

Chapter 4 → Waste Management

Audit Objective 3

To verify whether waste generated at the workshops, sheds and PUs were managed in compliance with laws, rules and regulations

The waste generated in workshops, sheds, depots and PUs are generally hazardous wastes. Hazardous Wastes (Management, Handling and Transboundary Movement) Rules, 2008⁷⁶ issued by the Central Pollution Control Board (CPCB) defines Hazardous Waste 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. Hazardous wastes such as oil, chemical sludge, ETP sludge, paint flakes etc. generated by the workshops/sheds and PUs are required to be segregated from other wastes and stored properly before final disposal as per the procedures laid down by the SPCB/CPCB.

4.1 Management of Hazardous Waste

4.1.1 Authorisation for Handling Hazardous Waste

In terms of Rule 5 (1) of Hazardous Wastes (Management, Handling and Transboundary Movement) Rules, 2008, Workshops, sheds and PUs are required to obtain authorization from the SPCBs for handling hazardous wastes. Renewal of authorization for handling hazardous wastes is to be applied 60 days in advance of the expiry of authorization.

Scrutiny of records of selected units relating to authorization by SPCBs for handling hazardous wastes revealed the following:

- I. Authorization for handling hazardous waste was obtained in 15 workshops and 17 sheds (23 per cent). In two sheds⁷⁷ authorization for

⁷⁶ Government of India in the Ministry of Environment and Forest

⁷⁷ Bardhaman Diesel Shed/ER and Belur Scrap Yard/ER

handling hazardous wastes was not extended beyond June 2010 due to non-submission of Form 4⁷⁸ to SPCB by Bardhaman Diesel Shed/ER and in case of Belur Scrap Yard (ER), renewal of authorization from the WBPCB is still pending

- II. In six workshops and twelve sheds authorization was not obtained as no hazardous waste was generated in these workshops and sheds.
- III. Authorization for handling hazardous waste was not obtained by 28 workshops and 60 sheds ; and
- IV. Out of six PUs, DLW/Varanasi had not obtained authorization for handling hazardous waste since July 2009. DLW/Varanasi has not initiated any action in this regard (June 2014).

4.1.2 Accumulation and Accounting

Hazardous Waste, if not disposed of periodically, may cause environmental pollution. In terms of Rule 7 of Hazardous Wastes (Management, Handling and Transboundary Movement) Rules, 2008, the occupiers may store the hazardous wastes for a period not exceeding ninety days.

As per Hazardous Wastes (Management, Handling and Transboundary Movement) Rules, 2008, every organization authorized to handle hazardous wastes shall maintain record of hazardous wastes handled by them in Form 3⁷⁹. Organization authorized to handle hazardous wastes are required to prepare and submit to the SPCB, an annual return containing the details specified in Form 4 on or before the 30th day of June following the financial year to which that return relates.

Instances of accumulation of hazardous wastes generated in Railway workshops, sheds and PUs during 2009-12 are detailed below:

Table 3: Accumulation of hazardous wastes

Workshop/Sheds/PUs	Quantity (MT)	Description of wastes
Integral Coach Factory, Perambur, Chennai	183.94	Paint flakes, Laser cutting dust, Chemical sludge, phosphate sludge, used oil etc.

⁷⁸ Form 4- Form for filing returns regarding handling of hazardous wastes. It indicates the categories of wastes generated, details of waste treatment, waste disposal operations etc.

⁷⁹ Form 3- Format for maintenance of records of hazardous wastes at the facility. It records the description, method of storage, treatment and disposal, mode of transportation in addition to the details of hazardous wastes reused and recycled.

Chittaranjan Locomotive Works, Chittaranjan	6.1	Hardening salt and sacrificing tape
Mechanical workshop/Izzatnagar (NER)	108.00	Scrap, Paint, Sludge from Phosphating plant and ETP
Loco shed/Gonda (NER),	54.00	Filters, gaskets and rubber
Carriage and Workshops/Perambur (SR)	9.27	Sludge from ETP, phosphates and bosch tank, mud and muck mixed with oil and oil/paint soaked cotton waste.
Halisahar Stores Depot, Belur Scrap Yard and Jamalpur Stores Depot (ER)	Quantity not available as the records of hazardous wastes were not maintained in Form 3	Lead Acid Battery, Copper Arsenical Lamp, Brass, Bronze Gun Metal etc.
Signal Workshop/Howrah (ER)	3.1	Gun metal, empty paint drums, aluminum scrap, brass scrap, copper wire etc.

Thus, failure of the ZRs in obtaining authorization for handling hazardous wastes from the respective SPCBs and accumulation of huge quantities of hazardous wastes in workshops sheds and PUs indicate violation of provisions which prohibits storing of hazardous wastes for a period not exceeding ninety days.

