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ASTSWMO POSITION PAPER
DATA QUALITY ISSUES WITHIN THE HAZARDOUS WASTE e-MANIFEST SYSTEM

Background

On October 5, 2012, Congress passed the Hazardous Waste Manifest Establishment Act of 2012 (e-Manifest Act). The e-Manifest Act authorized EPA to implement a national electronic manifest (e-Manifest) system by enabling the transition from a paper-intensive process to an electronic system. On June 30, 2018, the United States Environmental Protection Agency (EPA) launched the e-Manifest system. The goal of the e-Manifest system is to improve access to higher quality and timely data while also saving time and resources for industry and State and Territorial (State) programs.

Benefits of the e-Manifest system include:

- Cost savings by reducing State and industry user workload along with the associated financial cost associated with paper manifests,
- Accurate and more timely information on waste handling and shipments,
- Rapid notification of discrepancies or other problems related to a particular shipment,
- One-stop reporting of manifest data to EPA and States,
- Increased effectiveness of compliance monitoring of waste shipments by regulators, and
- Potential for integrating manifest reporting with the Resource Conservation and Recovery Act (RCRA) biennial reporting process and other federal and State information systems.[1]

Challenges to implementing a fully electronic system include:

- The United States Department of Transportation (DOT) requires a paper manifest to travel with the shipment, and
- The waste management industry has invested a significant amount of time and money to develop internal databases to not only create hazardous waste manifests but to also create land disposal restriction notifications, track shipments, and invoice customers.

The e-Manifest Act also stipulated that a Hazardous Waste Electronic Manifest System Advisory Board (Board) be established. The Board is composed of nine (9) members, whose role is to provide recommendations to EPA regarding the operation of the e-Manifest system. Board members include industry and State representatives, in addition to information technology experts. The e-Manifest system is continuously evolving with the Board providing recommendations for system improvements to ensure program goals are met. The Board seeks public comment when it meets annually. The Hazardous Waste Subcommittee of the Association of State and Territorial Solid Waste Management Officials (ASTSWMO) provided feedback to the Board in 2019, 2021, 2022, and 2023.

ASTSWMO continues to support the e-Manifest system and believes that overall the system has been a success and provides valuable data to State regulatory agencies. We applaud EPA for the significant effort and investment made to ensure data related to shipments of hazardous waste is available to States, the regulated community,

[1] Additional information about the Hazardous Waste Electronic Manifest System (e-Manifest) can be found here: https://www.epa.gov/e-manifest/learn-about-hazardous-waste-electronic-manifest-system-e-manifest

and the public. Having access to manifest data electronically allows for better allocation of resources as data can be used to guide informed decisions.

The e-Manifest system accepts four types of manifest submissions:

1. Fully electronic,
2. Hybrid,
3. Data + image, and
4. Scanned image.

Fully electronic manifests are initiated in the e-Manifest system and are signed electronically through each step of the process. As such, data associated with those manifests is immediately available in the e-Manifest system. The remaining manifest types involve a paper component of the manifest. When a paper manifest is used, the treatment, storage, or disposal facility (TSDF) is responsible for uploading the manifest into the e-Manifest system. When uploading manifests, the TSDF can submit only a scanned image of the manifest, in which EPA will perform the required data entry, or both a scanned image of the manifest and a data file directly to the e-Manifest system. The data + image submission is the preferred option for most TSDFs as it allows the TSDF to share its electronic data directly with EPA, thereby avoiding a more costly manifest data entry option.

ASTSWMO's Hazardous Waste Subcommittee created the Program Information Management (PIM) Task Force to establish effective partnerships between the States and EPA to continue to improve a national hazardous waste information management system including but not limited to ensuring the system functions effectively for States, EPA, and the regulated community. Members of the PIM Task Force regularly reach out to States to gain an understanding on how program information systems are being utilized, identify concerns, and to obtain feedback from the regulated community through the State representatives.

Issue

Members of the PIM Task Force received feedback from States with concerns regarding data quality in the e-Manifest system and how the data affected the hazardous waste programs. As a result of the concerns, the PIM Task Force developed a project to determine the scope of the data quality concerns raised by States.

Eleven PIM Task Force members randomly reviewed approximately 50 manifests in the e-Manifest system for waste that was shipped by a generator in their State between May 2022 and May 2023. The number of manifests each Task Force member reviewed was not statistically derived, as the goal of the Task Force was to determine if the anecdotal data quality concerns raised by ASTSWMO members were substantiated. The method in which each member randomly selected manifests was not defined and varied among members.

