ENVIRONMENTAL PROTECTION AGENCY

40 CFR Parts 260, 261, 262, 263, 264, 265, 271

[FRL–6932–4]

RIN 2050–AE21

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

AGENCY: Environmental Protection Agency.

ACTION: Proposed rule.

SUMMARY: Today, the Environmental Protection Agency (EPA) proposes to revise the Uniform Hazardous Waste Manifest regulations and the manifest form used to track hazardous waste from a generator's site to its site of ultimate disposition.

EPA proposes three major revisions to the manifest system: First, EPA proposes to further standardize the content and appearance of the current manifest form (8700–22 and 22a), to make the form available from a greater number of sources. Second, EPA proposes manifest tracking procedures for the follow-up manifesting of TSDF-rejected RCRA hazardous waste shipment loads, and follow-on shipments of non-empty waste containers containing waste residues. Lastly, EPA proposes giving waste handlers required to use the form the option to complete, send, and store the manifest information electronically. For waste handlers choosing this option, the proposed rule would require the use of a standardized electronic data interchange (EDI) format that facilitates the exchange of data between waste handlers, the use of digital signature technology to sign the manifest, and the use of a standard set of computer security standards for the transmission and storage of manifest data.

EPA proposes these changes to reduce paperwork burden related to the hazardous waste manifest provisions, and in response to many requests for a streamlined and up-to-date hazardous waste tracking system. If finalized, EPA also expects these proposed changes to improve the ''cradle-to-grave'' hazardous waste tracking system and to ensure that waste reaches its destination without causing harm to human health or the environment.

DATES: Written comments on this proposed rule must be submitted on or before August 20, 2001.

ADDRESSES: Commenters must send an original and two copies of their comments referencing docket number F–2000–UWMP–FFFFF to: RCRA Docket Information Center, Office of Solid Waste (5305W), U.S. Environmental Protection Agency Headquarters (EPA, HQ), Ariel Rios Building, 1200 Pennsylvania Ave., NW., Washington, DC 20460. Hand deliveries of comments should be made to the Arlington, VA, address below. Comments may also be submitted electronically to: rcra-docket@epa.gov. Comments in electronic format should also be identified by the docket number F–2000–UWMP–FFFFF. All electronic comments must be submitted as an ASCII file avoiding the use of special characters and any form of encryption. Commenters should not submit electronically any confidential business information (CBI). An original and two copies of CBI must be submitted under separate cover to: RCRA CBI Document Control Officer, Office of Solid Waste (5305W), U.S. EPA, Ariel Rios Building, 1200 Pennsylvania Ave., NW., Washington, DC 20460. Public comments and supporting materials are available for viewing in the RCRA Information Center (RIC), located at Crystal Gateway One, First Floor, 1235 Jefferson Davis Highway, Arlington, VA 22202. The RIC is open from 9 a.m. to 4 p.m., Monday through Friday, excluding federal holidays. To review docket materials, it is recommended that the public make an appointment by calling (703) 603–9230. The public may copy a maximum of 100 pages from any regulatory document at no cost. Additional copies cost $0.15 per page. The index and some supporting materials are available electronically. See the Supplementary Information section for information on accessing them.

FOR FURTHER INFORMATION CONTACT: For general information, contact the RCRA Hotline at (800) 424–9346 or TDD (800) 553–7672 (hearing impaired). In the Washington, DC, metropolitan area, call (703) 412–9810 or TDD (703) 412–3323. For more detailed information on specific aspects of this rulemaking, contact Richard Lashier (5304W), Office of Solid Waste, U.S. Environmental Protection Agency, 401 M Street, SW., Washington, DC 20460, (703) 308–8796, lashier.rich@epa.gov.

SUPPLEMENTARY INFORMATION:

Internet Availability

This rule is available on the Internet. Using a World Wide Web (WWW) browser, type *http://www.epa.gov/epaoswer/hazwaste/gener/manifest/index.htm*

The official record for this action is in a paper format.

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I. Authority

These regulations are proposed under the authority of sections 2002, 3001 through 3007, and 3009 of the Solid Waste Disposal Act of 1970, as amended by the Resource Conservation and Recovery Act of 1976 (RCRA), as amended by the Hazardous and Solid Waste Amendments of 1984 (HSWA), 42 U.S.C. 6912, 6921 through 6927, 6929 and 6930.