4.1.3 Documentation

Rule 22 of Hazardous Wastes (Management, Handling and Transboundary Movement) Rules, 2008 provides that the occupier generating hazardous wastes and operator of the facility for disposal of hazardous waste shall maintain records of such operations in Form 3. Scrutiny of maintenance of records relating to hazardous wastes generated during 2009-12 in 15 workshops and 17 sheds and six PUs authorized to handle hazardous waste revealed the following:

- I. Two workshops and five sheds⁸⁰ maintained complete records as prescribed in Form 3. Remaining 13 workshops and 12 sheds (78 per cent) did not maintain complete records during the review period. In absence of proper maintenance of records, accumulated quantity in respect of three Stores depot⁸¹ could not be verified in audit.

⁸⁰ CRW/BBS, DLS/New Katni Junction, DLS/GY, DLS/KZJ, LS/Krishanrajapuram, RSK/STLI and WRS/Kota.

⁸¹ Halisahar Stores Depot, Belur Scrap yard and Jamalpur Stores Depot

- II. Out of 15 workshops and 17 sheds, only nine workshops and three sheds submitted annual return in Form 4;
- III. All PUs maintained records in Form 3 and submitted annual return in Form 4 except DLW/Varanasi where neither records were maintained in Form 3 nor the annual return submitted in Form 4 during the period 2007-12; and
- IV. Quantity of waste that could be disposed by the workshops, sheds and PUs is endorsed in the original registration certificate. Actual quantity of waste is noted in the pass book issued by the CPCB. However, the same was not done in Halisahar Stores Depot/ER despite this being pointed out by the WBPCB in June 2006. In NWR, none of the three workshops and five sheds were issued registration certificate by the SPCB. As a result it could not be verified whether the quantity disposed off was within the authorized limit.

Thus, the workshops and sheds failed to adhere to the statutory provisions regarding maintenance of records relating to hazardous wastes. The Zonal Railway Administration was not effective in enforcing statutory obligation though 78 *per cent* of the units failed to maintain records as per Form 3.

4.1.4 Handling and Disposal

The hazardous waste manifest system is a set of forms, reports, and procedures designed to track hazardous waste from the time it leaves the generator where it is produced, until it reaches the off-site waste management that will store, treat, or dispose of the hazardous waste.

In terms of Rule 4(2) of Hazardous Wastes (Management, Handling and Transboundary Movement) Rules, 2008, the hazardous waste generated should be sent or sold to a recycler or re-processor or re-user registered or authorized by the CPCB or should be disposed off in an authorized disposal facility.

In terms of the Hazardous wastes (Management and Handling) Rules 2008, the ZRs disposing hazardous waste shall prepare six copies of the manifest in six colour codes. The blue copy⁸² of the manifest is required to be returned by the recycler/operator to the ZRs after treatment and disposal of waste. Rules also provide that the hazardous wastes generators and auctioneers are required to file

⁸² As per Hazardous Wastes (Management, handling and transboundary movement) Rules, 2008, blue copy of the manifest to be returned by the operator of the facility to the occupier after treatment and disposal of hazardous materials/wastes.

annual returns of auction and sale in Form 13⁸³ latest by 31st day of January of every year to the respective SPCBs.

Review in Audit of the method of disposal of hazardous waste by selected units revealed the following:

- I. The manifest system was followed only in six workshops and four sheds over five zones⁸⁴ (seven *per cent*). Of these, in one workshop and two sheds⁸⁵ the entries in the manifest were filled in partially. Receipt of blue copy from the recyclers was monitored only in two sheds⁸⁶ and as a result, proper treatment and disposal of wastes could not be ensured;
- II. Waste oil generated at NCC/VSKP (ECoR) was released directly to the open ground. In two workshops and one shed⁸⁷, hazardous waste such as condemned rubber gasket, brake blocks, cotton waste soaked with grease and oil, oil filters etc. were not disposed of by burning in an incinerator..
- III. In Engineering workshop /Sini (SER), the hazardous wastes such as glue, paint, oil soaked cotton waste generated to the tune of 1.5 MT each year was being disposed off outside the railway premises;
- IV. In Wagon Repair Shop/RYP (SCR), the hazardous waste like cotton waste soaked with grease and oil was used in furnace of smithy shop instead of being burnt in an incinerator;
- V. In Bardhaman and Andal Diesel Shed (ER), released battery electrolytes were being disposed off through drains instead of handing over the same to authorized agencies of SPCBs for proper disposal;
- VI. In Diesel loco shed/Vatva (WR), EMU car shed/Kandivali (WR), Coaching depot/Bandra (WR), Electric loco shed/Vadodara (WR), Coaching depot/Ahmedabad (WR), oil contaminated cotton cloth (45.1MT) was disposed off along with municipal waste without segregation and disposal by burning in an incinerator; and

⁸³ Form 13 depicts total quantity of wastes auctioned or sold during a particular year. The wastes include Non-ferrous Metal Wastes, used oil and waste oil.

