ENVIRONMENTAL PROTECTION AGENCY

40 CFR Parts 260, 262, 263, 264, 265, and 271

[EPA–HQ–RCRA–2001–0032; FRL–9828–9]

RIN 2050–AG20

Hazardous Waste Management System; Modification of the Hazardous Waste Manifest System; Electronic Manifests

AGENCY: Environmental Protection Agency (EPA).

ACTION: Final rule.

SUMMARY: The Environmental Protection Agency (EPA or the Agency) is establishing new requirements that will authorize the use of electronic manifests (or e-Manifests) as a means to track off-site shipments of hazardous waste from a generator's site to the site of the receipt and disposition of the hazardous waste. This final rule also implements certain provisions of the Hazardous Waste Electronic Manifest Establishment Act, Public Law 112–195, which directs EPA to establish a national electronic manifest system (or e-Manifest system), and to impose reasonable user service fees as a means to fund the development and operation of the e-Manifest system. The requirements announced here clarify explicitly that electronic manifest documents obtained from the Agency's national e-Manifest system and completed in accordance with today's regulation, are the legal equivalent of the paper manifest forms (EPA Forms 8700–22 and 8700–22A) that are currently authorized for use in tracking hazardous waste shipments. Upon completion of the e-Manifest system, the electronic manifest documents authorized by this final regulation will be available to manifest users as an alternative to the paper manifest forms, to comply with federal and state requirements respecting the use of the hazardous waste manifest. Users who elect to opt out of the electronic submittal to the e-Manifest system may continue to use the paper manifest to track their shipments during transportation, which then will be submitted by the designated facility for inclusion in the e-Manifest system. EPA recognizes that there will be a period of transition to electronic submittals and the Agency will, as we implement e-Manifest, assess what measures might be effective to expedite the transition from paper manifests to electronic manifests. This final regulation further clarifies those electronic signature methods that the Agency recommends for executing electronic manifests in the first generation of the national e-Manifest system. This regulation also specifies how issues of public access to manifest information will be addressed when manifest data are submitted and processed electronically. Finally, this regulation announces, consistent with the mandate of the Hazardous Waste Electronic Manifest Establishment Act, that the final electronic manifest requirements promulgated today will be implemented in all states on the same effective date for the national e-Manifest system. Authorized states must adopt program revisions equivalent to and consistent with today's federal requirements, but EPA will implement these electronic manifest regulations unless and until the states are fully authorized to implement them in lieu of EPA.

DATES: This final rule is effective as a final agency action on August 6, 2014. However, the implementation and compliance date for these regulations will be delayed until such time as the e-Manifest system is shown to be ready for operation and the schedule of fees for manifest related services has been announced. EPA will publish a further document subsequent to this rule's effective date to announce the user fee schedule for manifest related activities. This document will also announce the date upon which compliance with this regulation will be required and upon which EPA will be ready to receive electronic manifests through the national e-Manifest system, in accordance with 40 CFR 3.2(a)(2).

ADDRESSES: EPA has established a docket for this action under Docket ID No. RCRA–2001–0032. All documents in this docket are listed in the *www.regulations.gov* index. Although listed in the index, some information is not publicly available, e.g., confidential business information (CBI) or other information for which disclosure is restricted by statute. Certain other material, such as copyrighted material, is not placed on the Internet and will be publicly available only in hard copy form. Publicly available docket materials are available either electronically at *www.regulations.gov* or in hard copy at the Resource Conservation and Recovery Act (RCRA) Docket, EPA/DC, EPA West, Room 3334, 1301 Constitution Ave. NW., Washington, DC. The Public Reading Room is open from 8:30 to 4:30 p.m., Monday through Friday, excluding legal holidays. The telephone number for the Public Reading Room is (202) 566–1744, and the telephone number for the RCRA Docket is (202) 566–0270. Copies cost $0.15/page.

FOR FURTHER INFORMATION CONTACT: For further information regarding specific aspects of this document, contact Richard LaShier, Office of Resource Conservation and Recovery, (703) 308–8796, *lashier.rich@epa.gov,* or Bryan Groce, Office of Resource Conservation and Recovery, (703) 308–8750, *groce.bryan@epa.gov.* Mail inquiries may be directed to the USEPA, Office of Resource Conservation and Recovery, (5304W), 1200 Pennsylvania Ave. NW., Washington, DC 20460.

SUPPLEMENTARY INFORMATION:

I. General Information

A. Who is affected by this rule?

This rule affects approximately 160,000 entities in at least 45 industries that are involved in shipping off-site, transporting, and receiving approximately 5.9 million tons of RCRA hazardous wastes annually (non-wastewaters and wastewaters). These entities currently use between 4.6 and 5.6 million EPA Uniform Hazardous Waste Manifests (EPA Form 8700–22 and continuation sheets EPA Form 8700–22A) to track hazardous waste shipments from the site of generation to sites of treatment, storage, or disposal. These entities include but are not limited to: Hazardous waste generators; hazardous waste transporters; and owners and operators of treatment, storage and disposal facilities (TSDFs). The rule also affects state government agencies with authorized RCRA programs under 40 CFR Part 271, and governmental enforcement personnel dealing with hazardous waste transportation issues, who regularly use data from manifest for compliance monitoring, program management, and other purposes.

Significantly, this rule establishes the legal and policy framework for the national e-Manifest system authorized by the e-Manifest Establishment Act. This rule will allow manifest users to use an electronic hazardous waste manifest system with a goal of replacing the paper manifest forms. Once the national e-Manifest system is available, the use of electronic manifests will be the expected means for tracking hazardous waste shipments, although the Act and our regulations will allow users to currently opt out of the electronic manifest and continue to use the paper forms. We expect the use of electronic manifests to become the predominant means for tracking hazardous waste shipments. As we implement e-Manifest, EPA will assess what measures might be effective to

expedite the transition from paper manifests to electronic manifests, and may take input on fee incentives (e.g., shifting a greater portion of the system development and operating cost recovery to paper manifests) or other means to meet this end. Thus, it is EPA's goal to move to a fully electronic process and to maximize the use of electronic manifests, so that the full program benefits and efficiencies of electronic manifests can be realized as quickly as possible. If you have any questions regarding the applicability of this rule to a particular entity, consult the people listed under **FOR FURTHER INFORMATION CONTACT**.

B. How can I get copies of this document and other related information?

1. *Docket.* EPA has established an official public docket for this action under Docket number RCRA–2001–0032. The official public docket consists of the documents specifically referenced in this action, any public comments received, and other information related to this action. Although a part of the official docket, the official public docket does not include CBI or other information for which disclosure is restricted by statute. The official public docket is the collection of materials that is available for public viewing at the EPA Docket Center (EPA/DC), EPA West, Room 1334, 1301 Constitution Ave. NW., Washington, DC. The EPA Docket Center Reading Room is open from 8:30 a.m. to 4:30 p.m., Monday through Friday, excluding legal holidays. The telephone number for the Public Reading Room is (202) 566–1744 and the telephone number for the EPA Docket Center is (202) 566–0270.

2. *Electronic Access.* You may access this Federal Register document electronically through the EPA Internet under the ''Federal Register'' listings at *http://www.epa.gov/fedrgstr/.* This Federal Register also may be accessed from EPA's main manifest Web page at *http://www.epa.gov/epaoswer/hazwaste/gener/manifest/index.htm.* An electronic version of the public docket is available through EPA's electronic public docket and comment, EPA Dockets. You may use EPA Dockets at *http://www.epa.gov/edocket/* to view public comments, access the index listing of the contents of the official public docket, and access those documents in the public docket that are available electronically. Although not all docket materials may be available electronically, you may still access any of the publicly available docket materials through the docket facility identified above. Once in the system, select ''search,'' then key in the appropriate docket identification number.

II. Background

A. Proposed Manifest Revisions and Electronic Manifest Standards

On May 22, 2001, EPA published a notice of proposed rulemaking (NPRM) that proposed several major revisions to the hazardous waste manifest system (66 FR 28240). The May, 2001 proposed rule included two distinct types of manifest system revisions: (1) Revisions to the manifest form itself, including the proposed adoption of a standardized manifest form with more consistent procedures for using the manifest form to track waste shipments; and (2) proposed revisions aimed at adopting an electronic manifesting approach that would allow waste shipments to be tracked electronically, thereby mitigating the burdens and inefficiencies associated with the use of paper manifest forms.

With respect to electronic manifesting, the May 2001 NPRM proposed a standards-based, decentralized approach under which EPA would establish and maintain the standards that would guide the development of electronic manifest systems by private sector entities that decided to participate in the system. EPA assumed that multiple electronic manifest systems adhering to EPA's standards might be developed by large generators, transporters, waste management firms, or information technology (IT) vendors desiring to market electronic waste tracking services. EPA further assumed that its role with respect to the electronic manifest would be limited to maintaining the standards that the private developers' systems would adhere to, and evaluating these systems to ensure their compliance with the Agency's standards. EPA did not anticipate or discuss in the May 2001 proposal that the Agency itself would develop a national electronic manifest information technology solution that would centralize and standardize the means for creating, transmitting, and collecting electronic manifests. Though in 2001 EPA did contemplate that the transition to fully electronic systems would take some time to implement, the Agency stated its desire to transform the manifest system quite dramatically from its current paper-based approach to one that supports paperless manifest completion and transmission. [66 FR 28240 at 28267].

In announcing the May 2001 proposed approach to the electronic manifest, EPA proposed standards in 3 distinct areas: (1) Standard electronic data exchange formats for the manifest; (2) electronic signature methods that could be used to execute manifest signatures electronically; and (3) standard system security controls and work flow procedures to ensure the reliable and consistent processing of manifest data by electronic manifest systems, as well as to ensure the availability and integrity of manifest data submitted through the electronic systems. The primary objective of the May 2001 proposed rule was to propose the necessary changes to the manifest regulations so that systems adhering to these standards would produce and retain electronic manifests that would be recognized as legally valid—that is, as valid as the conventional paper manifests signed with ink signatures. The May 2001 proposed rule further proposed regulatory amendments describing the procedures for using electronic manifests, as well as regulatory changes necessary to eliminate impediments in the existing regulations to the use of electronic manifests.

In response to the May 2001 electronic manifesting proposal, EPA received some 64 sets of public comments from affected or interested members of the public. While there was strong and general support for the concept of the electronic manifest, commenters took issue with many aspects of the proposed rule standards and approach. Many of the commenters raised issues and concerns that challenged the premise that a decentralized approach was the most effective means to implement the electronic manifest. Several commenters criticized directly the decentralized approach, maintaining that the proposed approach would bring about the development of several inconsistent systems that would not be able to interoperate with each other. In particular, commenters suggested that inconsistent systems would be of little value to companies that engage in large numbers of inter-company waste transactions. These commenters questioned the cost-effectiveness of an approach that would lead to duplicative, but inconsistent information systems. These commenters suggested that the development of one national system that would process electronic manifests securely and consistently would be a more cost-effective and efficient means for proceeding with the electronic manifest.

Other commenters criticized the decentralized approach more for the rigor and prescriptiveness of the standards that EPA proposed as the

means to guide the development of private systems. Several of these commenters took particular exception to the prescriptiveness of the system security and operational controls that EPA included in the proposal in order to ensure a basic level of consistent and secure operations between systems. These commenters further pointed out that having such detailed standards codified in EPA's regulations might frustrate the ability of electronic manifest systems to adapt to new technologies that would almost certainly be introduced over time.

Finally, several more commenters questioned the Agency's premise that a significant number of private entities would step in to actually develop electronic manifest systems. These commenters emphasized that the cost of developing a private system meeting EPA's standards could be prohibitive for any one company to assume. According to these commenters, participation in the electronic manifest by private firms under the proposed approach might be very limited, thereby negating EPA's assumption that significant numbers of manifests would actually be transmitted electronically.

In summary, commenters on the May 2001 proposed rule generally suggested that one national e-Manifest system would be preferable to the proposed approach, as it would provide a more consistent, secure and cost-effective solution that would be accessible to more users. Overall, the commenters also expressed the view that a national or centralized electronic manifest system would offer greater benefits to both manifest users and regulators, such as one-stop manifest reporting, more effective inspection and enforcement activities by RCRA regulators, the possibility of nearly real-time shipment tracking services, and the possible consolidation of duplicative federal and state systems now in place to collect and manage manifest data and data collected for the RCRA biennial reporting requirements.

EPA was persuaded by these numerous comments to reconsider the merits of the proposed, decentralized approach. We recognized that we could not proceed to a final rulemaking on the electronic manifest without subjecting the electronic manifest options to additional analysis and without conducting additional stakeholder outreach on program options and preferences. As the public comments raised significant substantive issues, EPA decided to separate the form revisions content of the manifest rulemaking from the electronic manifest content. We announced final action on the manifest form revisions on March 4, 2005 (70 FR 10776), while deferring final action on the electronic manifest until the completion of stakeholder outreach and analysis of the options suggested by the commenters and stakeholders. A new paper manifest form, with fully standardized data elements for tracking off-site shipments of hazardous waste, went into effect across the nation on September 5, 2006.

B. May 2004 Stakeholder Meeting

On April 1, 2004, EPA provided notice in the **Federal Register** of its plans to conduct a two-day public meeting with stakeholders on the future direction of the electronic manifest project (69 FR 17145). The meeting was held in Washington, DC on May 19–20, 2004, and was attended by representatives of hazardous waste generators, hazardous waste transporters, and waste management firms, as well as EPA and state agency officials, interested trade organizations, and IT vendors. In conducting this meeting, EPA was interested in identifying alternatives to the decentralized, standards-based approach that we proposed in May 2001. In particular, we were interested in gauging the level of interest in the centralized system approach that commenters suggested in response to the May 2001 proposed rule. In addition to discussing alternative approaches to the electronic manifest, we also engaged stakeholders in focused discussions over the two days on the technical, policy, governance, and funding issues that would need to be addressed were a centralized system to be developed.

We gleaned several key messages from the May 2004 public meeting. First, we learned that there was generally a strong consensus among the affected interests in favor of a centralized, national e-Manifest system that would consistently and securely generate and process electronic manifests. We heard points discussed in favor of both a privately-hosted and an EPA-hosted solution, and even some hybrid approaches, but there was no question that a national system was preferred strongly over the decentralized approach that EPA proposed in May 2001. Second, stakeholders generally agreed that the electronic manifest should be an optional means to track waste shipments and receipts for the regulated RCRA hazardous waste handlers, rather than a technology requirement that would be mandated for the user community to utilize. Third, there was agreement among stakeholders that the electronic manifest should be implemented as a scalable web-based application that could expand perhaps to include additional services, but that the initial implementation should be focused on the core waste tracking functions of the hazardous waste manifest.

However, one of the most significant messages from the May 2004 meeting centered on the acknowledgement of the manifest user community that the development and operation of the e-Manifest system should be funded through service fees. Statements offered by manifest users affirmed that the current paper manifest system gives rise to substantial paperwork burdens, particularly for the heaviest users. The users suggested that they would be willing to pay reasonable service fees as the means to fund the e-Manifest system, if they could also be assured that the collected fees would be used only for the payment of e-Manifest system costs, and not diverted to other program accounts. These users also stated that they expected that any service fee arrangements, including the collection of fees and the reporting of expenditures, would be handled in a very transparent manner so that it may be demonstrated to the manifest user community that they are receiving value for the fees they contribute to fund the system. The full proceedings of the May 2004 public meeting have been posted on the EPA Web site at *http://www.epa.gov/epaoswer/hazwaste/gener/manifest/e-mat.htm*. The proceedings and comments submitted to EPA in response to this meeting are also included in the docket for this action.

C. April 18, 2006 Notice and Request for Comment

EPA found the comments and other input from the May 2004 public meeting to be persuasive. As a result, EPA tentatively decided in November 2004 to pursue the establishment of a national e-Manifest system, if a means could be found to establish such a system on a self-sustaining or fee-funded basis. This represented a change in direction from the decentralized approach that we proposed in May 2001. While a number of commenters suggested a centralized approach in the comments they submitted to EPA in response to the May 2001 proposed rule, EPA had not specifically identified in the earlier proposed rule the centralized approach as an option that was under consideration by the Agency. Therefore, EPA published a notice of data availability (NODA) and request for comment in the **Federal Register** on April 18, 2006 (74 FR 19842), to signal to the public on the rulemaking record that EPA's preferred option was now the

establishment of a national e-Manifest system to be hosted by EPA and funded by service fees that would be paid by those waste handlers who opt to use electronic manifests. The April 2006 notice identified and explained the information that had been placed in the docket on this issue as a result of the May 2004 public meeting, and it offered the public an opportunity to comment on the record on the fundamental issue of whether a centralized e-Manifest system is the approach we should adopt in this final rule. The April 18, 2006 notice further explained that EPA's ability to proceed with the development of the national e-Manifest system (and a final regulation) was contingent upon new legislation being enacted in the interim that would establish EPA's authority to enter into a contract with one or more information technology vendors that would be funded by appropriations and/or the electronic manifest service fees that EPA would be authorized to collect from users of the e-Manifest system for payment of e-Manifest system costs. At the time of the April 18, 2006 notice, EPA lacked explicit statutory authority to collect or retain user charges for the payment of the development and operation costs related to the e-Manifest system. In addition, EPA stated in that notice that it expected to deal with any claims for business confidentiality of manifest data under the existing 40 CFR Part 2 procedures, under which any claim of business confidentiality of manifest data would need to be asserted by a person at the time of submission of an electronic manifest to EPA, or else the claim would be waived.

Comments received in response to the April 2006 notice were highly supportive of the Agency's newly announced preference for the development of a consistent national electronic manifest system. Commenters from the hazardous waste industry expressed strong support for the national e-Manifest approach. These commenters also expressed support for making electronic manifests available to users, at least initially, as an option rather than a mandatory requirement. Several waste industry commenters expressed their continued support for user fee funding of the e-Manifest system, while also expressing concerns that members of the waste industry may want to claim some manifest data to be confidential business information or CBI.

Hazardous waste generators within the private sector and within the Federal sector likewise submitted comments showing generally strong support for a centralized or national system approach to electronic manifesting. The comments of the generators generally supported the idea of electronic manifests being an option to paper manifests, while a few commenters indicated that electronic manifest use should be mandatory for all. While there was generally strong support among generators for the program direction announced in the April 2006 notice, a few generators also expressed concerns that the overlapping requirements imposed by the Department of Transportation's (DOT's) hazardous materials shipping paper might make the use of electronic manifests less attractive, and that the new system could create unintended consequences, such as unanticipated burdens, data security issues, access issues for responders, and compliance issues when the system is down or data are lost.

Members of the hazardous waste transportation industry expressed general support for the national system direction as well, but an association representing domestic truckers qualified its support with concerns about coordination with the DOT shipping paper, and concerns that hazardous waste transporters should not be the entities bearing user fee expenses. A trade association representing domestic railroads expressed support for the electronic manifest system, particularly if it were able to import all shipment data directly into the rail industry's existing electronic waybill system, and transmit the data directly between generators and waste management facilities, so that the railroads would be relieved of all requirements to process paper manifests.

State comments on the April 2006 notice also generally supported the concept of a national electronic manifest system. State comments emphasized that it was important that the new system be able to address both Federal RCRA and non-RCRA or state-only wastes subject to the manifest requirements, and that the system be able to accommodate State facility and generator ID numbers, and state specific waste codes. Most significantly, the states emphasized that the system should be established to incorporate data from electronic manifests and from those paper manifests that continue in use. This would enable a unified national data system that included all manifest data, and avoid the need to maintain dual tracking systems for electronic and paper documents. The state commenters generally favored establishing the electronic manifest as an option for users to choose, although there was a minority view stating that use of electronic manifests should be mandatory at least for some facilities. States also favored the proposal to fund the e-Manifest system through the collection of user fees. A few state commenters indicated that it was not clear how EPA intended the new system to deal with several waste types, such as used oil, universal wastes, and wastes generated by conditionally exempt small quantity generators (CESQGs). Finally, the state comments on confidentiality of information adopted a position strongly at odds with industry's position on CBI, as several states indicated that it is their policy to treat manifest data as public information and disclose it freely to the public.

D. February 26, 2008 Notice and Request for Comment

While the April 2006 notice elicited many comments supporting a national e-Manifest system, and supporting the optional use of electronic manifests, the record generated by the 2006 notice impressed EPA that we needed to give more attention to two issues: (1) The concern that an optional electronic manifest could give rise to dual electronic and paper systems, and (2) the conflicting positions expressed by industry and state commenters on addressing CBI claims for manifest data. Therefore, EPA issued another notice of data availability and request for comment specific to these issues in the February 26, 2008 **Federal Register**, 73 FR 10204.

In the February 2008 notice, EPA indicated its desire to establish a unified electronic data system that would collect data from all manifests. We requested public comments on our preferred approach that would require the designated facilities named on any paper manifest to submit the top copy of the manifest to the e-Manifest system operator within 30 days of receipt of the waste shipment. We discussed how this requirement could be satisfied by mailing the paper copy to the system operator, or, by transmitting an image file and perhaps a data file in lieu of mailing a paper copy. This would enable the system to enter data from all paper manifests into the national data repository that EPA would establish with e-Manifest. In connection with the submission of paper manifests or paper manifest data to the e-Manifest system, EPA further indicated that it would charge an appropriate service fee to cover the processing costs involved with collecting paper manifests and processing their data. 73 FR 10204 at 10207.

With respect to the CBI issue, EPA proposed in the February 2008 notice a

categorical determination that the information contained in individual manifests is essentially public information that cannot be the subject of a CBI claim. We requested public comment on this determination. Id. at 10208. However, with respect to the aggregate data from the multiple manifests or reports that might be produced by querying the system, EPA acknowledged that there was a concern within the hazardous waste industry that industry members might try to use the national system to gain customer list information about their competitors. Therefore, EPA requested comments on whether the ability to obtain such aggregate data from the system or from EPA under the Freedom of Information Act (FOIA) might give rise to a CBI concern surrounding customer information, and how substantial the competitive harm would be to a company should disclosure occur. In addition to requesting that the industry provide comments that might substantiate their customer list concerns, we further requested comment on what mitigation measures (e.g., redaction) might be adopted in the final regulation should EPA determine that there was a valid concern that CBI would be disclosed to competitors. 73 FR 10204 at 10210.

The comments received in response to the February 2008 notice are summarized in a Response to Comments document included in the record for today's final regulation. Significant comments addressing the proposal to require the collection of paper manifests are summarized in section III.K. of this preamble, while those significant comments addressing the CBI issues raised in the February 2008 notice are summarized in section III.I. of this preamble discussion.

E. Electronic Manifest Legislation

During September 2012, the 112th Congress enacted legislation entitled the Hazardous Waste Electronic Manifest Establishment Act, Public Law 112–195 (hereafter, the e-Manifest Act). This legislation was signed into law by President Obama on October 5, 2012. This legislation was enacted into law expressly to direct EPA to establish a national e-Manifest system, as well as to facilitate the establishment of the e-Manifest system by providing EPA with explicit statutory authority needed to implement the electronic manifest in a self-sustaining manner. Among other things, the e-Manifest Act provides EPA with these new authorities:

- Section 2(g)(1)(A) directs EPA to promulgate final regulations, after consultation with the Secretary of Transportation, authorizing the use of electronic manifests within 1 year of enactment, i.e., by October 5, 2013.
- Section 2(b) directs the Agency to establish an e-Manifest system that may be used by any user within three years from the date of enactment of the Act, i.e., by October 5, 2015.
- Section 2(c) of the e-Manifest Act authorizes EPA to impose and collect reasonable service fees necessary to pay the costs of implementing the e-Manifest system, including any costs incurred in collecting and processing data from any paper manifests submitted to the system, and to deposit these fees into a special revolving System Fund (or Fund) in the U.S. Treasury authorized under section 2(d) for the receipt of these funds.
- Section 2(d)(2)(A) of the e-Manifest Act authorizes the Secretary of the Treasury, upon request by the Administrator of EPA, to transfer to EPA such amounts from the Fund that Congress has appropriated to the Agency to pay the costs incurred in developing, operating, maintaining, and upgrading the e-Manifest system. In accordance with section 2(d)(2)(B) of the e-Manifest Act, such funds will be available to EPA to spend on system related costs without fiscal year limitation.
- Section 2(e) of the e-Manifest Act authorizes EPA, after consultation with the Secretary of Transportation, to enter into one or more performance-based IT contracts, with a term of up to 10 years, under which the contractor(s) would agree to provide electronic manifest related services. The e-Manifest Act provides that a primary measure of successful performance of the contract(s) shall be the development of a system that is performance-based, identifies objective outcomes, and contains performance standards that may be used to measure achievement and the goals to evaluate the success of the contractor(s), taking into consideration that a primary measure of successful performance shall be the development of a system that:
  - Meets the needs of the user community, including states that rely on manifest data,
  - Attracts sufficient user participation and service fee revenues to ensure the viability of the system,
  - Decreases the administrative burden on the user community, and
  - Provides waste receipt data for the RCRA Biennial Report.
- Section 2(d)(3)(A) requires the submission to Congress every two years a report that includes an accounting of the fees collected and expenditures made over the reporting period, as reflected in the system's financial statements.
- Section 2(d)(3)(B) provides for an annual audit by the EPA Office of Inspector General on the fees collected and disbursed under the system, the reasonableness of the fee structure then in place, the level of use of the system by the users, and the success to date of the system in improving the efficiency of waste shipment tracking and in operating the system on a self-sustaining basis.
- Section 2(i) of the e-Manifest Act authorizes appropriations for each of fiscal years 2013–2015 for system start-up activities, with these development costs as well as operation and maintenance costs ultimately being offset by the service fees collected from manifest users under section 2(c) of the e-Manifest Act.
- Section 2(e)(3)(C)(iv) of the e-Manifest Act provides that one of several measures of successful contract performance for the e-Manifest system IT contract shall be the development of a system that provides the waste receipt data applicable to the RCRA biennial reports required under RCRA section 3002(a)(6).
- Section 2(f) of the e-Manifest Act directs EPA to establish within three years of enactment of the law, an Advisory Board [1] consisting of an EPA Chair and eight others, at least two of whom shall have expertise in information technology, at least three of whom shall have experience in using or represent users of the manifest system, and at least three of whom shall be a State representative responsible for processing manifests. The e-Manifest Act requires that the Board meet annually to advise EPA on the effectiveness of the e-Manifest system and to provide recommendations to EPA relating to the system.[2]
- Section 2(g)(1)(B) of the e-Manifest Act authorizes EPA to promulgate regulations which may include such requirements as the Administrator determines to be necessary to facilitate the transition from the use of paper manifests to the use of electronic manifests, or to accommodate the processing of data from paper manifests to the electronic manifest system, including requirements that users of

[1] The Advisory Board is to be known as the Hazardous Waste Electronic Manifest System Advisory Board (also referred to as the System Advisory Board throughout this preamble).

[2] The Advisory Board must be established within 3 years of enactment of the e-Manifest Act, or by October 5, 2015. The establishment of the Advisory Board will be announced in a subsequent notice, and will not be discussed further in this initial regulation addressing the legal and policy framework for the e-Manifest.

paper manifests submit to the system copies of the paper manifests for data processing purposes.

- Section 2(g)(2) of the e-Manifest Act provides that EPA's final regulations (i.e., this rule) carrying out the legislation shall take effect in each state on the effective date specified in EPA's regulation, and that EPA shall carry out the electronic manifest final regulations unless and until the authorized state program is fully authorized to carry out the electronic manifest regulations in lieu of the EPA.
- Section 2(g)(1)(B) authorizes EPA to collect for data processing purposes any paper manifests that continue in use after the implementation of electronic manifests, so that there will be one unified data system managing the data from both electronic and paper manifests.

F. Decision To Establish a National Electronic Manifest System

In order to implement the mandate under section 2(b) of the Hazardous Waste Electronic Manifest Establishment Act, and to respond to the many commenters and stakeholders who urged EPA to implement a national e-Manifest system approach during our prior national meetings and during our regulatory comment periods, EPA is announcing its final decision to establish a national e-Manifest system. EPA currently plans to host the e-Manifest system on the Agency's Central Data Exchange (CDX)/National Environmental Information Exchange Network (Exchange Network) architecture or an equivalent architecture which EPA might establish for the e-Manifest System to support the creation, transmission, and reporting of electronic manifests. The system would also establish for the first time a national repository of manifest data, and a means to efficiently share manifest data with our RCRA authorized state partners and with the public. EPA will initiate soon a procurement action that will lead to the award of a contract(s) to one or more IT vendors to build and operate the e-Manifest system on behalf of EPA. Consistent with the funding mechanism established by Congress in sections 2(c), 2(d), and 2(i) of the e-Manifest Act, the e-Manifest system and the performance based contract authorized under § 2(e) of the e-Manifest Act will be funded by the service fees that will be charged to users of electronic and paper manifests, although the initial system start-up costs will be funded, at least in part, by appropriations that will later be offset by service fees.

We believe that the fee-funded nature of the electronic manifest IT contracting method will incentivize the contractor to develop a system with features that will be sufficiently attractive to users to warrant their participation in the e-Manifest system and their payment of service fees. Therefore, we believe that through the collaborative efforts of EPA, the states, the user community, and the IT contractor(s), an e-Manifest system can be established and sustained over the years by a stable source of funding contributed by the users. Since the fees may also need to be adjusted over time to accommodate fluctuations in usage of the e-Manifest system, or upward or downward influences on system costs, the fee-funded approach should be sufficiently flexible to respond to change. Moreover, as required under section 2(d)(3) of the e-Manifest Act, EPA will prepare the financial statements, accounting reports, and annual audit reports that are prescribed for oversight purposes. This oversight will serve to assure the affected users that the collected service fees are being applied appropriately, that fees collected are sufficient (and not excessive) to cover the costs incurred, and that the program is providing value to the users and the regulatory agencies.

While the establishment of the e-Manifest system announced today will satisfy one of several mandates of the e-Manifest Act, it will also confer substantial benefits. These benefits have always been the key drivers for the e-Manifest project, and they were the main impetus for the Congress to take interest in enacting the e-Manifest legislation. The e-Manifest system should significantly improve the delivery of waste tracking services to the public and the delivery of high quality manifest data to manifest users and to government officials, while substantially reducing the costs relative to the paper manifest system now in place.