II. Request for Comments

The Agency requests comment on the proposed changes to the manifest form, the proposed procedures for using the form, and on the proposed option for electronic manifests, as described in this document. The manifest system includes both the Uniform Hazardous Waste Manifest (EPA Form 8700–22) and the Uniform Hazardous Waste Manifest Continuation Sheet (EPA Form 8700–22A). The continuation sheet includes many of the same data elements as the manifest form, and merely adds additional fields to identify additional transporters or waste streams which could not fit on the manifest. While this document, for simplicity, discusses the proposed manifest system revisions primarily in the context of the manifest form, it is EPA's intent to implement these revisions with respect to both the manifest and the corresponding data fields found on the continuation sheet. Therefore, those commenting on today's proposal should consider the proposed form revisions, procedures, and electronic manifest options as affecting both the manifest form and the continuation sheet.

To assist in compiling and responding to comments, the Agency requests that commenters include a heading for each issue addressed in their comment which identifies the section(s) of this preamble in which the issue is discussed (and/or the regulatory citation(s) the comment addresses). In addition to hard copies of their comment, the Agency further requests that, if possible, commenters provide an electronic copy of their comment on disk, preferably in ASCII avoiding the use of special characters and any form of encryption. Please identify the software package used to develop the document.

III. Background

A. History of Manifest System

Subtitle C of the Resource Conservation and Recovery Act (RCRA) required to establish a manifest system to track shipments of hazardous waste from a generator's site to the site where the hazardous waste is sent to be managed (that is, cradle-to-grave). EPA published regulations for a manifest system on February 26, 1980. (See 45 FR 12724, February 26, 1980.) The central element of the manifest system is the paper trail—a document showing who is in the control of the hazardous waste at a given time and where the waste is destined for its ultimate disposition. The manifest also identifies the waste in terms of its toxicity (that is, hazard potential) and quantity and therefore, in case of an emergency or waste release, makes the emergency response personnel aware of the potential for human health and environmental hazards the waste may pose.

EPA's authority to establish requirements for a manifest system stems primarily from RCRA Section 3002(a)(5). (See also RCRA Sections 3003(a)(3) and 3004.) Regulations are found in 40 CFR Part 262 (Generators), Part 263 (Transporters), and Part 264 and 265 (Treatment, Storage and Disposal facilities).

DOT regulations at 49 CFR 172.205 state that ''No person may offer, transport, transfer, or deliver a hazardous waste (waste) unless an EPA Form 8700–22 and 8700–22A (when necessary) hazardous waste manifest (manifest) is prepared in accordance with 40 CFR 262.70 and is signed, carried, and given as required of that person by this section.'' In the pre-RCRA days, the Department of Transportation (DOT) requirements for shipping papers were applicable for tracking the movement of industrial and chemical waste. (See 49 CFR 171.3 and 171.8) DOT did not require a specific form but required each transport vehicle to carry required information such as hazardous material name and hazard class. In the 1980 manifest rule, EPA only required that certain information must accompany hazardous waste shipments. EPA believed that this approach would allow the regulated community to adapt its use of shipping papers which are required by DOT's Hazardous Materials Regulations (49 CFR parts 171–180) to accommodate the new EPA requirements. In addition, any State that desired a manifest form was allowed to develop one to satisfy its needs, as long as the State form provided the minimum information requirements of the 1980 rule (45 FR 12729, February 26, 1980). The 1980 manifest rule retained flexibility inherent to the DOT regulations so that the manifest would also be able to serve as the shipping papers required by DOT's hazardous materials transportation regulations. This approach, however, was short-lived.

