# Evaluation of the EPA's e-Manifest System

August 11, 2026 | Report No. 26-E-0047

## Abbreviations

| | |
|---|---|
| EPA | U.S. Environmental Protection Agency |
| Fed. Reg. | Federal Register |
| OIG | Office of Inspector General |
| Pub. L. | Public Law |
| RCRA | Resource Conservation and Recovery Act |
| TSDF | Treatment, Storage, and Disposal Facility |
| VSQG | Very Small Quantity Generator |

## Cover Image

Three white trucks driving on a highway. The highway is bordered on both sides by grassy areas, and to the left and in the background are a side road, trees, powerlines, and mountains. (EPA image)


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26-E-0047
August 11, 2026

# At a Glance

## Evaluation of the EPA's e-Manifest System

### Why We Did This Evaluation

**To accomplish this objective:**

The U.S. Environmental Protection Agency Office of Inspector General conducted this evaluation to determine the effectiveness of the EPA's e-Manifest system, including the impact of and efforts to address errors in the system.

The Resource Conservation and Recovery Act requires that a shipping form, called a manifest, accompany hazardous waste shipments. The manifest identifies the type and quantity of hazardous waste being shipped, includes the signatures of all parties involved, and contains instructions for handling the waste.

In 2012, the Solid Waste Disposal Act was amended, requiring the EPA to implement a national electronic manifest system. The EPA estimated that the widespread adoption of electronic manifests would create an annual cost savings of more than $50 million for state and industry users. In 2014, the EPA stated that its goal was to maximize the full benefits and efficiencies of electronic manifests as quickly as possible.

**To support this EPA mission-related effort:**

- *Operating efficiently and effectively.*

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### What We Found

Neither the EPA nor industry has realized the full benefits of the EPA's e-Manifest system. Although the number of electronic manifests increased from 2019 to 2024, fewer than 0.5 percent of manifests each year were electronic. Because hazardous waste handlers manually transcribe information from paper manifests into electronic data files, the e-Manifest system is vulnerable to data entry errors. Consequently, the very low adoption of electronic manifests contributes to significant data quality issues in the e-Manifest system.

We identified errors related to EPA ID numbers and the shipping volumes of hazardous waste. From 2022 through 2024, submitted manifests had approximately 356,000 different ID numbers for hazardous waste generators. However, about 40 percent of the generator ID numbers were invalid. During the same time, about half of the 1,300 treatment, storage, and disposal facility ID numbers were invalid. In addition, 800 manifests stated shipping volumes exceeding 1,000 tons, with four stating volumes approaching one million tons—probable errors given that it is not feasible for a shipping container to hold 1,000 tons of cargo. Many of the inaccurate data were caused by incorrect transcription of the unit of measurement, incorrect transcription of decimal point placement, or incorrect entry of volume not matching the preprinted unit of measurement on the paper manifest.

The EPA has made efforts to address e-Manifest data errors. In 2023, the EPA issued a compliance advisory identifying that some ID numbers were inaccurate or missing and prompting handlers to address this data quality issue in the e-Manifest system. In July 2024, the EPA published a rule requiring that handlers correct manifest errors within 30 days of a state or federal regulator requesting a correction. As of May 2025, however, the EPA has not authorized any state to implement the rule, meaning that only the agency can request error corrections. Because electronic manifests would help eliminate many of the errors that we identified, we encourage the EPA to continue its efforts to fully adopt electronic manifests.

**Without the use of electronic manifests for all hazardous waste shipments, the e-Manifest system will not realize its anticipated cost savings and accuracy benefits.**

### Recommendations and Planned Agency Corrective Actions

We make two recommendations to the assistant administrator for Land and Emergency Management. The first recommendation is to establish the maximum volume of each container type used to ship hazardous waste, and the second is to implement verification checks in the e-Manifest system to identify when shipping volumes likely exceed the maximum capacity of the container type used. These actions would enable the EPA to identify shipping volume errors recorded on manifests and flag or prevent related data errors in the e-Manifest system. The first recommendation is closed with corrective actions completed, and the second recommendation is resolved with the corrective action pending.

**OFFICE OF INSPECTOR GENERAL**
U.S. ENVIRONMENTAL PROTECTION AGENCY

August 11, 2026

**MEMORANDUM**

**SUBJECT:** Evaluation of the EPA's e-Manifest System
Report No. 26-E-0047

**FROM:** Nicole N. Murley, Deputy Inspector General performing the duties of the Inspector General

**TO:** Thomas Croci, Acting Assistant Administrator
Office of Land and Emergency Management

This is our report on the subject evaluation conducted by the U.S. Environmental Protection Agency Office of Inspector General. The project number for this evaluation was OSRE-FY26-0021. This report contains findings that describe the problems the OIG has identified and corrective actions the OIG recommends. Final determinations on matters in this report will be made by EPA managers in accordance with established audit resolution procedures.

In accordance with EPA Manual 2750, your office completed the corrective action for recommendation 1. Your office also provided an acceptable planned corrective action and estimated milestone date in response to recommendation 2. The first recommendation is closed, the second is resolved with corrective action pending, and no final response to this report is required. If your office submits a response, however, it will be posted on the OIG's website, along with our memorandum commenting on the response. The response should be provided as an Adobe PDF file that complies with the requirements of section 508 of the Rehabilitation Act of 1973, as amended. The final response should not contain data that your office does not want released to the public; if the response contains such data, your office should identify the data for redaction or removal along with corresponding justification.

