

Management of waste generated at Railway workshops, Maintenance Sheds Coaching Depots and Production Units

Audit objective 2:

Whether the assessment, management and disposal of waste generated at Railway workshops, maintenance sheds and production units was done as per applicable laws and rules

Indian Railways has established a network of workshops and maintenance sheds for locomotive/coaches/ wagons besides various Production units. During maintenance/ repair/ production activities, these units generate huge quantum of solid waste and waste water contaminated with cleaning agents, oil, lubricants, grease, heavy metals and hazardous solids. Waste water and hazardous waste generated is an area of utmost concern from environmental perspective which calls for proper assessment, treatment, storage and disposal as per Acts/Rules framed by Centre/State Pollution Control Boards. Deficiencies noticed in management of waste in these activity centres (selected 101⁴⁴ Workshops, Sheds and Production Units and 30 Coaching depots⁴⁵) are covered in this chapter.

3.1 Consent to Establish (CTE) or Consent for Operation (CFO) under the Water Act, 1974

Sections 24, 25 and 26 of the Water (Prevention and Control of Pollution) Act, 1974 (as amended in 1978 and 1988) provided that no person shall except with the previous consent of the State Pollution Control Board (SPCB), establish or operate any industrial plant which is likely to discharge sewage or trade effluent into a stream or well or sewer or on land. If any plant was in operation before the enactment of the Water Act, it was required to obtain CTE /CFO within a period of three months. The National Green Tribunal (NGT) in its directives⁴⁶ issued in August 2020 held the same view.

Compliance to statutory provisions was examined in selected units and it was observed that CTEs/CFOs were not obtained as of March 2020 in 40 units⁴⁷ (Details indicated in *Annexur-3.1*). No specific reasons were available on record for non-obtaining of CTE/CFO by these units. Despite specific stipulation under Water Act, inadequate compliance in these 40 units is indicative of ineffective monitoring on the important issue of environmental concerns.

⁴⁴ 22 Mechanical workshops, 09 S&T Workshops, 10 Engineering workshops, 18 Diesel Loco sheds, 15 Electric Loco sheds, 19 MEMU/DEMU/EMU car sheds & 8 Production unit

⁴⁵ Across 17 Zones including RPU & Metro Railway, Kolkata.

⁴⁶ OA number 141/2014 (Saloni Singh Vs Union of India) issued in August 2020.

⁴⁷ 02 Mechanical workshops, 05 S&T Workshops, 06 Engineering workshops, 02 Diesel Loco sheds, 08 Electric Loco sheds & 17 MEMU/DEMU/EMU car sheds

3.2 Authorisation from SPCBs for handling of Hazardous and other waste

Hazardous waste is defined as any waste which by reason of any of its physical, chemical, reactive, toxic, flammable, explosive or corrosive characteristics causes danger or is likely to cause danger to health or environment, whether alone or when in contact with other wastes or substances.

Rule 6 (1) of Hazardous and other Wastes (Management, and Transboundary Movement) Rules, 2016, provides that every occupier of facility engaged in generation and handling of hazardous waste is required to obtain authorization from the State Pollution Control Board (SPCB). Such occupiers, which includes Railway workshops, sheds and production units, are required to segregate the hazardous waste generated from other wastes and store properly before its disposal as per the procedures laid down by the SPCBs/CPCB.

Examination of the related records in the units selected revealed that 50 units⁴⁸ (*Annexure- 3.1*) had not obtained CTE/CFO under the Hazardous Waste Management Rules from the concerned SPCBs. Thus, the stipulations under these rules regarding identification, segregation, storage and disposal of hazardous waste by these units were not complied with. The resultant impact on health of workers of these units in particular and neighbouring community in general could not be ruled out in the absence of monitoring.

3.3 Delay in Authorisation from SPCBs for handling of effluents and hazardous waste

Rule 6(1) of the Hazardous and other Wastes (Management and Trans-boundary Movement) Rules, 2016 provides that application for renewal of authorisation under these Rules may be made three months before the expiry of previous authorisation.