The review spanned different hazardous waste generator categories, industries, generator types, and designated facilities. Each Task Force member compared the image of the scanned paper manifest to the data entered for the associated manifest. An error was logged each time there was a discrepancy between the uploaded data in the e-Manifest system and the scanned paper copy. There was no distinguishing between the significance of errors; rather each error was considered of equal importance. If a manifest had been corrected after the initial upload resulting in the discrepancy, it was not counted as an error. These errors were separated into six (6) manifest sections and tabulated by section. Manifests containing numerous errors within a section were only counted once. These data errors make it difficult for State agencies to determine which record is correct and should be relied upon to support decision making by the State agency.

Manifest Question Numbers	Manifest Section
Questions 1-5	Generator Section
Questions 6-7	Transporter Section
Questions 8	Designated Facility Section
Question 9a-13	Waste Section
Question 14 and 18	Special Handling/Discrepancy Section
Question 15, 17, and 20	Certifier Section

Results:

Of the 551 manifests reviewed, 373 (68%) of the manifests contained errors. There were a minimum of 655 errors observed in the 551 manifests, with the following breakdown of where the errors were located:

Summary	
Number of manifests with errors / Number of manifests	373 / 551
Generator Section	159
Transporter Section	92
Designated Facility Section	74
Waste Section	72
Special Handling/Discrepancy Section	104
Certifier Section	150

Figures 1 through 3 summarize this data in graphical form. Figure 1 shows the percentage of manifests with errors, while Figures 2 and 3 shows where on the manifest the specific errors were identified.

