health. Accordingly all the departments have given their reports.

That the public notice dated 25/06/2024 was published in order to call the objections and information regarding the said incident dated 17/12/2023. That said publication was done in office of Tahasildar Katol, PSO Kondhali, Talathi Chakdoh, Secretary G.P. Ringnabodi and Solar Industries India Pvt. Ltd. Chakdoh. However no one has raised any objections or given any information in regards of said publication to the office.

That accordingly joint visit to the spot was scheduled on 12.07.2024 alongwith 1) Shri. Babu Rohom- DY.SP Katol, 2) Shri. Dr. Anuj Kumar- Dy.Chief Controller of Explosives 3) Shri. Raju Ranvir- Tahsildar Katol 4) Shri. Rajkumar Tripathi- PSO Kondhali 5) Shri. P.P.Deotare- Senior General Manager (Works) 6) Shri.Ninad Gawande Dy.Chief Controller of Explosives. The company officials 7) Shri. B.B.Singh- Assistant General Manager (HR), 8) Shri. Rajesh Shrivastav- General Manager, 9) Shri. Rakesh Sharma- C.S.O (Security), 10) Shri. Dr. S.K. Sharma (Technician) 11) Shri. M.K. Singh-Senior General Manager were also present on the spot. The spot was inspected and information as regarding the incident was obtained during the spot visit from officials of the company and investigating agencies.

Notice were issued to the witness and relatives of deceased workers to record their statements

A) The List of relatives of the deceased workers, who recorded their statement are as follows :-

- 1) Shrimati. Kavita Yuvraj Charode, R/o Bazargaon, Tah. Nagpur(Rural), Dist. Nagpur.
- 2) Shrimati Anusaya Omeshwar Machirkke, R/o Brahmni, Ta.Aamgaon, Dist. Gondia.
- 3) Shri. Arjun Shrawan Masram, R/o Ambada(Sonak)Ta. Katol, Di.Nagpur.
- 4) Shri. Nilkanth Gajanan Sahare, R/o Kamptee(Masod) Ta. Katol, Dist. Nagpur.
- 5) Shri. Damodhar Vithobaji Marbate, R/o Kannamwargram, Ta. Karanja(Ghadge) Dist. Wardha.
- 6) Shri. Himanshu Shriramji Manapure 2) Ku,Diksha Shriramji Manapure R/o Karanja(Ghadge) Ta. Karanja(Ghadge) Dist. Wardha.
- 7) Shri. Sudhakar Natthuji Lonare, R/o Bhujtukum, Ta. Brahmपुरi, Di. Chandrapur.

- 8) Shri. Vilas Ramdas Uikey, R/o Dhaga, Po. Kannamwargram, Ta. Karanja(Ghadge) Dist. Wardha.
- 9) Smt. Shilabai Rajkumar Patle, R/o Nehru Ward Pachgaon, Ta.Mohadi, Dist. Bhandara.

That the relatives of the all deceased workers expressed their ignorance about the cause of explosion. However they informed that they received an amount of Rs. 20 lakhs each from Solar Industries India Pvt. Ltd. Chakdoh and further received an amount of Rs. 5 Lakhs each from Government of Maharashtra, through Chief Minister Relief Fund and Rs. 2 lakhs each from Central Government.

**B) Statement of Eye witnesses were also recorded as under ;**

**i) Shri Sanjay Gulabrao Aade (Worker).**

He stated that he was deployed in the morning shift on the day of accident for shifting of boxes and crates filled with TNT and cleaning activities in the building. He further deposed that at the time of incident he went to another section to drop the boxes. He further deposes that he is not aware that as to by which reason the Explosion took place.

**ii) Shri Pradip Dadarao Ambole (Supervisor)**

Shri Pradip Dadarao Ambole deposes that he went to the washroom and so was not present inside the building during the Incident. He further deposes that he is not aware that as to by which reason the Explosion took place.

**That Peso has submitted their detailed investigation report to Collector office, Nagpur which was officially forwarded to this office.**

As per Report of Peso explosion occurred at about 9:00 AM on 17/12/2023 in the HMX / RDX Compounded Product Pellet Casting House-2 (Process Building No: HR-CPCH-2 which was marked as CBH-2 on site of accident), situated in the premises of M/s Solar Industries India Pvt Limited, Village Chakdoh, District Nagpur, while processing of TNT to obtain the

desired size of TNT and packing of the same in boxes. The said building was completely razed to ground in the explosion. As a result of explosion, 9 workers lost their lives. The Police Station Kondhali has lodged FIR with regard to subject accident.