Soon after the 1980 regulations became effective, more than 20 States developed and required their own manifest forms. These forms met the minimal Federal requirements but also required additional State information. Significant confusion and compliance difficulties resulted from the differing manifest requirements. Often, it was necessary for generators to prepare multiple manifests for interstate shipments to satisfy the requirements of the States through which the hazardous waste traveled. Therefore, EPA and DOT in coordinated rulemaking, with significant assistance from the Association of State and Territorial Solid Waste Management (ASTSWMO) and the Hazardous Materials Advisory Council (HMAC), proposed and later promulgated a Uniform Hazardous Waste Manifest form and procedures for its use. (See 47 FR 9336, March 8, 1982 (proposed rule), and 49 FR 10490, March 20, 1984 (final rule)). This Uniform Hazardous Waste Manifest system remains in place today. The Uniform Hazardous Waste Manifest was designed to eliminate the burden for generators, transporters, and other waste handlers who may have been subject to

several versions of waste tracking system with duplicate information. It also was designed to enable generators and transporters to meet both DOT and EPA regulatory requirements. Under this system, generators and transporters are required to use the Uniform Hazardous Waste Manifest, and States may not require a different manifest in its place. However, the Uniform Hazardous Waste Manifest has State blocks which allow States, at their option, to require the entry of additional specific information to serve their State's regulatory needs. EPA expected that both the States and generators would benefit from this approach since the additional State information requirements could be met on the Uniform Manifest form, and the need for generators to prepare separate manifests for each State entered would be eliminated (49 FR 10499, March 20, 1984). The Uniform Hazardous Waste Manifest requirements, however, do not preclude a State from requiring a generator to send other information under separate cover under the EPA rule (49 FR 10492) or directly to the appropriate agency of a State under the DOT rule (49 FR 10508).

The manifest system in place for the past 20 years has improved the management and enforcement of the national hazardous waste program where it serves several primary purposes:

(1) To serve as a tracking device which creates clear lines of accountability among the participants in the hazardous waste system;

(2) To serve, together with the other EPA and DOT requirements, to protect human health and the environment during the transportation of hazardous waste by providing information on the waste to persons handling the waste and to emergency response personnel; and

(3) To provide the principal basis for EPA's recordkeeping and reporting requirements (45 FR 12728, February 26, 1980).

The hazardous waste manifest was developed to meet both RCRA and HMTA requirements. As a form of DOT-required ''shipping paper'' the manifest conveys essential emergency information required during transportation, specifically the proper shipping name, hazard class, phone numbers enabling responders to obtain additional information, when necessary. These essential information requirements negated the need of having another set of separate papers, namely shipping paper.

However, the revised form has not entirely mitigated consistency and uniformity problems that occurred with the old manifest requirements primarily because confusion about different State manifest requirements associated with the state optional fields still exist. Also, the existing regulations describe a specific, multi-copy paper form which must be physically carried among waste handlers, and which must be hand-signed as custody of waste shipment changes, making it difficult to integrate the form with computer technologies. (See section VII.D for further discussion related to impediments to automation of the waste tracking system.) Consequently, EPA received further complaints from the regulated community and States. Further discussion regarding these and other problems with the uniform manifest follow.

B. Problems Associated With Uniform Manifest Form

1. Variability

Under the current regulations more than 20 states print the manifest form in accordance with the format specified in federal regulations. As mentioned previously, the manifest form was designed to allow states to continue to meet their individual information needs. However, the different manifest requirements among State Manifest programs have drawn complaints from the regulated community about manifest inconsistency. Most complaints have come from large generators and TSDFs who helped generators prepare forms as part of their business' service. These manifest users have expressed frustration with the uniform manifest because they still found it difficult to complete the state optional portions of the form without first collecting and keeping track of requirements from each state in which they did business. For example, some states have assigned additional generator identification numbers, transporter identification numbers, facility identification numbers, or some combination of the three, while others have not assigned these numbers. Under the current manifest requirements, a state may require any combination of these boxes to be completed in addition to the federally required blocks on the manifest. Thus, a generator who sends waste to multiple states needs keep track of which states require this information on the manifest and ensure that each manifest is filled out correctly for its destination state.

Generators also have expressed their frustration with optional Blocks I ''Waste No.'' and K ''Handling Codes . . .'' because the inconsistencies among states can make it very labor-intensive for generators to complete those blocks. For example, with respect to completion of Block I, a generator who sends wastes to different states must determine which codes the states require the generator to use in Block I and under which circumstances the generator may use the codes (e.g., when a code is required for hazardous waste being sent to a recycler).