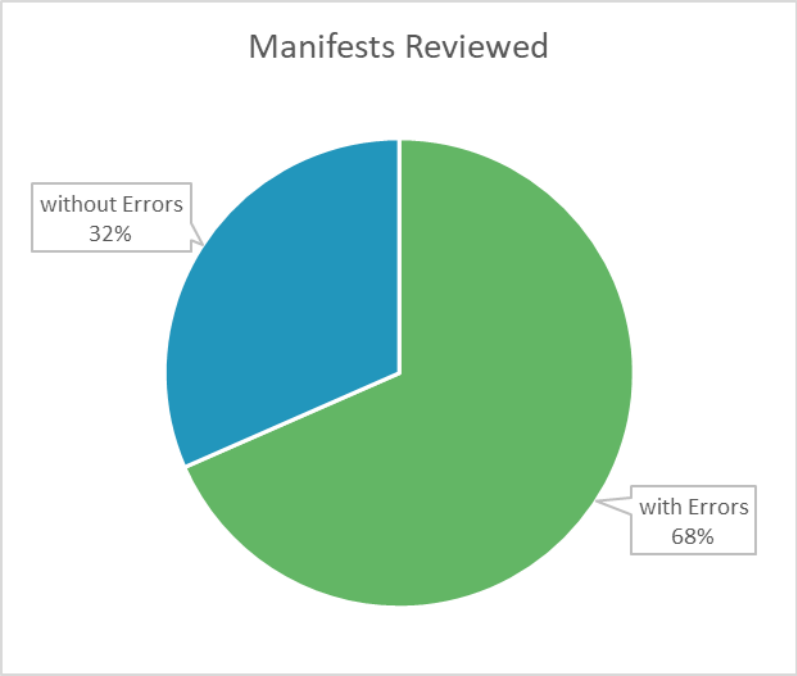

Figure 1: Percentage of Manifests with Errors

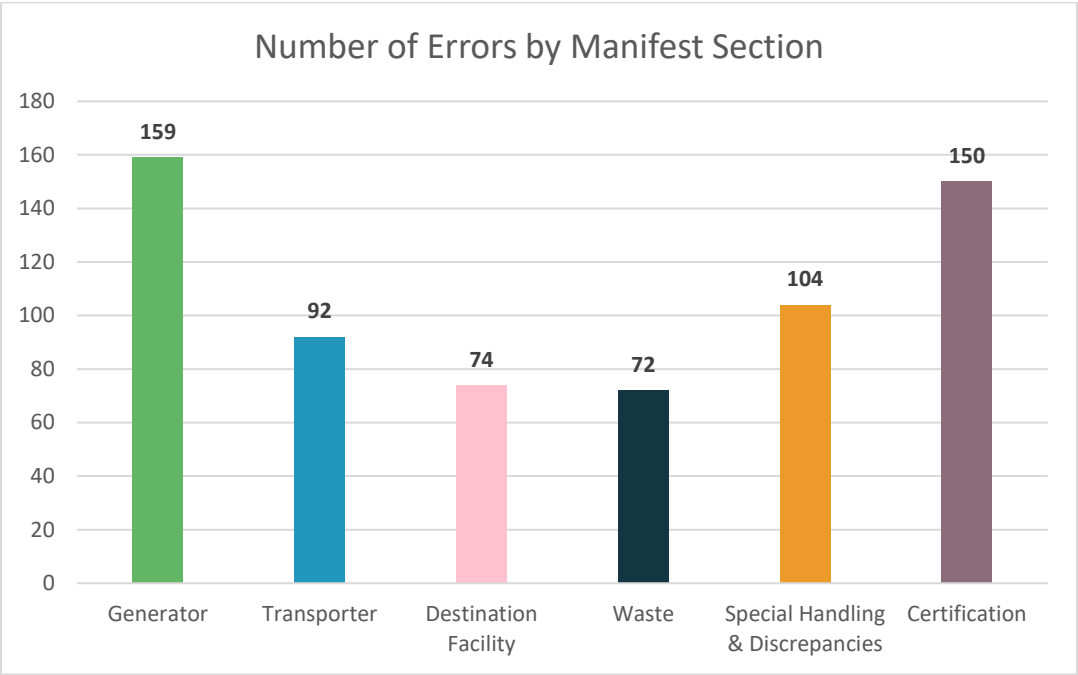

Figure 2: Number of Errors Identified in Each Section of the Manifests

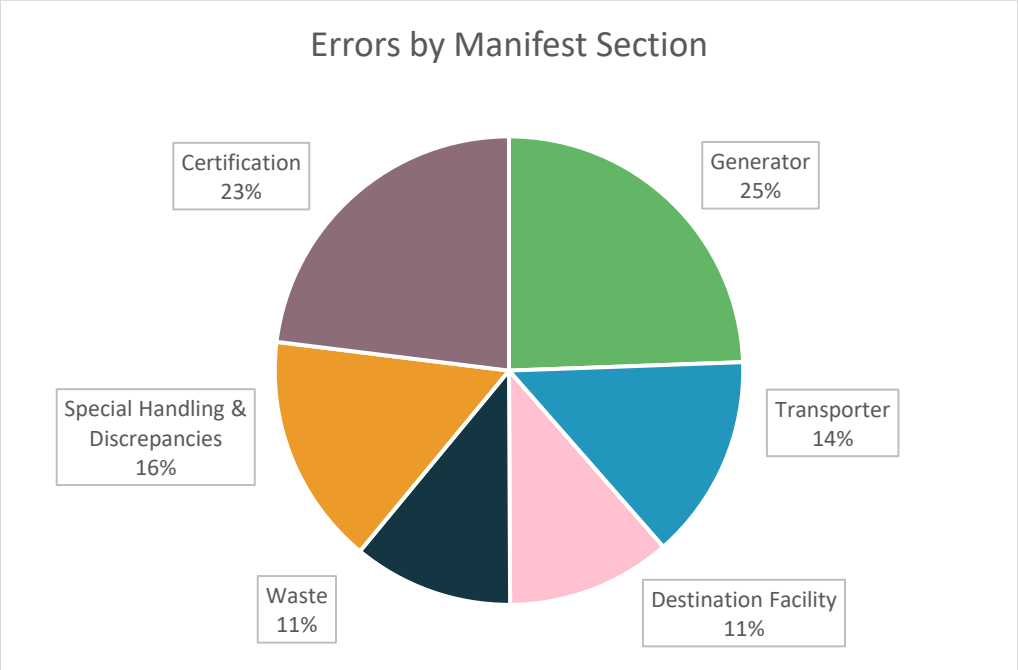

Figure 3: Percentage of Errors by Manifest Section

Since each Task Force member completed an analysis of manifests, the evaluation is suggestive of errors nationwide. Data was obtained for a State in each EPA Region and across a variety of State program sizes and locations throughout the country. Figure 4 shows the States in which data analysis was conducted.