Examination of the related records in the units selected for review in Audit revealed that 21 units⁴⁹ (*Annexure 3.2*) did not comply with the said Rules/conditions. In respect of renewal of CFO under the Hazardous Waste Management Rules as well as under the Water Act, delays in applying for renewal of authorization was noticed as indicated in Table 3.1 below:-

Table 3.1 - Status on seeking authorization from SPCB

S. No.	Range of delays in seeking renewal for authorization from SPCB	Number of units under HWM Rule	Number of units under Water Act
1	1 to 06 months	1	3
2	06 to 18 months	1	8
3	18 to 30 months	2	5
4	beyond 30 months	6	6

⁴⁸ 06 Mechanical workshops, 05 S&T Workshops, 06 Engineering workshops, 07 Diesel Loco sheds, 08 Electric Loco sheds & 18 MEMU/DEMU/EMU car sheds

⁴⁹ 06 Mechanical workshops, 01 S&T Workshops, 01 Engineering workshops, 05 Diesel Loco sheds, 04 Electric Loco sheds & 04 PUs

Reasons for such delays in obtaining renewals were not furnished by the Railway Authorities.

3.4 Submission of Environmental Statements

In terms of Rule 14 of Environment (Protection) Rules 1986, every organisation carrying on an industrial operation or process is required to submit an Environmental Statement annually to the concerned SPCB as indicated in Table 3.2 below: -

Table 3.2 - Environmental statements required to be furnished annually to SPCB

Form	Extant Provision/Rule	Disclosure to be made about	Scheduled date of filing
Form 4	Hazardous Waste Management Rules, 2016	Quantity of waste generated category wise, quantity dispatched to disposal facility or recyclers or others, quantity utilized in-house and quantity in storage at the end of the year.	30 th June
Form V	Water (Prevention and Control of Pollution) Act 1974 or Air (Prevention and Control of Pollution) Act 1981 or both	Water and raw material consumption, pollutants discharged in the environment and quantum of solid wastes and hazardous wastes generated by the units.	30 th September

Audit examined the position of submission of the said two Annual Environmental Statements and observed the following:

- i. Form-V under the EP Rules was not submitted to the concerned SPCBs by 83 units⁵⁰. Of these, consent under the Water Act was not obtained in 40 units (*Annexure 3.1*).
- ii. Form- 4 was not submitted under the Hazardous Waste Management Rules in 84 units⁵¹. Of these, 50 units (*Annexure 3.1*) did not obtain authorisation under the Hazardous Waste Management.

3.5 Maintenance of records for storage and disposal of hazardous waste

As the hazardous waste generated in any facility causes danger or is likely to cause danger to health or environment, the Hazardous Waste Management (HWM) Rules

⁵⁰ 14 Mechanical workshops, 09 S&T Workshops, 10 Engineering workshops, 13 Diesel Loco sheds, 13 Electric Loco sheds, 19 MEMU/DEMU/EMU car sheds & 05 Production Units

⁵¹ 16 Mechanical workshops, 09 S&T Workshops, 10 Engineering workshops, 12 Diesel Loco sheds, 13 Electric Loco sheds, 19 MEMU/DEMU/EMU car sheds & 05 Production Units

provide various stipulations for proper segregation, storage, labelling and disposal of such waste. Some of the important provisions are indicated in Table 3.4 below:-

Table 3.4 - Gist of rules/provisions required to be followed under Hazardous Waste Management (HWM) Rules

Rule	Gist of rule/provision	Form prescribed
17	Proper storage of such waste in containers and it's labelling	Form-8
	Up keep of records of sale, transfer, storage, recycling, utilization etc .of such waste	Form-3
18 (2)	Issuing Transport Emergency (TREM) Card for every sale/issue of hazardous waste	Form-9
19 (1)	Manifest System to track hazardous waste from the time it leaves generator until it reaches the treatment / disposal site	Form 10

Audit examined the extent to which the prescribed rules for proper storage and disposal of hazardous waste were followed in selected 131 units (including 30 coaching depots) and following points emerged: -

- i. Proper storage and labelling of hazardous waste not done in 102 units,
- ii. Records for storage, utilization, not kept in 110 units,
- iii. Transport Emergency (TREM) Card not issued for every sale/transfer of hazardous waste in 117 units,
- iv. The manifest system prescribed for tracking of hazardous waste till its disposal, not followed for each issue/sale of hazardous waste in 101 units.

(Annexure 3.3).

Non-adherence to the prescribed rules as brought out above makes the whole system of monitoring mechanism grossly ineffective posing threat to the environment as well worker/staff engaged in these units. It also highlights a need for sensitization for ensuring compliance to the rules prescribed for handling hazardous waste.