Other manifest variability issues that have caused much vexation for manifest users are the different state manifest copy distribution schemes and the hierarchical manifest acquisition system (See Section IV.A for details on the manifest acquisition system and copy distribution scheme). Specifically, states that require generators to use their state manifest form generally use a 6-part form or an 8-part form. A state that receives hazardous wastes may require both the generator and the TSDF to submit a copy of the manifest to the state so that copies can be matched. In other states, only the generator is required to submit a copy of the form to the state. Often, a person who needs manifest forms from several states cannot obtain them from one location. As a result, a person must contact each state separately to request the state-specific form.

2. State Difficulties

States that collect the manifest have also experienced difficulty with processing the paper manifest form. They may collect hundreds of forms in a month, and either place the manifests in files, or manually enter the information on the forms into a state database system. Manual data entry often results in errors and delay, which could be avoided if the manifest were prepared and transmitted to the states electronically. Also, it is difficult to exchange manifest information between the generator's state and the receiving facility's state because often, their information systems are incompatible, and unable to accept transfers of data from one state to another.

C. Efforts To Improve the Hazardous Waste Manifest System

In 1985, manifest officials in several State environmental agencies formed an Interstate Hazardous Waste Manifest Coordinators Group (IHWMCG) to address manifesting issues and to increase uniformity among State manifest programs. During 1988, the IHWMCG served on the Association of State and Territorial Solid Waste Management Officials (ASTSWMO) Manifest Revisions Task Force to develop regulatory recommendations to EPA to increase effectiveness, efficiency

and consistency of the national hazardous waste manifest system. The Task Forces's recommendations for specific modifications to the Uniform Hazardous Waste Manifest were submitted to EPA as a rulemaking petition on January 8, 1990.

In 1992, EPA embarked upon a negotiated rulemaking effort in an attempt to take advantage of the near consensus already reached by States in the ASTSWMO petition. The Negotiated Rulemaking committee reached agreement on recommendations for revisions to the manifest form. The Negotiated Rulemaking committee recommended that essentially all optional fields on the current manifest form should become mandatory Federal fields. In addition, the Negotiated rulemaking committee recommended several procedures for using the manifest when hazardous waste shipments are rejected by the designated facility, or when the designated facility cannot render containers ''RCRA empty.'' The committee also agreed to expand requirements for imported waste shipments. The final agreement document can be found in the regulatory docket for today's action.

However, before EPA completed the Negotiated rulemaking process, it implemented its reinvention strategy to fulfill the Administration's commitment to reinventing environmental protection. In March 1995, President Clinton, Vice President Gore, and the EPA Administrator put forth an ambitious agenda to reinvent environmental protection as part of the larger goal of creating a federal government that works more efficiently and costs less. The Administration and the Agency have been committed to the goal of reducing the paperwork burden resulting from environmental regulations by at least 25% (Current information about regulatory reinvention is available on EPA's World Wide Web site at *http://www.epa.gov/reinvent/annual97/intro.htm/*). In addition, the Office of Management and Budget (OMB) extended the approval of the manifest ICR for only two years in 1994, with the expectation that EPA would, in the interim, adopt manifest revisions that would address regulatory burden issues surrounding the existing system. In 1996, OMB extended approval of the Manifest ICR, but with the expectation that EPA would explicitly address, among other things, innovative approaches as a way to streamline and reduce the burden of manifest reporting requirements. For example, OMB suggested that EPA develop and pilot test the electronic submission and tracking of manifests. As of 1999, EPA estimates that the paperwork burden (from federal requirements) of the manifest system is 2.92 million hours, making it one of the highest paperwork burdens imposed under RCRA.

Based on the aforementioned factors, EPA reexamined its efforts on the Negotiated rulemaking to determine if they comported with the Administration and Agency's burden reduction initiative. Based on its review, the Agency determined that the negotiated rule, as written, would have increased the annual paperwork burden hours significantly, since the rule adopted most of the Negotiated Rulemaking committee's recommendations which advocated, among other things, including essentially all state optional fields on the current manifest form as mandatory Federal fields. As a result, EPA determined that the Negotiated Rulemaking committee's recommendations could not be implemented without significantly undercutting the Agency's burden reduction goals. In 1996, EPA established an Agency workgroup charged with building upon the recommendations of the negotiated rulemaking effort, as well as meeting the Agency's burden reduction goals. This proposal reflects what the Agency believes to be an appropriate balance between the Negotiated Rulemaking committee recommendations and the Agency's burden goals.