Prominent among the non-economic benefits are: (1) Improved access to higher quality and more timely waste shipment data; (2) nearly real-time shipment tracking capabilities for users; (3) enhanced manifest inspection and enforcement capabilities for regulators; (4) more rapid notification and responses to problems or discrepancies encountered with shipments or deliveries; (5) greater access for emergency responders about the types and sources of hazardous waste that are in movement between generator sites and waste management facilities; (6) one-stop manifest copy submission to EPA and to all interested states through the Exchange Network architecture; (7) greater transparency for the public about completed hazardous waste shipments to or from their communities; and (8) new data management possibilities that could ultimately simplify the RCRA biennial reporting requirements [3] and consolidate various federal and state reporting requirements for domestic and transboundary shipments.

EPA anticipates that once fully operational, electronic reporting should yield significant savings over the current paper manifest and will ease the reporting burden. When EPA conducted a 2009 Alternatives Analysis evaluating several e-Manifest system approaches and their relative costs and benefits, we concluded then that a fully operational e-Manifest would produce annual burden hour savings of between 300,000 and 700,000 burden hours, and cost savings exceeding $75 million per year.[4] The Agency believes that there is a sound business and regulatory case for proceeding with the development of an e-Manifest system.

With the promulgation of today's final rule carrying out the requirements of the e-Manifest Act, the Agency will eliminate the remaining regulatory impediments to implementing an electronic manifest. In the discussion that follows, EPA will explain how we intend to implement the national e-Manifest system, and we will explain in greater detail how we will amend the existing regulations so that they support the use of electronic manifests. To achieve EPA's goal of a full electronic reporting system, EPA will develop an e-Manifest system that will support electronic manifests as the expected type of manifest submission but that will allow facilities to opt out of the electronic manifest and submit paper manifests during a period of transition. The Congressional authority provided to the Agency to develop the e-Manifest system allows EPA to include requirements that EPA determines to be necessary to facilitate the transition from the use of paper to electronic manifests or to accommodate the processing of data of paper manifests in

[3] While the integration of e-Manifest and the collection of waste receipt data for the biennial report is included in the Act as one of several measures of successful performance of the e-Manifest IT contract, the details of biennial report integration are not included in today's rule but are being deferred to a later phase of e-Manifest implementation.

[4] While EPA will include more current and detailed estimates of the anticipated costs and benefits from e-Manifest in the Regulatory Impact Analysis (RIA) that will accompany the upcoming Fee Rule, we have included these 2009 estimates as rough benchmarks for the magnitude of burden and cost savings that we believe are likely to result from a fully operational system that is broadly adopted by the user community.

the electronic system [Sec. 2(g)(1)(B)]. Significantly, this rule establishes the legal and policy framework for the national e-Manifest system authorized by the e-Manifest Establishment Act. This rule will allow manifest users to use an electronic hazardous waste manifest system with a goal of replacing the paper manifest forms. Once the national e-Manifest system is available, the use of electronic manifests will be the expected means for tracking hazardous waste shipments, although the Act and our regulations will allow users to opt out of the electronic manifest and continue to use the paper forms. We expect the use of electronic manifests will become the predominant means for tracking hazardous waste shipments. As we implement e-Manifest, EPA will assess what measures might be effective to expedite the transition from paper manifests to electronic manifests, and may take input on fee incentives (e.g., shifting a greater portion of the system development or operating cost recovery to paper manifest submissions) or other means to meet this end. Thus, it is EPA's goal to move to a fully electronic system and to maximize the use of electronic manifests, so that the full benefits and efficiencies of electronic manifests can be realized as quickly as possible.

Today's rule does not by itself impose direct costs or other impacts on the regulated community or on government. This action simply codifies several of the provisions of the e-Manifest Act and authorizes the use of the electronic manifests that will be available when the IT system is developed and operational. EPA will later issue a regulation announcing the user fee schedule for e-Manifest system related activities and the date of availability of the e-Manifest system. When the Agency issues this subsequent e-Manifest fee schedule regulation, EPA will develop a Regulatory Impact Analysis discussing the expected costs, benefits, and other impacts of the e-Manifest system and its implementation.

III. Detailed Discussion of the Final Rule

A. Who will complete and submit electronic manifests?

Any entity that currently completes a hazardous waste manifest (EPA Form 8700–22) or continuation sheet (EPA Form 8700–22A) under federal or state law is expected to complete and submit these documents electronically, unless the entity opts out of the electronic system and submits the paper form, at such time as EPA announces in a subsequent **Federal Register** document that the e-Manifest system is ready to supply, receive and process electronic manifests. The scope of the electronic manifest was discussed in the e-Manifest Act, in which section 2(a) defines the term ''user.'' The statutory term ''user'' is defined to include all hazardous waste handlers (i.e. generators, transporters, or facility owner/operators) that are required to use a manifest under either Federal or state law to track hazardous waste or other material when shipped off-site for management. The statutory term ''user'' is also defined to clearly state that the use of electronic manifests is at the election of the user, and that if a user elects to use a paper manifest, the user may be required to submit a copy of such paper manifest to the system, in accordance with any regulations that EPA may promulgate to require such paper submissions.[5]

EPA is amending 40 CFR 260.10 to include a definition of ''user of the electronic manifest'' to implement this statutory provision. Consistent with the statutory definition, the regulatory definition provides that a ''user of the electronic manifest'' means a hazardous waste generator, a hazardous waste transporter, an owner or operator of a hazardous waste treatment, storage, recycling, or disposal facility, or any other person that: (1) Is required to use a manifest to comply with any federal or state requirement to track the shipment, transportation, and receipt of hazardous waste or other material that is shipped from the site of generation to an off-site facility for treatment, storage, disposal, or recycling; and (2) Elects to submit either an electronic manifest form or currently submits a paper manifest (or data from such paper manifest) to the system. The regulatory definition in § 260.10 tracks the statutory definition with respect to tracking waste shipments from the site of generation to the off-site treatment, storage, disposal, or recycling facilities which have been designated to manage the waste upon receipt. In addition, the regulatory definition of ''user of the electronic manifest'' includes language to clarify that the electronic manifest, like the paper manifest form, may also be used to track shipments of rejected wastes or regulated container residues from the site of the rejecting facility (or facility shipping residues) to either an alternative facility or back to the original generation site in the event of a return shipment.

This regulatory definition will also serve to make it clear that the availability of electronic manifests as a means to track waste shipments is no different than the current coverage of the hazardous waste manifest forms. Hazardous waste manifest forms are, with few exceptions, required to accompany all off-site shipments of RCRA hazardous waste. In addition, EPA has also indicated in previous rules that authorized states may require the use of the hazardous waste manifest to track shipments of other waste materials that are not regulated federally as RCRA hazardous wastes, but are regulated more extensively by the authorized state programs and require a manifest under state law (e.g., ''state only'' hazardous wastes, as well as certain state-regulated industrial wastes). The definition of ''user of the electronic manifest'' continues this practice, and makes it clear that persons who are subject to the state programs' more extensive requirements for the use of the manifest form may also use the e-Manifest system to comply with both federal RCRA and these more extensive state requirements.

The definition of ''user of the electronic manifest'' also is intended to clarify that the use of the electronic manifest format is the expected type of manifest submission for the user community, but that EPA will currently allow users to opt out of the electronic system and continue to use the paper system as necessary. EPA requested comment in the April 2006 public notice whether use of electronic manifests should be optional or mandatory for the system users. 71 FR 19842 at 19845 (April 18, 2006). We received numerous comments on this issue from members of the public, and our consideration of this issue is discussed in detail in section III.J. of this preamble. Because of the prominence of this issue, it was also considered by the Congress, which included language in the e-Manifest Act defining a ''user of the electronic manifest'' as one who ''elects to use the system to complete and transmit an electronic manifest format.'' EPA concludes in section III.J. of this preamble that the expected e-Manifest submission is electronic, but the Agency will allow users to opt out and continue to use paper manifests as necessary. We interpret the statutory definition of

[5] Congress required that the e-Manifest system be established as a unified national system for the collection of electronic data from all manifests, whether initiated with the paper forms or with electronic formats. Therefore, the ''user'' definition was drafted broadly to include both users of the new electronic manifest formats as well as those who continue to use paper forms and submit a paper copy to the e-Manifest system per EPA regulations. In either case, the Act defines such persons as system ''users'' and confers authority on EPA to assess a fee for processing the data to the system.

''user of the electronic manifest'' to be consistent with the Agency's determination on this question. Therefore, under this final rule, the use of an electronic manifest format is expected unless paper is requested and used by a waste handler that opts out of the electronic manifest. As we implement the e-Manifest system, EPA will closely monitor the levels of electronic manifest and paper manifest use, and adopt appropriate fee-based or other incentives to promote as complete a transition to electronic manifesting as is possible. It is EPA's goal to maximize the use of electronic manifests by the user community, so that the full benefits and efficiencies of electronic manifests can be realized as quickly as possible.

While the use of the electronic manifest format is expected for users, the final rule clarifies that a system ''user'' includes those persons who continue to use the paper manifest forms after the establishment of the system and who must submit a copy of the paper manifest to the e-Manifest system in accordance with such regulations as EPA may require. The e-Manifest system will collect manifest data from all manifests (paper or electronic) that are initiated after EPA announces the availability of the system for tracking hazardous waste shipments. Those persons (i.e., generators, transporters, or designated facilities) who submit electronic manifests to the system are clearly ''users'' within the meaning of the e-Manifest Act. In section III.K of this preamble, EPA explains that this regulation will require only designated facilities receiving paper manifests to submit one paper copy of each such manifest to the system for data processing. Thus, when this regulation is implemented, it will be the users of electronic manifests and the designated facilities receiving paper manifests that will be covered by this regulation as the ''users'' of the system when they submit their manifests to the system. It is these users who will also be subject to any requirement to pay appropriate fees imposed by the system to recover the system and data processing costs incurred in receiving and processing their manifest submissions. The fee structure will vary for those users who submit electronically and those who opt to submit a paper manifest. Congress authorized EPA to establish a fee structure to include the recovery of costs incurred in collecting and processing data from any electronic or paper manifest submitted to the system.

Use of the electronic manifest system for federal RCRA hazardous wastes is straightforward. In particular, since RCRA hazardous wastes are generally subject to manifest requirements in all states, the e-Manifest system will be available for tracking all off-site RCRA hazardous waste shipments, if all waste handlers named on the manifest choose to participate electronically. The e-Manifest system will also be available to track shipments of certain types of RCRA hazardous waste (e.g., universal waste under 40 CFR part 273 and small quantity generator (SQG) wastes subject to reclamation agreements under 40 CFR 262.20(e)) which may be exempted from the manifest requirements under federal regulation but are subject to the manifest requirements because of more stringent state laws. Similarly, the e-Manifest system will be available to track intrastate shipments of state regulated (or ''state only'') wastes that are subject to a manifest requirement in the state in which the waste is generated and managed, if the generator, transporter, and receiving facility elect to use the e-Manifest system.

EPA recognizes that shipments involving ''state only'' wastes and the use of the manifest may be particularly complicated for interstate waste shipments. In such cases, the waste may, for example, be hazardous under state law and subject to the manifest requirement in the generator's state, but not regulated as hazardous and thus not subject to a manifest requirement in the destination state. In other cases, the interstate waste shipment may not be subject to a manifest requirement until it enters the destination state. These more complex scenarios raise the question of when it is appropriate to track ''state only'' waste shipments with the e-Manifest system.

EPA believes that the definition of ''user of the electronic manifest'' and the nature of the e-Manifest system for manifest users provide the guidance to answer this question. The e-Manifest system is available to track ''state only'' hazardous waste shipments when either the generator state or the destination state (or both states) imposes a requirement under state law to use the hazardous waste manifest to track an off-site shipment of a waste, and all the waste handlers named on the manifest elect to use the e-Manifest system. A receiving facility in a state that does not require the manifest may receive a waste shipment subject to the manifest under the generator state's law. In such a case, the new authority of section 2(h) of the e-Manifest Act requires the receiving facility to complete the facility portion of the applicable manifest, to sign and date the facility certification, and to submit to the e-Manifest system a final copy of the manifest for data processing. Likewise, in the case of a waste that is not hazardous under the law of the generator state, but is a ''state only'' hazardous waste subject to the manifest in the receiving state, the e-Manifest system will be available to track these waste shipments and the receiving facility must close out such manifests through the system as required under section 2(h) of the e-Manifest Act. The e-Manifest system will be available to track these state-regulated waste shipments, if all the waste handlers named on the manifest elect to use the system for manifest tracking purposes. Thus, the scope of use for the electronic manifest is intended to be just as extensive as the scope of use of the current paper forms, with the additional limitation that the generator, transporter, and the receiving facility must all participate in the use of electronic manifests.

EPA emphasizes that the term ''user of the electronic manifest'' is limited to those members of the regulated community who are required to supply or use the manifest in connection with the shipment, transportation or receipt of hazardous wastes. The term ''user of the electronic manifest'' does not cover federal or state regulators, emergency responders, or others who may access the e-Manifest system only to access manifests or manifest data supplied to the system by the users of the electronic manifest.

B. Which documents can be completed and submitted electronically?

The electronic documents that can be completed and submitted electronically under today's final rule are limited to the standard electronic formats adopted by EPA as the authorized substitute for the paper forms currently denoted as EPA Form 8700–22 (Manifest) and EPA Form 8700–22A (Continuation Sheet). This rule *does not* address the submission of any other RCRA-required forms or reports, including forms or reports that frequently accompany manifests, such as notices and certifications required from generators or treaters under the Land Disposal Restrictions (LDR) program (see 40 CFR 268.7), EPA Acknowledgment of Consents to exports under 40 CFR 262.53(f) and 262.54(h), Exception Reports under 40 CFR 262.42, and Discrepancy Reports under 40 CFR 264.72(c). These and other reports or submissions must be submitted in accordance with the requirements and procedures specified in the specific regulations that describe when these reports are required and how one should supply these records or reports. Should the scope of the e-Manifest

system be expanded later to encompass these or other RCRA reporting requirements, EPA will provide notice and opportunity for comment on such change(s) in scope and indicate when we will be prepared to accept the additional reports electronically.

C. For those persons who decide to use electronic manifests, what paper shipping documents may still be required?

While it is the intent of this rule to eliminate as far as practicable the reliance on the preparation and retention of paper records in connection with tracking hazardous waste and state-regulated shipments, EPA cannot, at this time, eliminate all paper documents that are required in the course of transporting hazardous wastes. As we explained in the May 2001 proposed rule (see 66 FR 28268), it will still be necessary to carry a printed copy of the electronic manifest on the transport vehicle during the transportation of hazardous wastes that are subject to the hazardous materials regulations, 49 CFR parts 171–180 (HMR), since DOT requires that a hard copy of a shipping paper be carried on transport vehicles for shipments of hazardous materials, unless otherwise excepted.[6]

It is important to distinguish clearly which wastes are ''hazardous wastes'' within the HMR and therefore subject to the requirement under the HMR to carry a hard copy of a shipping paper on the transport vehicle during transportation. DOT regulations at 49 CFR part 171 define those ''hazardous wastes'' that are subject to the HMR to mean ''any material that is subject to the Hazardous Waste Manifest Requirements of the U.S. Environmental Protection Agency specified in 40 CFR part 262.'' 49 CFR 171.8. DOT and EPA interpret this definition to mean that a material must be a federally listed or characteristic hazardous waste under EPA's RCRA Subtitle C regulations, as these wastes become subject to the Hazardous Waste Manifest directly through part 262 and/or the equivalent state law counterparts of authorized RCRA state programs. Therefore, the listed and characteristic hazardous wastes identified in EPA's Subtitle C hazardous waste regulations are the ''hazardous wastes'' that are defined as hazardous materials under 49 CFR 171.8. As the federally identified hazardous wastes are also hazardous materials under the HMRs, it is these federally identified or RCRA hazardous wastes that are subject to the requirement in the HMR to carry a hard copy of a shipping paper on the transport vehicle during transportation. For these federally identified hazardous wastes, EPA is clarifying that a print-out of the electronic manifest satisfies the HMR requirement to carry a shipping paper, provided the print-out is prepared in accordance with the shipping paper requirements of the HMRs. See 49 CFR part 172, Subpart C.

For shipments that involve state-regulated or ''state only'' wastes that are *not* federally listed or characteristic hazardous wastes, the HMR does not apply. While these state-regulated wastes may be subject to a manifest requirement under state law, these wastes are not subject to the manifest under the 40 CFR part 262 or equivalent RCRA authorized state law counterpart regulations. Therefore, state-regulated or ''state only'' wastes are not hazardous wastes within the meaning of the HMR.

While the requirements under the HMR (for RCRA hazardous waste) to continue to carry a printed copy of the electronic manifest on the transport vehicles may appear to frustrate the attainment of a totally paperless manifest system, we have strived in this rule to minimize as far as possible the requirements for carrying and maintaining paper documents. Despite the continuing need to carry this printed copy of the electronic manifest, we believe that there will still be substantial reductions in paperwork burdens and forms/data processing costs for manifest users and regulatory agencies as a result of this final action. Moreover, at such time as DOT amends the HMR to authorize the use of an electronic shipping document to satisfy the accessibility requirement of 49 CFR 177.817(e), the supplying of an acceptable electronic shipping document will satisfy this requirement. EPA will continue to consult with the Department of Transportation to coordinate the electronic manifest with any electronic shipping document that is developed to satisfy the HMRs.

D. What are the major changes from the proposed rule's provisions?

The final rule differs from the May 2001 proposed rule, by adopting a national, centralized e-Manifest system instead of the decentralized approach that we proposed. Because this decision departed from the decentralized approach proposed in May 2001, we published a separate notice in April 2006 requesting comment on this change in direction for the electronic manifest program. As the comments on the April 2006 notice were supportive of this change, we are finalizing this rule so that it is consistent with the centralized system approach, as well as the Hazardous Waste Electronic Manifest Establishment Act enacted in October 2012 to implement such an approach. The change to the centralized electronic manifest approach necessitated a number of changes in the proposed rule provisions that we published in May, 2001. This section of the preamble summarizes the key changes to the regulatory provisions of the 2001 proposed rule.

1. Implementation of Agency-wide Electronic Reporting Rule. Since the proposed rule of May 2001, the Agency adopted a comprehensive rule governing electronic reporting. The Cross-Media Electronic Reporting Regulation (CROMERR), found at 40 CFR part 3, governs, among other things, electronic reporting to EPA. As the electronic manifests will be submitted directly to EPA via the Agency's CDX or other system designated by the Administrator, the submission of electronic manifests will be governed by the provisions of 40 CFR 3.10. Section 3.10(a) provides that a person may use an electronic document to satisfy a federal reporting requirement or otherwise substitute for a paper document or submission that is required or permitted under Title 40 of the Code of Federal Regulations only if: (1) The person transmits the electronic document to EPA's CDX or to another electronic document receiving system designated for the receipt of such documents by EPA, complying with the system's requirements for submission; and (2) the electronic document bears all valid electronic signatures that are required under 40 CFR 3.10(b). Section 3.10(b) requires that an electronic document bear the valid electronic signature of a signatory if that signatory would be required under Title 40 to sign the paper document for which the electronic document substitutes. 40 CFR 3.10. Thus, by developing the national e-Manifest system within the CROMERR legal and policy framework, the Agency achieves consistency with existing EPA electronic reporting regulations. The resulting simplification of the electronic manifest regulatory standards is further explained in the section that follows.

2. Simplification of the electronic manifest regulatory standards. The greatest impact of this final rule on the

[6] DOT was recently directed by statute to conduct a pilot program addressing electronic shipping papers (Hazardous Materials Transportation Safety Improvement Act of 2012, sec. 33005); at this time, it is not clear whether and when this program (HM-Access) will be implemented as a paperless requirement. EPA is consulting with DOT on its progress with the possible transition to electronic shipping papers. At such time as DOT implements an electronic shipping paper, an entirely paperless shipping and tracking document will be possible for hazardous waste shipments.

regulatory provisions for the electronic manifest is a simplification of the standards that will govern the e-Manifest system. The proposed rule of May 2001 assumed the possibility that a number of e-Manifest systems would be developed by private sector entities, such as waste management firms, waste brokers, or IT vendors desiring to market new hazardous waste tracking services. Thus, the proposed rule was developed to include fairly detailed system security, work flow, and interoperability standards that the various private systems would need to adhere to before they could operate. These detailed regulatory standards were intended as a means to ensure some level of consistency, security, and interoperability among the various private electronic manifest systems, in order that electronic manifests could be exchanged freely among the different private systems, and that there would be some assurance of consistent and reliable processing of the manifest data by these IT systems. That is, these standards were developed for the proposed rule approach so that there could be sufficient confidence in data integrity, security and enforceability of the electronic manifests that would result from a decentralized approach.

Since this final rule announces a national or centralized electronic manifest approach, it is no longer necessary to incorporate into regulatory standards so much of the prescriptive detail that was included in the proposed rule provisions on security, interoperability, and work flow. The technical details of system design, operation, and security will be left to the procurement phase of the e-Manifest project, such that it is not necessary to codify these provisions in the regulations. The basic premise of the final rule is that manifest users need only obtain and execute their electronic manifests on the national e-Manifest system that EPA currently intends to host on its CDX portal or other system designated by the Administrator for electronic reporting of manifests. As long as manifest users obtain and execute their electronic manifests through use of the EPA e-Manifest system, apply their ''valid electronic manifest signatures'' as discussed in section III.G. of this preamble, and abide by the conditions of 40 CFR 262.20(a)(3) discussed in section III.H. of this preamble, they will be creating and using valid electronic manifests. Therefore, the detailed Electronic manifest systems and security controls that were included in § 262.26 of the proposed rule are not being codified as part of this final rule.

In particular, as there will be only one national system developed in response to this final rule, and not multiple private systems, it will not be necessary to finalize the system validation requirements that were included in § 262.26(c)(1) of the proposed rule. This proposed provision was intended to provide an assessment and certification of electronic manifest systems by an independent third party with expertise in information security, so that the various privately developed systems under the decentralized approach would be evaluated and assessed for compliance with the proposed rule's system security and interoperability requirements. The national e-Manifest system that EPA will develop in response to this final rule will of course be evaluated and accredited for compliance with applicable internal or government-wide IT policies and standards on information security, and tested for consistent operation with system performance requirements and requirements of the CDX (or other system designated by the Administrator) prior to beginning its production operation. Since federal IT systems are generally subject to applicable federal security standards and accreditation requirements, it is not necessary to codify the proposed rule provisions that required independent assessment of the decentralized private sector systems. Additional information on the information security approach that will be followed in the final rule's electronic manifest approach is discussed in section III.F. of this preamble.

We are also simplifying greatly the provisions on use of the electronic manifest that were included in § 262.24 of the proposed rule. First, the provisions of proposed § 262.24(b) on manifest preparation and signature by ''authorized preparers'' are not being finalized in this final rule. The topic of manifest preparation and the related issue of when it is proper for a preparer of manifests to sign for the generator has been subsumed by the discussion of offeror responsibilities and offeror signatures in the March 4, 2005 final rule on Manifest Form Revisions. Because this area is now fully addressed in the general discussion of offeror responsibilities and offeror certifications that apply to all manifests, both paper and electronic, it is not necessary to codify in this final rule a distinct provision limited to electronic manifesting that would have addressed manifest preparation and preparer signatures. The offeror responsibilities and options for signing manifests are no different for paper manifests and electronic manifests.

Second, the May 2001 proposed rule contained a significant number of detailed regulatory provisions in § 262.24(c)–(g) to address the specific procedures for originating and using electronic manifests. These provisions for the most part duplicated the detailed provisions on use of the paper manifests in proposed § 262.23, with minor adjustments to reflect differences between the paper and electronic systems and work flow. In this final rule, we have departed from the explicit recitation of near-identical provisions for paper and electronic manifests. Instead, in this rule, we cross-reference the paper manifest requirements which apply to electronic manifests. This change in format results in the elimination of much of the redundant content between the provisions on use of the paper and electronic manifests. This change also serves to reduce the complexity of the final rule, as well as to emphasize again that the electronic manifests are considered to be the legal equivalent of the paper forms.

E. What electronic formats are required for electronic manifests?

In section 262.20(a)(3) of the May 2001 proposed rule, EPA proposed an Electronic Data Interchange (EDI) format based on ASC X12 Transaction Sets 856 (Ship Notice/Manifest) and 861 (Receipt and Advice). EPA also proposed an Internet form format that would be developed in the Extensible Mark-up Language (XML). At that time, XML was only coming into being as a data exchange language, but it was already understood as offering many potential advantages as a means to exchange over the Internet documents that contain structured data. Unlike EDI data exchange tools, XML is not bound by rigid semantics, and XML has much more flexibility designed into it to adapt to a variety of applications and computing environments. With XML, a document's content may be ''tagged'' to indicate the role that content plays, and the relationships to other data and content. Given that XML seemed to be emerging as a powerful tool for data exchange, and that it seemed to offer a cost-effective means of exploiting the openness of the Internet as a distribution medium for business and government requirements, we proposed an XML option and included a suggested Document Type Definition (DTD) that we presented for comment. DTDs and ''schemas'' are the agreed tools in XML to define for various transactions, the agreed document structures, the agreed tag identifiers and

relationships, such as the agreed data elements and document contents, and the agreed exchange requirements. In addition, an XML schema, when combined with an XML stylesheet, can be displayed in a web browser, enabling these formats to be used for both data exchange and the design of web forms. Thus, an electronic manifest format based on XML could establish a standard method for both displaying and exchanging manifest data with XML enabled browsers and data base software.

In the May 2001 proposal, EPA requested comment on both the EDI and XML approaches (see 66 FR 28240 at 28277, May 22, 2001). We asked specifically for comments on the feasibility of including an XML format for the manifest in the final rule, and whether it made sense to promulgate both an EDI format and an XML approach. Id. at 28278.

EPA received many comments in support of XML as the data exchange format of choice for defining a standard electronic manifest format for a web-based electronic manifest. These commenters pointed out that a web-based approach using XML for manifest data exchanges would be much more affordable than EDI. Other commenters suggested that a web-based approach using XML would be easier to upgrade with additional features, while other commenters suggested that XML had the greatest prospects as an electronic manifest format, since XML would likely be the standard for the foreseeable future with respect to web-based applications.

On the other hand, four commenters supported EPA's proposed manifest format based on EDI transaction sets and mapping conventions. In particular, comments submitted on behalf of the railroad interests pointed out that the rail industry currently uses EDI protocols for electronic bills of lading, waybills, and other documents used by the railroads in connection with the transport of hazardous materials, using EDI transaction sets and protocols developed by the ASC X12 Transportation Data Coordinating Committee. In their comments, the railroad industry urged EPA to continue to permit the railroads to use their existing EDI approach, and they further suggested that requiring new protocols from the railroads might only discourage the railroads from transporting hazardous waste. However, the railroad industry submitted additional comments in response to the April 2006 notice in which we requested comment on a web-based centralized e-Manifest system. In their 2006 comments, the railroad industry expressed strong support for the centralized approach using an XML schema for data exchange, as long as the Agency was willing to work with the rail industry to ensure the interoperation of the XML schemas with the railroad industry's EDI based system.

Finally, EPA received several comments offering particular advice on how EPA should implement an XML standard format for the electronic manifest. Among these comments, it was suggested that EPA should define the standard for XML usage with the manifest promptly, before the role defaults to the states or external parties. Further, another commenter urged EPA to include in the rule a more up-to-date XML schema specification rather than the DTD that EPA proposed in May 2001, as the schema offered a much richer format. Another such commenter urged EPA to develop the XML schema for the electronic manifest with the involvement of interested stakeholders to ensure that the electronic manifest format is compliant with XML systems under development in other organizations.

EPA agrees with the numerous comments that urged EPA to adopt a web form approach based on XML as the standard electronic format for the electronic manifest. EPA is persuaded that XML schemas and stylesheets, when combined with XML enabled browsers, data bases, and other applications are currently the method of choice for conducting data exchange using the Internet to transfer and manipulate data, such as manifest data among different applications in a distributed computer system environment. We also are impressed that there was much more support for the XML standard format as opposed to the proposed EDI format. We also acknowledge and appreciate the support expressed by the railroad industry for the national electronic manifest approach we discussed in the April 2006 notice, and we will make every effort to work with the rail transporters on capabilities and support needed to enable the rail industry's EDI-based electronic waybill system to exchange data with the e-Manifest system. We announce, therefore, that we are currently adopting an XML schema and style sheet as the electronic format for the electronic manifest, and we are abandoning the EDI format as a separate or alternative format for electronic manifest data transmissions. EPA has previously developed draft XML schemas and style sheets based on earlier iterations of the hazardous waste manifest form. EPA intends that the e-Manifest system development contractor will update the draft XML schemas and style sheets, and that these updates will provide the data exchange format supported by the e-Manifest system.

Because there will be only one national e-Manifest system established under today's final rule, it is not necessary to promulgate as a part of this regulation the electronic exchange format that will be supported by the e-Manifest system. It is EPA's current intent to develop a first generation e-Manifest system that will support an XML schema and style sheet (or other functional equivalent) as the data exchange format for the electronic manifest. The development of the XML schema and style sheet (or functional equivalent) will be included in the performance requirements for the IT contractor selected to build and operate the first generation e-Manifest system. The vendor will be provided with previous draft schemas and style sheets developed for EPA in the past, as well as be tasked to revise the XML schema and style sheet to meet the XML specifications adopted by the World Wide Web Consortium (or other organization or format specified by EPA). In addition, the vendor will consult with other interested organizations, manifest stakeholders, and/or standards setting bodies who may have already undertaken the development of XML schemas for related types of transactions. The e-Manifest system IT vendor will also be tasked to maintain the XML schema and style sheet (or functional equivalent) for the electronic manifest over the period of operation of the system, as it may be necessary to implement changes to the format in response to changes to the XML specifications, stakeholder input, or other regulatory considerations. In any event, EPA is announcing that the first generation e-Manifest system will rely on an XML-based approach as the data exchange format for the electronic manifest, and the XML schema and style sheet (or functional equivalent) supplied by the national e-Manifest system will be the exclusive electronic format recognized by EPA for exchanging manifest data. Should data exchange languages and formats change over time, the exchange language and formats that are then supported under the next generation national e-Manifest system would then become the data exchange methods for exchanging electronic manifest data.

We will also task the e-Manifest system IT vendor to conduct the necessary technical support effort with the rail industry so that the electronic

manifest XML schema may exchange data with the EDI-based electronic waybill system now in place for rail shipments.