We will post this report to our website at www.epa.gov/oig.

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## Purpose

The U.S. Environmental Protection Agency Office of Inspector General initiated this evaluation to determine the effectiveness of the EPA's e-Manifest system, including the impact of and efforts to address errors in the system.

## Background

In the United States, millions of tons of hazardous waste are shipped each year. The Resource Conservation and Recovery Act, or RCRA, requires that a shipping form, called a manifest, accompany hazardous waste shipments. The manifest identifies the type and quantity of hazardous waste being shipped, includes the signatures of all parties involved, and contains instructions for handling the waste. In other words, the manifest tracks the hazardous waste from "cradle to grave," from the time it leaves the generator until it reaches the treatment, storage, and disposal facility, or TSDF. Each handler, including the generator, the transporter, and the TSDF, signs and keeps a copy of the manifest. At the end of the shipment process, the generator receives confirmation that the designated facility received the hazardous waste.

Before 2018, hazardous waste manifests were not nationally managed. The manifests and shipment process were entirely paper based. It was not until June 30, 2018, with the launch of an electronic system to track hazardous waste shipments, that the EPA began to nationally manage the shipment process. Each handler, except for very small quantity generators, or VSQGs, must be registered with the EPA and obtain a unique 12-digit ID number to enter on manifests.[1] Additionally, the EPA's national system, called the e-Manifest system, facilitates the use of electronic manifests and provides information on how much hazardous waste is transported in the country. For example, in 2023, an approximate 7.1 million tons of hazardous waste were shipped from over 202,000 different generators and accompanied by over 1.8 million manifests.

### *The e-Manifest System*

Enacted in 2012, the Hazardous Waste Electronic Manifest Establishment Act, Pub. L. No. 112–195, amended subtitle C of the Solid Waste Disposal Act, requiring the EPA to implement a national electronic manifest system. Among the Hazardous Waste Electronic Manifest Establishment Act's supporting regulations are:

- The 2014 One-Year Rule, which established the framework for the electronic manifest system and required that manifest information be made available to the public within 90 days of the hazardous waste's delivery to the TSDF.[2]

[1] EPA regulations do not require the VSQGs, which are generators that produce less than 100 kilograms per month, to obtain an ID number. Some states require VSQGs to obtain an ID number.
[2] "Hazardous Waste Management System; Modification of the Hazardous Waste Manifest System; Electronic Manifests," 79 Fed. Reg. 7518, February 7, 2014.

- The 2024 Third Rule, which established requirements for hazardous waste exports, polychlorinated biphenyls, and manifest error corrections.[3]

The EPA's e-Manifest system, which is housed in the agency's RCRAInfo database, implements the applicable provisions and regulations of the Hazardous Waste Electronic Manifest Establishment Act. The system accepts four types of manifest submittals:

- Electronic. The generator creates an electronic manifest in the e-Manifest system. Handlers enter all information and sign the manifest electronically.[4]
- Hybrid. The transporter creates the electronic manifest and provides the generator with a paper copy to sign. The generator keeps the paper copy, while the transporter and the TSDF complete the manifest electronically.
- Data + Image. All handlers complete and sign a paper manifest form. The TSDF uploads a scanned image of the final paper manifest and an associated data file to the e-Manifest system. The EPA validates that the scanned manifest image and the data file contain the same information.
- Scanned Image. All handlers complete and sign a paper manifest form. The TSDF uploads a scanned image of the final paper manifest to the e-Manifest system but does not provide a data file. The EPA must enter data from the image into the e-Manifest system.

Irrespective of which type of manifest the TSDF submits, the manifest information is part of the RCRAInfo database, where it becomes available to the public online at the EPA's Hazardous Waste Information Platform.

The EPA's e-Manifest system sought to modernize hazardous waste tracking electronically. When it launched the e-Manifest system, the EPA estimated that the widespread adoption of electronic manifests would create an annual cost savings of more than $50 million for state and industry users through reduced printing, recordkeeping, and administrative burdens. According to the EPA, electronic manifests and a nationwide electronic system offer other benefits as well, including increased accuracy and timeliness of information; increased effectiveness of compliance monitoring; integration of manifest data into the RCRA biennial report, which lists the quantity, nature, and disposition of hazardous waste from generators that produce large quantities of hazardous waste; and increased human health and environmental protections through more effective and transparent tracking of hazardous waste.

In 2014, in the Federal Register notice for the One-Year Rule, the EPA noted that its goal was to maximize the full benefits and efficiencies of electronic manifests as quickly as possible. In 2022, at a Hazardous Waste e-Manifest Advisory Board meeting, the EPA stated that an important goal was to

[3] "Integrating e-Manifest With Hazardous Waste Exports and Other Manifest-Related Reports, PCB Manifest Amendments, and Technical Corrections," 89 Fed. Reg. 60692, July 26, 2024.