A) PESO have given critical observations made during the visit to the accident site are as follows:-

1. No crater was observed on the floor of the building.
2. The mound on the north side was completely damaged and debris was thrown in north direction.
3. The roof over room C of the building (main process area) was blown off and beams were found collapsed.
4. The roof over room A and B of building was found collapsed and damaged slab was found lying over the same place.
5. Internal walls of mounds in east, west and south directions found partially collapsed.
6. Unexploded TNT was found approximately two meters away from the entrance on the north side of the building.
7. The debris including RCC beams of the building were found lying on the north east sides where the entry passage to the building was located.

B) Circumstances leading to the accident:

- i) As per the attendance sheet submitted by M/s Solar Industries India Ltd, two supervisors namely, Shri Pradip Dadarao Ambole and Shri Mosam Rajkumar Patle along with nine other workers were deployed in the morning shift in the building. All the employees except Shri Pradip Dadarao Ambole (Supervisor) and Shri Sanjay Gulabrao Aade (Worker) lost their lives in the accident.

- ii) Shri Pradip Dadarao Ambole and Shri Sanjay Gulabrao Aade were not present inside the building. Shri Pradip Dadarao Ambole had gone to washroom. Shri Sanjay Gulabrao Aade had gone to other building to collect TNT.
- C) During interrogation Shri Pradip Dadarao Ambole (Supervisor) informed that:
- i) He was deployed in morning shift of 16/12/2023 and 17/12/2023.
  - ii) The operation seen in the CCTV footages is of the day on which accident occurred.
  - iii) The sieving operation visible in the CCTV footages was also being carried out on the other table.
  - iv) He was in washroom at the time of accident.
- D) Shri Sanjay Gulabrao Aade (Worker) informed that:
- i. He was deployed in the morning shift on the day of accident for shifting of boxes and crates filled with TNT and cleaning activities in the building.
  - ii. The building was not in operation for last 4 months and operation in the building started on 13/12/2023.
  - iii. From CCTV footages, he identified the workers engaged in the building.
  - iv. The operation seen in the CCTV footages is of the day on which accident occurred.
  - v. The boxes and crates filled with TNT were brought from building number PP 18
  - vi. The boxes filled with sieved TNT were transferred to storage magazine.
- E) The CCTV footages were examined in the presence of Police Authorities and officials / employees of the company were interrogated. The main observations of the CCTV footages are as follows.
- i) A metal table having a flat portion on one side and a sieving mesh on other half portion of the table with a hopper below it, was observed in the building.

- ii) A flexible metal braided hose was found in the building. The officials of the firm informed that the said hose was being used to suck the dust generated during sieving operation. The officials also intimated that one end of the metal braided hose was firmly connected to the header of the scrubber. The other end of the hose was hanged with a hook welded on a hopper below the sieve,
  - iii) The flat portion of the table was being used for placing plastic crates and corrugated boxes filled with TNT.
  - iv) Empty corrugated boxes with liner were observed stacked near the wall.
  - v) Two vessels covered with a sheet were observed near the wall.
  - vi) Plastic crates filled with TNT were observed on and around the sieving table.
  - vii) Two female workers were found standing on a platform and working on the sieve provided on the table.
  - viii) It is observed that the female workers were manually pressing and rubbing TNT over the surface of the sieve. The fine-sieved TNT was being collected in a liner placed in a corrugated box below the hopper of the sieve.
  - ix) TNT was found spilled on the floor near the sieving table where the workers were working.
  - x) A worker is seen pulling the TNT filled crate on the floor.
  - xi) Workers were seen putting two types of liners (transparent and light brown colour) in the boxes for packing of sieved TNT.
  - xii) It is observed that the workers were handling the filled TNT boxes and crates during shifting from one place to other in a rough manner.
  - xiii) In the CCTV footage, a worker is seen working on another table. Officials of the company confirmed that activity similar to the one which was being carried out on the table visible in the CCTV footage was also in progress on other table.
  - xiv) Two male workers were also observed shifting the crates and boxes.
  - xv) The CCTV footage of the operation carried out in the building stopped and further footage was not available for examination.
- F) During accident investigation, it was observed that the bodies of the two male workers found intact near the entrance of the building and torso of

one woman was found on roof top of nearby building. Body parts of one male worker and Five female workers were found in pieces scattered here and there. The deceased were identified on the basis of DNA analysis.

G) Further, on perusal of test reports of the Regional Forensic Science Laboratory, Government of Maharashtra, it is observed that TNT was present in the building. It is also observed from the said report that the RDX and PETN were not present.

H) Cause of Accident :

i. Sabotage.

The possibility of any kind of Sabotage is ruled out due to reasons as elaborated in the report submitted by PESO.

ii. Effect of weather.