F. How will the e-Manifest system address information security?

In the May 2001 proposed rule, EPA proposed the adoption of a general inspection requirement for electronic manifest copies and electronic manifest systems, as well as ten specific types of computer system security controls. These security controls were proposed in order to ensure the authenticity and integrity of electronic manifest data, to avoid repudiation of manifests created on electronic systems, and to ensure the consistent and reliable processing of manifests by the various electronic systems that may have arisen under the proposed rule. These security controls were contained at proposed section 262.26, entitled ''Electronic manifest systems and security.'' Proposed section 262.26(b) specified that electronic manifest copies, as well as the hardware, software, controls, and documentation for these systems, must be readily available for and subject to inspection by any EPA or authorized state inspector. The proposed rule assumed that private entities would develop various electronic manifest systems adhering to EPA's standards, so it was necessary to require inspector access to both the manifest copies and the electronic manifest systems so that EPA could inspect the manifests and the private systems for compliance.

The detailed computer security controls were set out at section 262.26(c) of the proposed rule. The proposal requested comment on the following procedures and system controls:

1. Validation of the computer system by an independent, qualified information systems security professional, including a written assessment and certification that the system meets the required security standards and other specified criteria;

2. The ability to generate accurate and complete records in both electronic and human readable formats which could be made readily available for inspection and copying;

3. The ability to protect electronic records from all reasonably foreseeable causes of damage or corruption (e.g., accidental or intentional erasures or alterations, fire, heat, magnetism, water damage), to ensure the accurate and ready retrieval of electronic records during the entire retention period, and to provide secure back-up copies of records and data recovery in the event of an incident;

4. The ability to limit access to only authorized persons and to use authority checks (i.e., user IDs and passwords) to ensure that only authorized persons use the system;

5. The ability to provide and maintain a secure computer-generated and time-stamped audit trail for independently recording the date and time of operator entries and actions, and to establish a complete and accurate history of each record in the system;

6. Software-based operational system checks and work flow controls which implement and oversee the process for routing electronic manifests to waste handlers in the proper sequence, for providing necessary signature prompts so that manifests are signed in the proper sequence and signature blocks, for protecting data entered by previous handlers from alteration after they apply their signatures, and for ensuring the proper distribution of the manifest;

7. Software-based features which ensure that manifest data appear on displays in a human readable format which waste handlers could readily verify before they apply their electronic signatures, and that the system displays a required warning accompanying signature prompts, to remind the signer of the legal significance of using an electronic signature and the penalties for its unauthorized use;

8. Full interoperability of electronic manifest system features during the time a manifest resides on the system or is exchanged with other participating waste handlers, as well as full interoperability with any other electronic manifest systems with which manifests are exchanged;

9. Establishment of controls on systems documentation that describes how the system operates, how the components are installed and configured, how system security features are implemented, or how the system is maintained; and

10. Establishment of, and adherence to written policies that hold individuals accountable and responsible for actions initiated under their electronic signatures, in order to deter record and signature falsification.

EPA acknowledges that these system security controls were quite detailed, and that if implemented, they would have had considerable impact on any private entities that might have developed electronic manifest systems under the proposed rule approach. However, EPA believed it was necessary to specify such detailed controls, and to validate and certify through written assessments that they had been implemented successfully in order to provide some minimum level of consistency and security in the design and operation of decentralized electronic manifest systems. At the time the proposed rule was developed, there was much concern that the decentralized approach might foster the development of numerous proprietary systems that would be incapable of communicating with each other, and that this approach might result in inconsistent and insecure systems with questionable ability to produce reliable and enforceable data. Therefore, the proposed security and processing controls were intended to ameliorate this concern by addressing what we concluded was a necessary set of controls to define a minimally acceptable level of consistency, data integrity, and system security for the various private systems that might have been developed under the proposed rule.

Many commenters focused on the specificity and detail of the proposed security controls when framing their comments. We received strong and frequent comments criticizing the complexity and prescriptiveness of the electronic manifest proposal, particularly with respect to the proposed security controls. Several industry and state commenters suggested that the proposed security controls overwhelmed the proposal to the extent that users would be deterred from using the electronic manifest. Others pointed out that the security requirements for electronic manifests seemed to set a much higher bar than existed for paper forms signed by hand, and that there should be no more auditing or accountability mechanisms for electronic manifests than there are for paper and ink manifests. Several commenters further argued that EPA should develop performance standards, not prescriptive rules, for electronic manifest systems, while another commenter observed that the decentralized approach itself placed EPA in a dilemma, since the Agency somehow needed to specify technologies and standards enough to ensure universality and compatibility, while also trying to leave the industry enough latitude to determine how best to comply.

Thus, as previously discussed, this concern motivated several commenters to suggest that the decentralized approach itself was flawed, and that a centralized electronic manifest system was the most effective means to satisfy the security and interoperability concerns identified in the proposed rule, while minimizing the software investments of the regulated community. These commenters emphasized that a centralized system would obviate the need for work flow standards, interoperability standards, and third party audits of private systems, as well as alleviating the burden of communicating between state tracking systems.

We received other comments that objected more particularly to the proposed requirement for a third party audit to validate private systems. These

commenters argued that EPA should instead identify acceptable hardware or software, or, describe the criteria that EPA will use to evaluate systems.

Since EPA has decided to adopt a centralized system approach for the e-Manifest system, it is no longer necessary to promulgate regulatory security controls in order to assure a level of consistency and security among various private systems. Thus, we are not codifying the proposed security controls as part of today's final rule. Because there will be one national e-Manifest system developed to host the transmission of electronic manifests, and the system will be operated by EPA through its contractor(s), the system security requirements for the e-Manifest will instead be planned and addressed under the Agency's security planning policies. EPA has concluded that it is far more sensible to develop the e-Manifest system security requirements and controls in this manner than to promulgate regulations that would codify the system security controls.

G. What electronic signature methods are required?

1. *Background.* Section 2(g)(C) of the e-Manifest Act provides that EPA's electronic manifesting regulations ''shall ensure that each electronic manifest provides, to the same extent as paper manifests under applicable Federal or State law, for—(i) the ability to track and maintain accountability of (I) the person that certifies that the information provided in the manifest is accurately described; and (II) the person that acknowledges receipt of the manifest.'' This provision of the e-Manifest Act confirms the objective that EPA announced in the May 2001 proposed rule concerning the electronic signature method: that is, the designation of an electronic signature method that should be no less secure and trustworthy than the conventional handwritten signatures that now appear on paper manifests. See 66 FR 28240 at 28283.

Section 2(g)(C) of the e-Manifest Act refers to the current manifest requirements by which: (1) The generator or offeror of the shipment certifies that the contents of a hazardous waste shipment are fully and accurately described on the manifest; and (2) the transporter(s) and the designated facility subsequently acknowledge or certify to the receipt of the hazardous wastes described on the manifest. Since the beginning of the hazardous waste manifest program in 1980, EPA has relied upon manifest signatures to show the chain of custody of hazardous waste shipments in transportation, and to establish clear lines of accountability among the waste handlers while the waste shipment is in transportation. In the May 2001 proposed rule, we acknowledged that there was a well-established track record and a high level of experience and comfort with using handwritten signatures as evidence in legal proceedings, while there was not the same level of experience and comfort with electronic signature methods. 66 FR at 28283–28284. Nevertheless, the Agency concluded that, as we gained more experience and familiarity with electronic signatures, many of the concerns with their reliability would be resolved. *Id.*

After the publication of the proposed rule in May 2001, EPA issued its final Cross-Media Electronic Reporting Regulation (CROMERR) on October 13, 2005 (70 FR 59848). CROMERR establishes a suite of performance standards for systems that collect electronic documents in lieu of paper documents under Federal environmental programs or under Federally approved, authorized, or delegated environmental programs administered by state, local, or tribal governments. These performance standards are codified at 40 CFR part 3. EPA has decided that it will, as a matter of policy, develop its own electronic reporting systems to meet the same performance standards that apply to state, local, and tribal government programs under subpart C of 40 CFR part 3. As explained by EPA in the CROMERR preamble, the CROMERR rule is intended to improve the efficiency, speed, and quality of regulatory reporting, while at the same time, ensuring ''the legal dependability of electronic documents submitted under environmental programs.'' 70 FR 59848 at 59850. Electronic signatures play a significant part in CROMERR's discussion of the legal dependability of electronic documents. CROMERR includes, in 40 CFR 3.3, a definition of ''valid electronic signature'' which requires electronic signatures to be created with a device (*e.g.,* secret code or private encryption key) that the person signing the document is uniquely entitled to use (*i.e.,* ownership) and that is not compromised at the time of use. This definition of ''valid electronic signature'' further requires that the signatory be an individual who is authorized to sign the document by virtue of their position or relationship with the reporting entity on whose behalf the signature is executed. See also, 40 CFR 3.2000(b)(5). In this way, CROMERR ensures that individuals will be no less accountable for their electronic signatures than they are for their handwritten signatures on paper documents. 70 FR at 59850.

Thus, the May 2001 proposed rule, CROMERR, and the e-Manifest Act are consistent in requiring that electronic manifests be no less legally dependable and defensible than the paper manifests they would replace.

In the May 2001 proposed rule, we proposed two distinct electronic signature methods: (1) A *digital signature,* based on asymmetric (*i.e.,* private key/public key) cryptography; and (2) a *secure digitized signature,* which involves a digitized signature pad, stylus, and software that operate in conjunction to capture one's handwritten signature input. We also solicited comment on the use of Personal Identification Numbers (PINs) or passwords as an electronic signature method for electronic manifests, and solicited comments on how (and if) PINs or passwords could be implemented securely and efficiently as an electronic signature method for electronic manifests. See 66 FR 28240 at 28290–91.

We proposed the digital signature (encryption-based) method, because digital signatures establish the source of the document as the holder of the private encryption key, and they robustly bind the content of a signed electronic document to the signature such that it is impossible for the document to be modified without detection once signed. In our proposed rule, we explained that a digital signature involves the use of private key/public key cryptography, as it relies on the mathematical relationship between a pair of encryption ''keys'' (very large numbers) to execute and verify a signature. A more detailed description of the digital signature technology is presented in the preamble to the May 22, 2001 proposed rule. See 66 FR 28240 at 28284.

As an alternative to the digital signature method, we also proposed in May 2001 a signature method we identified as ''secure digitized signature.'' A ''digitized'' signature is one that is captured electronically on a touch-sensitive signature pad as a pen or stylus travels over the pad. Under the proposed rule, electronic manifests would be signed in the field using a portable digitizing pad that would create a graphical record of the signature. This signature would be logically bound to the manifest record by an encryption process known as a hash function. Because the document binding and signature verification features would promote signature authenticity and data integrity, we referred to this proposed signature

method as a ''secure digitized signature.'' See 66 FR at 28289.

EPA recognized at the time of the proposed rule that both the digital signature and secure digitized signature methods would involve greater hardware and software complexity and cost than the PIN or password method, but these methods also seemed to offer greater authentication strength with respect to identifying uniquely the individual signing an electronic manifest. While we indicated concerns in the May 2001 notice that a simple PIN or password approach based on one secret item of information might not provide sufficient authentication strength and security for the electronic manifest, we were also aware that PINs and passwords are still commonly used in many contexts for electronic authentication, and are popular with users because of their familiarity and relative ease of implementation. Therefore, we requested specific comments from the public on whether there was a practical, secure, and efficient means to implement a PIN-based signature method for the electronic manifest. *Id.* at 28291.

2. *Comment Analysis.* EPA received many comments addressing the electronic signature methods in the proposed rule. Several commenters from state agencies seemed concerned that the level of security and cost associated with the digital signature (encryption-based) method was not warranted in the manifest context. The state-agency commenters expressed some modest support for the secure digitized signature method. However, several other state-agency comments urged strongly that EPA consider a PIN-based electronic signature system for the final rule, as the PIN signature would be easiest to implement, easiest to validate, easiest for signatories to use, and the most cost-effective of the three methods. A view repeated in several state agency comments was that the proposed signature methods placed far more emphasis on security and preventing fraud than the commenters believed was warranted with the hazardous waste manifest. The commenters argued that there is not the level of falsification and fraud being practiced with manifests to warrant the perceived costs and additional burdens of the proposed methods. Those stating this view further suggested that the proposed signature methods did not place sufficient emphasis on the convenience to users, suggesting that the proposed signature methods and their burdens would discourage the use of the electronic manifest system.

EPA also received many comments from the regulated industry on the proposed electronic signature methods. A trade association for waste management firms suggested that a PIN-based system would be sufficient and cost-effective for electronic manifest signatures, suggesting further that the expense and complexity of both of the proposed signature methods were disproportionate to the number of enforcement actions that turn on the authenticity of manifest signatures. We also received numerous comments from the regulated industry suggesting that the digital signature method was too expensive and complex to be deployed in the electronic manifest context. By contrast, we received a number of comments from industry representatives who suggested that a digitized handwritten signature method could be implemented and used successfully for the electronic manifest. These commenters offered that digitized handwritten signatures provide a practical and cost-effective alternative to digital (encryption-based) signatures, and that they have been used successfully in commerce for years. Several commenters preferred the digitized signature because it best mimics the current process for signing paper manifests. In addition, we received several industry comments that echoed the view expressed in state-agency comments that the electronic manifest did not warrant elaborate electronic signature security, with one such commenter suggesting that any security burden imposed beyond that associated with the digitized signature method would act as a deterrent to the use of the electronic system. Finally, we received a comment from an industry trade association suggesting that EPA must clarify in the final rule that a consistent signature method will be implemented in all states for electronic manifests, since manifests are interstate transactions that require consistency in implementation across all the states.

3. *Final Rule Decision on Electronic Signature Criteria.*

i. Introduction. EPA is today promulgating a final rule that is technology-neutral, rather than codifying specific electronic signature methods. Therefore, for the final rule's electronic signature selection criteria, § 262.25 of the generator requirements states that electronic signature methods for the e-Manifest system shall: (1) Be a legally valid and enforceable signature under applicable EPA or other federal requirements pertaining to electronic signatures; and (2) be designed and implemented in a manner that is sufficiently cost-effective and practical for the users of the manifest. These signature selection criteria are explained in detail below, and there is corresponding language included as well in Part 263 (transporters) and in Parts 264 and 265 (for receiving facilities).

We have concluded that this technology neutral approach is appropriate, because as new authentication and signature technologies are identified over the years, the e-Manifest system will be able to adapt to and keep pace with these technology changes. It is also consistent with the Agency's electronic reporting regulation codified at 40 CFR part 3. For today's rule, therefore, EPA is announcing the electronic signature method criteria which EPA will follow as we develop and implement the initial technical design approach for the e-Manifest system, as well as any subsequent refinements adopted in the system's change management process. EPA will consult with our manifest user groups during the initial design phase of the e-Manifest system, and we will continue to collaborate with the user groups and the System Advisory Board [7] after the system is operational as part of the regular oversight and the change management process for the e-Manifest system. A distinct advantage of finalizing this rule with a technology-neutral standard and decision criteria is that the e-Manifest system, through the participation of the user groups and the System Advisory Board, will be able to assist EPA in identifying new electronic signature methods as a part of the normal system design and change-management process. We can also obtain the critical input from the user groups and System Advisory Board members on the various electronic signature methods that might be submitted to these groups for their consideration. This type of input is difficult to obtain through a rulemaking process, but it is essential to the IT system development process.

Second, EPA is also announcing in this preamble section its current recommendations on how the Agency plans to implement electronic signatures for the first-generation of the e-Manifest system. The Agency has concluded that these recommended methods should be acceptable for the initial system design phase, and that they should meet the electronic

[7] Section 2(f) of the e-Manifest Act provides that EPA must establish a 9-member Advisory Board consisting of members selected from EPA, the states, and the regulated industry user community, with the Board to meet annually to evaluate the effectiveness of, and to provide recommendations to EPA, relating to the system.

signature criteria that are codified in the regulation. These recommendations are non-binding, and the e-Manifest system developers may consider and select other legally valid and enforceable signature methods that are recommended during the design phase of the project. After the first generation system is in place, the System Advisory Board and user groups can also recommend the adoption of new technologies and methods as they are demonstrated to be sufficiently strong, effective and feasible alternatives to the first-generation methods ultimately selected during the design phase of the e-Manifest project.

ii. Electronic Signature Selection Criteria. In this section of the preamble, the Agency explains the electronic signature method selection requirements that will guide EPA, in consultation with the IT contractor, user groups, and the System Advisory Board, on the initial design of and any future changes to the electronic signature methods for the e-Manifest system. In the selection of the electronic signature methods for e-Manifest, the Agency is requiring that the signature method(s) shall: (1) be legally valid and enforceable signatures under applicable EPA and other Federal requirements pertaining to electronic signatures; and (2) be designed and implemented in a manner that is sufficiently cost-effective and practical for the users of the manifest, so that the signature methods gain broad user acceptance and encourage user participation in the e-Manifest system.

As of the development of this regulation, the requirement of a legally valid and enforceable electronic signature is governed by EPA's regulatory requirements in CROMERR, which EPA has codified at 40 CFR part 3. In particular, applicable requirements for electronic signatures are governed by the definition of ''valid electronic signatures'' under 40 CFR 3.3 and the related provisions on electronic reporting under Subparts B and D of 40 CFR part 3. Hereafter, therefore, we will refer in this preamble to consistency with CROMERR or CROMERR compliant electronic signatures as the means by which EPA will implement valid and enforceable electronic signatures that will ensure the legal dependability and defensibility of electronic manifests. EPA understands, however, that the CROMERR regulation could be altered or replaced over time by new EPA regulations and/or new Federal requirements pertaining to electronic signatures. Therefore, we have codified in § 262.25(a) the broader language requiring a ''legally valid and enforceable signature under applicable EPA and other Federal requirements pertaining to electronic signatures'' so that the regulation will be broad enough to encompass any changes to EPA rules or Federal law that may augment or supersede EPA's current CROMERR requirements.

a. CROMERR consistency. As discussed above, EPA's current regulatory policy on electronic reporting and electronic signatures is prescribed by CROMERR. The e-Manifest is an example of a system that will provide electronic documents directly to EPA. Therefore, the e-Manifest is subject to the requirements (performance standards) of 40 CFR part 3, Subpart B, addressing electronic reporting to EPA. The CROMERR requirements for State document receiving systems (40 CFR part 3, Subpart D) contain much more specific system requirements than Subpart B's performance standards. Although EPA is not legally bound by the Subpart D standards, EPA intends to comply with the Subpart D standards as a matter of Agency policy. See 70 FR 59848 at 59860. Among the Subpart D standards are the specific requirements for valid electronic signatures under 40 CFR 3.2000(b)(5)(i) and the requirements for identity proofing at 40 CFR 3.2000(b)(5)(vii). The electronic signatures for e-Manifest must be consistent with these CROMERR standards.

b. Cost-effective and practical implementation for users. We believe that any electronic signature method selected for e-Manifest should be designed and implemented so that it will be cost-effective and practical for users. The goal is that the electronic signature methods will be generally acceptable to the user community in order to realize the benefits associated with widespread use of the system. Accordingly, we have specified in the rule that this is a factor that will be considered when EPA is evaluating potential electronic signature approaches.

Since the initial implementation of the manifest system in 1980, EPA's manifest regulations have emphasized the important role of the user community in monitoring their waste shipments as they are tracked with manifests, so that waste quantities and types that are shipped are reconciled with the wastes quantities and types reported as received by designated facilities, and to ensure that waste shipments in fact arrive at the designated facilities within the regulatory timeframes. Given this key role played by the user community in overseeing the manifest system, EPA believes it is important that the user community be able to readily access and utilize the e-Manifest system to prepare and transmit their electronic manifests. We believe that the preparation and transmittal of e-Manifests will greatly enhance the ability of users to track the status of their shipments, to identify and rectify problems with shipments more quickly, and to avoid many of the data entry errors and legibility problems that arise in the paper system. Since the user community inspects and closely monitors the manifests that it creates, the key to leveraging the enhanced tracking and oversight capabilities of the e-Manifest is to ensure that the e-Manifest is readily available to and broadly embraced by the user community. Therefore, it is essential that the CROMERR compliant electronic signature methods adopted for e-Manifest also be practical for the users to implement.

Congress emphasized the importance of broad user participation in e-Manifest in section 2(e)(3)(C) of the e-Manifest Act, which provides that a primary measure of successful performance of the IT system shall be the development of an e-Manifest system that ''meets the needs of the user community,'' and that ''attracts sufficient user participation and service fee revenues to ensure the viability of the system.'' Therefore, as with the other system components that affect the users' experience and ease of use of the system, EPA will consider the impact of available electronic signature methods on the level of use of the system, to ensure that the e-manifest system will be viable and will effectuate statutory objectives that the system be established and operated on a self-sustaining, user-fee funded basis.

4. *Final Rule Recommendation on First Generation System Signature Methods.* Based on the comments received in developing this rule, and on our May 2007 economic analysis of the proposed rule signature options and variants, EPA believes that the first generation system should provide support for either or both the digitized handwritten signature method and/or the PIN/password signature method.[8] The public comments on the proposed rule electronic signature content are summarized above in section G.2. of this preamble. EPA also conducted a detailed economic analysis of the proposed electronic signature technologies and identity proofing methods in May 2007, as we wanted to

[8] While the system would be designed to support both methods, it is intended that each e-Manifest signature would only implement one or the other of the two methods.

understand better how the hardware, software, and support services needed for each signature and identity proofing method would impact the implementation costs for the system and its users, and how these costs might affect the per-manifest user fee that would be imposed to recover the costs of administering the system.

EPA agrees with those commenters who suggested that an electronic signature method based on a PIN/password approach can meet our enforcement needs while simultaneously enjoying a high degree of user acceptance. We have also concluded that the digitized handwritten signature approach would likely enjoy a high degree of user acceptance, and we will be evaluating any peer reviewed studies so we can determine whether or not this approach can be forensically validated. Therefore, EPA is announcing that for the first generation e-Manifest system, the Agency will recommend the PIN/password electronic signature method as described in today's rule. We also expect to deploy the digitized handwritten signature method in the first generation system if the validating studies demonstrate its forensic reliability; however, we will allow the deployment of this method on an interim basis (with some paper/ink signature requirements still applicable) pending the results of the studies.

The Agency does not intend at this time to support the proposed digital signature method (based on asymmetric encryption and a public key infrastructure or PKI). Our May 2007 analysis revealed that the projected cost of implementing the proposed digital signature method with a public key infrastructure or PKI would likely be three to four times the projected costs of implementing either the PIN/password method or digitized signature method. Because of the far greater costs associated with PKI, and the comments that criticized the complexity of this signature method, EPA has determined that it will not initially provide support for PKI in the implementation of the e-Manifest system. However, this should not be taken to mean that the Agency has ruled out the digital signature alternative entirely, as we recognize that technology changes and updated cost projections that may appear before the system build is complete could alter our conclusions regarding the cost-effectiveness of this technology.

EPA believes that the two signature methods recommended for use can be adapted to the electronic manifest business process for two distinct communities of electronic manifest users. We believe that the digitized handwritten signature method may be attractive to hazardous waste transporters and hazardous waste management firms that want to implement the electronic manifest across their enterprises by bringing mobile computer equipment (with digitizer pads or integrated signature devices for collecting signatures) to the sites of their generator customers, and tracking their hazardous waste pick-ups, their transportation on company vehicles, and their delivery of hazardous waste shipments to their company's permitted or interim status facilities. For those that would engage in electronic manifesting independently of such an enterprise-level implementation, either the digitized handwritten signature method or the PIN/password signature method could be available to sign electronic manifests. Our rationale for recommending these first generation methods is explained for each method below in sections G.5. (digitized handwritten signature) and G.6. (PIN/password) of this preamble.

5. *Digitized Handwritten Signature.*

i. Recommended Approach for CROMERR Compliance. The Agency is announcing that it now has tentative plans to implement a digitized handwritten signature method as one of the two methods of electronic signature that may be supported by the first generation e-Manifest system. As explained in more detail below, our plans for implementing this method are tentative at this time, because our ability to recommend one or more of these products is dependent on there being available such products of sufficient quality to meet our authentication needs, including support for any enforcement actions involving the manifest. While our initial literature searches and discussions suggest to us that such products may be available and sufficient for these purposes, we cannot make a final determination on the quality and suitability of these products until we obtain peer reviewed studies indicating the reliability of this signature technology in providing the forensic evidence that an expert witness (i.e., a federal document examiner) could rely upon if called to testify in any civil or criminal litigation involving a disputed signature. EPA expects that vendors of these products who wish to qualify their digitized handwritten signature products for use with e-Manifest could obtain or participate in the necessary studies that demonstrate their products' reliability in helping to verify authentic signatures or to identify non-authentic signatures.

Aside from the need for the reliability studies for these signature products, we found that there is considerable support for this signature method in the prospective user community. In particular, we found there to be support for this method in the public comments on the May 2001 proposed rule. We further note that this electronic signature method has been widely implemented by package delivery services and various retail or government establishments as a means to collect signatures for credit transactions, for drivers' license and insurance policy applications, and to document the receipt of medical prescriptions or other goods.

EPA is also persuaded by the findings of our May 2007 economic analysis of electronic signature methods. This analysis revealed that the handwritten digitized signature method was among the least expensive to implement of the electronic signature methods we analyzed, despite the fact that this method entails a more significant initial investment by users or sponsoring companies in the signature pads and software necessary to collect the signatures. We estimated the 5-year average annual cost of implementing this method to be about $0.5 million to $1.5 million, which can also be expressed as an incremental cost of between $0.13 and $0.39 per electronic manifest. Assuming there are digitized handwritten signature products that can be shown through peer reviewed studies to collect reliable forensic evidence for enforcement actions, then the Agency believes this signature method can be implemented consistently with CROMERR requirements. Further, since this method also appears to be cost-effective and acceptable to the manifest user community, EPA tentatively concludes that the digitized handwritten signature method should be an acceptable method for the first generation e-Manifest system.

As we discussed in the May, 2001 proposed rule, the digitized signature method that we proposed and now continue to evaluate and pursue for the first generation e-Manifest system would be captured as a dynamic signature (not a replay of a copy), and the signature would be bound to the manifest document content by a hash function to prevent unauthorized alterations to the signed content. The Agency anticipates that this method, if demonstrated by peer reviewed studies to be reliable, would be deployed primarily by those persons, including hazardous waste transportation companies or hazardous waste management companies, who choose to

implement the electronic manifest across their company's operations with mobile equipment that they would bring to generator sites and carry on their transportation vehicles. The mobile equipment would accompany hazardous waste shipments in the same manner that the paper forms currently accompany waste shipments. The mobile equipment would enable hazardous waste management companies to access the e-Manifest system and to track the movement of their generator customers' waste shipments to their companies' permitted or interim status facilities. However, generators and independent hazardous waste transporters who frequently create or handle manifests may also choose this signature method even in the absence of enterprise-wide deployment, because the initial cost of signature pads and software should be greatly outweighed by time savings, reduced paperwork costs, and customer satisfaction.

As with handwritten signatures executed with ink on paper, digitized handwritten signatures may be described and recognized by the shape and form of the letters, loops, and other signature attributes that are recorded by the device. Thus, we expect that a digitized handwritten signature will present signature attributes that are, in combination, unique to a particular individual. We are also aware that there are some digitized signature pads and their supporting software which are capable of measuring the ''signature dynamics'' (e.g., speed, pressure, acceleration, sequential coordinates) of the signature act and maintaining a record of these forensic measurements that can be compared with other signature samples or exemplars. There are now a variety of digitized handwritten signature hardware and software products on the market, and based upon the Agency's examination of a few products' specifications and literature, EPA believes that at least some of these products may be able to record and process the handwritten signature images and attendant signature dynamics with sufficient detail and reliability so as to permit a trained federal document examiner or other expert handwriting analysts to reliably authenticate a signature. However, as we noted above, we cannot make a final determination on the quality and suitability of these products until we obtain the peer reviewed studies indicating the reliability of this signature technology in providing the forensic evidence necessary to authenticate a signature.

EPA believes that the high quality digitized signature products that may be suitable for the e-Manifest are those that have been or will be designed with enhanced forensic evidence capture, measurement and analytical capabilities, and that will enable handwriting experts and professional document examiners to give reliable expert opinion evidence on the authenticity of the digitized handwritten signatures in any civil or criminal litigation in which the signature authenticity may be in dispute. Thus, EPA anticipates that the digitized handwritten signatures could be used and proven in litigated cases in much the same manner that conventional paper manifest signatures are used and proven in these cases. In particular, we anticipate that the use of high quality digitized signature products with the e-Manifest will allow the Agency to collect sufficient forensic evidence [9] surrounding these signatures to either demonstrate that the signature is authentic, or, rebut any effort by the signatory to repudiate their digitized handwritten signature. Thus, we will continue to pursue and evaluate the digitized handwritten signature method so that we can confirm or repudiate the belief that there generally may be the same level of legal dependability for electronic manifests signed with digitized handwritten signatures as there is now for paper manifests (or images of paper manifests) and their handwritten signatures.[10]

We anticipate that validating peer reviewed studies will demonstrate that high quality digitized handwritten signature products produce valid electronic signatures for purposes of CROMERR. In this instance, the handwritten signature image data and the collected forensic evidence would constitute the ''electronic signature device'' for purposes of CROMERR. We also anticipate that validating peer reviewed studies will also demonstrate that the high quality digitized handwritten signature devices successfully capture and record information that is both unique to the signatory and sufficiently immutable that the resulting signature may operate similarly to a biometric for purposes of CROMERR. Since a digitized handwritten signature does not rely on a secret PIN or password code, CROMERR does not require a digitized handwritten signature to implement a second authenticating factor to show that it has not been compromised. Furthermore, as these signatures are in their nature handwritten signatures that will be authenticated based on their unique forensic evidence similar to conventional ink signatures, it should not be necessary to establish one's ownership of a digitized handwritten signature through a separate identity proofing process any more than it is necessary to engage in identity proofing of conventional handwritten signatures.[11] EPA anticipates that the validating peer reviewed studies will demonstrate that with the appropriate implementation and technology, a digitized handwritten signature can verify or authenticate the identity of an individual in the same way that handwritten signatures on paper are authenticated, that is, by their appearance and by the forensic evidence surrounding their execution.

In order for digitized handwritten signatures to function as dependably as handwritten signatures executed with paper manifests, it is critical that this signature method be implemented with high quality digitized signature pads and software. Rather than codifying the performance and quality requirements for these devices in this final regulation, EPA will specify performance requirements in the procurement documents that will address the e-Manifest system acquisition. Based on our current understanding of the capabilities and features of digitized signature products, EPA is exploring and will seek to validate products that have these or similar characteristics:

[9] In 1994, Congress amended the Hazardous Materials Transportation Act (HMTA) to provide that an electronic image of a shipping paper may be retained by an offeror or carrier, in lieu of the paper record, as the legal record to be made available for inspection by enforcement agencies. See 49 U.S.C. 5110(e), added by Public Law 103–311, Title I, Sec. 115 (August 26, 1994). The hazardous waste manifest is a Hazardous Materials shipping paper, and EPA is required by statute to be consistent with the Hazmat law in developing our transportation requirements, such as the manifest regulations. In 1996, EPA/OSWER announced a policy allowing hazardous waste facilities under specified conditions to retain scanned and retrievable image files of paper manifests in lieu of retaining their paper copies. EPA believes that high quality digitized signature products can create electronic signatures with evidentiary strength that exceeds that of the ''flat image'' manifest signatures that are now accepted under the paper manifest system.