[4] Although each submission type involves some electronic transmission of data, our references in this report to an "electronic manifest" or "electronic submission" point to this type of submission, which is fully electronic from the start to the finish of the shipment process.

increase the number of electronic manifests submitted, up to full electronic adoption, to realize the cost savings and accuracy benefits of the e-Manifest system. In addition, the 2024 Third Rule "aimed to increase the utility of the e-Manifest system to reduce overall burden on the regulated community while enhancing the effectiveness of the manifest forms and e-Manifest system as tools to track Federal and State waste shipments as required under Federal or State laws."[5]

## Responsible Offices

The e-Manifest Branch is part of the Analysis and Information Division of the Office of Resource Conservation and Recovery within the EPA Office of Land and Emergency Management. The e-Manifest system itself receives no congressionally appropriated funding. The system is fully supported by user fees. The fiscal year 2025 enacted operating plan for the e-Manifest system included 15 full-time equivalents. From when it launched the e-Manifest system in 2018 through September 2024, the EPA received approximately 11.6 million manifests and collected over $101 million in user fees.

## Scope and Methodology

We conducted this evaluation from November 2025 to June 2026 in accordance with the *Quality Standards for Inspection and Evaluation* published in December 2020 by the Council of the Inspectors General on Integrity and Efficiency. Those standards require that we perform the evaluation to obtain sufficient and appropriate evidence to support our findings.

To answer our objective, we considered the effectiveness of the e-Manifest system from two lenses: whether the system had the capability to process all manifests nationwide and whether the system implementation was fully electronic. We analyzed e-Manifest system data about hazardous waste shipments in 2022, 2023, and 2024. We then analyzed the quantity and types of e-Manifest submittals by year. We also analyzed EPA ID numbers and shipping volume data by comparing RCRAInfo data with manifest images. We obtained additional information, such as the challenges of fully adopting electronic manifests, by interviewing EPA e-Manifest system staff. We also reviewed key regulations and background documents relevant to the e-Manifest system.

## Prior Reports

In EPA OIG Report No. 18-P-0217, *Management Alert: To Minimize Risk of Environmental Harm, the Security Categorization of Electronic Manifest System Data Needs to Be Re-Evaluated*, issued June 21, 2018, we determined that the EPA planned to place sensitive hazardous waste information in the e-Manifest system without implementing the necessary information system security controls. The EPA completed corrective actions to address our three recommendations.

In EPA OIG Report No. 17-P-0029, *Acquisition Certifications Needed for Managers Overseeing Development of EPA's Electronic Manifest System*, issued November 7, 2016, we determined that EPA

[5] 89 Fed. Reg. 60692.

staff working on the e-Manifest system development lacked the specialized certifications required to manage federal information technology acquisition projects. The EPA completed corrective actions to address our two recommendations.

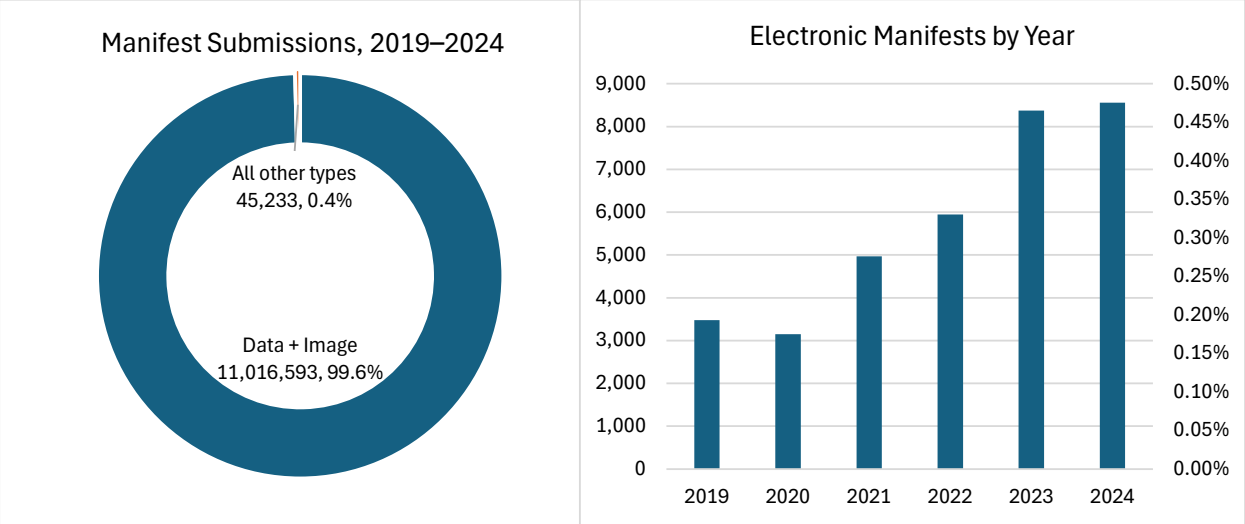
## Results

Neither the EPA nor industry has realized the full benefits of the EPA's e-Manifest system, as most manifests are not electronic. From 2019 through 2024, fewer than 0.5 percent of submissions each year were electronic. Additionally, the system contains many data errors of varying significance, largely due to the processing of paper-based manifests. For example, we identified large numbers of ID number errors that had only a small impact on the total volume shipped, and we identified a small number of large volume errors that had a large impact on the total volume shipped. While the system, since its inception, has managed more than 14 million manifests as of March 2026 and provided information about hazardous waste shipments to the public, data quality issues will likely persist until the full adoption of electronic manifests.