The occurrence of accident due to lightning or thunder is ruled out due to reasons as elaborated in the report submitted by PESO.

iii. Presence of a cat

Explosion due to involvement of cat's fur carrying significant static charge is ruled out due to reasons as elaborated in the report submitted by PESO.

iv. Accumulation of explosive dust in the building.

a) As per CCTV footage, it was observed that at the time of accident two female workers were working on the sieving table. The TNT was being crushed and rubbed over the sieve by the female workers to obtain desired size of TNT. The similar type of operation or handling of TNT appears to be carried out on the other table which is partially visible in the footage. Shri Pradip Dadarao Ambole (Supervisor) and

Shri Sanjay Gulabrao Aade (Worker) also confirmed the same.

- b) One end of the metal braided flexible hose was firmly connected to the header of the scrubber and the hose was hanged with a hook welded on a hopper below the sieve. The header of the scrubber was modified to connect a flexible metallic hose. The hose was being used to suck the TNT dust generated during sieving operation. The header and scrubber were primarily designed for scrubbing of fumes generated during melting of TNT or during mixing of RDX or HMX with molten TNT. The same was not designed for rubbing the explosive dust generated during sieving of TNT.
- c) Apart from this, the explosives manufacturing process needs proper earthing of equipment and machinery to earth the static charge generated during the operation. The generated static charge will get accumulated on the quipment and machinery if not properly earthed or the electrical continuity was not properly maintained.
- d) It is evident from the CCTV footage that the female workers working in the building were standing on a non conductive surface i.e. wooden platform. They were using rubber gloves for pressing and rubbing the TNT over the sieve. Due to this, there is a possibility that static charge accumulated over the body of the workers or the equipment. The discharge of static charge might have initiated the explosive dust accumulated in and around the hopper. This possibility is supported by the fact that on the ill fated day,

the humidity was very low due to winter season which prevented the easy dissipation of the static charges

v) Mishandling of explosives.

The possibility of explosion due to friction is ruled out due to reasons as elaborated in the report submitted by PESO.

vi) Unauthorised process in the building

- a. The building was approved for the manufacture of HMX/RDX Compounded Product. The sieving operation of TNT reflected in CCTV footages was not the part of process approved in the building. During discussion with the technical team of the company, it is noted that the said sieving operation was undertaken since 13/12/2023. M/s Solar Industries India Ltd had export orders in hand for export of TNT as per required specifications (granular size). In order to meet the required specification, the sieving operation was being carried out to meet the specifications of the overseas consignment.
- b. Therefore, there is a possibility that the unauthorized sieving activity in the building might have caused the accident due to unsafe sieving operation of TNT

vii) Lack of awareness for safe operation

- a. It is evident from the CCTV footage that adequate precautions were not followed by the workers deployed in the building. It appears that the workers were not adequately trained for the hazards associated with the TNT sieving operation as well as handling of TNT. There is a possibility that the mis-handling of TNT such as rough handling of TNT filled boxes, pulling of crates filled with

TNT on the floor, discharge of accumulated static charge before entering into the building, spillage of TNT on the floor, etc might be one of the probable causes of the accident.

- I) **Conclusion:** On careful examination of the reports of Regional Forensic Science Laboratory, post mortem reports, scene of occurrence, circumstances leading to the accident, CCTV footages, and information gathered from employees & officials, it is believed that accident might have occurred due to initiation of accumulated TNT dust in and around the hopper of one of the sieving table. The source of initiation in TNT dust might be generation of spark due to discharge of accumulated static charges through the bodies of the workers or machinery. This possibility is supported by the fact that the bodies of the female workers working on the sieving tables were not found intact. Body parts of one male worker and five female workers were found in pieces scattered here and there. Further, the torso of one of the woman was also found on roof top of nearby building. This reveals that the explosion might have taken place very close to the female workers working on the sieving table and most probably in and around the hopper of the sieve.
- J) Due to Violations of different rules under explosive Rule 2008, Licence No E/HQ/MH/20/98(E113453) and E/HQ/MH/20/90(E89848) was suspended in the interest of Safety as conveyed by Deputy Chief Controller of Explosive in their report.

**That the Deputy Director of Industrial safety and health has given following observation in their report;**

The manual operation of sieving of TNT flakes and box packing was in progress in the HR-CPCH-2 building since 13/12/2023. Manufacturing of multimode hand grenade pellets was not in progress.