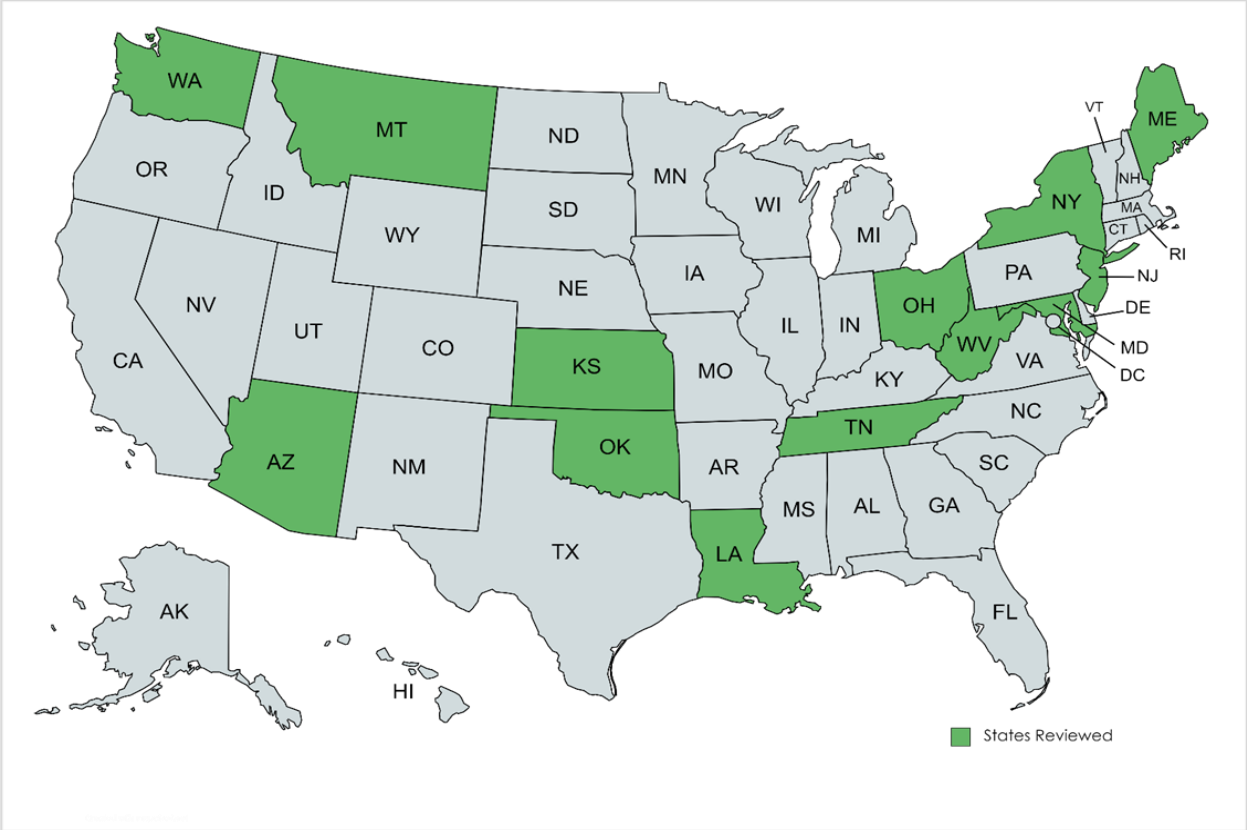

Figure 4: States in Which Manifest Reviews were Conducted

Currently, the burden falls to States to allocate resources to determine which version of the manifest is correct to ensure corrections are made. When a potential error is identified, the State regulatory agency has to reach out to the generator, and potentially the TSDF, to determine if the scanned image of the manifest is correct or if the uploaded data file is correct in order to determine compliance. Funding has not been provided to States related to the implementation of the e-Manifest system. Additionally, with the creation of the e-Manifest system, some States that had been collecting manifest data in their own State databases lost manifest staff since data is now being collected in a national system.

As noted above, TSDFs are required to upload manifests into the e-Manifest system ensuring the data is correct. Many TSDFs upload data from their in-house data systems to the e-Manifest system and the data in the in-house system does not match the data in RCRAInfo or the data on the manifest resulting in data errors. The PIM Task Force identified the following types of data in the e-Manifest system that are either missing or not matching the scanned image of the manifest:

- Generator EPA ID number, name and/or address,
- Only one transporter identified in the electronic data upload, but multiple transporters on the paper copy or vice versa,
- Designated Facility EPA ID number, name and/or address,
- Waste description, container type, waste quantity and/or waste codes,
- Special Handling instructions not entered into the e-Manifest system, and
- Signatures, extra signatures, or “signature on file” instead of a name of the employee signing the manifest.