### *Most Manifests Are Not Electronic Submissions, Resulting in Data Entry Errors*

The agency has not yet achieved its goal of the full adoption of electronic manifests. Although the number of electronic submissions has increased from 2019 to 2024, electronic submissions still comprise less than 0.5 percent of the total manifests submitted, as shown in figure 1. Instead, 99.6 percent of submissions from 2019 through 2024 were data + image manifests. As discussed previously, a data + image submission requires the TSDF to manually transcribe information from the paper manifest into a data file to upload to the e-Manifest system.

**Figure 1: e-Manifest submission methods**



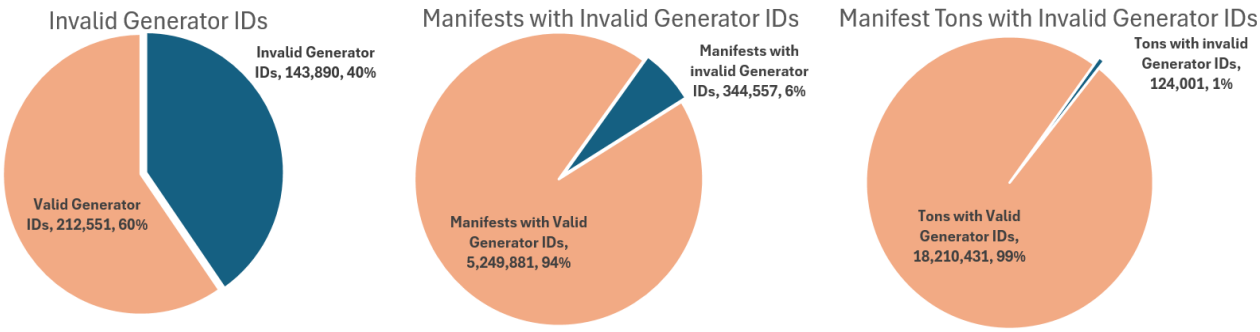

Source: OIG analysis of e-Manifest data from RCRAInfo. (EPA OIG image)

*Notes:* We excluded submissions from 2018 and 2025 in this figure. Submissions in 2018 would not represent a full year, as the system did not launch until June 30, 2018, and not all manifests from 2025 may have been submitted or processed at the time of our evaluation.

The very low adoption of electronic manifests contributes to significant data quality issues in the e-Manifest system. We identified errors in the EPA ID numbers and the shipping volumes of hazardous waste.

From 2022 through 2024, submitted manifests had approximately 356,000 different EPA ID numbers for hazardous waste generators. Having accurate generator ID numbers is important to identify the source of the hazardous waste being shipped. However, about 144,000 of the approximately 356,000 generator ID numbers (40 percent) were invalid. As shown in figure 2, this represents 6 percent of the total manifests submitted and approximately 1 percent of the total tons of hazardous waste shipped.

**Figure 2: Generator ID number e-Manifest errors**



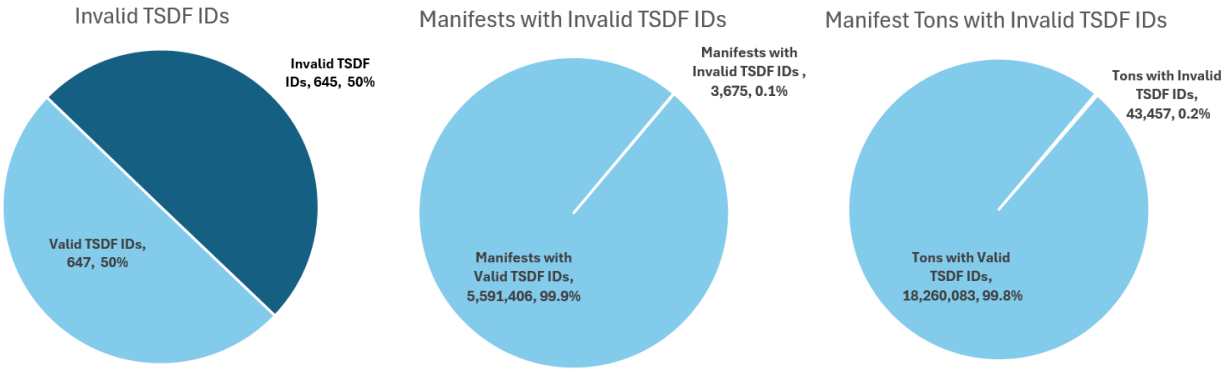

Source: OIG analysis of e-Manifest data as reported in RCRAInfo with shipment dates in 2022, 2023, and 2024. (EPA OIG images)

Many invalid numbers were a result of simple errors, such as entering the ID number incorrectly, but a significant number were attributable to the VSQGs. Because the EPA does not require them to obtain an ID number if they are using paper manifests, the VSQGs often leave the ID number field in paper manifests blank, or they include other text, such as "VSQG," to indicate that they do not have an ID number. The VSQGs must obtain an ID number if they are using electronic manifests to track hazardous waste.