[10] The digitized handwritten signatures should improve signature quality by ensuring that a consistent quality signature is retained for all collected manifest signatures, regardless of the order in which the manifest was signed. Many paper manifest signatures today are carbon copy signatures of very uneven quality or legibility.

[11] Moreover, since there is no showing required currently to establish that one signing a paper manifest is authorized to sign manifests for the entity that he or she represents, this rule does not require a separate identity proofing to establish the relationship of the owner of an electronic signature device to a particular entity.

• They produce handwritten signatures that may be captured and displayed with a sufficiently high resolution, e.g., at least 300 dots per inch;

• They collect forensic data, e.g., all three signature (x, y, and z) coordinates, time of signature, acceleration, or pressure, etc., and retain these data as a part of the signature record;

• They record all signature input data at a sufficiently high frequency to characterize accurately each signature act, e.g., at least 100 samples or reports per second;

• They can execute, on average, many individual signatures (e.g., 100,000) between failures, where failure involves the loss of any pixels in the signature image;

• They employ a ''hash'' function to digitally attach the signature to the data that are signed, so that alterations to the document contents can be detected;

• They are supported by software that can analyze the forensic signature measurements captured with each electronic signature, and that allows a trained, professional forensic document examiner to use the measurements and analysis to compare a given electronic signature with a signature exemplar submitted by the named signatory;

• They are supported by peer-reviewed studies which show that the technology has been thoroughly tested, that the known or potential error rate of the technology has been established and is acceptable, and that the technology reliably collects, processes, and interprets the forensic data from handwritten digitized signatures; and

• The forensic signature measurements and analyses performed by the software, and the comparisons of digitized handwritten signatures and exemplars conducted by a trained, professional document examiner, will enable a professional document examiner trained in the technology to provide expert opinion testimony, with a high degree of confidence, that a questioned digitized handwritten signature is or is not the authentic signature of the signatory.

ii. Interim Approach to Implementation. As discussed above, for the digitized signature method to be implemented as a fully CROMERR compliant and valid electronic signature, there must first be completed the peer reviewed studies showing the forensic reliability of this signature technology. However, in the event that EPA or others are not able to complete the necessary studies prior to the implementation date of today's rule, EPA may allow the deployment of this method on an interim basis (with some paper/ink signature requirements) pending the results of the studies.

Under such an interim implementation, EPA would accept the deployment of digitized signature pads and/or digital pens that simultaneously capture an ink signature. We are aware of several existing products with this capability. One paper copy of the manifest would be executed for each shipment with the original ink signatures of all the hazardous waste handlers, while the digitized signatures would simultaneously be collected and associated with the electronic manifests that would be distributed and retained by the e-Manifest system. At the end of the waste shipment transaction, the designated facility would retain the one paper copy with the original ink signatures among its operating records for at least three years, just as designated facilities currently retain a final paper manifest copy among their records. The designated facility would retain this paper copy securely and make it available for inspection and enforcement purposes by state or federal inspectors. Thus, during the interim period of implementation, the one paper copy with ink signatures would remain the copy of record for all enforcement actions involving that manifest. In the event of an enforcement action where a manifest signature is at issue, the paper copy would be produced for enforcement officials, and the ink signatures on this stored copy would be authenticated by document examiners in the same manner that such ink signatures are currently authenticated in enforcement actions. The digitized signature images captured on the electronic manifest copies in the system could be relied upon by e-Manifest users for all other purposes. Since civil and criminal enforcement actions would continue to rely on enforcing the paper manifest copy with its handwritten ink signatures, the effect of this interim solution is to defer full CROMERR compliance with respect to e-Manifest until the program is ready to implement a fully paperless system that would rely on the authentication of the digitized signatures in enforcement actions.

While this interim solution might appear to be inconsistent with the goal of a fully paperless manifest, EPA emphasizes that after the implementation of the e-Manifest system, DOT's HMR will continue to require hazardous waste transporters to carry a hazardous materials shipping paper (i.e., the manifest) on transport vehicles. So, e-Manifest users would still be required for the foreseeable future to produce one paper copy of the manifest in order to comply with these existing DOT shipping paper requirements. Since there will need to be one paper copy of the manifest carried on the transport vehicle in any case for DOT's purposes, the use of this one paper copy to simultaneously record enforceable ink signatures under this interim solution will not result in additional paperwork being supplied. Moreover, most of the paperwork reduction, greater efficiency, and data quality enhancement benefits of the electronic manifest will still be realized even with the execution and retention of this one paper manifest copy as an enforcement copy of record.

We anticipate that this interim signature method could be used until such time as EPA is able to identify specific digitized signature products that have been tested and found through peer reviewed studies to meet the forensic reliability standard. During the interim period, however, certain digitized signature products could be deployed, and the peer reviewed studies could be set up to take advantage of the data developed using several such products under a test protocol that would enable us to identify the high quality digitized handwritten signatures that could stand alone as enforceable and legally valid electronic signatures without any paper copy back-up.

To address the use of digitized handwritten signatures (or other electronic signature methods) during this interim period pending the completion of the tests (and peer reviewed studies) that would demonstrate the signature method's legal dependability or practicality, we have included appropriate regulatory provisions in this final rule. These special procedures will provide that the one printed copy of the manifest that is required by EPA and DOT regulations to be carried on transport vehicles shall in such cases of electronic signature tests be signed in ink by the generator, transporter, and designated facility owner or operator. At the end of the shipment, the printed copy bearing all the original ink signatures shall be retained by the designated facility among its records, and made available to federal and state RCRA inspectors to support their compliance monitoring and enforcement activities. These special procedures are codified for generators at 40 CFR 262.24(f), for transporters at 40 CFR 263.20(a)(7), and for owners or operators of designated facilities at 40 CFR 264.72(i) and 265.72(i). These procedures are sufficiently flexible to apply over the life cycle of the system to the use of any electronic signature method that would benefit from a pilot or demonstration

test before a decision is made to fully implement the method as a legally valid and enforceable electronic signature.

6. *PIN or Password Electronic Signature.*

i. Introduction. In addition to the digitized signature method discussed above, EPA recommends PIN and password-based electronic signatures for the first generation e-Manifest system. As with the digitized signature method discussed above, the PIN or password signature must also activate a hash function or equivalent technology, so that the electronic signature will be bound to the document content, and any data alterations attempted after signature may be detected.

The main advantage of the PIN/password signature for these signatories is that a signature can be applied through any keypad-enabled device that can access the e-Manifest. EPA understands that mobile devices with digitizer pads may not be available or attractive to all manifest users. We believe that the PIN/password electronic signature method provides a reasonable alternative for these prospective manifest users.

EPA received many public comments on the May 2001 proposed rule urging the Agency to implement a PIN/password signature approach for the e-Manifest, as these users believed that PINs or passwords would be more cost-effective for users than those methods that required the purchase and use of peripherals, such as digitizer pads and the software needed to operate them. PINs and passwords are commonly implemented as an authentication approach in many electronic systems, and they are fairly easy to implement and validate. The technical basis for executing and validating a PIN or password signature is well established, and there is no need for studies to establish their technical reliability. Moreover, the May 2007 economic analysis of electronic signature methods confirmed that PIN/password signatures were fairly inexpensive for the electronic manifest community, with average costs between $.50 to $.96 per manifest. However, as previously noted, our analysis concluded that PINs and passwords may not be as inexpensive a signature method as the digitized handwritten signature over the life cycle of the system, since PINs and passwords are frequently lost or forgotten, and help desk support or self-service password management software may be required to reset them.

While PINs/passwords have these drawbacks, the Agency believes that PIN/password-based electronic signatures can be implemented for the e-Manifest system in a manner that is both consistent with the CROMERR standards and at a cost that would not discourage use of the system. Manifest users have commented that PINs and passwords would be readily accepted by many prospective e-Manifest users, and our May 2007 economic analysis confirms that this signature method may pose acceptable costs, despite the help desk and other management costs associated with PINs and passwords.

ii. CROMERR Identity Proofing Requirements. By adopting the standards set forth in CROMERR, today's rule requires that the identity of those who would sign electronic manifests with a PIN or password electronic signature must be established with legal certainty. Section 3.2000(b)(5)(vii) of CROMERR addresses identity proofing by adopting a performance standard that requires that electronic reporting systems have a process for determining with legal certainty the ownership of an electronic signature device and the relation of the signatory to the entity on whose behalf he or she signs an electronic document. 70 FR 59848 at 59872. This provision of CROMERR requires that a system provide evidence sufficient to prove the device owner's identity and relation to an entity, particularly in the context where the signatory may have an interest in repudiating their own signature or their relationship to the entity on whose behalf the signature is executed. While § 3.2000(b)(5)(vii) of CROMERR does not specify how this performance standard is to be met [12], the rule does require that, at a minimum, the identify-proofing process must involve access to a set of descriptions that apply uniquely to an individual in question and refer to attributes that are durable, documented, and objective. Id. Such descriptions must be capable of being shown to uniquely identify the individual without having to depend on one such as a signatory who may want to repudiate their identification. Id. Alternatively, a subscriber agreement within the meaning of 40 CFR 3.3 may be collected to satisfy CROMERR identity proofing requirements.

iii. CROMERR Second Authentication Factor. CROMERR requires that any electronic reporting system collect evidence that demonstrates that an electronic signature device (such as a PIN or password) was not compromised at the time of use. When the electronic signature consists of a PIN or password, this feature of CROMERR operates to require a second authenticating factor that is collected contemporaneously with the signature to demonstrate with legal certainty that the PIN and password were not compromised at the time of use. We discuss below two approaches that we believe may be appropriate for the e-Manifest.

We should note that EPA evaluated several technology-based second authenticating factors. Our economic analysis of electronic signature and authentication methods concluded that the use of some currently available hardware tokens or biometric devices could triple or quadruple the per-manifest cost of signing electronic manifests with a PIN or password. We believe that the addition of these costs to the PIN/password signature implementation costs could discourage use of the system by the more cost-sensitive members of the prospective user population. Therefore, we have chosen, at the outset, to employ second authenticating factors for PINs or passwords that require no additional hardware. Again, this should not be taken to mean that the Agency has forever ruled out all such technology-based approaches to reducing the vulnerability of a PIN/password signature to compromise. Should other methods relying on biometrics, hardware tokens, or other technologies be identified that are inexpensive, effective, and acceptable to the user community, they certainly would merit consideration for the e-Manifest system. Likewise, other non-technology methods that rely on business process adjustments or management controls, and that are effective in reducing the vulnerability of the PIN/password signature to compromise, may also be suitable if they meet the requirements of today's rule and CROMERR.

a. *Personal Question Challenge as Second Authenticating Factor.* One approach that EPA currently allows under CROMERR as a second authenticating factor for PIN/password signatures is to present the signatory with a challenge question each time he or she enters their PIN or password to execute a signature. Under this approach, the PIN/password electronic

[12] Section 3.2000(b)(5)(vii) describes three identity proofing methods that have been deemed acceptable for electronic reports that are submitted to EPA or state systems. These accepted methods under CROMERR include: (1) The vetting and verification by a disinterested individual of a person's identifiers or attributes that are contained in that person's identity credential (e.g., a driver's license, passport, or financial account), with at least one such identity credential being a government issued credential; (2) a method of determining identity that is no less stringent than the vetting of an identity credential by a disinterested individual; and (3) the collection of either a CROMERR ''subscriber agreement'' or a certification from a ''local registration authority'' that such an agreement has been received and securely stored. 40 CFR 3.2000(b)(5)(vii).

signature can be sufficiently strengthened if the signatory successfully answers a challenge question from a set of questions for which the signatory has provided pre-arranged answers. Since only the actual signatory would likely be able to successfully provide both the required PIN/password and the correct answer to a personal challenge question, this approach can provide significant added protection against signature fraud and repudiation. In administering the CROMERR regulation, EPA has approved several systems that implement the use of personal challenge questions as a second authentication factor for PIN/password signatures. EPA's experience with these systems indicates that there should be at least 10 candidate questions made available to a user at the time of registration, although we recommend a longer list of at least 20 such questions to give the registrant a better chance of finding several questions that he or she can answer from memory. In any case, under this method in the past administration of CROMERR, EPA has required that registrants select and answer five of the candidate questions at the time of registration with the system. Thereafter, when the user enters his or her PIN/password electronic signature, he or she will be presented with one of the five selected challenge questions, which the system will choose at random. The entry of the correct response to the challenge question satisfies the CROMERR requirement for a second factor to strengthen the PIN/password signature.

The personal question challenge is recognized as a CROMERR compliant second authentication factor, and this method is therefore available for the e-Manifest system as a means to strengthen PIN/password electronic signatures. However, EPA has some concerns that this method of implementing a PIN or password signature may present difficulties for e-Manifest users, particularly for hazardous waste generators. There are about 139,000 RCRA hazardous waste generators (and many more state-regulated waste generators), many of whom may decide to use electronic manifests, and many of these generators are small entities that may ship hazardous waste infrequently, e.g., no more than two or three times per year. Since these generators will have infrequent contacts with e-Manifest, we are concerned that these generators will have difficulty recalling both their passwords and personal question responses from memory. Manifest signatures occur in the context of a live, commercial transaction, and the signature data will likely be entered on mobile devices brought to the generators' sites. Since the use of electronic manifests will be the default, the possibility that many generators could have difficulty executing both their passwords and personal question responses successfully may cause these users delay and frustration that could result in their continued reliance on paper manifests. To mitigate this possibility, we are also recommending an alternative method to the personal question challenge that users may find more suited to the manifest business process. This alternative may be used to satisfy CROMERR's requirement for a second authentication factor for PIN/password signatures for electronic manifests. It relies on a certification by a signature witness to strengthen the PIN/password signature. This method is explained in the preamble section below.

b. *Signature Witnessing as the Second Authenticating Factor for PIN/Password-Based Electronic Signatures.* The ''witnessed signature'' approach takes advantage of a unique feature of the manifest business process—that is, that manifests are typically signed by one party to the manifest (*e.g.,* the generator) in the presence of another party to the manifest (*e.g.,* the initial transporter). Manifests are signed by the generator when they are certifying to the transporter that the hazardous waste shipment is properly described and marked, and in proper condition for transportation. They are signed by transporters and designated facilities to acknowledge the receipt of the hazardous waste from the prior handler.

For the witnessed signature approach, EPA will require a witness's certification of the signature to reduce the vulnerability of the PIN or password to compromise. Signature witnessing will take place as follows. First, the waste handler signing the manifest will present their government-issued photographic identification (*e.g.,* driver's license, passport, or State-issued photo ID) to the witness. The witness will be expected to examine the name and picture contained in the photo identification, and to verify that the claimed identity of the signer is consistent with the information contained in the driver's license or other photo identification. To ensure that this identity check is performed, the system will prompt the witness to enter the last five digits of the identification number included on the presented credential (*e.g.,* the last five digits of the signer's driver's license number) and the witness will certify that this check was done. Second, EPA will rely upon the live witnessing of the signer's PIN or password signature act [13] as the distinct second authentication strengthening factor. The system will collect the evidence of both the signer's signature act and the facts attested to in the witness's certification, and the collection of this evidence is sufficient to satisfy CROMERR insofar as establishing that each electronic signature was valid at the time of signature. See 40 CFR 3.2000(b)(5)(i). A signature affixed to the e-Manifest in the presence of a witness with distinct interests to the signer is highly unlikely to be compromised, as the signer understands at the time of signature that the witness could testify against the signer should the signer later attempt to repudiate his or her signature. Because of the manner in which the signature witnessing process is conducted—with direct in-person contacts between the signatory and the witness at the time of signature, with reliance of the witness on a government issued identity credential of independent origin that includes a photo of the signatory, and with the certification statement of the witness that includes the durable and objective evidence (the driver's license number fragment)—this signature witnessing process also satisfies CROMERR's requirement for identity proofing under 40 CFR 3.2000(b)(5)(vii)(B). In this regard, while the interests of the generator and transporter in the waste transaction may be adverse to or distinct from each other rather than a ''disinterested'' relationship, EPA believes that the vetting of the generator's representative identity by the transporter's representative with each signature act is no less stringent than the one-time identity proofing by a disinterested party contemplated by 40 CFR 3.2000(b)(5)(vii)(A).

EPA believes that the witnessed signature approach can be implemented without excessive cost or complexity at the sites where hazardous wastes are shipped and delivered. EPA recommends this signature process for the first generation e-Manifests, because it does not depend on any authentication technology that is more sophisticated than a keypad device for entering the signer's and witness's PINs or passwords and the signer's license number data.

[13] It is the witnessing of the signature act, and not the actual PIN or password, that is intended here. Obviously, PINs and passwords are intended to be secrets, so the signer must not disclose his or her PIN or password to the witness during the signature ceremony.

EPA believes that the witnessed signature approach to strengthening a PIN/password signature will be most useful for executing the electronic signatures of hazardous waste generators. On the other hand, transporter and designated facility personnel who interact frequently with e-Manifest should have little difficulty recalling their PINs or passwords, or supplying the answers to their personal challenge questions. Thus, the witnessed signature approach we recommend here could be restricted to the strengthening of generator signatures, while transporter and designated facility personnel sign electronically with their PIN/passwords and respond to their personal question challenges for the 2nd authenticating factor.

When restricted to generator signatures, the witnessed signature approach would operate in the following manner. At the time of a hazardous waste pick-up by the initial transporter at a generator's site, the generator's representative would produce his or her government-issued picture ID (e.g., driver's license) to establish his or her identity to the transporter representative's satisfaction. The transporter's representative would check the license or other credential to ascertain that the identity claimed by the generator's representative is consistent with the presented credential. The generator and the initial transporter would then each sign the e-Manifest with their respective PINs or passwords in the other's presence. When the generator signs the generator's certification on the e-Manifest, the generator is merely completing the normal generator's/offeror's certification statements. When the initial transporter's representative signs with his or her PIN/password, the transporter representative's PIN/password signature both acknowledges the receipt of the hazardous waste from the generator, and certifies to witnessing the generator's signature, to checking the generator's identification, and to entering the last 5 digits of the generator representative's license number or other credential as evidence of the proofing ceremony. The generator and transporter each sign the electronic manifest once with their respective PINs or passwords, but the transporter's PIN/password signature carries the additional certification language indicating that the transporter vetted the identity of the generator.

While the above example would restrict the use of the witnessed signature approach to generator signatures that are witnessed by transporters,[14] it is conceivable that the method could be used for other waste handler signatures as well. For example, the generator could similarly certify to witnessing the initial transporter's signature, and a transporter delivering hazardous waste to the designated facility could witness the signature of the designated facility using the same type of credential vetting and certification approach described above for the generator's signature. The witness in each case shall also enter the last 5 digits of the signatory's driver's license number (or other credential number) as a part of the witness certification. If the identity claimed by the signer is not consistent with the identification credential produced by the signer, the witness should not certify to the witnessing of the signature and should not participate further in the e-Manifest transaction.

To support the witnessed signature approach and its required certifications, the e-Manifest system's electronic signature module would be designed to prompt witnesses for the certifications and to collect the necessary certifications and license (or other credential) number data independently of the manifest form elements. The advantage to this is that the e-Manifest format would not itself need to be revised to accommodate this approach, and the same e-Manifest format that is supplied for e-Manifests signed with the digitized signature method or other e-signature methods could be used for PIN and password signatures.

EPA generally believes that the witnessed signature approach to PIN/password signatures will be more practical for the manifest user community to implement in a first generation system than other available technology-based second factor approaches that we have evaluated. We have also determined this signature method to be CROMERR-compliant, and we believe that this method can be implemented in a manner that is inexpensive and not excessively burdensome for the manifest users.

EPA emphasizes that the electronic signature methods described here for the first generation e-Manifest system are not intended to preclude consideration of other electronic signature approaches that are CROMERR compliant, nor is the description in this preamble of the witnessed signature approach intended to rule out other CROMERR compliant approaches for implementing a second authentication factor[15] for the PIN or password signatures. The first generation methods described here are those for which we now have sufficient information[16] to enable us to conclude that they are consistent with CROMERR and otherwise well-suited for the manifest business process.

H. Requirements for Obtaining and Using the Electronic Manifest

Under the May 2001 proposed rule, EPA proposed to modify existing § 262.20(a) so that it would present both a paper form option under proposed § 262.20(a)(2) and an electronic manifest format option under a new provision that we proposed in § 262.20(a)(3). Under proposed § 262.20(a)(3), EPA proposed authorizing the use of all electronic manifests that were: (1) Used in accordance with the proposed electronic manifest use requirements in proposed § 262.24; (2) signed in accordance with the proposed electronic signature requirements in proposed § 262.25; and (3) generated and maintained on electronic systems which met the proposed security requirements in proposed § 262.26. If all of these conditions were met, then proposed § 262.26(a) further clarified that these electronic manifest copies would be considered the legal equivalent to paper manifest copies bearing handwritten signatures, for the purposes of satisfying any of the RCRA regulatory requirements pertaining to hazardous waste manifests. See 66 FR 28240 at 28304.

Based on the comments received in response to the May 2001 proposed rule as well as the comments submitted in response to the April 18, 2006 NODA, EPA is finalizing the provisions of § 262.20(a) to reflect the changed approach to the electronic manifest that we have adopted since the May 2001 proposed rule was announced. Thus, in this final rule, § 262.20(a)(1) imposes a requirement that all off-site shipments of hazardous waste[17] must be

[14] Whether the witnessed signature approach might be used only in connection with generator signatures or used more extensively is a system design issue that EPA will determine after consultations with stakeholders and the IT contractor(s) developing the system.

[15] As authentication technologies mature and become more mainstream or cost-effective, authentication technologies based on tokens and biometrics may be found to meet the selection criteria.

[16] As discussed previously, we are tentatively concluding that the digitized handwritten signature method may be CROMERR-compliant and suitable for e-Manifest, but a final evaluation of this method will depend on one or more of these products being shown to be reliable through peer-reviewed studies.

[17] This regulation does not affect or alter existing RCRA regulatory exemptions from the manifest requirement, e.g., the exemption for conditionally exempt small quantity generators at 40 CFR 261.5; the exemption for small quantities of hazardous waste reclaimed under reclamation agreements per

accompanied by a manifest, which may be satisfied under § 262.20(a)(2) by preparing and using the current paper forms (EPA Forms 8700–22 and 22A) for the manifest and continuation sheet, or, by preparing and using the electronic manifest format described in § 262.20(a)(3) of the final rule. Rather than specifying either an EDI format or an Internet Forms format such as we discussed in § 262.20(a)(3) of the proposed rule, the final rule requires simply that generators must obtain and complete in accordance with § 262.20(a)(3) the requirements of the electronic manifest format supplied by EPA's national e-Manifest system that the Agency will establish and host in accordance with the e-Manifest Act. As discussed previously in section III.E. of this preamble, EPA currently intends to develop and maintain a schema and stylesheet in XML (or functional equivalent) to support the presentation and exchange of manifest data on the web-based e-Manifest system.

Under § 262.20(a)(3) of this final rule, if electronic manifests are obtained, completed, and transmitted on the national e-Manifest system in accordance with this section's requirements, and signed electronically using the ''valid and enforceable electronic signature'' required under 40 CFR 262.25, then these electronic manifests shall be considered the legal equivalent of paper manifests signed with conventional ink signatures. Thus, this final rule authorizes the use of all electronic manifests that are obtained, completed, signed, and transmitted through the national e-Manifest system in accordance with the requirements of § 262.20(a)(3). Wherever the existing regulations require a manifest to be supplied, signed, used or carried with a hazardous waste shipment, the execution of an electronic manifest on the national e-Manifest system shall be deemed to comply with these requirements to obtain, sign, carry, or otherwise use the hazardous waste manifest.

Because electronic manifests will be directly reported to EPA, the submission of electronic manifests on the national e-Manifest system are currently governed by the provisions of 40 CFR 3.10, which addresses direct reporting of environmental information to EPA through EPA's CDX portal or other system designated by the Administrator. Therefore, compliance with the 40 CFR 3.10 requirements for direct electronic reporting to EPA is required under § 262.20(a)(3) of this final rule as one of the conditions that must be met to obtain and execute a valid electronic manifest.

The requirements for direct electronic reporting of compliance information to EPA were announced in the final CROMERR rule, 70 FR 59848 (October 13, 2005). This rule provides a consistent legal and policy framework for electronic reporting to EPA under the Agency's various environmental programs that are codified in Volume 40 of the Code of Federal Regulations. For all electronic documents that are submitted directly to EPA, the requirements of CROMERR § 3.10 state that in order for electronic documents to be considered the legal equivalent of paper submissions, the electronic document must be transmitted to the EPA's CDX or other system designated by the Administrator and bear all valid electronic signatures that are required. CROMERR also provides that, if the corresponding paper document is one that must bear a signature under existing regulations, then the electronic document must bear a ''valid electronic signature.'' 40 CFR 3.10. We discussed the ''valid electronic signature'' requirement of CROMERR in the context of our discussion of electronic signature selection criteria above in section III.G. of this preamble.

By providing a consistent, national e-Manifest system that will be accessed through EPA's CDX electronic reporting portal or other system designated by the Administrator, EPA is thereby providing a straightforward means for establishing electronic manifests that will be the legal equivalent of the current, hand-signed paper manifest forms. By tying the e-Manifest to the CDX or other system designated by the Administrator, and by developing this final rule consistently with the CROMERR legal framework for electronic reporting to EPA, the requirements for the use of electronic manifests are more straightforward under this final rule than under the decentralized approach to the electronic manifest that we proposed in May 2001. Electronic manifests that are obtained, completed and transmitted in accordance with § 262.20(a)(3) on the EPA's e-Manifest system, and that are signed with valid electronic signatures as described in 40 CFR 262.25, are deemed by this rule to be valid manifests for purposes of RCRA. The primary purpose of this final rule is to clarify that electronic manifests that are obtained, executed, and signed in this fashion are authorized for use as legally valid manifests for all RCRA purposes. While, as explained previously, one printed copy of the electronic manifest must be carried on the transport vehicle during the transportation of federally regulated hazardous wastes, the electronic format is considered a fully equivalent substitute for the use of the manifest paper forms (EPA Forms 8700–22 and 8700–22A).[18] The electronic formats so obtained and completed shall meet all requirements in RCRA for supplying, completing, signing, sending, retaining[19] or otherwise dealing with a hazardous waste manifest. In particular, electronic manifests supplied and executed on the e-Manifest system shall be just as admissible as the paper manifest forms in civil, criminal, or administrative proceedings where manifests may be offered as evidence.

EPA has included definitions in 40 CFR 260.10 to clarify the relationship between the electronic manifest and the e-Manifest system on which electronic manifests are obtained, completed, and transmitted. The term ''electronic manifest'' (or ''e-Manifest'') refers to the electronic format of the hazardous waste manifest that is obtained from EPA's national e-Manifest system, and that is the legal equivalent of EPA Forms 8700–22 (Manifest) and 8700–22A (Continuation Sheet). The term ''Electronic Manifest System'' or ''e-Manifest System,'' on the other hand, refers to EPA's national information technology system through which the electronic manifest may be obtained, completed, transmitted and distributed to users of the electronic manifest and to regulatory agencies.

I. Public Access to Electronic Manifest Data

1. *Introduction.* EPA proposed two distinct options in separate public notices (April 18, 2006, 71 FR 19842 and February 26, 2008, 73 FR 10204) to solicit comments from the public on whether manifests submitted to the e-Manifest system should be eligible for treatment as CBI. In the April 18, 2006 public notice and request for comment,

40 CFR 262.20(e); or the exemption for universal waste shipments in 40 CFR Part 273.

[18] This statement applies in instances where the electronic manifest is signed with an electronic signature that has been determined to be legally valid and enforceable. As discussed in section G.5.ii. of this preamble, if a signature method is used on an interim or pilot basis pending testing, a single paper copy of the manifest will be required to be carried with the shipment to collect the ink signatures of waste handlers, and to be retained by designated facilities.

[19] This regulation does not address retention of electronic manifests beyond the 3-year record retention period required of paper manifests. EPA is aware that some manifest users now choose to retain manifests for longer periods or indefinitely for a variety of reasons. When the System Advisory Board is formed, EPA will discuss with stakeholders if the system should provide extended records retention or archiving (with an appropriate fee for that service) or if other extended storage options are available.

EPA included a general discussion of the Agency's conceptual approach to the design and operation of the e-Manifest system. We stated that we would develop the system so that it would support, as far as possible, the provision of reliable manifest services. We also stated that we would adopt the necessary measures and controls that were necessary to comply with EPA and federal policies protecting information security, privacy, and CBI. 71 FR 19842 at 19847. We also summarized the existing procedures for submitting and obtaining determinations of CBI claims under the 40 CFR part 2 regulations. As a part of this discussion, we suggested further that any CBI claims that might arise in connection with the e-Manifest system would need to be asserted at the time of the submission of the electronic manifest to the system, or the claim would be waived. *Id.* At 19847–19848. At the time we issued the April 2006 public notice, we believed that it was appropriate to plan for the consideration of any CBI claims for manifest data within the context of the 40 CFR part 2 procedures, as well as the more specific provision applicable to RCRA information at 40 CFR 260.2(b). The § 260.2(b) regulation provides that CBI claims respecting information required under the Subtitle C hazardous waste regulations will be addressed in accordance with the Part 2 standards and procedures, and further requires that a RCRA CBI claim must be made at the time of submission of the information to EPA, or the claim will be waived.

EPA received several public comments on the CBI related statements contained in the April 2006 NODA. A state-agency commenter presented the view that nothing in the e-Manifest system should be allowed to be withheld from public disclosure as CBI, since the manifest is on its face a document that is shared with and viewed by several entities in its normal use. On the other hand, a large waste disposal and treatment company and a trade association of hazardous waste treaters and disposers offered comments supporting the view that some manifest data might be claimed as CBI. These commenters were especially interested in protecting customer information from being mined from electronic manifests by competitors. The industry members commenting in April 2006 seemed to be most concerned that the availability of this information electronically would enable competitors to obtain more immediate and efficient access to their customer information.