⁸⁴ SECR, SER, SWR, WCR and NCR

⁸⁵ CWS/Mysore (SWR), RSK/STLI (NCR) and DLS/Itarsi (WCR)

⁸⁶ DLS/Nagpur (SECR) and DLS/Itarsi (WCR)

⁸⁷ Mechanical workshop/New Bongaigon (NFR), EMU car shed/MLY (SCR) and Engineering workshop/Sabarmati (WR)

- VII. All PUs except DLW (for waste oil) followed the procedure while selling hazardous waste and submitted the Annual Returns to SPCB in Form 3. However, ICF (Perambur /Chennai) did not monitor the receipt of blue copy from the recyclers to ensure proper treatment and disposal of hazardous wastes.

Thus, the procedures adopted by the Workshops and Sheds for disposal of wastes were not environment friendly. Out of the selected units, manifest system was not followed in 43 workshops and 89 sheds.

4.1.5 Environment Impact Assessment

Environment Impact Assessment (EIA) is an important management tool for ensuring optimal use of natural resources for sustainable development. EIA is mandatory under the Environmental (Protection) Act, 1986 for 29 categories of developmental activities. It provides that the operator of a facility, occupier or any association of occupiers shall undertake EIA of the selected site(s) and shall submit the EIA report to the SPCB. After approval of the site or sites, the State Government shall acquire the site(s) or inform the occupier or any operator of facility, or any association of occupiers to acquire the site(s) for setting up the facility for treatment, storage and disposal of hazardous wastes.

Examination of records of selected units revealed that out of 15 workshops and 17 sheds and six PUs authorized to handle hazardous waste, EIA was conducted in only two workshops and two sheds (13 *per cent*)⁸⁸ and in one PU (RWF/Yelahanka) only. RB did not enforce conducting of EIA.

4.1.6 Reuse and Re-cycling of Hazardous Waste

Reuse and recycling is important to minimize the strain on the environment. The protocol for Hazardous Waste Management issued by the CPCB states that the hierarchy in efficient management of hazardous waste is to reduce, reuse, recycle, re-process and finally dispose of wastes in an eco-friendly manner.

Scrutiny of records relating to reuse of the hazardous wastes in selected units revealed the following:

⁸⁸ C&W workshop/ Liluah (ER), Central workshop/Mysore (SWR), DLS/Itarsi (WCR) and RSK/STLI (NCR)

- I. Only one workshop and 16 sheds (12 *per cent*) in 11 ZRs⁸⁹ tested samples in laboratory to explore the possibility of reuse of lubricating oil drained during maintenance schedule. The oil thus tested was reused in all these units except in RSK/STLI (NCR).
- II. In Wagon Repair Workshop/Kota (WCR), waste grease (25.728 MT), waste oil (4.27 MT) generated during the period 2009-12 was used in furnace. In Electric loco shed/Itarsi (WCR), used grease (10.90 MT), TFP oil (47.0 MT), Suspension oil (25.50 MT) generated during the years 2009-11 was issued to engineering department for reuse. In both workshops, waste oil was not tested for its suitability before reuse.
- III. In all the six PUs, the waste oil and lubricating oil drained during maintenance schedule was not reused.

Thus, the efforts of the workshops and sheds in reusing wastes were not very significant. While only one workshop and fifteen sheds could reuse wastes oil, none of the PUs reused waste oil which indicates low priority to the need of minimizing pollution.

4.2 Disposal of Used Batteries

As per the Batteries (Management and Handling) Rules 2001, used batteries are required to be sold only to registered recyclers. The Rules provide for submission of half-yearly returns in Form VIII⁹⁰ to SPCBs specifying the details pertaining to disposal of used batteries. It also provides that the responsibility of the consumer is to ensure that used batteries are not disposed of in any manner other than by depositing it with the dealer, manufacturer, registered recycler, reconditioner or at the designated collection centres.

Out of the selected units, 32 workshops and 70 sheds were using batteries. Examination of records relating to compliance with the extant provisions in above units revealed the following deficiencies:

- I. Half yearly return was filed by five workshops and three sheds (eight *per cent*) over six ZRs⁹¹ only;

⁸⁹ CR, ECoR, NCR, NFR, NR, NWR, SCR, SER, SWR, WCR and WR

⁹⁰ As per Batteries (Management and handling) Rules, 2001, it shall be the responsibility of the bulk consumer to file half-yearly return in Form VIII to the SPCB.

⁹¹ ER, NWR, SR, SWR, WCR and WR

- II. 14 workshops and 46 sheds (59 *per cent*) across all ZRs did not sell/auction the used batteries to the registered recyclers. Used batteries were kept in open areas pending disposal; and
- III. Out of six PUs, returns were submitted by only two PUs (CLW/Chittaranjan and ICF/Chennai). All PUs, however, sold the used batteries only to the registered recyclers;

RB in their reply (December 2013) stated that the used lead acid batteries were being sold/auctioned only to those recyclers who are registered with MoEF. The contention of RB is not acceptable in view of the audit findings mentioned at II above. Further, the reply of RB is silent on the audit observation regarding open storage of used batteries. The storage of used battery in open areas exposed the environment to pollution from leakage of spent acid.