The invalid ID issue was not unique to generators. From 2022 through 2024, submitted manifests had approximately 1,300 different ID numbers for the TSDFs. As shown in figure 3, about 50 percent of the TSDF ID numbers were invalid. The invalid TSDF ID numbers represent less than 1 percent of both the total number of manifests submitted and the total volume of hazardous waste shipped. Having accurate TSDF ID numbers is important to identify the final destination of hazardous waste.

Because there are not nearly as many TSDFs as generators, the total number of invalid TSDF ID numbers is much smaller than the total number of invalid generator ID numbers: 645 versus 143,890.

**Figure 3: TSDF ID number e-Manifest errors**




Source: OIG analysis of e-Manifest data as reported in RCRAInfo with shipment dates in 2022, 2023, and 2024. (EPA OIG images)

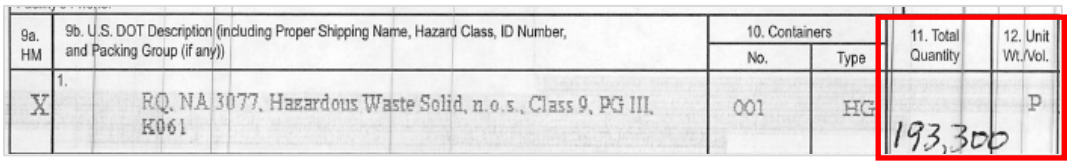
The most significant errors that we identified were the overstatements of shipped volumes of hazardous waste. Of the millions of submitted manifests, as of May 2025, about 800 indicated shipping volumes exceeding 1,000 tons, with four of these approaching 1 million tons. It is not feasible for a shipping container to hold volumes approaching 1,000 tons of cargo. Although relatively small in number, these errors have a disproportionally large impact on summaries of manifest volumes that someone may generate from RCRAInfo data, which in turn would skew any analysis of those summaries.

These data errors were largely caused by two factors: the incorrect entry of data on the manifest itself or the incorrect transcription of those data into the e-Manifest system. Many of the inaccurate data were caused by relatively simple errors, such as:

- *Incorrect transcription of the unit of measurement*, as shown in figure 4. In this example, the paper manifest reflected a unit of measurement of pounds (P), which was incorrectly transcribed into the data file as tons (T). This error inflated the shipment amount appearing in RCRAInfo by a factor of 2,000: 193,300 tons instead of 96.65 tons.

**Figure 4: Incorrect entry of unit of measure**

Paper manifest:



| 9a. HM | 9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any)) | 10. Containers No. | 10. Containers Type | 11. Total Quantity | 12. Unit Wt./Vol. |
|---|---|---|---|---|---|
| X | 1. RQ, NA 3077, Hazardous Waste Solid, n.o.s., Class 9, PG III, K061 | 001 | HG | 193,300 | P |

RCRAInfo entry:

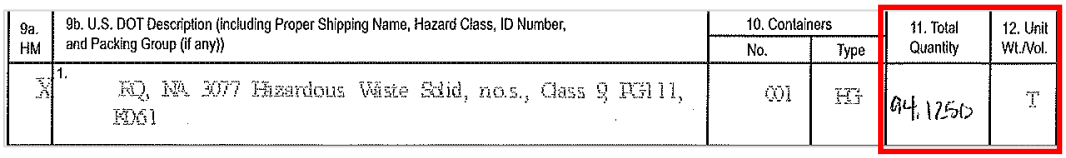
| Line Number | HM | U.S. DOT Description | Containers | Type | Total Quantity | Units | Waste Codes |
|---|---|---|---|---|---|---|---|
| 1 | X | RQ, NA3077, HAZARDOUS WASTE, SOLID, N.O.S., CLASS 9, PGIII, (K061) | 1 | HG | 193300 | T | K061 |

Source: e-Manifest system data as reported in RCRAInfo. (EPA images, with emphasis added by the EPA OIG)

- *Incorrect transcription of decimal point placement*, as shown in figure 5. In example 1 in figure 5, the decimal point in the paper manifest was not transcribed properly. As a result, RCRAInfo shows the volume shipped as 941,250 tons, when the actual volume shipped was 94.125 tons. Example 2 of figure 5 shows that a faint or missing decimal point on the paper manifest resulted in an RCRAInfo record of 962,250 tons instead of 96.225 tons.

**Figure 5: Incorrect decimal point placement**

Paper manifest (Example 1):

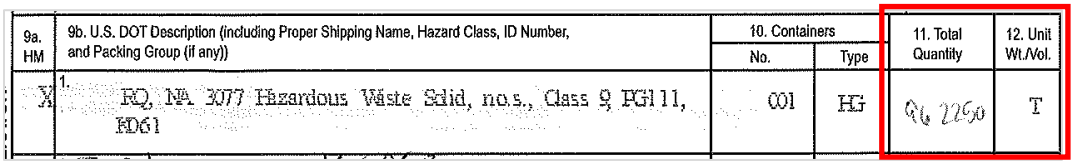


| 9a. HM | 9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any)) | 10. Containers No. | 10. Containers Type | 11. Total Quantity | 12. Unit Wt./Vol. |
|---|---|---|---|---|---|
| X | 1. RQ, NA 3077 Hazardous Waste Solid, n.o.s., Class 9 PGIII, K061 | 001 | HG | 94.125 | T |