Because of continuing questions that had been raised regarding the handling of manifest data, and whether these data should be entitled to CBI protection, the Agency requested further comment on public access and competitive harm issues in a NODA and request for comment that was published in the **Federal Register** on February 26, 2008. EPA explained that it had evaluated the public access/CBI issue more closely as it prepared for the development of the e-Manifest system, and announced that it had determined to categorically exclude individual hazardous waste manifests from CBI coverage. The effect of the new policy is that EPA made a categorical determination that it would not accept any CBI claims that might be asserted in the future in connection with the processing, using, or retaining of individual paper or electronic manifests.

EPA announced its proposed decision to establish a new categorical policy for addressing CBI claims for individual hazardous waste manifests for a couple of reasons. First, the public notice explained EPA's belief that any CBI claim that might be asserted with respect to individual manifest records would be extremely difficult to sustain under the substantive CBI criteria. 40 CFR part 2, Subpart B, and 40 CFR 260.2. We stated that as manifests are shared with several commercial entities while they are being processed and used, a business concerned with protecting its commercial information would find it exceedingly difficult to protect its individual manifest records from disclosure by all the other persons who come into contact with its manifests. 73 FR 10204 at 10208. Second, we explained that much of the information that might be claimed by industry commenters to be CBI is already available to the public from a number of government and other legitimate sources, because a large number of states now require the submission of generator and/or TSDF copies of manifests to state data systems, and the data from these manifests are often made publicly available through state Web sites or reported and disclosed freely in federal and state information systems. For these reasons, among others, we stated that manifest records and data contained in them should not be subject to CBI claims, as the information is to a significant extent available from other sources.

The February 2008 NODA also acknowledged that the waste management industry was concerned that the aggregation of manifest records and data contained in them in one national system may enable competitors to obtain more immediate and efficient access to their customer information, and thus, potentially create competitive consequences not experienced under the current paper system. The public notice further stated that we had little information available at that time on whether states have generally withheld or disclosed aggregate data, as information provided previously by the states did not disclose any pattern of states withholding or releasing such data. Therefore, the public notice also requested comment on whether aggregate manifest data requests should similarly be categorically excluded from CBI coverage, or, whether aggregate data requests merited special handling (e.g., redacting information), because of the possible efficiency with which aggregate data might be mined for competitive purposes from the national system. In addition, we specifically requested comment from the waste management industry on how substantial the harm would be to companies' competitive position if aggregate data were released in response to a FOIA request. 73 FR 10204 at 10209.

2. *Comment Analysis.* State and waste industry commenters generally agreed with EPA's position that CBI protections would not apply to requests for individual manifests, since an individual manifest could not itself disclose a customer list. However, there was strong disagreement between the industry and state commenters on whether to apply CBI protection to aggregate manifests or data compilations developed by querying the system.

Several state commenters indicated their general support for the position that aggregate manifest data should not be protected as CBI. The states with manifest tracking programs tend to freely disclose their manifest data to the public. One such commenter (NYDEC) indicated that it does not and never has honored CBI claims for manifest information. The commenter stated that manifest data should not be eligible for treatment as CBI, whether the data are submitted on paper or electronically. Another state commenter emphasized in its comments that anyone with relational database experience could already generate significant customer list information by downloading RCRA biennial report files that are now available from EPA, and by examining shipment data reported through the biennial report by large quantity generators.

Another commenter representing State governments (The Association of State and Territorial Solid Waste Management Officials or ASTSWMO) stated that, based on information that it has collected, most States do not honor

CBI claims for manifest information. The commenter stated that most states it contacted have indicated that they do not afford CBI protection to either individual manifests or aggregated data, and these states thus believe that neither individual nor aggregate manifest data should be subject to CBI protection under our federal policy. Another state agency commenter (MIDEQ) also stated its agreement with the policy that neither individual nor aggregate manifest data may be claimed as CBI. The commenter indicated that this state does not honor CBI claims for any manifest information. However, one state agency (Ohio EPA) indicated that manifest data probably would be subject to CBI protection in that state. The State indicated that, based on the fact that most of its facilities currently claim business confidentiality for their similar customer identification information submitted with these facilities' hazardous waste annual reports, it is expected that they would likewise claim CBI protection for their manifest submissions to Ohio.

Industry commenters generally did not support a categorical policy that would exclude aggregate manifest data from CBI protection. A trade association for the waste industry (The Environmental Technology Council or ETC) explained that the ability to efficiently aggregate manifest data through the e-Manifest system would pose significantly different concerns relative to the more substantial effort required to assemble a customer list under the current paper-based system. The commenter emphasized that the creation of a useful customer list from the existing paper manifests is exceedingly expensive and time consuming, and that the information that could be obtained under the paper system would be incomplete and of significantly less value than the aggregated data that could possibly be obtained through querying a nationwide e-Manifest system. A competitor able to obtain this information at minimal expense could obtain an unfair competitive advantage.[20] For this reason, these industry commenters supported the idea of EPA redacting customer information before disclosing aggregate manifest information pursuant to a FOIA request.

The commenter also stated that all of its member companies currently treat customer lists as ''valuable and confidential'' information within the meaning of FOIA and that courts have generally assumed great competitive harm would result from their disclosure.[21] In addition, the commenter disagreed with the Agency's suggestion that requesters could obtain much of this aggregated manifest data from those states that have adopted less protective CBI interpretations, arguing that some states (e.g., CA) have specific statutory protections for customer lists, and that state courts have been more protective of such business information.

Finally, a Federal sector generator (the Department of the Navy) raised another concern based on anti-terrorism and security considerations, that is, that the ability to data-mine the e-Manifest system might pose opportunities to obtain information on the types and locations of hazardous wastes.

3. *Legal Authority and States' Experience With Handling Manifest Data.* In this section of the preamble, EPA will first summarize the existing authorities and procedures that govern CBI under federal law. We will summarize as well how manifest records have been handled for more than 20 years by the states, which have had significant involvement with collecting manifest records and applying their records laws over the years to the collection of many millions of manifest records.

i. *Legal Authority.* The Federal Freedom of Information Act, 5 U.S.C. 552(a), section 3007(b) of RCRA, and EPA regulations implementing the Freedom of Information Act and RCRA section 3007(b) generally mandate the disclosure to the public of information and records in the possession of government agencies. However, there are nine categories of information that may be exempt from disclosure, and one such category of information (Exemption 4) is for ''trade secrets and commercial or financial information obtained from a person and privileged or confidential.'' 5 U.S.C. 552(b)(4). EPA has adopted regulations at 40 CFR part 2, Subpart B, to address the handling of claims respecting the confidentiality of business information.

Under these statutes and regulations, ''business information'' means information which pertains to the interests of a business, was acquired or developed by the business, and which is possessed by EPA in a recorded form. 40 CFR 2.201(c). Such business information may be claimed by an ''affected business'' to be entitled to treatment as CBI if the business information is a ''trade secret'' or other type of proprietary information which produces business or competitive advantages for the business, such that the business has a legally protected right to limit the use of the information or its disclosure to others. *Id.* at § 2.201(e).

Under 40 CFR 2.204 and 2.205, there are procedures specified for EPA to develop interim and final determinations to resolve CBI claims submitted by affected businesses. The interim and final confidentiality determinations are governed by the substantive criteria in 40 CFR 2.208. Pursuant to § 2.208, EPA must find that the business information that is the subject of a claim is entitled to CBI treatment if:

a. The claim has not been withdrawn or waived;

b. The business has satisfactorily shown that it has taken reasonable measures to protect the confidentiality of the information, and that it intends to continue to take such measures;

c. The information is not, and has not been, reasonably obtainable without the business's consent by other persons (other than governmental bodies) by use of legitimate means; and

d. No statute specifically requires disclosure of the information and the business has satisfactorily shown that disclosure of the information is likely to cause substantial harm to the business's competitive position.

ii. *States' Experience With Manifest Records.* RCRA-authorized states with manifest collection and tracking programs have had much more experience than EPA in addressing the public availability of manifests. Based on information developed from a survey of state programs conducted by ASTSWMO, and other available information, it appears that the 20 or more states with manifest collection and tracking programs generally treat manifests as publicly available records. Some states have broad public records laws that mandate the availability of all manifest records, while other states have public records laws with CBI provisions similar to the federal authorities discussed above. Of the nine states that responded to the ASTSWMO survey, only one state (Ohio) opined that waste facilities in that state might be expected to claim CBI for manifest submissions, as several TSDFs in the state had asserted CBI claims with respect to similar data submitted as a part of the state's Hazardous Waste Annual Report. A second state stated that although it does not now collect manifests, if it were to obtain these records and there were CBI claims involved, it would refer these confidentiality claims to the state's legal office for resolution of the claim.

[20] In a subsequent clarifying comment, the ETC attempted to quantify the harm that would result, by asserting that if just 1% of a large member company's business were lost to competitors, the resulting financial loss could be in the range of $7 million to $9 million.

[21] *Greenberg* v. *FDA, 775 F.2d 1169.*

The remaining seven states that responded to the ASTSWMO survey explained that manifest records would not qualify for CBI treatment under their states' public records laws. Several of these states make their manifest records freely available on state Web sites or by compact disk to anyone who requests them. These methods of fairly general public disclosure have not generated significant controversy among the waste facilities doing business in these states. Other states explained that because manifests are by their nature shared with numerous commercial entities and perhaps emergency responders while they are being completed and used, it would be extremely difficult to protect the confidentiality of the data, and, therefore, difficult to sustain a CBI claim. Similarly, several states in their ASTSWMO survey responses emphasized that manifest records and data can be obtained quite readily from a variety of legitimate means, including requests to other states, or by accessing summary data available from state or federal hazardous waste information systems.

In 2008, we requested clarifications from the five states (IL, MI, NJ, NY, and OH) that commented previously to either the April 2006 NODA or the February 2008 NODA. Although we received a number of comments from state regulatory agencies, the previously submitted state comments did not differentiate clearly between individual manifests and aggregate data when discussing state policies. Thus, we could not ascertain whether the states which stated that they generally released manifests upon request were also releasing aggregate manifest data upon request. The purpose of the 2008 comment clarification was to flesh out better whether these states are: (1) Already releasing aggregate manifest data in response to public requests; or (2) imposing any CBI related limitations on the information they will disclose in response to such a request. We also asked these states to explain whether they allow CBI claims for information submitted for the states' hazardous waste reports, because we are aware that a previous state survey had indicated that some states allow CBI claims for their Hazardous Waste Reports.[22] Since similar information linking waste management firms and their generator customers could be made available from both the states' Hazardous Waste Reporting systems and from their manifest data systems, one would expect consistent policies regarding CBI coverage for customer information.

Based on the requested clarifications, two states (NJ and NY) may directly or indirectly make aggregate data available to the public upon request. The New Jersey Department of Environmental Protection (NJDEP) makes aggregated data available for a fee, unless the requestor downloads the data from their public internet Web site. The NJDEP does not impose any CBI related limitations on the information they disclose in response to public requests for aggregate data. The New York Department of Environmental Conservation (NYDEC) makes manifest data available in text format on their department Web site. If manifest information can be queried from their state database system, then it is provided for a fee to the requestor of the queried information. The Michigan Department of Environmental Equality (MIDEQ) does not conduct queries to generate aggregate lists for FOIA requestors. Manifest data, however, is available on a MIDEQ public internet Web site, but not in a manner to easily produce aggregate lists. The other two states (IL and OH) do not provide hazardous waste manifest record data to the public but they do provide hazardous waste report data.

In the case of Hazardous Waste Report data, four states (IL, MI, NJ, and NY) generally do not treat any data in these reports as CBI. The NYDEC has granted CBI claims, however, for certain information contained in hazardous waste reports, but has never granted a CBI claim based on manifest data contained in a report. The IL EPA makes manifest data available through hazardous waste reports, but does not allow CBI on any of its Hazardous Waste Report data. The OH EPA is the one state that does allow CBI claims for its Hazardous Waste Annual Reports.

4. *Final Rule Decision for Individual Manifests.* Based on the information now available to EPA, we have concluded that information contained in individual hazardous waste manifest records, including any individual electronic manifests that may be submitted and collected electronically through the e-Manifest system, is essentially public information and therefore is not eligible under federal law for treatment as CBI. The effect of this decision is that EPA is making a categorical determination that it will not accept any CBI claims that might be asserted in the future in connection with processing, using, or retaining individual paper or electronic manifests. This decision will apply prospectively from the effective date of this final rule—that is, 180 days after the date of publication in the **Federal Register**, because the Agency has not previously announced this position and thus it would be unfair or inappropriate for the Agency to release such information, particularly for those companies that have previously made such a claim. Thus, it will not impact any CBI claims or any determinations made in the past by EPA in resolving manifest-related CBI claims. Our rationale is explained in the following paragraphs.

First, we believe that any CBI claim that might be asserted with respect to individual manifest records would be extremely difficult to sustain under the substantive CBI criteria of 40 CFR part 2, Subpart B and of 40 CFR 260.2, because they must be shared with several commercial entities while they are being processed and used, and must be made available to emergency responders. A business that still desires to protect commercial information would find it exceedingly difficult to protect its individual manifest records from disclosure by all the other persons who come into contact with its manifests. For example, a business desiring to protect commercial information in the manifest context would need to enter into and enforce non-disclosure agreements or similar legal mechanisms with all its customers and other third parties and affected interests who might also be named as waste handlers on its manifests or who otherwise might be expected to come into contact with its manifests.

Second, as many states now require the submission of generator and/or TSDF copies of manifests, and the data from these manifests are often made publicly available or reported in federal and state information systems, it is apparent to EPA that many manifest records and the information on them linking waste management firms and generators or transporters are already available from a number of states and other legitimate sources. We did not find any significant history or record of current state practices withholding individual manifests from disclosure on account of customer information, with the narrow exception of a California statute that applies only to certain state-regulated (not RCRA) wastes and the

[22] In August 2004, an official with the Ohio EPA surveyed the states on their Site ID, manifest tracking, and Hazardous Waste Reporting requirements. As part of the 2004 survey, 44 States responded to the question ''Do you allow CBI claims on the Hazardous Waste Report?'' The responses to this question from the 44 respondents was evenly split between states that would allow and states that would not allow CBI claims for their Hazardous Waste Report data.

disclosure of transporter/customer information.[23]

Since the states have had far more experience than EPA with the collection and disclosure of manifests, EPA is persuaded that the states' policies in this area are entitled to some deference. Several state programs now deny CBI treatment to data contained in manifest records,[24] while other states have indicated to EPA that they routinely disclose manifest records to the public. EPA has concluded that among the States that collect manifest copies, it has been the general practice among these states for more than 20 years to disclose manifest data without CBI limitations. Our information on state practices suggests that free disclosure has been the predominant practice for dealing with data from individual manifest records among these states, and there have not been significant objections raised by members of industry to those states' disclosure practices. EPA is not persuaded that it should reverse this long-standing policy among those states by adopting a Federal policy that conflicts with the prevailing state laws and policies on this issue.

Finally, we note that the comments submitted by members of the regulated industry in response to the February 2008 notice generally conceded the point that individual manifests and the data included in them should not be the subject of CBI claims. These commenters agreed that individual hazardous waste manifests are basically treated as public information.

For these reasons, we believe that individual manifest records and the data contained in them should not be subject to CBI claims, since they are not entitled to protection as CBI in nearly all states that collect hazardous waste manifests. Since many manifests are available to the public without restriction in a significant number of states, EPA has determined that data from individual manifests cannot be claimed to be confidential under Federal information law. Therefore, we have codified in 40 CFR section 260.2(c)(1) this categorical policy that the data included in individual hazardous waste manifests cannot be the subject of CBI claims. This policy will apply prospectively to electronic and paper manifests, and to domestic and transboundary shipment manifests.

5. *Final Rule Decision With Respect to Aggregate Manifest Data.* As mentioned previously, industry and state commenters did not agree on the CBI policy that should apply to aggregate manifest data. While we understand industry's comments and concerns regarding the potential harm to a company's competitive position if aggregate data from multiple manifests could be obtained efficiently from EPA through the system or under a FOIA request, we are not persuaded by the comments that EPA should treat aggregate manifest data obtained from the system as confidential business information. The e-Manifest system is being developed so that electronic manifests and data are available to the authorized states at the same time they are available to EPA. We now understand from state comments and from state responses to surveys and requests for clarification that among the states that collect and track manifests, the policy of many of these states is not to recognize any CBI claims when processing requests from the public for aggregate manifest or waste receipt data. We identified some 21 states from questions or surveys addressing state policies with respect to processing requests for data from both state manifest tracking systems and state waste receipt information managed in the states' annual report data systems. Thus, a large amount of aggregate information, including information on facilities and their generator customers, would be available from many of these 21 states without CBI restrictions. These states' disclosure policies will still apply after states begin to acquire their manifest data from the e-Manifest system. Since a substantial amount of aggregate data could be obtained by the public through these states, EPA is not convinced that it should accord such information confidential status under federal information law.

We would also note that EPA cannot objectively determine whether a particular system search or FOIA request would entail the disclosure of a company's customer list. EPA requested comment in the February 2008 notice to help us determine how many manifests or how much aggregate information should be involved in a search or an aggregate record before CBI concerns would be triggered. We received no comments to help us with this determination, other than comments from industry relying on a ''mosaic'' theory to support their argument that the e-Manifest system could disclose CBI. The mosaic theory is premised on the notion that information already available to a requestor, when combined with information it might obtain from the government, may in total amount to a customer list. The problem posed by this argument is that EPA cannot possibly know how much customer information a particular requestor already has available from other sources, or whether a relatively small or large amount of additional information is needed from e-Manifest to enable that requestor to assemble a full customer list. The mosaic theory does not provide EPA with any practical or objective basis for recognizing CBI in the e-Manifest system.

As we explain above—the states' current and long-standing policies generally favoring disclosure of all manifest data, the availability of much of this aggregate information from State data systems and the RCRA Biennial Report, and the difficulty of identifying objectively when a customer list would be disclosed to a competitor—do not support the policy of treating aggregated manifest data as CBI in the manner advocated by the regulated industry. Therefore, our final rule decision is to categorically exclude aggregate manifest data obtained from the e-Manifest system from CBI coverage.

While EPA is categorically denying CBI treatment to both individual manifests and to aggregate manifest collections or reports obtained in response to data queries or FOIA requests involving manifest data, EPA recognizes that manifest information in its possession may not be ready for general release to the public. Manifest preparers and waste handlers responding to manifests need sufficient time to address discrepancies or exceptions related to hazardous waste shipments and to verify and correct data

[23] Hazardous waste transporters that are authorized by CA to use CA's consolidated manifesting procedures must submit quarterly reports to the CA EPA Department of Toxic and Substances Control (DTSC). The consolidated manifesting procedures apply to non-RCRA/CA hazardous waste or to RCRA hazardous waste that is not subject to the federal manifest requirements. The CA Health and Safety Code § 25160(d) prohibits the disclosure of the association between any specific transporter and specific generator. The list of generators served by a transporter is deemed to be trade secret and confidential business information for purposes of Section 25173 and Section 66260.2 of Title 22 of the California Code of Regulations. CA freely discloses information from RCRA hazardous waste manifests.

[24] In January of 2007, the MI state representative on EPA's E-Manifest Final Rule Work Group disseminated a survey on behalf of ASTSWMO, through the Hazardous Waste Program Operations Task Force, to interested states in order to request information about their state manifest requirements, including the requirements for public access/CBI to manifest records. Eight states responded on how they currently treat or might treat manifest data as CBI. Responses from the eight states are as follows: One state (NY) denies CBI treatment to manifest records; One state (OH) allows TSDFs to claim CBI on their annual waste report; Four states (ID, OR, SC, CT) do not give CBI treatment to manifest data reported on quarterly or annual reports; and Two states (FL, MI) indicate that they would not give manifest data CBI treatment. In addition, three states (MD, NJ, PA) that participated on the regulatory work group, but were not included in the ASTSWMO survey, indicated that their state would not treat any manifest data as CBI.

recorded on their manifests. Until such time as these corrections can be made and manifest data can be verified and finalized, manifest data will be considered ''in process.'' To that end, unless otherwise required by federal law, we are extending the amount of time that manifest data will be considered ''in process.'' EPA will make manifest information in e-Manifest available on-line 90 days from the date hazardous waste is delivered to the designated facility.

EPA indicated in our prior notices that it would not directly disclose manifest data that are ''in process'' or unverified to other manifest users or to other members of the public. We indicated that live or in process manifests would only be accessible by those waste handlers named on the manifests, as well as by regulators and emergency responders. We also proposed in the February 2008 notice that we would not directly disclose manifest data to the public for at least 60 days after the start of a waste shipment, as this period would provide the necessary time for the shipment to be delivered, for exceptions and discrepancies to be resolved, and for manifest data to be verified or corrected. 73 FR 10204 at 10209 (February 26, 2008). Commenters on this proposal noted that 60 days may not be a sufficient amount of time in several instances for manifest data to be verified and corrected. These commenters stated that it could take several months for manifest data to be verified and corrected, and one commenter noted delivered wastes may be stored for as long as a year under the RCRA Land Disposal Restrictions before the containers are opened and the wastes are verified before treatment. We also received comments indicating that there are hazardous waste shipments that could pose national security concerns if shipment information were to be made directly available to the general public during transportation and this information were to fall into the hands of those who might use these materials to do harm to other persons or to the homeland.

Thus, in response to comments stating that our proposed 60-day time period for verification and correction of in process or incomplete manifest data was insufficient, and to respond to comments addressing the security concerns with waste shipments that are in process, we are adopting in this final rule our decision to amend 40 CFR 260.2(c)(2) to state that manifests are considered to be in process and subject to correction and verification for a period of 90 days.

This 90-day period for correction and verification of waste shipment information will be measured from the date of receipt of the waste by the designated facility, rather than from the date of the start of transportation. Until this 90-day period has passed, unless otherwise required by federal law, manifests are not considered complete and final documents and will not be disclosed directly to the public via on-line access to the e-Manifest system. During this period of restricted direct, on-line access to manifest data, the manifest information in the system will be fully available to regulators and to emergency responders. These in process manifests would also be available to local governments or police agencies that have been delegated inspection or program implementation responsibilities by their States. Hazardous waste handlers will also have direct access to those manifests on which they appear as the named handlers of waste shipments.

Therefore, this final regulation announces a 90-day period measured from the date of receipt of hazardous waste shipments by the designated facility during which only regulators, emergency responders, and the waste handler entities named on particular manifests will have direct on-line access to manifest data. EPA will not provide the general public with direct, on-line access to these data during this 90-day period, but will make such information available to the public to the extent required by other Federal law, e.g., the Freedom of Information Act or FOIA. After the 90-day period of restricted access has passed, the Agency intends to provide full direct, on-line access by the public to all manifest data in the system.

EPA emphasizes that the policy reflected in this regulation of restricting access to data for 90 days from the date of receipt of waste by the designated facility is limited to EPA in its role as the federal custodian of data in the e-Manifest system data repository. Since authorized states will receive electronic manifests and data simultaneously with EPA, this federal policy does not affect the states' policies on disclosure of manifest data under their public information laws. States that wish, for example, to disclose manifest data to the public more immediately after the receipt of hazardous waste shipments are free to do so under their public information laws, and these states may continue to do so once this regulation is in effect.

J. Will electronic manifests be optional or mandatory for users?

1. *Background.* In the April 18, 2006 NODA in which EPA announced that a national e-Manifest system was the preferred regulatory option, the Agency solicited comments on whether the use of the e-Manifest system should be mandatory.[25] 71 FR 19842 at 19845. We heard a number of users at the 2004 stakeholder meeting urge EPA to develop an electronic manifest as an optional tracking tool for manifest users, while maintaining a paper option for some small businesses that may not have the economic incentive to invest in electronic manifest capabilities. While EPA will procure the applications and IT services to support electronic manifesting on the CDX and Exchange Network architecture (or other appropriate system), EPA understands that manifest users will still need to make initial investments—to provide or acquire the computers or portable front-end devices and network access for entering data to the e-Manifest system, to integrate the e-Manifest system with their existing data systems, etc.—before they can leverage the savings that will arise from electronic manifesting. Large volume users of manifests will likely realize the greatest net savings and therefore possess the greatest incentives to be early adopters of the e-Manifest system. Moreover, we anticipate that the larger transporters and waste management facilities (RCRA TSDF firms) would be the entities most likely to participate in the initial phases of e-Manifest system implementation, and that these larger entities will likely bring the portable technology to many of the small businesses and generator sites that they service as their customers. EPA expects that electronic manifest use will increase over time, and that users will be motivated primarily by the economic savings and convenience of electronic submission. Additionally, as more users join the e-manifest system the cost of maintaining a paper system will fall on a smaller and smaller group of paper users, likely resulting in ever-increasing fees for paper submissions.

On the other hand, EPA has also heard views expressed by some that it would be advantageous to mandate the use of electronic manifests. A mandatory electronic manifest may create a more certain environment for the IT vendors that choose to bid on the

[25] EPA solicited comment on this issue before the enactment of the statute, which provides that the use of electronic manifests be at the election of the user. We believe it is appropriate to discuss the comments received on this issue, and our responses to those comments in this section.

e-Manifest system procurement, and it would eliminate the concern among some state officials that an elective electronic manifest would result in disparate systems, in which some manifest data are received electronically through the e-Manifest system, while the remainder of manifest data would still exist on paper forms and would need to be processed manually. This would increase the cost of operating the E-manifest system. Further, there is much merit to the point that a mandatory electronic manifest will expedite and maximize the realization of economic savings and other benefits that will result from electronic manifesting. Clearly, if the electronic manifest were mandatory, it would be much easier to integrate manifest and RCRA biennial reporting, as the collection of electronic manifest data could replace the current process under which a separate set of Waste Receipt forms are collected from RCRA TSDFs for the biennial report. Therefore, we solicited comment on the merits of a mandatory versus optional electronic manifest.

2. *Comment Analysis.* EPA received a number of comments from the regulated community and from authorized state agencies on the issue of an optional versus mandatory electronic manifest. Among the regulated community commenters, we received 10 comments addressing this point. Nine of the ten industry comments favored an optional E-Manifest system for users, although three of these comments suggested that EPA might consider moving to a mandatory system after two to three years. Only one industry commenter recommended without qualification that the use of electronic manifests should be mandatory for all users.

Among the industry comments favoring retaining the paper manifests, the points frequently raised in these comments were: (1) Small generators would lack the computer resources and would find that the needed IT investments would not be outweighed by cost savings, (2) the paper option would be a useful backup in the event the electronic system went down, (3) users might want to pull out of the e-Manifest system should they find the electronic manifest fees to be unreasonable, (4) the elective nature of the electronic system would incentivize the IT vendor to develop the best e-Manifest system at the lowest cost, and (5) the view that some companies may choose to continue to use paper manifests out of concern for information security issues and data confidentiality issues with the electronic system. The commenters who advocated a transition to mandatory use after two or three years supported their position with the comments that a two to three year period of optional use would give users time to prepare for the electronic system and for the system to prove itself. Such an approach would also signal that the program would not require the costs and implementation issues from a dual paper and electronic system to be borne permanently.

Among state-agency commenters on the April 18, 2006 NODA, there was more of a split of opinions on the question of whether the use of electronic manifests should be optional or mandatory. Of nine states that commented on this issue, five commented without qualification that users should be able to choose filing an electronic manifest, primarily on account of the burden that these state commenters perceived would fall unreasonably on small businesses if the system use were mandatory. Only one state agency commented unequivocally that e-Manifest system use should be mandatory for all users, so that RCRA regulators could avoid having to maintain dual tracking systems to host the electronic and paper form data, which is more expensive. On the other hand, three other states argued for a targeted approach to mandating e-Manifest system use. For example, one state asserted in its comments that designated facilities (waste receiving facilities) should be required to submit data electronically for all the waste they receive. This comment and similar comments from states favoring mandatory use of the e-Manifest system were more focused on mandating electronic reporting of waste receipt data by designated facilities than on the more specific issue of whether the use of the e-Manifest system should be mandatory for originating electronic manifests and tracking waste shipments electronically on a cradle-to-grave basis. On a somewhat different note, another state maintained in its comments that designated facilities should be required to use the e-Manifest system for shipments they receive from conditionally exempt small quantity generators (CESQGs). Still, another state with a large generator base and substantial experience with its current electronic data reporting system suggested a similar targeted requirement that would focus mandatory e-Manifest system use on large quantity generators (LQGs) or other targeted audience, unless excused for good cause, while allowing others to choose to use the e-Manifest system.

3. *EPA Decision on Optional* vs. *Mandatory Use.* EPA is committed to moving toward full electronic reporting. EPA is persuaded by the points raised by the majority of commenters who supported the position that users should be able to choose the electronic manifest as the expected means of tracking hazardous waste shipments, while also allowing facilities the chance to opt out of the electronic manifest system and submit paper manifests. EPA will seek to transition to a full electronic system. EPA will accommodate the concerns of these commenters raised in 2006 and currently allow paper submissions as this electronic transition is underway. Congress provided EPA the authority in the e-Manifest Act [2(g)(1)(B)] to include requirements that EPA determines are necessary to facilitate the transition from the use of paper manifests to the use of electronic manifests, or to accommodate the processing of data from paper manifests in the electronic manifest system. Under this authority EPA will move toward its goal of a fully electronic system but allow for a period of transition to accommodate paper users who opt out of an electronic filing. Significantly, this rule establishes the legal and policy framework for the national e-Manifest system authorized by the e-Manifest Establishment Act. This rule will allow manifest users to use an electronic hazardous waste manifest system with a goal of replacing the paper manifest forms. Once the national e-Manifest system is available, the use of electronic manifests will be the expected means for tracking hazardous waste shipments, although the e-Manifest Act and our regulations will allow users to currently opt out of the electronic manifest and continue to use the paper forms. We expect the use of electronic manifests will become the predominant means for tracking hazardous waste shipments. As we implement e-Manifest, EPA will assess what measures might be effective to expedite the transition from paper manifests to electronic manifests, and may take input on fee incentives (e.g., shifting a greater portion of the system development or operating cost recovery to paper manifest submissions) or other means to meet this end. Thus, it is EPA's goal to move to a fully electronic system to maximize the use of electronic manifests, so that the full benefits and efficiencies of electronic manifests can be realized as quickly as possible. This position is consistent with § 2(a)(5)(B) of the e-Manifest Act, which directs that the use of the electronic manifest system to obtain electronic manifest formats shall be at the election of the users. EPA agrees that there may be some businesses, particularly, small

businesses, that initially will not have the willingness or economic incentive to participate in the e-Manifest system. Over time though, paper based reporting will become less economical particularly with the potentially higher user fees associated with the processing of paper manifests. While many small businesses may be able to participate in the e-Manifest system through the efforts of the transporters or designated facilities with whom they contract for transportation or disposal services, this outcome initially should be influenced by market factors rather than mandated. EPA agrees that there are some businesses that interact with the manifest infrequently for tracking relatively small quantities of hazardous waste. These businesses may for a time need to continue to use the paper manifest form with which they are familiar and comfortable. In addition, while EPA agrees that a complete set of electronic waste receipt data from designated facilities would be advantageous, we also believe that this objective can be attained through other means. The proportion of manifests completed electronically should increase over time through competitive forces and fee incentives so that the amount of effort expended collecting and processing paper manifests should become less significant. As more users join the e-manifest system, the cost of maintaining a paper system will fall on a smaller and smaller group of paper users, potentially resulting in ever-increasing fees for paper submissions.