## A) Observations:

- a) Sieving operation of explosive chemical 2,4,6-trinitrotoluene (TNT) was started in HR-CPCH-2 building since 13/12/2023 just 4 days before the day of explosion i.e. 17/12/2023.
- b) On the day of explosion in 1<sup>st</sup> shift only sieving and packing operation of 2,4,6-trinitrotoluene (TNT) was being carried out in this building.
- c) About 200 kg of TNT flakes material was brought into the HR-CPCH-2 building for sieving operation.
- d) Melting of TNT and mixing with RDX and Bee wax for the manufacturing of hand grenade pellets was not in progress.
- e) There is no evidence of any direct heat source coming in contact with TNT powder or dust as neither hot work nor any heating process was in progress on the day of explosion in this building.
- f) The workers came in First shift at about 06.00 a.m Due to cold winter season there is possibility of workers wearing woolen clothes from inside.
- g) Sieving work of TNT flakes was carried out manually by workers who were standing on the wooden platforms. This platform was non conductive or insulating type.
- h) The earthing wire is connected to the leg of the sieving table by clamping the crocodile clip to the leg of the sieving table which was likely to disconnect during the course of handling of TNT boxes/crates and manual sieving work of the TNT flakes.
- i) Permanent or fixed earthing connection was not provided for the sieving tables and also there was no mechanism to ensure that the static charge which is developed is getting dissipated or grounded.
- j) It is observed from HR-CPCH-2 building CCTV footage of the sieving table operation that the workers engaged in sieving of TNT flakes were not slowly moving the flakes over the sieve but the flakes were roughly handled and rubbed over the sieve by these workers.
- k) There was generation of fine dust of TNT below the sieving tray chute when the sieving operation was being done by roughly handling and rubbing the TNT flakes on the sieve.
- l) There was free fall of undersized TNT powder through the chute under the sieve into the liner bag kept inside the crate in which the undersized TNT was being collected. This crate was also placed on nonconductive or insulating platform.
- m) One SS pipe connected to the scrubber unit was kept near the chute of the Sieve tray to collect the dust generated during the sieving operation.



- n) The female workers were about to go for breakfast at 09.00 a.m. and hence were doing the sieving operation in hurry and roughly by rubbing the TNT flakes over the sieve instead of slowly moving the flakes over the sieve as mentioned in the operating procedure of TNT sieving. Due to the body movement of these workers static charge was developed on the body of these workers.
  - o) The complete HR-CPCH-2 building collapsed due to the impact of explosion.
  - p) Adjacent utility room also got damaged due to impact of explosion.
  - q) All the evidences and records in this building are destroyed due to explosion.
  - r) All the 8 workers and one trainee supervisor who were working inside the building no. HR-CPCH-2 at the time of explosion died due to this explosion. The explosion was so severe and instant that no witness of this explosion survived.
- A) About the cause of dangerous occurrence of explosion:- Based on the above observations and evidences the cause of explosion may be as follows:
- i) At the time of TNT sieving operation SS pipe for dust collection was provided close to the chute under the sieving table. This pipe was connected to Scrubber system for suction of fine TNT dust which is generated in the course of sieving operation. On 17/12/2023 at about 09.00 a.m. malfunctioning or mal operation or failure of this dust collection system or failure to start the scrubber system connected to dust collection pipe while the sieving operation of TNT flakes was in progress resulted into formation of TNT fine dust cloud near the sieving table in the HR-CPCH-2 building. The workers doing sieving operation were standing on the wooden platform which was insulating or non-conductive type They were roughly handling and rubbing the TNT flakes over the sieve and their body movements resulted into formation of static charge over the body of workers. This accumulated static charge triggered the explosion of fine dust cloud of TNT powder and suddenly at about 09.00 a.m. explosion occurred and the complete HR-CPCH building collapsed and all the 9 workers who were present inside the building died.

- B) As per Rule 4(2)(b)(i) of The Maharashtra Factories(Control of Industrial Major Accident Hazard) Rules, 2003, it is the general responsibility of the said occupier to take adequate steps to prevent major accidents and to limit their consequences to persons on site and those in the neighbourhood and the environment. During enquiry visits it is observed that on 17/12/2023 at about 09.00 a.m. a major accident ie. an Explosion occurred while sieving operation and packing of the hazardous chemical 2.4.6-trinitrotoluene (TNT) was in progress in the HR-CPCH-2 building of the factory in which 9 workers lost their lives. The Occupier has not taken adequate steps to prevent the TNT dust cloud formation and accumulation of the static charge in the due course of sieving operation and packing which resulted into explosion i.e major accident and hence the occupier has contravened the provisions of Rule 4(2)(b)(i) of The Maharashtra Factories (Control of Industrial Major Accident Hazard) Rules, 2003.
- C) As per the provisions of Rule 9 (2) (b) of The Maharashtra Factories (Control of Industrial Major Accident Hazard) Rules, 2003 the occupier of the existing industrial activity shall arrange to carry out Safety audit externally once in two years by competent person approved in this behalf. During explosion incident enquiry visits it is observed that previous external safety audit was carried out by competent person ie. approved external safety auditor on 27/10/2021.It is observed that thereafter the occupier has not carried out External Safety Audit within period of last 2 years till the day of explosion i.c. 17/12/2023 by competent person approved in this behalf. hence the occupier has contravened the provisions of Rule 9 (2)(b) of The Maharashtra Factories (Control of Industrial Major Accident Hazard) Rules, 2003
- D) The Occupier has not furnished till the day of explosion 17/12/2023 to the inspector an updated On-site emergency plan prepared by the factory containing the particulars specified in Schedule 6 of The Maharashtra Factories (Control of Industrial Major Accident Hazard) Rules, 2003 and detailing how major accidents will be dealt within 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 plan in case of an emergency. hence the occupier has contravened the provisions of Rule 12 of The Maharashtra Factories (Control of Industrial Major Accident Hazard) Rules, 2003

Based on the Inquiry and Observation, Deputy Director, Industrial Safety and Health has registered two criminal offences in the Court of Addl. Chief Magistrate, Nagpur against Occupier of the Company Case No. 693/2024 & Case No. 692/2024.