RCRAInfo entry (Example 1):

| Line Number | HM | U.S. DOT Description | Containers | Type | Total Quantity | Units | Waste Codes |
|---|---|---|---|---|---|---|---|
| 1 | X | RQ, NA 3077 HAZARDOUS WASTE SOLID, N.O.S., CLASS 9, PGIII, K061 | 1 | HG | 941250 | T | K061 |

Paper manifest (Example 2):



| 9a. HM | 9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any)) | 10. Containers No. | 10. Containers Type | 11. Total Quantity | 12. Unit Wt./Vol. |
|---|---|---|---|---|---|
| X | 1. RQ, NA 3077 Hazardous Waste Solid, n.o.s., Class 9 PGIII, K061 | 001 | HG | 96.225 | T |

RCRAInfo entry (Example 2):

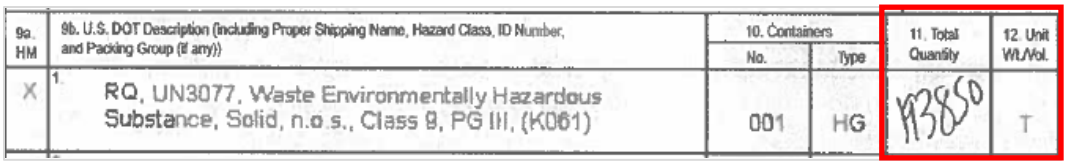
| Line Number | HM | U.S. DOT Description | Containers | Type | Total Quantity | Units | Waste Codes |
|---|---|---|---|---|---|---|---|
| 1 | X | RQ, NA 3077 HAZARDOUS WASTE SOLID, NO.S., CLASS 9, PGIII, K061 | 1 | HG | 962250 | T | K061 |

Source: e-Manifest system data as reported in RCRAInfo. (EPA images, with emphasis added by the EPA OIG)

- *Incorrect entry of volume not matching the preprinted unit of measurement on the paper manifest,* as shown in figure 6. In this example, although tons is preprinted on the paper manifest, the handler apparently entered the volume in pounds without manually correcting the unit of measurement. For context, it is not feasible for a hopper or gondola car, designated on the manifest in figure 6 as HG, to hold almost 200,000 tons of hazardous waste; according to information that the EPA obtained from the U.S. Department of Transportation, the maximum weight for this container type is 286,000 pounds. Apparently, the person transcribing the paper manifest did not identify this incongruity, instead entering the data exactly as reflected. As a result, the entry in RCRAInfo is incorrect, showing 193,850 tons instead of 96.925 tons.

**Figure 6: Incorrect entry of volume**

Paper manifest:



| 9a. HM | 9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any)) | 10. Containers No. | 10. Containers Type | 11. Total Quantity | 12. Unit Wt./Vol. |
|---|---|---|---|---|---|
| X | 1. RQ, UN3077, Waste Environmentally Hazardous Substance, Solid, n.o.s., Class 9, PG III, (K061) | 001 | HG | 193850 | T |

RCRAInfo entry:

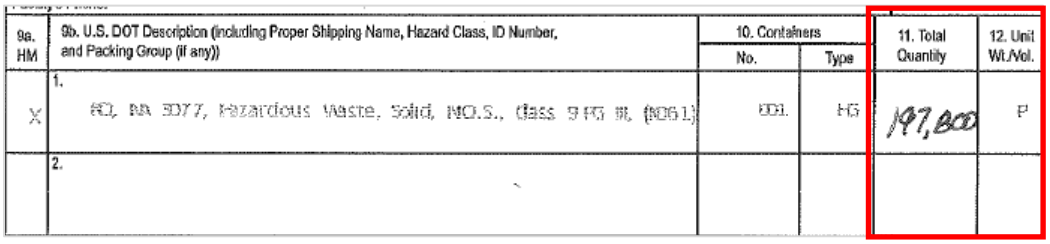
| Line Number | HM | U.S. DOT Description | Container | Type | Total Quantity | Units | Waste Codes |
|---|---|---|---|---|---|---|---|
| 1 | X | RQ, UN3077, WASTE ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S., CLASS 9, PG III, (K061) | 1 | HG | 193850 | T | K061 |

Source: e-Manifest system data as reported in RCRAInfo. (EPA images, with emphasis added by the EPA OIG)

- *Duplicate data entries*, as shown in figure 7. Although the volume and unit of measure were transcribed correctly, a second duplicate entry was created. Furthermore, this duplicate entry reflected an incorrect unit of measure: cubic meters (N) instead of pounds. As a result, RCRAInfo shows a total of two calculated volumes for this shipment of 197,800 pounds and 197,800 cubic meters.