As EPA explains below in section III.K of this preamble, upon implementation of the e-Manifest system, EPA will require TSDFs to submit one final copy of their remaining paper manifests to EPA rather than to the authorized states for processing. These paper manifest copies will be processed centrally and the system operator will enter the data from these forms into the e-Manifest system. Thus, a complete set of designated facility data on hazardous waste receipts can be obtained in this manner without initially mandating a transition to the use of electronic manifests. The interests of the state commenters in obtaining a complete set of electronic data will be realized, although with much less efficiency than with everyone using the electronic manifests.

Therefore, as we prepare for the initial implementation of e-Manifest, this final rule implements the e-manifest as the expected tracking document for the manifest users in the RCRA regulated community, while allowing users to opt-out and continue to use the paper system as necessary. We have codified the definition of ''user of the electronic manifest'' in 40 CFR section 260.10 consistent with the definition of ''user'' in the e-Manifest Act, so that it is clear that users can choose to use the electronic manifest or opt out and continue to use the paper manifest forms.

While EPA believes that giving users the choice to use the electronic manifest format is consistent with the statutory definition of ''user'' discussed above, the Agency emphasizes that it is our goal to promote the use of electronic manifests by the user community to the maximum extent possible. EPA is adopting policies (e.g., the E-Enterprise Initiative) across its environmental programs that would establish electronic reporting as the means of submitting reports to the Agency. Significantly, this rule establishes the legal and policy framework for the national e-Manifest system authorized by the e-Manifest Establishment Act. This rule will allow manifest users to use an electronic hazardous waste manifest system with a goal of replacing the paper manifest forms. Once the national e-Manifest system is available, the use of electronic manifests will be the expected means for tracking hazardous waste shipments, although the e-Manifest Act and our regulations will allow users to currently opt out of the electronic manifest and continue to use the paper forms. We expect the use of electronic manifests will become the predominant means for tracking hazardous waste shipments. As we implement e-Manifest, EPA will assess what measures might be effective to expedite the transition from paper manifests to electronic manifests, and may take input on fee incentives (e.g., shifting a greater portion of the system development or operating cost recovery to paper manifest submissions) or other means to meet this end. Thus, it is EPA's goal to move to a fully electronic system so as to maximize the use of electronic manifests, so that the full benefits and efficiencies of electronic manifests can be realized as quickly as possible.

In section II.F of this preamble, we summarized the various economic and non-economic benefits of electronic manifesting, such as substantial paperwork cost savings and burden reductions for manifest users and states; the greater accountability that will likely result from nearly real time tracking capabilities, the much improved data quality from the manifest creation and editing aids that will be available in an electronic system; greater inspection and oversight efficiencies for regulators who can access manifests more readily with electronic search aids; greater transparency for and empowerment of communities with more accurate information about completed waste shipments and management trends; the savings and efficiencies of consolidating duplicative federal and state waste data reporting requirements with one-stop reporting, and the possible savings and efficiencies from integrating manifest and RCRA biennial reporting.

Witnesses representing the hazardous waste industry commented that mailing costs, for one company, alone are close to $1 million per year and EPA estimates that the labor costs alone for creating, handling, and processing the paper manifests are somewhere between $193 million and $769 million annually. The witnesses had not made their own independent estimate of the cost associated with the existing system but did say: ''we do believe based on our own experience that the current system is quite labor intensive and, therefore, costly.'' [David R. Case, Executive Director of Environmental Technology Council, June 21, 2012 before the Subcommittee on Environment and the Economy; Frederick J. Florjancic, CEO and President of Safety-Kleen, September 28, 2006 Subcommittee on Superfund and Waste Management]. These benefits should allow users and states to shift resources from data management activities to those more targeted at their business activities and at improving waste management and addressing any noncompliance issues. These shifts in focus will in turn contribute to increased levels of compliance, greater public awareness of local and national waste management trends, and a more level playing field for the regulated community. For the first time in the more than 30 years of hazardous waste regulation under RCRA, EPA, the States, and the public will have available a complete set of national data on all manifested shipments of hazardous waste.

When EPA originated the manifest program in 1980, it declined to collect copies of manifests for domestic waste shipments, believing that the burden of collecting and processing millions of manifests would overwhelm the Agency. Indeed, witnesses representing the hazardous waste industry commented that the paperwork burden of paper manifests is so significant that 22 states currently do not accept paper manifests [David R. Case, Executive Director of Environmental Technology Council, June 21, 2012 before the Subcommittee on Environment and the Economy; Frederick J. Florjancic, CEO and President of Safety-Kleen,

September 28, 2006 Subcommittee on Superfund and Waste Management] With the transition to the electronic manifest, EPA will be able to collect and manage more efficiently the manifests from all the nation's hazardous waste movements.

We discuss in more detail the projected qualitative impacts of the electronic manifest in section VI of this preamble. There will clearly be substantial cost and burden hour savings as well from e-Manifest, which EPA will evaluate in more detail when we announce the fee schedule and implementation date for the e-Manifest system. Any resulting savings, as well as the non-economic benefits discussed here for the electronic manifest, would clearly be maximized if the use of electronic manifests could be promoted and incentivized so that use approaches 100%.

EPA will monitor closely the metrics of electronic manifest use over time. While the electronic manifest is the expected submission format, as we transition toward full use of electronic manifests, users will be allowed to opt out and continue to carry and use paper manifests for tracking their hazardous waste shipments during transportation, and to submit paper manifests to the system. As suggested by the e-Manifest Act, we will explore fee-based and other incentives to promote the greater use of electronic manifests, particularly among hazardous waste transporters and designated facilities, as they will likely have the greatest impact on the volume of electronic manifest use. Moreover, to the extent that paper manifests continue to be used by some during the course of tracking the transportation of waste shipments, we will work with the designated facilities that receive these shipments to ensure that the data from the paper manifests is reported to the national system in an electronic data transfer. In this way, we believe that we can accomplish, in a fairly short time, nearly 100% of manifest data being received by the system electronically. Initially, by pursuing both objectives—maximizing electronic manifest use at the front end of the manifest process and maximizing electronic reporting of data from paper manifests at the back end of the process—we believe that we can eliminate the most burdensome aspects of collecting and processing paper manifests in the system, with the ultimate goal of 100% electronic manifests.

K. How will remaining paper manifest forms be submitted and processed?

1. *Background.* One of the key assumptions underlying the electronic manifest is that the users of the manifest (i.e., those subject to manifest requirements), as well as the state regulators who collect and make use of manifest data, will realize substantial benefits and paperwork burden reductions as more manifests are completed and processed electronically. Indeed, the major savings associated with use of electronic manifests arise when we can eliminate or reduce the steps of manually completing, carrying, mailing, and filing manifest forms, as well as eliminating or reducing the steps needed to transpose data between legacy data systems and paper forms, and the steps needed to then re-key data from the paper forms back into the companies' or states' tracking systems after manifests have been finalized.

Under the approach to electronic manifest use announced in this rule, it is EPA's goal that over a period of several years, the use of electronic manifests will become the predominant means of tracking RCRA hazardous waste shipments. The incidence of paper form use may be initially greater for state-regulated or non-RCRA wastes subject to the manifest, as many of the generators of non-RCRA wastes tend to be smaller generators who may initially let the larger generators begin use of the e-Manifest systems before trying it or be dependent on the larger generators providing equipment. As noted above, in the early years the numbers of paper forms that remain in the manifest system will surely be greater than as the system matures. One of the outcomes of maintaining dual electronic and paper manifest submissions is that this system will be costlier to maintain and may result in higher user fees. Additionally, as more users choose the electronic manifest, the cost of maintaining a paper system will fall on a smaller and smaller group of paper users, potentially resulting in ever-increasing fees for paper submissions.

Commenters on the April 2006 NODA emphasized the importance of this issue. Industry commenters generally supported elective use of electronic manifests, but they also questioned whether the resulting dual paper and electronic systems would generate complexity and burden that would frustrate the transition to electronic manifests and thus undermine the Agency's and industry's savings projections. State-agency commenters on the April, 2006 NODA offered strong comments indicating that their support for electronic manifesting was contingent upon there being implemented a means to ensure that a complete set of manifest data would be established. According to these commenters, a centralized system that did not also contain the data from paper manifests would not present a complete picture of all RCRA and state regulated wastes. Such a system would not be useful, for example, for biennial reporting purposes, and would result in states having to maintain duplicative processes and systems to collect and track the data from the remaining paper forms. Thus, both industry and state commenters urged EPA to develop the final rule so as to mitigate the effects of a dual paper and electronic manifest system.

EPA considered several options to reduce the negative impacts of dual systems. The alternatives we considered were all aimed at simplifying the process for collecting paper forms, and at ensuring that the data collected from both electronic manifests and paper forms could be efficiently processed so that a comprehensive set of manifest data would be available to users and regulators. One option considered was for the authorized states to continue to serve as the collection point for paper manifests, while all electronic manifests would be collected centrally by the national system and distributed to states through their Exchange Network nodes or equivalent on the system. In order to establish a composite set of data, states would then be required to conduct any quality assurance on the paper form data, key-in the data according to a specified file format, and then upload the verified data to EPA at some regular frequency so that it could be merged with the electronic manifest data collection. While this would continue the current scope of manifest reporting as defined by current state copy submission requirements, it would not produce a complete set of data, as the manifests from states that do not now collect manifests would be omitted.

As a second option for addressing the dual systems issue, EPA considered requiring all manifests now subject to state requirements for submission of manifest copies to be instead submitted to the e-Manifest system operator for collection and data processing. Quality assurance steps and data entry would be conducted consistently by e-Manifest system personnel, and a fee for this service would be collected to recover the paper and data processing costs. However, this option would be as limited as the first option insofar as continuing to collect only the same scope of generator and designated facility manifests as are now collected under existing state requirements for the submission of manifest copies.

EPA considered still a third option, under which only the designated facility

would be required to submit to the e-Manifest system its final copy of the paper manifests that continue in use after implementation of the e-Manifest system. In addition, the designated facility would pay an associated user fee for the data processing services performed by the system. Under this option, generators and transporters would not be required to submit their copies of paper manifests to the e-Manifest system. However, state-tracking programs that decide to continue to collect generator copies of manifests could do so under their state law requirements, as this option would only affect the collection of the designated facility copies by EPA. This option would, however, require the collection of paper manifests from designated facilities in all states, so, unlike the other two options, this third option would provide a complete set of paper manifest copies from all designated facilities.

2. *Solicitation of Comment on Collection of Designated Facility Copy.* Because this third option proposed a new federal record collection requirement that was not discussed in prior regulatory documents, EPA presented this option for public comment in the February 2008 NODA.[26] Comments received by EPA in response to the NODA discussion of this issue generally supported the proposal to require a final copy of the manifest (or the data and image from this copy) to be submitted to the system operator by the designated facility.

3. *Final Rule Decision.* Based on the comments received, and the commenters' desire to not have dual manifest systems, EPA has decided to adopt the approach of the third option for this final rule. This requirement also implements section 2(g)((1)(B) and section 2(c)(1) of the e-Manifest Act, which, respectively, confers discretion upon EPA to promulgate a regulation requiring that users of paper manifests submit paper copies to the e-Manifest system for data processing purposes, and authorizes EPA to collect a reasonable fee from users for the costs incurred in collecting and processing the data from any paper manifests. Therefore, we are implementing an e-Manifest system that will be structured so that electronic submissions will be the expected submission format, but that will allow users during a transition period to opt out of the electronic system by submitting a paper manifest, which will be received by the e-Manifest system for data processing purposes.

Under today's regulation, the designated facility must send to the e-Manifest system the top copy (Page 1 of the 6-page set) of the paper manifest form within 30 days of delivery of the hazardous waste shipment. The copy could be mailed to the e-Manifest system, or EPA may authorize the designated facility to transmit an image file to the EPA system so that the system personnel could key-in the data from the image files to the data system. Alternatively, the designated facility may be able to submit both the image file and a file presenting the manifest data to the system in image file and data file formats acceptable to the e-Manifest system operator and supported by EPA's electronic reporting requirements. The data file submission may be subject to quality assurance checks, and the regulated entity would be responsible for responding to and correcting errors identified from this check before a submission is accepted for processing by the e-Manifest system. This latter alternative could result in much more timely receipt of the manifest data by the system, and avoid the need for manual data entry activities by the system operator. EPA is codifying these requirements for designated facilities to submit final paper copies or their data at 40 CFR 264.71(a)(2)(v) and 265.71(a)(2)(v).

For paper copies mailed to the system by designated facilities, the e-Manifest system operator would create or obtain an image file of each such manifest, and store it on the system for retrieval by state or federal regulators. The e-Manifest system operator would also key-in or extract the federal- and state-regulated waste data from these copies to the e-Manifest system. EPA could extract any data regarding RCRA hazardous wastes for inclusion in its data systems, while the states could pull off data from the system concerning RCRA and state-regulated wastes for processing in the states' own tracking systems. The designated facility would be required to pay a fee to the system operator for processing the data from these final copies of the paper forms, and the fee would vary with the type of submission (mailed copy, image file, or image plus data file), as these submission types will likely present a different level of effort insofar as the processing steps required to enter the form data into the system. The fees for these and other e-Manifest system services will be determined later by EPA, and published in a distinct regulatory document prior to the implementation of the e-Manifest system.

EPA believes that this approach provides the most efficient solution to the dual paper/electronic systems problem during the transition to an electronic manifest system. It simplifies manifest copy submission for the designated facilities, which will only need to provide facility copies or data to one location—the national e-Manifest system—rather than supply copies to the many state agencies that now collect manifest copies. Further, it focuses the federal collection effort on the final designated facility copies of the form, which provide the best accounting of the quantities and types of wastes that were actually received for management. By providing a means to collect a complete set of waste receipts data from RCRA TSDFs (the merged set of paper and electronic manifest data), it also provides EPA with the means to modify biennial reporting by TSDFs of waste receipts data with a much simpler approach that relies upon the designated facility data reported to the e-Manifest system. As states will be connected to the e-Manifest system through the Information Exchange Network or alternate system, they can download the image files or the data keyed from paper manifests from this central processing service, just as they will be able to obtain the data and presentations of electronic manifests from the XML schemas and stylesheets transmitted on the e-Manifest system. Finally, as EPA will be able to assess appropriate fees for the paper processing and data entry activities necessary to process the data from paper forms and enter them into the e-Manifest system, the actual costs of providing these services will be recovered. Since we expect that electronic manifests will be much more efficient to process than paper forms, the differential fees that are established for paper and electronic manifest processing will likely operate as an additional incentive for the transition to electronic manifests.

Therefore, while EPA is clarifying in this rule that the use of the electronic manifest *format* is expected for members of the regulated community (with the opportunity to opt out), designated facilities will be required by this final rule to interact with the e-Manifest *system,* whether the electronic manifest format or the paper manifest form is used. EPA's decision to collect the final copy of paper manifest forms (or their data) from designated facilities and to process centrally the data from

[26] EPA solicited comment on this issue prior to the enactment of the 2012 statute, which confers on EPA the discretion to require the collection of a paper copy of the manifest for data processing purposes. Thus, we are implementing this discretionary authority with the decision announced here.

these paper forms means that these designated facilities will be required to interact with the e-Manifest system in one of two ways when submitting their manifests. Facilities that elect to use the electronic manifest format will submit their electronic manifests to the e-Manifest system, as the system will be designed for the very purpose of distributing electronic manifests among the users and regulatory agencies while the electronic manifests are being obtained, completed, and transmitted electronically on the e-Manifest system. On the other hand, facilities that choose to use the paper manifest forms rather than electronic manifest formats will physically carry and complete the paper manifest forms in the conventional manner that has been the norm since the hazardous waste manifest form was introduced in 1984. However, in lieu of sending a final paper manifest copy directly to the destination state (when required by the destination state), this final rule will require the facility to send Copy 1 of all the paper manifests (or an image and data file) to the EPA's e-Manifest system operator. Thus, the designated facilities will be required to submit a final manifest copy to the e-Manifest system, either in a supported electronic format or as a paper copy, and to pay any associated user fees. In other words, the use of the electronic manifest format will be the expected manifest format for tracking hazardous waste shipments, unless the waste handler chooses to opt out and uses paper manifests under this final rule. However, with respect to designated facilities the submission of either a completed paper or electronic manifest to the EPA system operator will in every case be required. Once this requirement is effective, and all final copies (electronic or paper) from designated facilities are being submitted directly to the EPA e-Manifest system operator, the states will obtain their final manifest copies and data from the e-Manifest system through their nodes on the Environmental Information Exchange Network.

L. Can I use e-Manifest if some waste handlers choose not to participate?

1. *Background.* In the May 2001 proposed rule, EPA recognized that there would be times when an electronic manifest could not be passed to or executed by all the waste handlers involved in a waste shipment, because one or more waste handlers might lack the technology or the capability to participate in the e-Manifest system. In the proposed rule, EPA suggested that for electronic manifesting to be effective, the receiving facility (the designated facility) must be able to receive and process electronic manifests, and that either the generator or transporters should also have the capability to create and transmit the electronic manifest. See 66 FR 28240 at 28272.

In particular, at the time of the proposed rule, EPA was of the view that electronic manifesting would still be beneficial if at least the generator and designated facility could exchange manifest and tracking information, since the manifest data entry, record keeping, and the very important function of verifying the receipt of wastes (or reporting discrepancies) between the generator and the designated facility could still be conducted electronically, as might any reporting of manifest data by generators or designated facilities to authorized states. Thus, we discussed in the proposed rule a procedure whereby the generator and receiving designated facility could conduct electronic manifest exchanges among themselves and their states, while allowing any non-participating transporters to continue to sign and retain a paper copy that would be marked up to show the unique tracking number assigned to the transaction by the e-Manifest system. *Id.* The proposal further suggested that a check box or other notation could be entered on the electronic manifest to indicate when the transporter took delivery of the waste, and to indicate that the transporter signed and retained a paper copy of the manifest. *Id.*

Similarly, we discussed what we considered to be a common situation where individual generator sites would not have their own on-site technology capability to participate in the e-Manifest system, but would participate in the e-Manifest system through the portable technology devices (e.g., a mobile computer) brought to the generator sites by a transporter or waste management facility participating in the e-Manifest system. In the latter instance, there would in fact be participation in the electronic manifest transaction by all the waste handlers, but the generators themselves would not need to obtain or use their own equipment in order to engage in electronic manifesting. *Id.* at 28273.

2. *Comment Analysis.* The proposed rule's discussion of electronic manifesting procedures for those cases where not all the waste handlers could participate electronically generated several comments from members of the regulated community and from state agencies. A commenter from the steel industry voiced support for this aspect of the proposal, as it would allow steel industry generators and designated facilities to begin using electronic manifests promptly, without having to wait for transporters to participate. Several other industry commenters stated in their comments that EPA needs to provide additional guidance to address the cases where transporters cannot participate in the electronic system. These commenters asked for particular clarification of such points as: (1) whether generators and designated facilities would be required to retain paper copies of manifests signed in ink by non-participating transporters; and (2) how would the electronic manifest record note that such a transporter's signature is on file and recorded on a hard copy manifest?

State commenters joined with the industry commenters that the final rule should describe more clearly what would be required of waste handlers or states when one or more waste handlers do not use the electronic manifest. One state commenter also voiced a strong objection to the suggestion in the proposal that an electronic copy of a manifest could be submitted to a state without all the transporter signatures being included on the electronic manifest.

3. *Final Rule Decision.* After considering all the comments and the manual processing steps that would be required to support the proposed rule approach, EPA is not adopting the proposed rule approach under which non-participating transporters could sign and retain paper manifest copies, while other handlers participated through the electronic manifest. This final rule instead specifies that the electronic manifest format can be used for tracking waste shipments only when it is known at the outset of the waste shipment that all waste handlers named on the manifest can participate electronically. Under the final rule, it is of course permissible for generators lacking their own electronic equipment to participate in the electronic manifest through use of a transporter's or designated facility's equipment, and, likewise, a transporter engaged in a waste pickup or delivery may use a participating generator's or designated facility's equipment to conduct electronic manifesting. However, if at the outset it is known that a generator, transporter, or designated facility named on the manifest cannot or will not participate in the electronic manifest, then the shipment is ineligible for the electronic manifest, and the standard paper manifest must be used to track the shipment in the conventional manner.

EPA considered an approach whereby non-participating transporters would be accommodated by requiring the

generator to supply sufficient printouts of the electronic manifest for all non-participating transporters. We considered specifying in this rule detailed procedures calling for the various paper copies to be manually signed and dated by the non-participating transporters. These procedures would also have required information to be entered on the paper copies regarding electronic signatures, including the names of the persons signing the manifest electronically, the date of these electronic signatures, and the notation ''signed electronically'' in the paper copies' signature fields. We considered this approach, because we wanted the paper copies to present a complete log of the transportation history of the shipment, including the signature information, so that the entire record of the waste shipment could be preserved by merging the data from paper copies with the electronic manifest data for the shipment.

In the end, however, we decided not to adopt this approach for the final rule because we concluded that the various manual processing steps that would be necessary to sustain the tracking process would be too complex and burdensome to be justified. The manual processing steps and their burdens would likely exceed any savings that would arise from the shipment being tracked partially with the electronic manifest. In order to maintain full accountability for these shipments, it would have been necessary to supply another paper copy for the designated facility, so that the facility could forward this copy to the e-Manifest system for data processing purposes. This approach would have placed an additional responsibility on the EPA system to manage the paper copies mailed to the system for processing, and to merge the data from the paper copy with the electronic manifest record previously entered into the system. Finally, we identified potential enforcement issues with this approach, as the complete shipment record would consist of both electronic and paper components, neither of which could be relied on by itself for a full accounting of the shipment.

EPA proposed the partial electronic and manual process for non-participating waste handlers because we believed that this approach would enable many more manifests to be initiated electronically in the system and also would enable designated facilities to verify their waste receipt data electronically and to transfer the data to EPA and state data systems. While the effect of this decision is likely to exclude some waste shipments from being tracked with the electronic manifest, we believe that the final rule will be much more practical and straightforward to implement. The Agency prefers to see the technical barriers to transporters' participation reduced, so that more transporters will participate in the electronic manifest, rather than establishing a complex process that may only perpetuate the use of paper-based tracking procedures by these transporters.

This final rule requires the use of the paper manifest form in all instances where it is known at the outset of a waste shipment that one or more of the waste handlers named on the manifest will not participate in the electronic manifest, unless one of the parties can provide access to the electronic manifest system to other parties involved in the transaction through hand-held or other technology. This requirement is codified in the generator requirements at 40 CFR 262.24(c).

However, there may also be instances in which a manifest is initiated electronically, but a situation develops, after transportation has begun, under which the manifest cannot be fully completed electronically. For example, the e-Manifest system may go down or become unavailable to users after the waste has been delivered to the initial transporter. Similarly, a transportation vehicle may break down while the waste shipment is in transportation, and it may be necessary to substitute another transporter or another vehicle that does not participate in e-Manifest. For these and like situations, therefore, it is necessary for the final rule to establish procedures for the manual completion of manifests that are initiated electronically, but, for whatever reason, cannot be completed electronically.

For these unfinished electronic manifests, it is the responsibility of the waste handler in possession of the waste at the time the electronic manifest becomes unavailable to obtain a pre-printed manifest from a registered printer, or, reproduce sufficient copies of the printed manifest carried on the transport vehicle to comply with the DOT's HMR. If the electronic manifest becomes unavailable before the waste is delivered by the generator to the initial transporter, then the simple back-up solution for the generator is to obtain and complete the manifest using a pre-printed manifest obtained from a registered manifest printer. The back-up paper manifest is then completed and used by the generator and other handlers in the same manner as any other paper manifest. This requirement is set out at § 262.24(e) of the generator requirements.

If, however, the electronic manifest becomes unavailable after the generator has delivered the waste to the initial transporter, then the transporter then in possession of the waste must follow different procedures. These special procedures for ''replacement manifests'' are codified at § 263.20(a)(6) of the transporter regulations.

In such cases, the transporter in possession of the waste must reproduce sufficient copies of the paper copy that is carried on the transport vehicle (which copy becomes the ''replacement'' manifest) and complete all further tracking requirements with the replacement manifest. This transporter should produce enough copies so that the transporter in possession of the waste and all subsequent handlers named on the manifest will be able to keep a paper copy for their records. He or she must also produce two additional copies that will be delivered with the waste to the designated facility. One such copy will be sent to the generator by the designated facility, in accordance with normal manifesting procedures for paper manifests. The final copy must ultimately be forwarded to the e-Manifest system by the designated facility for data processing. The transporter must also make notations in Item 14 (the Special Handling or Additional Information Item) indicating that the copies are a replacement manifest for an electronic manifest that could not be completed and the tracking number of the electronic manifest that the replacement manifest replaces.

EPA recognizes that the transporter responsible for producing these copies may not be able to reproduce the paper copies at the very moment that he or she is aware that the electronic manifest is no longer available for the shipment, but the copies must be produced before the waste handler obtains the signature from the next transporter or the designated facility to which the waste shipment is being delivered.

From the point at which the electronic manifest is no longer available for tracking the waste shipment, the paper replacement manifest will be completed and managed just as it would be completed and managed with the standard paper manifest form. However, as the printed copies will lack carbon paper and thus will not enable printed impressions to be passed through to all remaining copies, the transporters and owner/operators entering signatures or other information on the printed copies will need to sign and enter their other information individually on all printed manifest copies in their possession. As

the custody of the waste is transferred to subsequent waste handlers, the subsequent handler will sign all the printed copies to acknowledge receipt from the delivering handler, and the delivering handler will keep one such signed copy for its records.

At 40 CFR 264.72(g) and 265.72(g), we have promulgated the special procedures applicable to designated facilities that receive replacement manifests that accompany hazardous waste deliveries. In such cases, the designated facility must likewise sign the remaining printed copies at the time the waste shipment is ultimately delivered to the designated facility. Upon signing the remaining copies to acknowledge the receipt of the waste (or to note discrepancies), the designated facility must provide one copy to the delivering transporter, must keep one copy for its records, and must, within 30 days of receipt of the waste, send one copy to the generator and submit an additional copy to the e-Manifest system for data processing.

EPA believes that these procedures for replacement manifests will be sufficient for completing the tracking of waste shipments for those irregular and infrequent circumstances where the manifest is initiated electronically but cannot be completed electronically.

M. Manifest Corrections

It is likely that errors will be made on manifests and continuation sheets as there will be up to 5.6 million manifests a year with up to 278 data fields per shipment (manifest plus continuation sheet). The types of errors that occur most frequently (based on experience with the paper manifest) include nonexistent EPA ID numbers because of transposed numbers, incorrect dates (past or future), missing required data fields, such as quantity, units of measure, or waste codes (state or RCRA), reported units of measure that are not appropriate for the waste stream, and errors in the proper shipping name.

We expect that the number of errors requiring correction will be much less when the e-Manifest format is used, as the online system will provide pre-shipment verification for accuracy and completeness of all required fields. We also intend to include in the system features such as drop down menus to aid in the selection of data items, the ability to save and revise previously completed manifests, and the ability to pre-populate manifests based on saved templates and user profiles. While the number of errors should be reduced with these electronic aids, we will still need to design an e-Manifest system with the capability for generators, transporters, or designated facilities to make those corrections that were not prevented by the pre-shipment verification process or the other electronic aids. This process may require correcting each manifest separately or could allow block corrections of a set of manifests with the same error in waste code, EPA ID number, or other like field. EPA and members of the manifest user community will discuss the performance and design requirements for addressing errors and corrections as we plan for the procurement action that will lead to the development and operation of the e-Manifest system.

The larger e-Manifest data system will also include data obtained from paper manifest forms and submitted to the e-Manifest system in either image or paper form. These paper format manifests will not have any pre-creation edits and may have more errors that need correction. States that currently collect paper manifests and enter the data from these forms into electronic databases have experienced high levels of manifest errors. California, for example, estimates that up to 60% of manifests have some errors. The most serious errors compromise the use of the data for such purposes as waste stream analysis, revenue collection, and enforcement. If manifest data are to be useful for these purposes as well as for other purposes, such as streamlining the biennial reporting process, then the accuracy of manifest data must be improved. For this to occur, it will be necessary to establish a process for manifest corrections.

Persons providing data on a manifest have an obligation to provide and submit accurate information. When data errors are discovered before, during or after a hazardous waste shipment, the errors should be corrected. EPA, states and the e-Manifest stakeholder groups will coordinate to develop processes regarding corrections and notifications when previously submitted manifest data are changed. The states will continue to have a critical role in identifying errors and correcting them.

IV. EPA's E-Manifest System Implementation Planning

A. Introduction

Under the e-Manifest Act, EPA is required to establish the national e-Manifest system through a performance-based contract within 3 years of enactment of the e-Manifest Act, that is, by October 2015. This is a very ambitious undertaking [27] that will involve a great deal of outreach with our stakeholders (which has already begun) as we plan for system implementation. For example, during the 2nd through 4th quarters of Fiscal Year 2013, EPA began its procurement activities related to e-Manifest by conducting market research with IT vendors to determine vendor capabilities and the availability of existing systems and components that could be useful to the development of e-Manifest. We also conducted system requirements meetings during February–March 2013 in Washington, DC, Chicago, and Denver, in order to elicit from stakeholders their preferred system functionalities and requirements. This information was quite useful in the development of Requirements Analysis and Alternatives Analysis documents, which EPA will use to guide its evaluation of system design alternatives and to develop more current benefit and cost estimates for the various system design options.

While the details of the e-Manifest system design and development will be fleshed out during the system planning and acquisition phases, we intend that the e-Manifest system will support the following high-level functions:

1. Electronic Manifest Creation:
- Support for all manifest data elements,
- Support for several user interfaces, including mobile device interface,
- Support for templates or other manifest creation short-cuts, and
- Support for edit checks, pull down lists, and other aids to improve data quality.