**That, the Sr. General Manager (Works) Solar Industry India Pvt. Ltd. Chakdoh has also submitted his response as under-**

- A. TNT Manufacturing licence: The TNT manufacturing licence No. E/HQ/MH/20/90(E89848) was granted by the Chief Controller of Explosives, Nagpur and subsequently it was renewed on 11/02/2021 and the same is valid upto 31/03/2026.
- B. TNT Sieving and Box packing was being carried out as per Work Instruction ISP/8/PRD/10 Rev.03 Dated 06.09.2021.
- C. All the workers employed in the HR-CPCH-2 building were trained to carry out inspection, sieving, process operations and box packaging.
- D. Lightning & Earth Resistance: The light fittings in the HR-CPCH-2 buildings were flame proof fitting as approved by PESO. The lightning conductors were erected in accordance with specification IS 2309:1969. The process equipments were suitably connected with earth pit for dissipation of static charge, if any developed during operation. The testing of Earth Resistance was last conducted on 16/11/2023.
- E. Safety Audit: The external Safety Audit was conducted by M D Safety Consultants Pvt. Ltd. on 27.10.2021. Plant inspection is carried out periodically by our Safety Department regularly.
- F. Details of PESO Licence involved in the incident: The licence for manufacturing HMX/RDX Compounded products Palette Casting House

(Building No. HR-CPCH-2) was renewed vide PESO office No. E/HQ/MH/20/98(E113453) dated 30.03.2022 for the validity period up to 31.03.2027.

- G. That building involved in the incident / accident is Building HR-CPCH-2 and the same was constructed and approved as per provision of Explosives Rules 2008.
- H. The License to HRCPCCH-2 building was inspected by PESO authorities and after ensuring all the compliance as stipulated in Explosives Rules, 2008, License was granted on 02.12.2021 All explosive manufacturing activities in the building was being carried out in accordance with the grant of license.
- I. The building was approved for processing of HMX/RDX Compounded products and handling of HMX, RDX and TNT. The provision for inspection of TNT was covered in the building HRCPCCH-2. This inter alia covers related activities like sieving. Sieving is mandatory to meet the specification of the product requirement as per Rule 33 of the Explosive Rules, 2008. The Rule 33 of Explosive Rules is reproduced as follows- "No ingredient shall be made or mixed into an explosive unless it has been thoroughly treated by sifting or other effective means for the detection and removal of all foreign objects or matters that might cause danger". Hence, sieving operation of TNT was undertaken, as per routine practice. Further, no specific permission was required for the process.
- J. TNT Sieving and Box packing was being carried out as per Work Instruction ISP/8/PRD/10 Rev.03 Dated 06.09.2021.
- K. That PESO also conducts audit and lastly the same was done on 18.05.2022, that this audit was prior to accident. PESO had given their observation report and subsequently Company had sent compliance reply to PESO on 30.5.2022.

- L. That regularly Company also conducts internal safety audit from its officers. Safety audit of HRCPCCH-2 was also conducted intermittently by our safety officers. The details of which are as under :-
- i) Audit conducted by Mr. Vihag Ghutke, Officer Safety on 21/06/2023.
  - ii) Audit conducted by Mr. Purnendra Dhakite, Sr. Executive Safety on 22/06/2023.
  - iii) Audit conducted by Mr. Ritesh Ghosare, Officer Safety on 20/07/2023.
  - iv) Audit conducted by Mr. Atul Bansod. Executive Safety Supervisor on 26/10/2023.
  - v) Audit conducted by Mr. Pawan Hiwase, Dy Manager Safety on 30/10/2023.
- M. That regular maintenance of Plant & Machinerics is being carried out by Company and the scheduled maintenance of HR- CPCH-2 building was being carried out regularly.
- N. There was no stock of HMX and RDX in the HR-CPCH-2 building on the day of incident. The inspection and sieving of TNT was in progress and its stock was 200 Kg.
- O. That all the workers employed in the factory are trained regularly for manufacturing, handling, packing of explosives. Officials of Solar have also imparted training to the participants of various Explosives Industries in the training program organized by NAPES & TS (PESO).
- P. That on 17.12.2023. total 9 persons were inside the HR- CPCH- Building No. 2 and were engaged in Tri Nitrotoluene (TNT) Inspection/Sieving and Packing activity. The said activity was being performed in accordance to Work Instruction ISP/8/PRD/10 Rev. 03 dated 06.09.2023 and during Inspection/Sieving and Packing process an explosion / incident had occurred in HR-CPCH-2 building which was collapsed resulting in death of all the 9 employees working inside. There is no manufacturing process activity was

being done on the date of incident/accident in the other buildings in the vicinity of the incident/accident site. In the blast, no crater was formed which indicates minimum quantity of TNT was involved in the explosion.