**Figure 7: Duplicate entry with incorrect unit of measure**

Paper manifest:



| 9a. HM | 9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any)) | 10. Containers No. | 10. Containers Type | 11. Total Quantity | 12. Unit Wt./Vol. |
|---|---|---|---|---|---|
| X | 1. RQ, NA 3077, Hazardous Waste, Solid, NOS., Class 9 PG III, (K061) | 001 | HG | 197,800 | P |
| | 2. | | | | |

RCRAInfo entry:

| Line Number | HM | U.S. DOT Description | Containers | Type | Total Quantity | Units | Waste Codes |
|---|---|---|---|---|---|---|---|
| 1 | X | RQ, NA 3077, HAZARDOUS WASTE, SOLID, NO.S., CLASS 9 PG III, (K061) | 1 | HG | 197800 | P | K061 |
| 2 | X | RQ, NA 3077, HAZARDOUS WASTE, SOLID, NO.S., CLASS 9, PG III, (K061) | 1 | HG | 197800 | N | K061 |

Source: e-Manifest system data as reported in RCRAInfo. (EPA images, with emphasis added by the EPA OIG)

When we sorted the volume errors by size, we found that the 100 largest errors caused RCRAInfo to reflect more than 1,600 times the amount of hazardous waste that was actually shipped. In other words, the manifests that contained those errors involved an actual total volume of approximately 8,900 tons

of hazardous waste, but RCRAInfo reported a total volume of almost 15 million tons. Furthermore, each of the 100 largest errors indicated a shipment volume exceeding 92,000 tons, which is infeasible for the containers transporting the hazardous waste.

The use of electronic manifests would help mitigate the types of errors that we identified. If all handlers enter data directly into an electronic manifest, then there is no need for data to be manually transcribed, eliminating any associated data entry errors and illegibility issues. The VSQGs must have an ID number for electronic manifests, so having all handlers use such manifests would eliminate the errors associated with the VSQGs not having an ID number. According to the EPA, e-Manifest will be linked to RCRAInfo and will have the ability to validate information entered on an electronic manifest against information in RCRAInfo. Full adoption of electronic manifests, therefore, would virtually eliminate the presence of invalid ID numbers. Such a verification check could also help identify data errors related to hazardous waste shipment volumes. For example, the system could check whether the volume entered is feasible given the container type.

In a 2024 memorandum to its regional offices, the EPA emphasized that the information in RCRAInfo is "vital to environmental protection and to management of RCRA programs," including supporting information requests from Congress and the public, implementing and enforcing hazardous waste regulations, and tracking program performance measures.[6] Errors like those we identified in the e-Manifest system hamper these efforts. Further, e-Manifest errors undercut confidence in the EPA's publicly available data in RCRAInfo, including its "RCRAInfo Search" web page and Hazardous Waste Information Platform. Data discrepancies can also impact state hazardous waste programs, as some states assess fees based on manifest data.

## *The EPA Has Made Efforts to Address e-Manifest System Errors*

The EPA has recognized e-Manifest data errors, and it has taken steps to correct these errors. In 2023, the EPA issued a compliance advisory identifying that some EPA ID numbers were inaccurate or missing on manifests and prompting handlers to address this data quality issue in the e-Manifest system.[7] In July 2024, the EPA published the Third Rule to address multiple issues by, among other things, requiring that handlers correct manifest errors within 30 days of a state or federal regulator requesting that they do so.[8] As of May 2025, however, the EPA has not authorized any state to implement the Third Rule, meaning that only the agency can request error corrections. This has limited the impact of potential corrections under the Third Rule.

In addition to the July 2024 publication of the Third Rule, the EPA has proactively addressed e-Manifest data quality issues. After early conversations regarding our evaluation findings, the agency took steps to correct many of the shipping volume errors that we identified. In response to our observation that the

[6] Director of the EPA Office of Resource Conservation and Recovery to the directors of the Land, Chemicals, and Redevelopment Division, Regions 1–10, memorandum, August 8, 2024, *RCRAInfo Data Reporting Requirements*.
[7] EPA, *Compliance Advisory: Data Quality Issues with Hazardous Waste Manifests Submitted to EPA's e-Manifest System* (305F23002, March 14, 2023).
[8] 89 Fed. Reg. 60692.

manifest form does not define the possible maximum volumes by container type, RCRAInfo staff obtained the maximum volumes from the Department of Transportation. The RCRAInfo staff said that they intend to use the information to develop a save warning that alerts e-Manifest system users when they enter a volume that exceeds the container capacity. Furthermore, on March 5, 2026, the EPA published a proposed rule, *Paper Manifest Sunset Rule; Modification of the Hazardous Waste Manifest Regulations*, which highlights the EPA's commitment to eliminating the use of paper manifests and promoting the use of electronic manifests. After the sunset date, which is anticipated to be 24 months after the final rule is published, only hybrid or electronic manifests would be valid for tracking hazardous waste shipments.

### *Conclusions*

More than 12 years after stating its goal to maximize the full benefits and efficiencies of electronic manifests as quickly as possible,[9] the agency has not attained that goal. We encourage the EPA to continue its efforts to fully adopt electronic manifests. Without the use of electronic manifests for all hazardous waste shipments, the e-Manifest system will not realize its anticipated cost savings and accuracy benefits. The EPA has estimated that transitioning from paper to electronic manifests will save state and industry users more than $50 million annually. Electronic manifests would help eliminate many of the errors that we identified, including invalid EPA ID numbers, data entry errors, and legibility issues. For example, electronic manifests would require validation of the EPA IDs when the manifest is created, which should eliminate EPA ID errors. Electronic manifests could also facilitate accuracy in terms of shipping volumes. Defining maximum volumes for each container type and implementing verification checks for those volumes will address the significant electronic filing errors. Until electronic filing is mandated, the maximum volumes can be used to identify errors so that the EPA and states may correct them. The EPA has already taken steps to correct many of the large volume errors.