2. Manifest Format and Communications Standards:
- Data exchange standard (e.g., XML schema or equivalent) to enable data exchanges with industry and state data management systems, and manipulations of data,
- Presentation standard to enable e-Manifest display that is faithful to appearance of the paper form,
- Standardized communications protocols for transmissions between handler devices and system, and
- Data exchange between e-Manifest and the railroad industry's electronic waybill system, to facilitate shipments of hazardous waste by rail.

3. Document and work flow management:
- Work flow must support for ''chain of custody'' tracking of each hazardous waste shipment,

[27] The provision of e-Manifest services by October 2015 will be a challenge for EPA not only on account of the ambitiousness of the project and statutory schedule, but also because of the uncertainty whether sufficient funding will be available to seed the system development in only 3 years.

• Completion of manifest data elements and signatures in proper sequence without errors,
• Preservation of copies of record for key shipment statuses,
• Management of work flow by mobile applications while manifests reside on mobile devices, and
• Synchronization of mobile devices with Central System after off-line operations.

4. Electronic signatures and compliance with EPA's CROMERR Rule:
• ''Valid and enforceable electronic signatures'' per this Rule and CROMERR, and
• Identity proofing as required.

5. Manifest data reporting:
• Standard reports and customized queries.

6. Manifest data access for states:
• Distribution of electronic manifests to states through the National Environmental Information Exchange Network.

7. Development of national manifest data repository:
• Repository to manage data from both electronic and paper manifests.

8. Standard processing of final copy of paper manifests from TSDFs:
• Imaging of final copies,
• Data import or data entry into national data system, and
• Quality checks and error reports for data import files.

9. Electronic payment and collection of user fees.

B. What system architecture will be used for hosting e-Manifest?

EPA will determine the preferred system architecture as we complete our Requirements and Alternatives Analyses, and determine the most practical and cost-effective means for fielding the e-Manifest services. One option that EPA will explore is the hosting of the e-Manifest system on EPA's Central Data Exchange or CDX, which is EPA's designated gateway through which environmental information electronically enters the Agency. CDX is also the point of presence, or node, through which data are exchanged with the states, tribes, and other trusted partners. The CDX receives data, authenticates users securely, transforms the data from submitting organizations, archives the data, and provides that data to EPA's national systems and to States though their Exchange Network nodes. The CDX supports data exchanges with target systems using web services, and it supports a variety of reporting formats. Before a decision can be made on the e-Manifest hosting architecture, we will also evaluate non-CDX alternatives that provide similar services. The provision of e-Manifest services will require significant availability [28] as well as 24/7/365 service reliability. The development and implementation of the e-Manifest system pose novel challenges and opportunities for EPA and the user community, so we will want to select a hosting environment that can support all e-Manifest services and provide all necessary technical support most effectively and reliably.

C. How will EPA notify users that EPA is ready to implement electronic manifesting?

As stated previously, the performance requirements and detailed technical standards governing the design and operation of the e-Manifest system will be developed during the procurement action and system design rather than as a part of this final rule. We plan to award a contract to a vendor or vendors to develop and operate a national e-Manifest system that will be accessed through the Agency's CDX or an alternative hosting portal. After the vendor develops the e-Manifest system, it first must be evaluated and accredited for compliance with applicable internal and federal IT policies and standards on information security and privacy, and tested for consistent operation with system performance requirements before beginning its production operation. Therefore, once the evaluation process is complete, EPA will announce in a separate **Federal Register** document that the e-Manifest system is available to supply and process electronic manifests. This document will also publish the delayed compliance and implementation date on which e-Manifest services will commence in all states, the fee schedule for electronic manifest and paper manifest submissions, and the arrangements for submitting those paper manifests that remain in use after the announced compliance and implementation date of e-Manifest.

V. State Implementation and Effective Date

A. Background

The issue of State Implementation of the electronic manifest involves two distinct considerations: (1) what are the impacts of RCRA state program authorization requirements on the authorized states' ability to implement and enforce the electronic manifest requirements announced in this final regulation; and (2) what are the impacts of CROMERR requirements insofar as requiring CROMERR-related authorization or approval of states' document receiving systems for electronic reporting. For the latter approval process, for example, CROMERR provides that where states choose to allow electronic reporting, they must modify their electronic reporting programs to demonstrate compliance with CROMERR's performance standards for electronic reporting programs at 40 CFR 3.2000.

With respect to the CROMERR authorization of states' electronic reporting programs, there are no such approval requirements resulting from this federal regulation. This regulation implements the e-Manifest Act's mandate calling for the establishment by EPA of a national e-Manifest system for submitting and transmitting electronic manifests. With the implementation of this regulation and the national e-Manifest system, there will be no role for states insofar as establishing their distinct or alternative electronic manifest reporting systems. States will collect manifests and data from the national e-Manifest system, but the entire submission and reporting process that will give rise to electronic manifest copies of record will occur on the national system. As there will be no CROMERR related approval requirements for states resulting from this regulation, the remainder of this section addresses the RCRA state program authorization requirements resulting from this regulation.

In the May 2001 proposed rule, EPA identified as a significant issue the question of whether RCRA authorized states should be required to adopt the electronic manifest as a component of their authorized programs. See 66 FR 28240 at 28299. As EPA explained in the May 2001 proposal, the more precise question was whether program consistency standards under RCRA section 3006 and our regulation on manifest program consistency codified at 40 CFR 271.4(a) and (e) required states to adopt the electronic manifest. Under RCRA section 3006, an authorized state program must be consistent with the Federal Subtitle C program and with other authorized state programs. Moreover, as for a state's manifest requirements, EPA's regulations at § 271.4(a) and (e) addressing program consistency explain that a state's manifest system is inconsistent if it does not meet EPA's requirements or if it unreasonably

[28] EPA and stakeholders will discuss the service availability metric as a performance requirement as we begin system design planning. The cost of the system will be influenced by the service availability metric, and of course, under any such performance metric, there will need to be maintenance windows provided.

impedes the free movement of hazardous waste. With respect to the electronic manifest, the Agency was concerned in May 2001 that if some states chose not to adopt the electronic manifest, there could result a patchwork of states that would accept or not accept electronic manifests as valid substitutes for the paper forms. The patchwork effect itself might unduly burden the free movement of waste among the states or might even frustrate the development and successful implementation of the electronic manifest by an IT vendor. *Id.*

Despite these concerns, EPA tentatively decided in the May 2001 proposed rule *not* to mandate the adoption by states of the electronic manifest requirements in authorized state programs. We explained in the proposal that we believed that there were strong practical and business influences that would promote the adoption of the electronic manifest by the states, without a mandate from EPA. *Id.* However, EPA requested specific comments on how electronic manifesting should be implemented among the various authorized states. The Agency further intimated that it could decide in the final rule to mandate adoption of the electronic manifest by the authorized states, if the Agency were persuaded that implementation of the electronic manifest as an elective program component for states would produce the patchwork effect or other consistency problems that would unduly burden the free movement of waste in commerce. *Id.*

In addition, the May 2001 proposed rule also noted that the electronic manifest would not be considered a ''shipping paper'' within the meaning of DOT's HRM. See 49 CFR 172.205. This interpretation results in a different outcome for electronic manifests than for the paper manifest form. With respect to the paper manifest form, the RCRA manifest form is accepted by DOT as a hazardous materials shipping paper. As a further result of this interpretation, DOT hazardous materials law preempts states from requiring the use of different manifest forms or requiring additional information to be carried with waste shipments. 49 U.S.C. 5125(b)(1)(C). Further, when EPA and DOT announced changes to the paper manifest form, such as we announced on March 4, 2005, we explained that consistency in the use of hazardous materials shipping papers requires that the revised manifest form must be implemented in all states on the same effective date. Therefore, the discussion of consistency in implementation of the electronic manifest in this final rule requires EPA to decide: (1) whether authorized states must adopt the electronic manifest to maintain consistent authorized programs; and (2) whether the electronic manifest must be implemented in all states on the same effective date and, if so, what authority EPA is relying upon to support this position.[29]

B. Comment Analysis

Among the regulated industry, this issue generated perhaps the strongest and most consistent response. Industry commenters expressed the view in no uncertain terms that the electronic manifest would not succeed unless all states are required to adopt the electronic manifest requirements as a component of their RCRA authorized state programs. Several industry and federal facility commenters stated bluntly that the regulated industry would not make either the capital or manpower investments needed to support the electronic manifest unless they had reasonable assurances that electronic manifests would be recognized as valid in all states. In addition, industry comments supported the view that without a policy requiring the uniform adoption of the electronic manifest by the states, there would be serious burdens imposed on the free movement of waste from a patchwork of states both accepting and not accepting the validity of electronic manifests. Because of this possible outcome, one waste management facility suggested in its comments that EPA use its ''consistency'' rule under 40 CFR 271.4 to establish in its final rule that authorized state program consistency requirements must extend to requiring all authorized states to adopt the electronic manifest in order to maintain their program authorization.

Among state agency commenters, there were several strong comments suggesting that the electronic manifest should not be a mandatory component of authorized state RCRA programs, at least at the outset of the electronic manifest program. These comments emphasized that the states are in varying stages of development in terms of deploying electronic business in government at the state level. The state commenters also focused on the start-up costs, training, the demands on state personnel, and the resources that would be required among the states to maintain the capability to interact with the e-Manifest system. In addition, several state agency commenters suggested that EPA explain in more detail the implications of states not adopting the electronic manifest requirements. For example, these commenters opined that the Agency needed to describe the implications and procedures when waste shipments were hauled from a state that recognized the validity of electronic manifests to a state that has not adopted the electronic manifest regulation. In addition, several state commenters requested that EPA clarify whether the regulated community could begin to use the electronic manifest before each state has adopted its electronic manifest regulations.

C. Final Rule Decision

Because of the critical nature of this issue to the likelihood of success of an e-Manifest system, the issue of consistent electronic manifest implementation among the states was addressed by specific language included in the e-Manifest Act. Under section 2(g)(2) of the e-Manifest Act, any regulations promulgated by EPA to authorize and implement the electronic manifest shall take effect in each state as of the implementation date that EPA specifies by regulation. That uniform date is not specified in this regulation, but will be announced by EPA in a separate regulatory document that the Agency will publish prior to the implementation of the system. Moreover, section 2(g)(3) of the e-Manifest Act provides that EPA shall carry out the federal electronic manifest regulations promulgated under the e-Manifest Act in each state unless the state program is fully authorized to carry out such regulations in lieu of EPA.

Therefore, in accordance with the provisions of the e-Manifest Act, there will be no patchwork effect among the states insofar as their electing to either adopt or not adopt state regulations adopting the electronic manifest regulations and recognizing the validity of electronic manifests. Under the terms of the legislation, the electronic manifest regulations will be effective in all states and the system will be implemented federally by EPA in all states on the same implementation and compliance date until the state programs are fully authorized for their program revisions adopting the electronic manifest regulations under state law. These provisions have the effect of establishing a federal/state

[29] EPA's solicitation of comment on this issue was before the enactment of the e-Manifest Act, which now clearly mandates that the e-Manifest regulations will take effect in all states on the effective date specified by EPA's regulation. While this issue was determined by the statute, we nevertheless believe it is appropriate to discuss the comments we received on this question and responses to those comments.

relationship for electronic manifest implementation that is very similar to the type of relationship that was required by Congress for the Hazardous and Solid Waste Amendments Act (HSWA) of 1984, which addressed, among other things, the requirements for corrective action for hazardous waste releases, and restrictions on the land disposal of hazardous wastes.

As EPA promulgated federal regulations addressing the HSWA mandates for corrective action programs and the land disposal restrictions (LDRs) during the late 1980's and the early 1990's, these new requirements were implemented initially in all states by EPA. As the states became authorized for the HSWA program revisions, implementation and enforcement responsibility for these program elements shifted to the RCRA authorized state programs. Thus, we expect a similar federal/state implementation pattern to develop with respect to the electronic manifest, with EPA initially implementing and enforcing the electronic manifest federally in all states, and with the states assuming these responsibilities as they obtain authorization for their electronic manifest program revisions. The electronic manifest requirements imposed under the e-Manifest Act are required to be consistently implemented in the states under section 2(g)(2) of the e-Manifest Act, and EPA will implement the federal requirements under section 2(g)(3) of the e-Manifest Act until the States obtain final authorization for the e-Manifest regulations that are consistent with the federal requirements, as required by 40 CFR 271.4(c). Therefore, for state authorization purposes, the requirements imposed under the e-Manifest Act supersede any requirements under state law that are less stringent than EPA's e-Manifest requirements, and they also supersede any requirements that are non-uniform or inconsistent with EPA's e-Manifest requirements.

This policy of consistency with respect to the implementation of the e-Manifest regulations applies with equal force to the electronic signatures implemented in accordance with this regulation. EPA is aware that numerous states have adopted electronic signature laws applicable to documents signed electronically in the respective states. These state laws take various forms, with some requiring specific signature technologies, others imposing performance standards, and others modeled on the e-Sign Act of 2000.

EPA has concluded that the electronic signatures that are used in connection with electronic manifests executed through the national e-Manifest system require the same consistency in implementation as the other standards and procedures affecting the creation and use of electronic manifests. A national system would be unworkable if different electronic signature methods had to be applied depending on the requirements imposed by the states that might be generator states or destination states for different hazardous waste shipments. EPA has evaluated electronic signatures in this regulation for their compliance with EPA's electronic signature policy for the CROMERR regulation, which has as its goal to ensure that electronically signed manifests have the same legal dependability and validity as the paper manifests that have been recognized as valid for many years under federal and state law. Therefore, the electronic signatures adopted for the e-Manifest shall be implemented consistently in all states on the implementation and compliance date of the e-Manifest regulation.

Moreover, the section 2(g) provisions of the e-Manifest Act render moot the need to clarify how the manifest would work when waste is hauled between a state that has adopted the electronic manifest and a state that has not. While states that have not adopted the electronic manifest regulations will not be able to enforce electronic manifest regulatory violations under their state laws, the electronic manifest will be valid and effective in all states regardless of any one state's adoption and authorization status. As the manifest will be effective in all states on the same date established by EPA, the regulated community can begin to use the electronic manifest with confidence after the start-up date announced by EPA. The implementation and compliance date for the e-Manifest will be determined and announced in a subsequent **Federal Register** document, after EPA has determined that the system, the states, and user community are ready to transmit and receive electronic manifests.

EPA has included new language in 40 CFR 271.3, 271.4, and 271.10 to codify the provisions of the e-Manifest Act that address the consistency implications and state authorization requirements for the electronic manifest. Section 271.3(b) has been amended by adding a new paragraph (b)(4), which implements section 2(g) of the e-Manifest Act, by stating that any requirement applicable to the content or use of electronic manifests, and imposed under the authority of the Hazardous Waste Electronic Manifest Act: (1) Shall take effect in each state having a fully authorized state program on the same date as such requirement takes effect in other states; (2) shall supersede any less stringent or inconsistent provision of a state program; and (3) shall be carried out by EPA in an authorized state except where the state has received final authorization for state program revisions implementing the electronic manifest requirements under state law.

Section 271.4(c) has been amended to state explicitly that the consistency that is required of authorized state hazardous waste manifest programs extends explicitly to the electronic manifest. States' authorized programs must allow the use of the electronic manifest as an option for tracking hazardous waste shipments, and their regulations must recognize the validity of electronic manifests as defined in 40 CFR 260.10 of this regulation.

With respect to 40 CFR 271.10, which addresses state program requirements for generators, several amendments were made to accommodate the electronic manifest and ensure consistency in the use and implementation of the electronic manifest. First, § 271.10(f)(1) has been amended to clarify that the states' manifest programs must require the use of the paper or electronic manifest formats as required by § 262.20(a) of this regulation. The revised language of this paragraph further clarifies that no other manifest form, electronic format, shipping document, electronic signature requirement, or information other than that required by federal law may be required by the state to travel with the shipment, or to be transmitted electronically, or used with an electronic manifest, as a means to track the transportation and delivery of hazardous waste shipments. Second, the text of paragraph (f)(3) of this section has been amended to provide that state programs must require that all hazardous waste generators ensure that all wastes offered for transportation are accompanied by a manifest form or are tracked by an electronic manifest, except as provided in existing sub-paragraphs (f)(3)(i) and (f)(3)(ii). Finally, paragraph (h) of § 271.10 was amended to clarify that just as the states must consistently follow the federal manifest format for the paper forms (Forms 8700–22 and 8700–22A) and the instructions for these forms, the states must also follow the electronic manifest format and instructions to be supplied by EPA's e-Manifest System.

EPA is not amending at this time the provisions of § 271.10(h)(2), which currently provide that either the generator state or the consignment state

to which waste is manifested, or both, may require that paper copies of the manifest form be submitted directly to the state. As discussed in section III.K. of this preamble, EPA has determined that at such time as the e-Manifest system becomes operational, the requirement for designated facilities to supply paper manifest copies directly to states will be replaced with a requirement for designated facilities to submit their paper manifest copies to the e-Manifest System for data processing, although we would note that states could still require the collection of generator copies as a component of state programs under state law. Since the date on which this requirement will become effective has not yet been determined, and is contingent upon the readiness of the e-Manifest system and upon EPA's determining how best to schedule the collection of the facility copies by the System, the current provisions of paragraph (h)(2) will remain unchanged and effective until EPA announces the schedule for the receipt of facility copies and then amends these provisions accordingly.

In addition, 40 CFR 271.11 is amended to provide new language to address the consistency requirements for state program requirements applicable to transporters. Specifically, we are amending § 271.11(c)(1) to clarify that the states' transporter regulations must require transporters to carry the paper manifest forms or one printed copy of the electronic manifest during transport, except as provided in this section for shipments by rail or water. The one printed copy of the electronic manifest must be carried on the transport vehicle as a means to inform emergency responders of the shipment contents and hazards in the event of an incident with the vehicle during transport. This requirement will remain in place for as long as DOT requires a paper shipping document to be carried on transport vehicles for access by emergency responders under 49 CFR 177.817(e).

EPA is not promulgating at this time any substantive changes to 40 CFR 271.12, dealing with state program requirements for hazardous waste management facilities. We are eliminating, however, a parenthetical statement addressing electronic manifests in current § 271.12(h), which suggests that electronic manifesting would be subject to distinct requirements in paragraph (i) of § 271.12, rather than the Agency's electronic reporting requirements of 40 CFR part 3. This language was added at a time when it was presumed that the electronic manifest would be a distinct electronic report that operated outside of EPA's electronic reporting regulations at 40 CFR part 3. Since this regulation announces that the e-Manifest will be a national system whose users will be subject to the Part 3 requirements for electronic reporting to EPA, the parenthetical statement is no longer accurate and is confusing. Therefore, it has been removed from this section.

In addition, we are not currently amending § 271.12(i), which addresses the distribution of signed manifest copies by designated facilities. As we discussed in section III.K. of this preamble, when the e-manifest system is ready to be implemented, EPA will announce a schedule by which facilities will submit a final paper manifest copy to the e-Manifest system for processing, rather than submit them to authorized states. At such time as EPA determines its schedule for making the e-Manifest System available for use and for receiving facilities' paper copies, we will amend paragraph (h) of § 271.12 to clarify that state programs must provide for the submission of these facility copies to the e-Manifest System.

VI. The Projected Economic Impacts of the Electronic Manifest

In attributing any monetary cost and benefits of the final rule, the Agency had to determine if today's action, which codifies the statutory requirements authorizing the use of electronic hazardous waste manifest as a means to track off-site shipments of hazardous waste, imposes any direct impacts to the government, including state governments or the regulated community. As such, the Agency determined that today's rule simply establishes the legal and policy framework for the national e-Manifest system and does not independently impose or realize any direct monetary costs or benefits. The e-Manifest option will only become available when EPA develops and implements this new electronic system and establishes a program of fees to be imposed upon users of the e-manifest system. A subsequent rulemaking will establish the schedule of user fees for the system and announce the date on which the e-Manifest will be implemented and available to users. A Regulatory Impact Analysis will accompany that rule, and will analyze the effects of that rule in conjunction with this e-Manifest rule which establishes the framework.

Nevertheless, we would note that in drafting a 2009 Alternatives Analysis conducted by EPA as part of the capital planning process for e-Manifest, we determined that the majority of the benefits would result from a reduction in the administrative costs of using and processing the paper manifest, including the paper work burden of completing, carrying, mailing and filing the paper manifest copies, and the other manual processes involved with scanning manifests or keying data to and from the paper forms and the data systems that support industry users and state agencies.

Using information from the ICR (OMB Control No. 2050–0039, EPA ICR No. 801.16), EPA determined that the administrative costs are reduced by 25% as a result of the e-Manifest system. In the 2009 Alternatives Analysis, we developed cost and savings estimates for a design alternative that involved mobile devices accessing our web based national system. For this design alternative, we estimated there to be two distinct categories of annual manifest administrative costs: (1) About $109 million in Federal manifest administrative costs, and (2) about $ 150 million in State manifest administrative costs. We also included cost estimates of about $23 million per year for the administrative costs of complying with the RCRA biennial reporting requirements, as e-Manifest will be developed to integrate with biennial reporting after initial system implementation. These annual administrative costs total to about $297 million. When these costs are factored by the 25% reduction rate estimated for this e-Manifest design option, the cost savings for e-Manifest amount to $74.2 million per year.[30] We estimate that there will be annual administrative burden hour savings of between 300,000 and 700,000 hours, at the time the e-Manifest is implemented. While we anticipate significant net savings to the users once e-Manifest is implemented, we do not have an estimate of the net savings at this time, because we have not yet conducted the procurement process for the system and thus cannot determine the system costs. Therefore, our 2009 analysis supports our testimony to Congress in June 2012 that e-Manifest cost savings will approximate $75 million annually. The Agency will present more current and detailed cost and benefit estimates when we develop the Regulatory Impact Analysis for the Fee Rule.

We would note that part of the reason for establishing an electronic tracking system for hazardous waste shipments

[30] This is likely a conservative estimate, as it does not include the additional cost savings likely to result from the greater efficiencies with which existing data systems operated by industry users and states will be able to exchange data with the e-Manifest system, relative to manually keying data from paper forms.

is that such tracking can be conducted in a more cost-effective manner, and thus, we would expect reduced costs and paperwork processing burdens to the regulated community, as well as to the regulators in the long run, recognizing that there may be some upfront costs that these entities may bear. We also expect that there will be more timely access to manifest data and shipment information, and improved quality to the data that is shared among users, regulators, and their data management systems.

VII. Statutory and Executive Order Reviews

A. Executive Order 12866: Regulatory Planning and Review and 13563: Improving Regulation and Regulatory Review

This final rule, ''*Hazardous Waste Management System; Modification of the Hazardous Waste Manifest System; Electronic Manifests,''* primarily codifies new statutory provisions that authorize the use of electronic manifests for tracking hazardous wastes. Under Executive Order 12866 (58 FR 51735, October 4, 1993), this action is considered a ''significant regulatory action,'' because it may raise novel legal or policy issues. Accordingly, the EPA submitted this action to OMB for review under Executive Order 12866 and 13563 (76 FR 3821, January 21, 2011). Any changes made in response to OMB recommendations have been documented in the docket for this action.

B. Paperwork Reduction Act

This action does not impose any new information collection burden. The regulatory changes to the manifest system announced in this Final Rule do not change the information collected by the hazardous waste manifest, nor the scope of the wastes that are now subject to manifesting. The adoption of the electronic manifest changes the manner in which manifest information will be collected and transmitted. However, the Office of Management and Budget (OMB) has previously approved the information collection requirements contained in the existing regulations for manifest completion, transmittal, and recordkeeping for hazardous waste generators at 40 CFR part 262, Subpart B, for hazardous waste transporters at part 263, Subpart B, and for TSDFs at parts 264 and 265, Subpart E under the provisions of the *Paperwork Reduction Act*, 44 U.S.C. 3501 *et seq.* and has assigned OMB control number 2050–0039. The OMB control numbers for EPA's regulations in 40 CFR are listed in 40 CFR part 9.

This rule merely provides the legal and policy framework for the electronic tracking of off-site shipments of hazardous waste. The use of e-Manifests cannot occur until EPA establishes the e-Manifest system, which the e-Manifest act requires EPA to establish within three years from the statute's date of enactment. The Act was signed into law in October 2012, which means that the system for electronic manifesting of hazardous waste shipments authorized by this rule should be available by October 2015. EPA is taking action now to meet the statutory deadline, but unknown variables (e.g., funding contingencies for e-Manifest system development) could delay the actual deployment of the system. Therefore, until EPA announces in a subsequent **Federal Register** document that the e-Manifest system is available for use, hazardous waste generators, transporters, and treatment, storage, and disposal facilities (TSDFs) must continue to comply with the current paper-based manifest system and use the existing paper manifests forms (i.e., EPA Forms 8700–22 and 8700–22A) for the off-site transportation of hazardous waste shipments.

C. Regulatory Flexibility Analysis

The Regulatory Flexibility Act (RFA), as amended by the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA), 5 U.S.C. 601 et seq., generally requires an agency to prepare a regulatory flexibility analysis of any rule subject to notice and comment rulemaking requirements under the Administrative Procedure Act or any other statute, unless the agency certifies that the rule will not have a significant economic impact on a substantial number of small entities. Small entities include small businesses, small organizations, and small governmental jurisdictions.

For purposes of assessing the impacts of today's rule on small entities, small entity is defined as: (1) A small business as defined by the Small Business Administration's (SBA) regulations at 13 CFR 121.201; (2) a small governmental jurisdiction that is a government of a city, county, town, school district or special district with a population of less than 50,000; and (3) a small organization that is any not-for-profit enterprise which is independently owned and operated and is not dominant in its field.

After considering the economic impacts of this final rule on small entities, I certify that this action will not have a significant economic impact on a substantial number of small entities. This rule does not change existing requirements for manifesting hazardous waste shipments. It merely authorizes the use of electronic manifests at such time as the system to receive them is built and operational. Small generators of hazardous waste will either participate in the electronic manifest through the involvement of the transporters or facilities that service their wastes, or, they will continue to use paper manifests. Likewise, small transporters or small treatment, storage, or disposal facilities may elect to continue to use paper manifests, although there could be competitive pressure on those small transporters or facilities that continue to supply paper manifest to their customers.

D. Unfunded Mandates Reform Act

This action contains no Federal mandates under the provisions of Title II of the Unfunded Mandates Reform Act of 1995 (UMRA), 2 U.S.C. 1531–1538 for State, local, or tribal governments or the private sector. Today's rule, however, does require RCRA authorized state programs to recognize the electronic documents that can be completed and submitted electronically under today's final rule as the authorized substitute for the current paper forms (i.e., EPA Form 8700–22 (Manifest) and EPA Form 8700–22A (Continuation Sheet)). Thus, authorized states that currently use information systems to track manifest data will need to modify their information systems in order to receive specific electronic manifest data from the national e-Manifest system.

E. Executive Order 13132: Federalism

This final rule does not have federalism implications. It will not have substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government, as specified in Executive Order 13132. Thus, Executive Order 13132 does not apply to this rule.

F. Executive Order 13175: Consultation With Tribal Governments

This final rule does not have tribal implications, as specified in Executive Order 13175. It does not impose any new requirements on tribal officials nor does it impose substantial direct compliance costs on them. This rule does not create a mandate for tribal governments, nor does it impose any enforceable duties on these entities. Thus, Executive Order 13175 does not apply to this rule.

G. Executive Order 13045: Protection of Children From Environmental Health & Safety Risks

EPA interprets EO 13045 (62 FR 19885, April 23, 1997) as applying only to those regulatory actions that concern health or safety risks, such that the analysis required under section 5–501 of the EO has the potential to influence the regulation. This action is not subject to EO 13045 because it does not present environmental health and safety risks or impacts to children, and because it does not affect the level of protection provided to human health or the environment. Today's rule still requires that hazardous waste be subject to the manifest requirement, although it could be in electronic format or paper format.

H. Executive Order 13211: Actions That Significantly Affect Energy Supply, Distribution, or Use

This rule is not a ''significant energy action'' as defined in Executive Order 13211, ''Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use'' (66 FR 28355, May 22, 2001) because it is not likely to have a significant adverse effect on the supply, distribution, or use of energy.

I. National Technology Transfer and Advancement Act

Section 12(d) of the National Technology Transfer and Advancement Act of 1995 (''NTTAA''), Public Law 104–113, Section 12(d) (15 U.S.C. 272 note) directs EPA to use voluntary consensus standards in its regulatory activities, unless to do so would be inconsistent with applicable law or otherwise impractical. Voluntary consensus standards are technical standards (e.g., materials specifications, test methods, sampling procedures, and business practices) that are developed or adopted by voluntary consensus standards bodies. The NTTAA directs EPA to provide Congress, through OMB, explanations when the Agency decides not to use available and applicable voluntary consensus standards. This final rule does not involve technical standards. Therefore, EPA is not considering the use of any voluntary consensus standards.

J. Executive Order 12898: Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Populations

Executive Order (EO) 12898 (59 FR 7629 (Feb. 16, 1994)) establishes federal executive policy on environmental justice. Its main provision directs federal agencies, to the greatest extent practicable and permitted by law, to make environmental justice part of their mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority populations and low-income populations in the United States.

EPA has determined that this final rule will not have disproportionately high and adverse human health or environmental effects on minority or low-income populations because it does not affect the level of protection provided to human health or the environment, and because it still requires that hazardous waste be subject to the manifest requirement, although it could be in electronic format or paper format.

K. Congressional Review Act

The Congressional Review Act, 5 U.S.C. 801 et seq., as added by the Small Business Regulatory Enforcement Fairness Act of 1996, generally provides that before a rule may take effect, the agency promulgating the rule must submit a rule report, which includes a copy of the rule, to each House of the Congress and to the Comptroller General of the United States. EPA will submit a report containing this rule and other required information to the U.S. Senate, the U.S. House of Representatives, and the Comptroller General of the United States prior to publication of the rule in the **Federal Register**. A Major rule cannot take effect until 60 days after it is published in the **Federal Register**. This action is not a ''major rule'' as defined by 5 U.S.C. 804(2). This rule will be effective August 6, 2014.

List of Subjects

40 CFR Part 260

Environmental protection, Exports, Hazardous materials transportation, Hazardous waste, Imports, Labeling, Packaging and containers, Reporting and recordkeeping requirements.

40 CFR Part 262

Environmental protection, Electronic reporting requirements, Exports, Hazardous materials transportation, Hazardous waste, Imports, Labeling, Packaging and containers, Reporting and recordkeeping requirements.