- Q. That no firm cause of explosion could be ascertained yet, due to which the entire building No. HR-CPCH-2 collapsed in its entirety and as per internal investigation of Company, the incident / accident might have happened due to "dust explosion occurred due to sudden discharge of accumulated static charge" and also the static charge might have developed due to body static current by the person working in the plant, and or due to wearing woollen inner wear during operation. Also that at the relevant time of incident / accident, it was winter season and there is possibility of rapid charging and discharging of accumulated static charge might have developed spark and might have exploded the TNT dust particles accompanied by the fire which could have burnt the other TNT available in the building.
- R. That post accident external audit was conducted by MD Safety Consultants Pvt Ltd on 20.02.2024.
- S. That administrative action related with accident had not taken earlier as various Government departments/ agencies enquiry requires availability of the personnel related to the incident and Management will take appropriate administrative action once external enquiries will be completed.
- T. After the aforesaid unfortunate incident, the company had taken following preventive measures to avoid any such incident in future i.e.
- i) Manual operation for TNT sieving has been stopped with immediate effect.
  - ii) TNT Screening will be carried out only by automatic facility as and when TNT sieving is required.
  - iii) All the process plants have been audited by internal cross functional teams.

- iv) External safety expert from explosives field was engaged to audit manufacturing plants like PETN, TNT, HMX, RDX, PETN Drying, Cast Booster, and Detonating Cord etc.
- v) External Process Safety Management (PSM) expert engaged to enhance Process Safety, Mechanical Integrity. Skill improvement. Competency mapping and assessment of Risk Matrix in the explosives manufacturing plants.
- vi) Standard Operating Procedures (SOP) of all the processes are reviewed thoroughly. More focus will be on process automation to avoid manual work.
- vii) A review has been conducted for the Hazard Identification and Risk Assessment (HIRA) of all the manufacturing processes.

More focus is being given to behavioural safety and extensive training for the employees. Training programs are undertaken for the employees by the experts in the field of explosives.

**That Shri Milind Deshmukh occupier of Solar Industries India private Limited Chakdoh has also submitted his response as under.**

A) Incident details

- i) On Sunday, 17th December 2023, at around 09:00 hrs, an explosion incident occurred in the HR-CPCH-2 building of Solar Industries India Limited, (SIIL) plant at Chakdoh, Dist. Nagpur (M.S).
- ii) On the day of incident, activity of TNT sieving & inspection was going on in HR-CPCH-2 building.
- iii) Eleven (11) employees (workers-09 & Supervisor-02) were deployed in the HR-CPCH-2 building in the A-Shift. At the time of incident 09 workmen (03-Men & 06 women were present in the building and engaged in TNT Sieving, inspection, and packing.

- iv) CCTV footage evidenced that around 9.00 hrs. camera stopped suddenly, during that time an explosion occurred inside the building as a result entire building collapsed and all the nine workmen lost their lives. Another 02 persons survived (01 Supervisor & 01- worker) who were outside the building at the time of incident.
- v) The equipment near the sieving area was found burnt badly and the burning effect was also evident from the body of the deceased persons.
- vi) In the blast no crater was formed, and black smoke was found emanating which indicates that minimum quantity of TNT was involved in the explosion and was accompanied by the fire.
- vii) No activity was there on the day in the other buildings in the vicinity of the incident site.
- viii) After the incident the information was given to the Kondhali Police department, Petroleum & Explosives Safety Organisation (PESO) and Factory Inspectorate (DISH). That the said Teams arrived at the spot of Incident and conducted inspection. That the excavation was started in the ruined building of HR-CPCH- 2 unit. That the deceased who died in the said blast, their body parts were scattered and hence same were excavated from the exposed building and the bodies were sent to Govt Medical college Nagpur for postmortem examination. That since the bodies of the deceased could not be identified, the blood samples of relatives of the deceased persons have been taken for DNA examination and submitted in the regional Forensic Scientific Experiment School, Nagpur for examination as done by the authorities. Accordingly, the deceased persons were identified.