## Recommendations

We recommend that the assistant administrator for Land and Emergency Management:

1. Establish the maximum volume of each container type used to ship hazardous waste. Doing so would enable the EPA to identify shipping volume errors recorded on manifests.

2. Implement verification checks in the e-Manifest system to identify when shipping volumes likely exceed the maximum capacity of the container type used. This, coupled with recommendation 1, would flag and prevent the incorrect data entry into the e-Manifest system of extremely large volumes that could significantly skew the total volumes of hazardous waste shipped.

[9] One-Year Rule.

## Agency Response and OIG Assessment

The EPA agreed with both recommendations. The EPA has already completed corrective actions for recommendation 1, and it provided an acceptable planned corrective action with an estimated milestone date for recommendation 2. For recommendation 1, the Office of Land and Emergency Management coordinated with the Department of Transportation to identify maximum volumes for container types used to ship hazardous waste. For recommendation 2, the Office of Land and Emergency Management plans to use the volumes identified in response to recommendation 1 to implement our recommended verification checks. Recommendation 1 is closed, and recommendation 2 is resolved with corrective action pending. Appendix A contains the agency's response to our draft report.

# Status of Recommendations

| Rec. No. | Page No. | Recommendation | Status* | Action Official | Planned Completion Date |
|---|---|---|---|---|---|
| 1 | 10 | Establish the maximum volume of each container type used to ship hazardous waste. Doing so would enable the EPA to identify shipping volume errors recorded on manifests. | C | Assistant Administrator for Land and Emergency Management | 6/26/26 |
| 2 | 10 | Implement verification checks in the e-Manifest system to identify when shipping volumes likely exceed the maximum capacity of the container type used. This, coupled with recommendation 1, would flag and prevent the incorrect data entry into the e-Manifest system of extremely large volumes that could significantly skew the total volumes of hazardous waste shipped. | R | Assistant Administrator for Land and Emergency Management | 12/31/26 |

* C = Corrective action completed.
R = Recommendation resolved with corrective action pending.
U = Recommendation unresolved with resolution efforts in progress.

# Agency Response to the Draft Report

OFFICE OF LAND AND EMERGENCY MANAGEMENT
WASHINGTON, D.C. 20460

**MEMORANDUM**

**SUBJECT:** Response to the Office of Inspector General Management Alert, OSRE-FY26-0021, *Evaluation of the EPA's Efforts to Address Errors in the e-Manifest System*, Draft Report Release Date: June 3, 2026

**FROM:** Thomas D. Croci, Acting Assistant Administrator

Croci, Thomas
Digitally signed by Croci, Thomas
Date: 2026.06.26 15:19:32 -04'00'

**TO:** Paul H. Bergstrand, Assistant Inspector General
Office of Special Review and Evaluation
Office of Inspector General

Thank you for the opportunity to respond to the issues and considerations in the e-Manifest Management Alert. The following is a summary of the U.S. Environmental Protection Agency's overall position and includes a summary of how the Office of Resource Conservation and Recovery is currently working to address them.

## AGENCY'S OVERALL POSITION

We appreciate the Office of Inspector General (OIG)'s attention to the data quality of OLEM's electronic manifest system (e-Manifest). OLEM agrees with the importance of ensuring manifest data are accurate and the need to implement verifications to support this requirement. OLEM further concurs with the need to promote electronic manifest adoption to fully realize the benefits of the e-Manifest system and maximize manifest data quality.

In the course of the evaluation of data quality in the e-Manifest system, OIG personnel identified that validations did not exist for container types, presenting the opportunity for data to be entered that exceeded the maximum volume a container could hold in real-world

conditions. OLEM appreciated this observation and worked with the US Department of Transportation to establish maximum volumes for container types, in line with OIG's first recommendation. OLEM will implement system functionality to validate data submissions against those volumes and continue its proposed rulemaking to sunset the use of paper manifests.

OLEM agrees with the OIG's recommendations in its Management Alert and, as such, commits to identifying and implementing verifications to improve data quality in the e-Manifest system and to promote the adoption of electronic manifests.

**CORRECTIVE ACTION(S)**

| Recommendation | Office | High-Level Intended Corrective Action(s) | Estimated Completion Date |
|---|---|---|---|
| 1. Establish the maximum volume of each container type used to ship hazardous waste. Doing so would enable the EPA to identify shipping volume errors recorded on manifests. | OLEM | Concur. OLEM coordinated with the US Department of Transportation to identify maximum volumes for container types used to ship hazardous waste. | Completed as of the signature date of this memo. |
| 2. Implement verification checks in the e-Manifest system to identify when shipping volumes likely exceed the maximum capacity of the container type used. This, coupled with recommendation 1, would flag and prevent the incorrect data entry into the e-Manifest system of extremely large volumes that could significantly skew the total volumes of hazardous waste shipped. | OLEM | Concur. OLEM will implement these checks using the maximum volumes identified in Recommendation 1. | Q1 FY2027 |

**CONTACT INFORMATION**

If your staff have any questions regarding this response, please contact Kecia Thornton, the Office of Land and Emergency Management Audit Follow-up Coordinator, via email at Thornton.Kecia@epa.gov or phone: (202) 566-1913.

Attachments

## Appendix B

# *Distribution*

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U.S. Environmental Protection Agency

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