Discrepancies in the data between the scanned paper copy and the data in the e-Manifest system impact several aspects of the hazardous waste program, in addition to State-specific program requirements. Hazardous waste programs impacted by data discrepancies include enforcement and compliance programs, biennial/annual reporting, cradle-to-grave waste management, and fees, as some States assess fees based on manifest data.

Specific examples of these impacts include:

- Facilities could be viewed as under-notifying or failing to notify of their correct generator status. If the quantity of the waste shipped reflected in the data file is incorrect, it could make the facility appear to be generating in a different category than they notified the State.
- If the incorrect EPA ID number is uploaded to the e-Manifest system, all data from that manifest is associated with the incorrect EPA ID number, as opposed to the site that generated the waste. This leads to States dedicating resources to conduct inspections at facilities only to discover during the inspection that e-Manifest data was incorrect and an inspection was not necessary. These resources could be better allocated and inspection targeting improved with more accurate data in the e-Manifest system.
- Incorrect data on a manifest could make it appear as if a site is required to complete a biennial and or annual report when in actuality, the site did not meet the reporting requirements. This circumstance can cause the site to appear as under reporting waste generated or reporting incorrect information and requires significant resources from States to determine compliance with the reporting requirements.
- Some States assess fees based on e-Manifest data. For example, New Jersey charges fees to transporters; Pennsylvania charges fees to TSDFs as well as to transporters. If the information in the e-Manifest system is incorrect, then fees may be charged incorrectly or fees may not be charged at all causing the State to lose funds.

EPA stated one of the reasons for implementing the e-Manifest system was to "reduce the burden associated with paper manifests and save state and industry users hours and financial costs." However, due to the high percentage of manifests having data quality errors, it is creating a burden on State regulatory programs to oversee, research, request and track corrections. Prior to the implementation of the e-Manifest system, some States had their own State-developed manifest databases and staff dedicated to data entry of manifests; however, those staff positions were eliminated with the implementation of a federal e-Manifest system, as there was no need for State staff to perform data entry. Other States did not collect manifest data prior to the implementation of the e-Manifest system and thus did not have any resources allocated to oversight of manifest data. However, these States are now being asked by EPA to oversee the correction of data in the e-Manifest system, resulting in additional burden.

While there were a large number of data errors identified, it is important to note that ASTSWMO believes the data in the e-Manifest system is still beneficial. To keep the data analysis manageable, the Task Force counted any error on the manifest as one error. However, manifests have many data fields and many manifests include multiple line items (e.g., different types of waste being shipped). The Task Force's conclusion is not that the data on 68% of manifests is unusable. Rather, the conclusion is that one or more pieces of data on those manifests is incorrect, causing significant resources to be invested by States to further evaluate the data prior to being able to use it effectively. Had the Task Force identified the number of errors out of the total number of data fields on the manifest, the error rate likely would be lower; however, that level of analysis was not practical.

Additionally, through processing biennial reports, the PIM Task Force has identified a large number of manifests missing from the e-Manifest system that are required to be submitted. EPA has implemented a "missing manifest" project, in which States can provide the missing manifests to EPA. In turn, EPA provides the missing manifest information to the appropriate authorized State for follow-up investigation.

ASTSWMO commends EPA in creating a mechanism for the missing manifests to be shared. However, the PIM Task Force has identified a larger issue related to manifests missing from the e-Manifest system. TSDFs are choosing not to upload manifests from very small quantity generators (VSQGs), as EPA guidance[2] indicates that only manifests required by State or Federal law must be uploaded to the e-Manifest system. The guidance further states, "Users who use the manifest voluntarily for their waste shipments (i.e., the manifest is not required by federal or state law) are not required to submit their manifests to the e-Manifest system."

This guidance appears to be inconsistent with the regulatory language in 40 CFR 264.71(a)(2), which states "If a facility receives hazardous waste accompanied by a manifest, the owner, operator, or his/her agent must" upload the manifest. By contrast, the regulation does not state, "If a facility receives hazardous waste for which a manifest is required by State or Federal law or regulation…". As such, ASTSWMO's Hazardous Waste Subcommittee believes the regulatory language is clear that if a manifest is used, even if it is "voluntary," the manifest must be submitted to the e-Manifest system.