40 CFR Part 263

Environmental protection, Electronic reporting requirements, Hazardous materials transportation, Hazardous waste.

40 CFR Part 264

Environmental protection, Electronic reporting requirements, Hazardous waste, Packaging and containers, Reporting and recordkeeping requirements, Security measures.

40 CFR Part 265

Environmental protection, Electronic reporting requirements, Hazardous waste, Packaging and containers, Reporting and recordkeeping requirements.

40 CFR Part 271

Environmental protection, Administrative practice and procedure, Confidential business information, Electronic reporting requirements, Hazardous materials transportation, Hazardous waste, Reporting and recordkeeping requirements.

Dated: January 13, 2014.

Gina McCarthy,

Administrator.

For the reasons stated in the preamble, title 40, Chapter I of the Code of Federal Regulations is amended as follows:

PART 260—HAZARDOUS WASTE MANAGEMENT SYSTEM: GENERAL

■ 1. The authority citation for part 260 continues to read as follows:

Authority: 42 U.S.C. 6905, 6912(a), 6921—27, 6930, 6934, 6935, 6937, 6938, 6939, and 6974.

Subpart A—General

■ 2. Section 260.2 is revised to read as follows:

§ 260.2 Availability of information; confidentiality of information.

(a) Any information provided to EPA under parts 260 through 266 and 268 of this chapter will be made available to the public to the extent and in the manner authorized by the Freedom of Information Act, 5 U.S.C. section 552, section 3007(b) of RCRA and EPA regulations implementing the Freedom of Information Act and section 3007(b), and part 2 of this chapter, as applicable.

(b) Except as provided under paragraph (c) of this section, any person who submits information to EPA in accordance with parts 260 through 266 and 268 of this chapter may assert a claim of business confidentiality covering part or all of that information by following the procedures set forth in § 2.203(b) of this chapter. Information covered by such a claim will be disclosed by EPA only to the extent, and by means of the procedures, set forth in part 2, Subpart B, of this chapter except that information required by § 262.53(a) and § 262.83 that is submitted in a notification of intent to export a hazardous waste will be provided to the

U.S. Department of State and the appropriate authorities in the transit and receiving or importing countries regardless of any claims of confidentiality. However, if no such claim accompanies the information when it is received by EPA, it may be made available to the public without further notice to the person submitting it.

(c)(1) After August 6, 2014, no claim of business confidentiality may be asserted by any person with respect to information entered on a Hazardous Waste Manifest (EPA Form 8700–22), a Hazardous Waste Manifest Continuation Sheet (EPA Form 8700–22A), or an electronic manifest format that may be prepared and used in accordance with § 262.20(a)(3) of this chapter.

(2) EPA will make any electronic manifest that is prepared and used in accordance with § 262.20(a)(3), or any paper manifest that is submitted to the system under §§ 264.71(a)(6) or 265.71(a)(6) of this chapter available to the public under this section when the electronic or paper manifest is a complete and final document. Electronic manifests and paper manifests submitted to the system are considered by EPA to be complete and final documents and publicly available information after 90 days have passed since the delivery to the designated facility of the hazardous waste shipment identified in the manifest.

Subpart B—Definitions

■ 3. Section 260.10 is amended by revising the definition of ''manifest'' and adding in alphabetical order the definitions of ''electronic manifest,'' ''electronic manifest system,'' and ''user of the electronic manifest'' to read as follows:

§ 260.10 Definitions.

* * * * *

Electronic manifest (or e-Manifest) means the electronic format of the hazardous waste manifest that is obtained from EPA's national e-Manifest system and transmitted electronically to the system, and that is the legal equivalent of EPA Forms 8700–22 (Manifest) and 8700–22A (Continuation Sheet).

Electronic Manifest System (or e-Manifest System) means EPA's national information technology system through which the electronic manifest may be obtained, completed, transmitted, and distributed to users of the electronic manifest and to regulatory agencies.

* * * * *

Manifest means the shipping document EPA Form 8700–22 (including, if necessary, EPA Form 8700–22A), or the electronic manifest, originated and signed in accordance with the applicable requirements of parts 262 through 265 of this chapter.

* * * * *

User of the electronic manifest system means a hazardous waste generator, a hazardous waste transporter, an owner or operator of a hazardous waste treatment, storage, recycling, or disposal facility, or any other person that:

(1) Is required to use a manifest to comply with:

(i) Any federal or state requirement to track the shipment, transportation, and receipt of hazardous waste or other waste material that is shipped from the site of generation to an off-site designated facility for treatment, storage, recycling, or disposal; or

(ii) Any federal or state requirement to track the shipment, transportation, and receipt of rejected wastes or regulated container residues that are shipped from a designated facility to an alternative facility, or returned to the generator; and

(2) Elects to use the system to obtain, complete and transmit an electronic manifest format supplied by the EPA electronic manifest system, or

(3) Elects to use the paper manifest form and submits to the system for data processing purposes a paper copy of the manifest (or data from such a paper copy), in accordance with § 264.71(a)(2)(v) or § 265.71(a)(2)(v) of this chapter. These paper copies are submitted for data exchange purposes only and are not the official copies of record for legal purposes.

* * * * *

PART 262—STANDARDS APPLICABLE TO GENERATORS OF HAZARDOUS WASTE

■ 4. The authority citation for part 262 continues to read as follows:

Authority: 42 U.S.C. 6906, 6912, 6922—6925, 6937, and 6938.

■ 5. In § 262.20, add paragraph (a)(3) to read as follows:

§ 262.20 General requirements.

* * * * *

(a) * * *

(3) *Electronic manifest.* In lieu of using the manifest form specified in paragraph (a)(1) of this section, a person required to prepare a manifest under paragraph (a)(1) of this section may prepare and use an electronic manifest, provided that the person:

(i) Complies with the requirements in § 262.24 for use of electronic manifests, and

(ii) Complies with the requirements of 40 CFR 3.10 for the reporting of electronic documents to EPA.

* * * * *

■ 6. Add §§ 262.24 and 262.25 to subpart B to read as follows:

§ 262.24 Use of the electronic manifest.

(a) *Legal equivalence to paper manifests.* Electronic manifests that are obtained, completed, and transmitted in accordance with § 262.20(a)(3), and used in accordance with this section in lieu of EPA Forms 8700–22 and 8700–22A are the legal equivalent of paper manifest forms bearing handwritten signatures, and satisfy for all purposes any requirement in these regulations to obtain, complete, sign, provide, use, or retain a manifest.

(1) Any requirement in these regulations to sign a manifest or manifest certification by hand, or to obtain a handwritten signature, is satisfied by signing with or obtaining a valid and enforceable electronic signature within the meaning of 262.25.

(2) Any requirement in these regulations to give, provide, send, forward, or return to another person a copy of the manifest is satisfied when an electronic manifest is transmitted to the other person by submission to the system.

(3) Any requirement in these regulations for a generator to keep or retain a copy of each manifest is satisfied by retention of a signed electronic manifest in the generator's account on the national e-Manifest system, provided that such copies are readily available for viewing and production if requested by any EPA or authorized state inspector.

(4) No generator may be held liable for the inability to produce an electronic manifest for inspection under this section if the generator can demonstrate that the inability to produce the electronic manifest is due exclusively to a technical difficulty with the electronic manifest system for which the generator bears no responsibility.

(b) A generator may participate in the electronic manifest system either by accessing the electronic manifest system from its own electronic equipment, or by accessing the electronic manifest system from portable equipment brought to the generator's site by the transporter who accepts the hazardous waste shipment from the generator for off-site transportation.

(c) *Restriction on use of electronic manifests.* A generator may prepare an electronic manifest for the tracking of hazardous waste shipments involving any RCRA hazardous waste only if it is

known at the time the manifest is originated that all waste handlers named on the manifest participate in the electronic manifest system.

(d) *Requirement for one printed copy.* To the extent the Hazardous Materials regulation on shipping papers for carriage by public highway requires shippers of hazardous materials to supply a paper document for compliance with 49 CFR 177.817, a generator originating an electronic manifest must also provide the initial transporter with one printed copy of the electronic manifest.

(e) *Special procedures when electronic manifest is unavailable.* If a generator has prepared an electronic manifest for a hazardous waste shipment, but the electronic manifest system becomes unavailable for any reason prior to the time that the initial transporter has signed electronically to acknowledge the receipt of the hazardous waste from the generator, then the generator must obtain and complete a paper manifest and if necessary, a continuation sheet (EPA Forms 8700–22 and 8700–22A) in accordance with the manifest instructions in the appendix to this part, and use these paper forms from this point forward in accordance with the requirements of § 262.23.

(f) *Special procedures for electronic signature methods undergoing tests.* If a generator has prepared an electronic manifest for a hazardous waste shipment, and signs this manifest electronically using an electronic signature method which is undergoing pilot or demonstration tests aimed at demonstrating the practicality or legal dependability of the signature method, then the generator shall also sign with an ink signature the generator/offeror certification on the printed copy of the manifest provided under paragraph (d) of this section.

(g) *Imposition of user fee.* A generator who is a user of the electronic manifest may be assessed a user fee by EPA for the origination of each electronic manifest. EPA shall maintain and update from time-to-time the current schedule of electronic manifest user fees, which shall be determined based on current and projected system costs and level of use of the electronic manifest system. The current schedule of electronic manifest user fees shall be published as an appendix to this part.

§ 262.25 Electronic manifest signatures.

Electronic signature methods for the e-Manifest system shall:

(a) Be a legally valid and enforceable signature under applicable EPA and other Federal requirements pertaining to electronic signatures; and

(b) Be a method that is designed and implemented in a manner that EPA considers to be as cost-effective and practical as possible for the users of the manifest.

PART 263—STANDARDS APPLICABLE TO TRANSPORTERS OF HAZARDOUS WASTE

■ 7. The authority citation for part 263 continues to read as follows:

Authority: 42 U.S.C. 6906, 6912, 6922–6925, 6937, and 6938.

■ 8. Section 263.20 is amended by revising paragraph (a) to read as follows:

§ 263.20 The manifest system.

(a)(1) *Manifest requirement.* A transporter may not accept hazardous waste from a generator unless the transporter is also provided with a manifest form (EPA Form 8700–22, and if necessary, EPA Form 8700–22A) signed in accordance with the requirement of § 262.23, or is provided with an electronic manifest that is obtained, completed, and transmitted in accordance with § 262.20(a)(3) of this chapter, and signed with a valid and enforceable electronic signature as described in 40 CFR 262.25.

(2) *Exports.* In the case of exports other than those subject to Subpart H of 40 CFR part 262, a transporter may not accept such waste from a primary exporter or other person if he knows the shipment does not conform to the EPA Acknowledgment of Consent; and unless, in addition to a manifest signed by the generator in accordance with this section, the transporter shall also be provided with an EPA Acknowledgment of Consent which, except for shipments by rail, is attached to the manifest (or shipping paper for exports by water (bulk shipment)). For exports of hazardous waste subject to the requirements of subpart H of 40 CFR part 262, a transporter may not accept hazardous waste without a tracking document that includes all information required by 40 CFR 262.84.

(3) *Compliance date for form revisions.* The revised Manifest form and procedures in 40 CFR 260.10, 261.7, 263.20, and 263.21, had an effective date of September 5, 2006. The Manifest form and procedures in 40 CFR 260.10, 261.7, 263.20, and 263.21, contained in the 40 CFR, parts 260 to 265, edition revised as of July 1, 2004, were applicable until September 5, 2006.

(4) *Use of electronic manifest—legal equivalence to paper forms for participating transporters.* Electronic manifests that are obtained, completed, and transmitted in accordance with § 262.20(a)(3) of this chapter, and used in accordance with this section in lieu of EPA Forms 8700–22 and 8700–22A, are the legal equivalent of paper manifest forms bearing handwritten signatures, and satisfy for all purposes any requirement in these regulations to obtain, complete, sign, carry, provide, give, use, or retain a manifest.

(i) Any requirement in these regulations to sign a manifest or manifest certification by hand, or to obtain a handwritten signature, is satisfied by signing with or obtaining a valid and enforceable electronic signature within the meaning of 40 CFR 262.25.

(ii) Any requirement in these regulations to give, provide, send, forward, or return to another person a copy of the manifest is satisfied when a copy of an electronic manifest is transmitted to the other person by submission to the system.

(iii) Any requirement in these regulations for a manifest to accompany a hazardous waste shipment is satisfied when a copy of an electronic manifest is accessible during transportation and forwarded to the person or persons who are scheduled to receive delivery of the waste shipment, except that to the extent that the Hazardous Materials regulation on shipping papers for carriage by public highway requires transporters of hazardous materials to carry a paper document to comply with 49 CFR 177.817, a hazardous waste transporter must carry one printed copy of the electronic manifest on the transport vehicle.

(iv) Any requirement in these regulations for a transporter to keep or retain a copy of a manifest is satisfied by the retention of an electronic manifest in the transporter's account on the e-Manifest system, provided that such copies are readily available for viewing and production if requested by any EPA or authorized state inspector.

(v) No transporter may be held liable for the inability to produce an electronic manifest for inspection under this section if that transporter can demonstrate that the inability to produce the electronic manifest is exclusively due to a technical difficulty with the EPA system for which the transporter bears no responsibility.

(5) A transporter may participate in the electronic manifest system either by accessing the electronic manifest system from the transporter's own electronic equipment, or by accessing the electronic manifest system from the equipment provided by a participating generator, by another transporter, or by a designated facility.

(6) *Special procedures when electronic manifest is not available.* If after a manifest has been originated electronically and signed electronically by the initial transporter, and the electronic manifest system should become unavailable for any reason, then:

(i) The transporter in possession of the hazardous waste when the electronic manifest becomes unavailable shall reproduce sufficient copies of the printed manifest that is carried on the transport vehicle pursuant to paragraph (a)(4)(iii)(A) of this section, or obtain and complete another paper manifest for this purpose. The transporter shall reproduce sufficient copies to provide the transporter and all subsequent waste handlers with a copy for their files, plus two additional copies that will be delivered to the designated facility with the hazardous waste.

(ii) On each printed copy, the transporter shall include a notation in the Special Handling and Additional Description space (Item 14) that the paper manifest is a replacement manifest for a manifest originated in the electronic manifest system, shall include (if not pre-printed on the replacement manifest) the manifest tracking number of the electronic manifest that is replaced by the paper manifest, and shall also include a brief explanation why the electronic manifest was not available for completing the tracking of the shipment electronically.

(iii) A transporter signing a replacement manifest to acknowledge receipt of the hazardous waste must ensure that each paper copy is individually signed and that a legible handwritten signature appears on each copy.

(iv) From the point at which the electronic manifest is no longer available for tracking the waste shipment, the paper replacement manifest copies shall be carried, signed, retained as records, and given to a subsequent transporter or to the designated facility, following the instructions, procedures, and requirements that apply to the use of all other paper manifests.

(7) *Special procedures for electronic signature methods undergoing tests.* If a transporter using an electronic manifest signs this manifest electronically using an electronic signature method which is undergoing pilot or demonstration tests aimed at demonstrating the practicality or legal dependability of the signature method, then the transporter shall sign the electronic manifest electronically and also sign with an ink signature the transporter acknowledgement of receipt of materials on the printed copy of the manifest that is carried on the vehicle in accordance with paragraph (a)(4)(iii)(A) of this section. This printed copy bearing the generator's and transporter's ink signatures shall also be presented by the transporter to the designated facility to sign in ink to indicate the receipt of the waste materials or to indicate discrepancies. After the owner/operator of the designated facility has signed this printed manifest copy with its ink signature, the printed manifest copy shall be delivered to the designated facility with the waste materials.

(8) *Imposition of user fee for electronic manifest use.* A transporter who is a user of the electronic manifest may be assessed a user fee by EPA for the origination or processing of each electronic manifest. EPA shall maintain and update from time-to-time the current schedule of electronic manifest user fees, which shall be determined based on current and projected system costs and level of use of the electronic manifest system. The current schedule of electronic manifest user fees shall be published as an appendix to part 262 of this Chapter.

* * * * *

■ 9. Add § 263.25 to subpart B to read as follows:

§ 263.25 Electronic manifest signatures.

(a) Electronic manifest signatures shall meet the criteria described in § 262.25 of this chapter.

(b) [Reserved]

PART 264—STANDARDS FOR OWNERS AND OPERATORS OF HAZARDOUS WASTE TREATMENT, STORAGE, AND DISPOSAL FACILITIES

■ 10. The authority citation for part 264 continues to read as follows:

Authority: 42 U.S.C. 6905, 6912(a), 6924, and 6925.

Subpart E—Manifest System, Recordkeeping, and Reporting

■ 11. Section 264.71 is amended by revising paragraph (a)(2), and by adding paragraphs (f), (g), (h), (i), (j), and (k) to read as follows:

264.71 Use of manifest system.

(a) * * *

(2) If the facility receives a hazardous waste shipment accompanied by a manifest, the owner, operator, or his agent must:

(i) Sign and date, by hand, each copy of the manifest;

(ii) Note any discrepancies (as defined in § 264.72(a)) on each copy of the manifest;

(iii) Immediately give the transporter at least one copy of the manifest;

(iv) Within 30 days of delivery, send a copy (Page 3) of the manifest to the generator,

(v) Within 30 days of delivery, send the top copy (Page 1) of the Manifest to the e-Manifest system for purposes of data entry and processing. In lieu of mailing this paper copy to EPA, the owner or operator may transmit to the EPA system an image file of Page 1 of the manifest, or both a data string file and the image file corresponding to Page 1 of the manifest. Any data or image files transmitted to EPA under this paragraph must be submitted in data file and image file formats that are acceptable to EPA and that are supported by EPA's electronic reporting requirements and by the electronic manifest system.

(vi) Retain at the facility a copy of each manifest for at least three years from the date of delivery.

* * * * *

(f) *Legal equivalence to paper manifests.* Electronic manifests that are obtained, completed, and transmitted in accordance with § 262.20(a)(3) of this chapter, and used in accordance with this section in lieu of the paper manifest form are the legal equivalent of paper manifest forms bearing handwritten signatures, and satisfy for all purposes any requirement in these regulations to obtain, complete, sign, provide, use, or retain a manifest.

(1) Any requirement in these regulations for the owner or operator of a facility to sign a manifest or manifest certification by hand, or to obtain a handwritten signature, is satisfied by signing with or obtaining a valid and enforceable electronic signature within the meaning of 40 CFR 262.25.

(2) Any requirement in these regulations to give, provide, send, forward, or to return to another person a copy of the manifest is satisfied when a copy of an electronic manifest is transmitted to the other person.

(3) Any requirement in these regulations for a manifest to accompany a hazardous waste shipment is satisfied when a copy of an electronic manifest is accessible during transportation and forwarded to the person or persons who are scheduled to receive delivery of the waste shipment.

(4) Any requirement in these regulations for an owner or operator to keep or retain a copy of each manifest is satisfied by the retention of the facility's electronic manifest copies in its account on the e-Manifest system, provided that such copies are readily available for viewing and production if

requested by any EPA or authorized state inspector.

(5) No owner or operator may be held liable for the inability to produce an electronic manifest for inspection under this section if the owner or operator can demonstrate that the inability to produce the electronic manifest is due exclusively to a technical difficulty with the electronic manifest system for which the owner or operator bears no responsibility.

(g) An owner or operator may participate in the electronic manifest system either by accessing the electronic manifest system from the owner's or operator's electronic equipment, or by accessing the electronic manifest system from portable equipment brought to the owner's or operator's site by the transporter who delivers the waste shipment to the facility.

(h) *Special procedures applicable to replacement manifests.* If a facility receives hazardous waste that is accompanied by a paper replacement manifest for a manifest that was originated electronically, the following procedures apply to the delivery of the hazardous waste by the final transporter:

(1) Upon delivery of the hazardous waste to the designated facility, the owner or operator must sign and date each copy of the paper replacement manifest by hand in Item 20 (Designated Facility Certification of Receipt) and note any discrepancies in Item 18 (Discrepancy Indication Space) of the paper replacement manifest,

(2) The owner or operator of the facility must give back to the final transporter one copy of the paper replacement manifest,

(3) Within 30 days of delivery of the waste to the designated facility, the owner or operator of the facility must send one signed and dated copy of the paper replacement manifest to the generator, and send an additional signed and dated copy of the paper replacement manifest to the electronic manifest system, and

(4) The owner or operator of the facility must retain at the facility one copy of the paper replacement manifest for at least three years from the date of delivery.

(i) *Special procedures applicable to electronic signature methods undergoing tests.* If an owner or operator using an electronic manifest signs this manifest electronically using an electronic signature method which is undergoing pilot or demonstration tests aimed at demonstrating the practicality or legal dependability of the signature method, then the owner or operator shall also sign with an ink signature the facility's certification of receipt or discrepancies on the printed copy of the manifest provided by the transporter. Upon executing its ink signature on this printed copy, the owner or operator shall retain this original copy among its records for at least 3 years from the date of delivery of the waste.

(j) *Imposition of user fee for electronic manifest use.* An owner or operator who is a user of the electronic manifest format may be assessed a user fee by EPA for the origination or processing of each electronic manifest. An owner or operator may also be assessed a user fee by EPA for the collection and processing of paper manifest copies that owners or operators must submit to the electronic manifest system operator under § 264.71(a)(2)(v). EPA shall maintain and update from time-to-time the current schedule of electronic manifest system user fees, which shall be determined based on current and projected system costs and level of use of the electronic manifest system. The current schedule of electronic manifest user fees shall be published as an appendix to part 262 of this chapter.

(k) *Electronic manifest signatures.* Electronic manifest signatures shall meet the criteria described in § 262.25 of this chapter.

PART 265—INTERIM STATUS STANDARDS FOR OWNERS AND OPERATORS OF HAZARDOUS WASTE TREATMENT, STORAGE, AND DISPOSAL FACILITIES

■ 12. The authority citation for part 265 continues to read as follows:

Authority: 42 U.S.C. 6905, 6906, 6912, 6922, 6923, 6924, 6925, 6935, 6936, and 6937.

Subpart E—Manifest System, Recordkeeping, and Reporting

■ 13. Section 265.71 is amended by revising paragraph (a)(2), and by adding paragraphs (f), (g), (h), (i), (j), and (k) to read as follows:

§ 265.71 Use of manifest system.

* * * * *

(a) * * *

(2) If the facility receives a hazardous waste shipment accompanied by a manifest, the owner, operator, or his agent must:

(i) Sign and date, by hand, each copy of the manifest;

(ii) Note any discrepancies (as defined in § 264.72(a) of this chapter) on each copy of the manifest;

(iii) Immediately give the transporter at least one copy of the manifest;

(iv)Within 30 days of delivery, send a copy (Page 3) of the manifest to the generator,

(v) Within 30 days of delivery, send the top copy (Page 1) of the Manifest to the electronic manifest system for purposes of data entry and processing. In lieu of mailing this paper copy to the electronic manifest system operator, the owner or operator may transmit to the system operator an image file of Page 1 of the manifest, or both a data string file and the image file corresponding to Page 1 of the manifest. Any data or image files transmitted to EPA under this paragraph must be submitted in data file and image file formats that are acceptable to EPA and that are supported by EPA's electronic reporting requirements and by the electronic manifest system.

(vi) Retain at the facility a copy of each manifest for at least three years from the date of delivery.

* * * * *

(f) *Legal equivalence to paper manifests.* Electronic manifests that are obtained, completed, and transmitted in accordance with § 262.20(a)(3) of this chapter, and used in accordance with this section in lieu of the paper manifest form are the legal equivalent of paper manifest forms bearing handwritten signatures, and satisfy for all purposes any requirement in these regulations to obtain, complete, sign, provide, use, or retain a manifest.

(1) Any requirement in these regulations for the owner or operator of a facility to sign a manifest or manifest certification by hand, or to obtain a handwritten signature, is satisfied by signing with or obtaining a valid and enforceable electronic signature within the meaning of 40 CFR 262.25.

(2) Any requirement in these regulations to give, provide, send, forward, or to return to another person a copy of the manifest is satisfied when a copy of an electronic manifest is transmitted to the other person.

(3) Any requirement in these regulations for a manifest to accompany a hazardous waste shipment is satisfied when a copy of an electronic manifest is accessible during transportation and forwarded to the person or persons who are scheduled to receive delivery of the hazardous waste shipment.

(4) Any requirement in these regulations for an owner or operator to keep or retain a copy of each manifest is satisfied by the retention of the facility's electronic manifest copies in its account on the e-Manifest system, provided that such copies are readily available for viewing and production if requested by any EPA or authorized state inspector.

(5) No owner or operator may be held liable for the inability to produce an electronic manifest for inspection under this section if the owner or operator can demonstrate that the inability to produce the electronic manifest is due exclusively to a technical difficulty with the EPA system for which the owner or operator bears no responsibility.

(g) An owner or operator may participate in the electronic manifest system either by accessing the electronic manifest system from the owner's or operator's electronic equipment, or by accessing the electronic manifest system from portable equipment brought to the owner's or operator's site by the transporter who delivers the waste shipment to the facility.

(h) *Special procedures applicable to replacement manifests.* If a facility receives hazardous waste that is accompanied by a paper replacement manifest for a manifest that was originated electronically, the following procedures apply to the delivery of the hazardous waste by the final transporter:

(1) Upon delivery of the hazardous waste to the designated facility, the owner or operator must sign and date each copy of the paper replacement manifest by hand in Item 20 (Designated Facility Certification of Receipt) and note any discrepancies in Item 18 (Discrepancy Indication Space) of the replacement manifest,

(2) The owner or operator of the facility must give back to the final transporter one copy of the paper replacement manifest,

(3) Within 30 days of delivery of the hazardous waste to the designated facility, the owner or operator of the facility must send one signed and dated copy of the paper replacement manifest to the generator, and send an additional signed and dated copy of the paper replacement manifest to the EPA e-Manifest system, and

(4) The owner or operator of the facility must retain at the facility one copy of the paper replacement manifest for at least three years from the date of delivery.

(i) *Special procedures applicable to electronic signature methods undergoing tests.* If an owner or operator using an electronic manifest signs this manifest electronically using an electronic signature method which is undergoing pilot or demonstration tests aimed at demonstrating the practicality or legal dependability of the signature method, then the owner or operator shall also sign with an ink signature the facility's certification of receipt or discrepancies on the printed copy of the manifest provided by the transporter. Upon executing its ink signature on this printed copy, the owner or operator shall retain this original copy among its records for at least 3 years from the date of delivery of the waste.

(j) *Imposition of user fee for electronic manifest use.* An owner or operator who is a user of the electronic manifest format may be assessed a user fee by EPA for the origination or processing of each electronic manifest. An owner or operator may also be assessed a user fee by EPA for the collection and processing of paper manifest copies that owners or operators must submit to the electronic manifest system operator under § 265.71(a)(2)(v). EPA shall maintain and update from time-to-time the current schedule of electronic manifest system user fees, which shall be determined based on current and projected system costs and level of use of the electronic manifest system. The current schedule of electronic manifest user fees shall be published as an appendix to part 262 of this chapter.

(k) *Electronic manifest signatures.* (1) Electronic manifest signatures shall meet the criteria described in § 262.25 of this chapter.

PART 271—REQUIREMENTS FOR AUTHORIZATION OF STATE HAZARDOUS WASTE PROGRAMS

■ 14. The authority citation for part 271 continues to read as follows:

Authority: 42 U.S.C. 6905, 6912(a), and 6926.

Subpart A—Requirements for Final Authorization

■ 15. Section 271.3 is amended by revising paragraph (b) introductory text, and adding paragraph (b)(4) to read as follows:

§ 271.3 Availability of final authorization.

* * * * *

(b) States approved under this subpart are authorized to administer and enforce their hazardous waste program in lieu of the Federal program, except as provided below:

* * * * *

(4) Any requirement applicable to the content or use of electronic manifests, including electronic signature requirements, and imposed under the authority of the Hazardous Waste Electronic Manifest Establishment Act:

(i) Shall take effect in each State having a finally authorized State program on the same date as such requirement takes effect in other States;

(ii) Shall supersede any less stringent or inconsistent provision of a State program, and

(iii) Shall be carried out by the Administrator in an authorized state except where, pursuant to section 3006(b) of RCRA, the State has received final authorization to carry out the requirement in lieu of the Administrator.

* * * * *

■ 16. Section 271.4 is amended by revising paragraph (c) to read as follows:

§ 271.4 Consistency.

* * * * *

(c) If the state manifest system does not meet the requirements of this part, the state program shall be deemed inconsistent. The state manifest system must further allow the use and recognize the validity of electronic manifests as described in § 260.10 of this chapter.

■ 17. Section 271.10 is amended by revising paragraphs (f)(1), (f)(3), and the introductory text to paragraph (h) to read as follows:

§ 271.10 Requirements for generators of hazardous waste.

* * * * *

(f) * * *

(1) Use a manifest system that ensures that interstate and intrastate shipments of hazardous waste are designated for delivery and, in the case of intrastate shipments, are delivered to facilities that are authorized to operate under an approved state program or the federal program. The manifest system must require the use of the paper or electronic manifest formats as required by § 262.20(a) of this chapter. No other manifest form, electronic manifest format, shipping paper, or information other than that required by federal requirements, may be required by the state to travel with the shipment, or to be transmitted electronically, as a means to track the transportation and delivery of hazardous waste shipments. No other electronic signature other than that required by the federal electronic manifest requirements may be required by a state to be executed in connection with the signing of an electronic manifest.

* * * * *

(3) Ensure that all wastes offered for transportation are accompanied by a manifest form, or are tracked with an electronic manifest, except:

(i) Shipments subject to 40 CFR 262.20(e) or (f);

(ii) Shipments by rail or water, as specified in 40 CFR 262.23(c) and (d).

* * * * *

(h) The state must follow the federal manifest format for the paper manifest forms (EPA Forms 8700–22 and 8700–

22A) and the instructions in the appendix to part 262, and must follow the federal electronic manifest format and instructions as obtained from the Electronic Manifest System described in § 260.10 of this chapter.

* * * * *

■ 18. Section 271.11 is amended by revising paragraph (c)(1) to read as follows:

§ 271.11 Requirements for transporters of hazardous wastes.

* * * * *

(c)(1) The state must require the transporter to carry the manifest forms (EPA Forms 8700–22 and 8700–22A) during transport, or, where the electronic manifest is used and the U. S. Department of Transportation's Hazardous Materials Regulations, 49 CFR parts 171–180, require a paper shipping document on the transport vehicle, to carry one printed copy of the electronic manifest during transport, except in the case of shipments by rail or water, for which transporters may carry a shipping paper as specified in 40 CFR 263.20(e) and (f).

* * * * *

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