3.6 Storage of hazardous waste beyond the permissible period

Rule 8 (1) of Hazardous and other Wastes (Management, and Trans-boundary Movement) Rules, 2016 (HWM Rules), prescribes that the occupiers of facilities may store the hazardous and other wastes for a period not exceeding ninety (90) days. State Pollution Control Boards (SPCBs) may extend the said period of 90 days to 180 days in some specified cases. Review of related records in the units selected revealed the following: -

- i. Storage period of hazardous waste⁵² was in excess of the prescribed period of ninety days in 36 units .The actual storage period of hazardous waste ranged from 3 to 6 months in 6 units, more than 6 to 12 months in 12 units, more than 12 to 24 months in six units and 24 months & beyond in 12 units .

⁵² like waste oil, oil sludge, ETP sludge, paint sludge, used filters, cotton waste mixed with grease/ lubricants etc.

- ii. In some of the units⁵³ the storage period was found as long as 8 to 9 years or even more. Records did not indicate as to the permission from SPCB for storage of such waste was sought beyond the permissible limit.

As timely disposal of hazardous waste is must for its proper management and also for preventing the danger likely to be caused by it to persons or environment, the action of Railway units storing such waste for a long period makes the prescribed statutory provisions ineffective. With such prolonged storage, there remained potential threat causing adverse impact to the environment.



Hazardous waste lying in open space at Electric Loco Shed/Gonda of NER

3.7 Integrated Management System (IMS)/ Green Rating Certification

In terms of Railway Board's directives⁵⁴ (June 2015), Zonal Railways are required to put in place a system for Management of quality of environment through Integrated Management System (IMS) addressing the ISO 9001 for Quality, ISO 14001 for Environment Management System (EMS) and ISO 18001 for Occupational Health & Safety (OHSAS). Zonal Railways were asked to take immediate necessary action to obtain IMS certification for all the PUs/ Workshops as also for loco sheds and major coaching depots including EMU/DEMU car sheds. Later in February 2017, Zonal Railways were instructed⁵⁵ to undertake Green Rating Certification of Railway Establishments covering the assessment of parameters on energy conservation measures, use of renewables, water recycling/rain water harvesting, waste management (solid & liquids) and its disposal.

Review of records of selected Railway workshops, sheds, Production units and coaching depots (131 units) revealed that certification under Integrated Management System (IMS) or Green Rating was obtained in respect of 88 units only (67 per cent).

Thus, the system for Quality Management of environmental issues was not fully established even after five years of issue of instructions in this regard. Further, based on the study got done by Ministry of Railways through Quality Council of India (QCI) in 2019 it was also observed that ISO certification and Green rating was obtained by only 10 and two per cent of the stations, respectively.

⁵³ Signal workshop/Howrah, BLW/Varanasi, Loco carriage and wagon workshop/ Dahod

⁵⁴ letter No. 2015/E&HM/03/02 dated 11.06.2015,

⁵⁵ letter No. 2015/EnHM/12/02 dated 01.02.2017

3.8 Conclusion

Maintenance, repair and production activities in the railway units generate heavy quantum of solid waste and the waste water causing serious concern to the environment. Water Act and procedure framed by CPCB/SPCBs specified various provisions to address this aspect. Test check in audit revealed that a large number of such units were operating without obtaining CTE/CFOs despite clear directives of NGT.

Prescribed regulations related to hazardous waste management were not complied with. Besides, there have been cases of delays obtaining authorization from SPCBs for handling hazardous waste and effluents.

System/procedure prescribed for storage, transportation and disposal of hazardous waste were not followed in its true spirit. There were cases of hazardous waste found to be stored beyond the permissible limit.

Summary of Audit findings

- Indian Railways failed to ensure compliance on the basic requirement of obtaining requisite approvals (CTE/CFO) from the designated authority.
- Due to slow progress on planning and installation of ETPs/STPs, the system of managing waste viz., effluents, pollutants and hazardous wastes discharged in the environment by various maintenance and production units was deficient with reference to the provisions contained in Water Act and Hazardous waste management Rules.
- Railway units failed to furnish the requisite environmental statements disclosing the nature and quantum of waste generated thereby rendering the monitoring mechanism weak.

3.9 Recommendation

IR needs to ensure provision of required infrastructure and initiate measures to sensitise the work force engaged in maintenance and Production Units for effective compliance of the Hazardous Waste Management Rules thereby avoiding danger to health and environment as well.