ASTSWMO believes EPA's guidance related to "voluntary" use of the manifest fails to achieve the goal of having one complete set of manifest data and reduces the information available to those States who collected manifests prior to the implementation of the e-Manifest system. Since designated facilities can now choose whether to upload a manifest, State compliance monitoring programs can no longer identify if large amounts of waste are being shipped by entities claiming to be VSQGs. Inspections of VSQGs are not required by Federal law and funding is not provided by EPA. Potential non-compliance at these sites may no longer be identified and addressed as it was prior to the implementation of the e-Manifest system. If sites are generating hazardous waste in excess of VSQG limits without notifying the State program, it can be inferred that the facility is also not complying with other substantive regulatory requirements and therefore increasing the risk of potential negative impacts to human health and the environment.

Position

ASTSWMO appreciates its partnership with EPA and their ongoing support to States and the regulated community. The following recommendations for improving e-Manifest data quality are intended to further realize the benefits of the e-Manifest system. The recommendations fall under the following categories:

- Regulatory,
- Enforcement,
- Outreach, and
- Guidance.

Regulatory

40 CFR 264.71(a) requires the TSDF to submit manifests to the e-Manifest system. This requirement does not address situations where the data uploaded by the TSDF is incorrect. It also does not provide State enforcement authority should States identify the uploaded data is incorrect. ASTSWMO is recommending EPA consider additional regulatory language or clarifying regulatory language to include the following:

[2] EPA's Frequently Asked Questions Questions #8 and #9

- TSDFs to upload a legible scan of the manifest and corrected manifest, as appropriate,
- TSDFs to ensure accurate data reflective of the entire manifest is uploaded correctly into e-Manifest system, and
- TSDFs to correct errors in the e-Manifest system within 14 days of request.

Enforcement

Since the launch of the e-Manifest system, it was widely thought that the States did not have enforcement authority related to the e-Manifest system, as those provisions were not delegated to State regulatory programs. EPA has since clarified that States have the authority to pursue enforcement if a manifest is not uploaded to the e-Manifest system.

However, if the manifest is uploaded to the e-Manifest system, but the data is incorrect, only EPA has enforcement authority to address the incorrect data submission. Often, if a State identifies that a manifest has not been uploaded to the e-Manifest system, the TSDF responsible for uploading the manifest is not located in their State and thus the State cannot pursue enforcement related to the missing manifest. The only option the State has is to refer it to the State regulatory program where the TSDF is located. However, some States do not have resources available for e-Manifest enforcement or outreach and thus the issue may not be corrected. This impacts State regulatory programs who rely on the data and EPA's e-Manifest system. If the manifest is not uploaded to the system, the TSDF responsible for uploading the manifest will not be assessed the appropriate associated manifest fee. States do not have the authority to enforce e-Manifest fee provisions, therefore ASTSWMO is recommending that EPA evaluate whether it is appropriate to use its enforcement authorities related to e-Manifest fees to address TSDFs that are not uploading the required manifests.

Outreach

ASTSWMO recommends that EPA look at current information available on the e-Manifest system and consider updating or adding information to highlight and focus on better data quality. There needs to be clear instructions and expectations as to what information from the paper manifest has to be included in the data file submitted to the e-Manifest system and how corrections to a paper manifest are made once received at the designated facility. It may also be beneficial to build data quality verifications into the e-Manifest system to flag certain errors before submission (e.g., large quantities that may be a typographical error and flagging addresses for which an EPA ID number exists, but is not included in the data file).

ASTSWMO also recommends more outreach to hazardous waste generators to inform them of the liability associated with incorrect data in the e-Manifest system and their ability to review and correct manifests. It would be helpful to create reports that could be used by the States or industry users to better identify discrepancies within the data that need further investigation and potential correction. ASTSWMO members stand ready to assist in this outreach, but believe consistent messaging nationwide is important.

Guidance

ASTSWMO recommends that EPA evaluate its guidance in e-Manifest Frequently Asked Questions #8 and #9 related to uploading of "voluntary" manifests so that guidance is consistent with the regulatory language in 40 CFR 40 CFR 264.71(a)(2)(v).

ASTSWMO is prepared to assist EPA with additional input as it considers these recommendations to implement enhancements to the e-Manifest system.

Approved by the ASTSWMO Board of Directors on July 24, 2024.
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