- ix) After the incident, the particular area was demarcated as restricted area, the factory and all operations in the factory were immediately shut down, all the workers sent back to their homes, the company launched drones for aerial survey, fire hydrates were used to wet the area, PESO team inspected the site and gave guidelines for conducting the search operation, Forensic team collected samples from the site for further investigation.
- x) That during the incident/accident one worker Mr. Sanjay Gulabrao Ade and one supervisor Mr. Pradip Dadarao Ambole were outside the building, who have survived.
- xi) Also occupier say that the deceased employees were experienced in handling of explosives including TNT, which can be ascertain from their experience of work in the company.

**Sub-Divisional Police Officer, Katol, submitted his report as under-**

The Sub-Divisional Police Officer, Katol, submitted a report of incident on 31-07-2024. In that report, he referred to the cause of the incident as cited in the investigation report dated 28/02/2024 from PESO.

- a) It has been reported that while a woman worker was working on the sensitive part (wooden Platform) of the machine for TNT sieving, wearing rubber gloves and sieving TNT, static charging was generated in her body and the machine, which lead to the accumulation of TNT dust in the hamper and around it, resulting in a blast due to static charge.
- b) While a female worker was working on the TNT processing machine, wearing rubber gloves and rubbing TNT, it is possible that static electricity was generated in her body and the machine, which may have caused a spark. This spark may have ignited the TNT dust accumulated in the hopper and conveyor, leading to an explosion.
- c) It has also been noted that the TNT was handled improperly additionally, unauthorized TNT sieving processing work had been started in the said building from 13 December 2023.

- d) In connection with this unauthorized process, Shri. Devtare, Senior General Manager of Solar Company, was asked to provide a written explanation by police department through a letter.
- e) In the reply given on 17/6/2024 by Sr.General Manager, it was stated, that for making necessary fittings for TNT sieving Shri Rajesh Srivastava, General Manager - Production, and Shri Suchit Bakde, Deputy Manager - Production, were the competent authorities, and therefore, there was no need to obtain prior approval from any senior officers. Shri Suchit Bakde, Deputy Manager - Production, had given verbal instructions to Shri Mosam Patle (Supervisor) for TNT sieving. Under the license, the provision for inspection of TNT was included in the HRCP2 building. This includes related activities such as sieving. Sieving is mandatory as per the Explosives Rules to meet the requirements of product specificity and further processing, and to detect and remove unnecessary substances. Shri Rajesh Srivastava (General Manager - Production) had given verbal instructions to Shri Suchit Bakde to install the necessary fittings for TNT sieving. Shri Suchit Bakde (Deputy General Manager - Production) and Shri Rajesh Srivastava (General Manager - Production) mentioned above are the competent authorities and they do not require prior approval from any other senior officer for the above work.
- f) Referring to this letter, reports from police authorities conveyed that Shri Rajesh Srivastava and Shri Suchit Bakde are responsible for the blast incident and they have been charged with negligence and recklessness for unauthorized Sieving of TNT without taking necessary precautions. The Police authorities of Kondhali Police Station have registered offence under the section 304-A and 286 R/W section 34 of Indian Penal Code against unknown person in crime number 882/2023 on dated 18.12.2023. After investigation, section 9(b) of Indian Explosives Act 1884 in Crime No. 882/2023 was added. A charge sheet has been filed against them under sections 304(a), 286 of the Indian Penal Code and section 9(b) of the Indian Explosives Act, 1884, vide letter no. 063/24, dated 30/07/2024, and has been submitted to the court.
- g) When the police asked PESO officials about the process of TNT sieving, the Deputy Chief Explosive Controller said that the process of TNT sieving is not covered in the production process of HMS/ RDX Compounded Product.



- h) As per officials of the company, according to Rule 33 of explosive rules 2008, sieving is mandatory in explosive production process which was denied by Dy.Chief Controller of explosive saying that according to Rule 33 of the Explosive rules 2008, sieving is not required in explosive production process, Foreign material can be removed using another process. The entire process is covered in the drawing approved from the licensing authority and no specific permission is granted for sieving as conveyed by PESO to police dept.

**Based on the observations and conclusion by different agencies, the inquiry is concluded as under :-**

- i) It was revealed from reports of all agencies and reply from officials of Solar Industries India Limited village Chakdoh Tah. Katol, Dist. Nagpur, that the explosion might have occurred due to initiation of accumulated TNT dust in and around the hopper of one of the sieving table. The source of initiation in TNT dust might be due to generation of spark due to discharge of accumulated static charges through the bodies of the workers or machinery. The explosion resulted in collapse of HR-CPCH-2 building and death of nine workers.
- ii) It was revealed from reports that explosion might have caused due to generation of static charge. Though workers working in HR-CPCH-2 unit were trained regarding safety measures as conveyed by officials of solar industries, there was no proper authority from safety dept. to ensure that all safety precautions were strictly followed. This was necessary as this factory falls under the category of MAH (Major Accident Hazard) factory to which Maharashtra factories (Control of Industrial Major Accident Hazard) Rules 2003 are applicable.
- iii) It was revealed from reply of official of Solar industry India Ltd, Chakdoh that the building was approved for processing of HMX/RDX compounded products and handling of HMX,RDX and TNT. The provision of inspection of TNT was covered in building HR-CPCH-2 which covers activities like sieving and sieving is mandatory to meet the specification of the product requirement as per Rule 33 of the explosive Rule 2008 and that no specific permission was required for the sieving process. This was contravened by report from Dy.Controller of Explosive (PESO) which states that the building HR-CPCH-2 was approved for manufacture of HMX/RDX compound product and sieving operations of TNT was not the part of

the process in the building. It means sieving activity that was being done in HR-CPCH-2 building was illegal and without any authorized permission from PESO.

iv) The license of productions in HR-CPCH-2 plant was for manufacture of HMX/RDX compound product but it revealed from reports and reply of company official that there was no activity in the said building since last four months and TNT sieving operation was started in the building from 13.12.2023 and explosion took place on 17.12.2023. It was revealed that no permission for change in use of process in HR-CPCH-2 building was sought from officials of Solar Industries India Limited Chakdoh which was required as per rule 109 of explosive rules 2008. So the machinery used for sieving operations in HR-CPCH-2 building was also not approved by PESO. That the change activities permission has not been obtained by occupier, as the original permission was also in the name of occupier. Therefore it seems that the occupier violets the provision of section 109 of Explosive Rules 2008.

v) It is revealed that mechanism for dissipation of static charge that could have generated causing explosion, could not have worked properly. It reveals from the reports of Dy. Director Industries Safety & Health that earthing wire connected to the leg of the sieving table by clamping the crocodile clip to the leg of the sieving table which was likely to disconnect during the cause of handling of TNT boxes/crates and manual sieving work of TNT flakes. Permanent fixed earthing connection was not provided for the sieving tables and also there was no mechanism to ensure that the static charge which is developed is getting dissipated or grounded. This seems to be the failure of production and safety unit of the company.

vi) The HR-CPCH-2 building was not in operation from last four months and sieving operation of TNT was started on 13.12.2023. It revealed from reply from officials of Solar Industries Ltd that no safety SOP was designed for this sieving operations and last visit of safety official to HR-CPCH-2 plant was on 30.10.2023 But actual sieving process was started in HR-CPCH-2 building on 13.12.2023. So it seems that no inspection of HR-CPCH-2 building was done by safety officials of the company regarding safety precautions after sieving operation of TNT started in HR-CPCH-2 building

vii) It reveals from reply of officials of Solar Industry India Limited village Chakdoh Plant that they have taken many remedial steps after explosion, as preventive measures to avoid any such incident in future. These include stopping of manual sieving operation of TNT, automatic facility for TNT sieving, engagement of actual Process Safety Management (PSM) to enhance process safety,

mechanical integrity, skill improvement, competency mapping and assessment of risk matrix. This seems to be good initiative, but if this would have been followed earlier, the incident could have been averted. This was also revealed from reports of Dy. Director Industrial Safety & Health that the occupier has not furnished till the day of explosion i.e. 17.12.2023 to the inspector an updated on site emergency plan prepared by the factory containing the particulars specified in schedule 6 of the Maharashtra factories (Control of Industrial Major Accident Hazard) Rules 2003 and dealing how major accidents will be dealt within 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 plan in case of an emergency.

viii) The report of Dy.SP Katol revealed that as conveyed by Sr. General Manager of Solar Industry India Pvt. Ltd, General Manager Production have given oral direction to Dy.Manager production for making arrangement of sieving operation and Dy. Manager Production executed the same through lower staff. But considering the MAH (Major Accident Hazard) category of the factory, procedure for such type of oral instructions for doing any activity regarding explosive material seems to be completely illegal as it can put system of operations in extreme danger. Any type of activity regarding explosive material to be carried out in explosive industry needs to be permitted by PESO by following due process of law.

ix) It was revealed in the report of PESO that the said sieving operation was undertaken since 13.12.2023 .M/s Solar Industries India.Ltd. had export orders in hand for export of TNT as per required specifications, the sieving operation was being carried out to meet the specification of the overseas consignment. Therefore there is possibility that the unauthorized sieving activities in the building might have caused the accident due to unsafe sieving operations of TNT.

That, on above inquiry it reveals that as per section 7A of Factories Act 1948, the occupier is responsible for the health, safety and welfare of all workers while they are at work in the factory and therefore the process done in the factory was without proper safety precaution, as unauthorised sieving activities seems to be done by the workers, which causes explosion in HR-CPCH-2 building of Solar Industry India Pvt. Ltd. Chakdoh, Tah. Katol, Dist. Nagpur.



( Shivraj Padole )  
Sub-Divisional Magistrate,  
Katol

6.8.24