D. To Whom Would These New Regulations Apply?

The table below identifies 45 economic sectors which would likely be affected by the revisions to the RCRA hazardous waste manifest system, as proposed today. EPA derived the list of sectors from data contained in the Office of Solid Waste's 1996 ''National Hazardous Waste Constituent Survey,'' for the sector identity of waste shippers. Because of the numerous sectors at the four-digit SIC level (i.e., six-digit NAICS level), the respective two- and three-digit levels are presented in the table below for many sectors.

LIST OF ECONOMIC SECTORS WHICH ARE LIKELY AFFECTED BY THE PROPOSED REVISIONS TO THE RCRA HAZARDOUS WASTE MANIFEST SYSTEM

Item	SIC Code	NAICS Code	Sector description
1	1794	23593	Construction excavation work.
2	20	311	Food and kindred products manufacturing.
3	2295	31332	Coated fabrics manufacturing.
4	24	321	Lumber and wood products manufacturing.
5	25	337	Furniture and fixtures manufacturing.
6	26	322	Pulp and allied products manufacturing.
7	27	511	Printing and publishing.
8	28	325	Chemicals and allied products manufacturing.
9	29	324	Petroleum and coal products manufacturing.
10	30	326	Rubber and miscellaneous plastic products manufacturing.
11	32	327	Stone, clay and glass products manufacturing.
12	33	331	Primary metal manufacturing industries.
13	34	332	Fabricated metal products manufacturing.
14	35	333	Industrial machinery and equipment manufacturing.
15	36	335	Electronic and other electric equipment manufacturing.
16	37	336	Transportation equipment manufacturing.
17	38	334	Instruments and related products manufacturing.
18	39	339	Miscellaneous manufacturing industries.
19	4111	485	Local and suburban passenger transit.
20	4173	48849	Terminal and service facilities for vehicle transport.
21	42	484	Trucking and warehousing.
22	4212	562112	Hazardous waste collection services.

LIST OF ECONOMIC SECTORS WHICH ARE LIKELY AFFECTED BY THE PROPOSED REVISIONS TO THE RCRA HAZARDOUS WASTE MANIFEST SYSTEM—Continued

Item	SIC Code	NAICS Code	Sector description
23	4491	4883	Marine cargo handling.
24	4512	48111	Air transportation.
25	4613	48691	Refined petroleum pipelines.
26	4789	488999	Transportation services n.e.c.
27	4813	5133	Telephone communications.
28	49	2211	Electric, gas and sanitary services.
29	4953	562211	Hazardous waste treatment and disposal.
30	4959	562910	Hazardous waste remediation services.
31	50	421	Wholesale trade (durable goods).
32	51	422	Wholesale trade (nondurable goods).
33	5912	44–45	Drugstores and proprietary retail stores.
34	6552	23311	Subdividers and developers.
35	7216	81232	Dry cleaning plants.
36	73	541	Business services.
37	7532	811121	Top, body and upholstery repair and paint shops.
38	7699	561	Repair shops and related services n.e.c.
39	8062	62211	General medical and surgical hospitals.
40	8221	61131	Colleges and universities.
41	87	541	Engineering and management services.
42	8999	541	Services n.e.c.
43	95	924–925	Environmental quality and housing administration (state government offices).
44	9661	92711	Space research and technology.
45	9711	92811	National security (e.g. military bases).

The following table presents EPA's estimate of more than 92,000 entities which would potentially be affected by today's proposed rule. Because one of the three proposed revisions to the RCRA manifest system is voluntary (i.e., the proposed use of an electronic manifest form), EPA anticipates that facilities involved in RCRA manifesting activities in these sectors would be differentially affected by the proposed rule, depending upon voluntary adoption rate. Furthermore, affected entities play at least four different roles in the RCRA manifest system: (1) Waste generators who ship wastes off-site, (2) waste transporters (truck, barge, rail operators), (3) waste receivers who treat, store and/or dispose of shipped wastes, and (4) state governments which provide manifest forms, and which also may collect manifest data (although not required under the Federal RCRA manifest program). The sources of these estimates are presented in the ''Economics Background Document'' (dated 15 May 2000), available from the RCRA Docket.

NUMBER OF ENTITIES WHICH MAY BE AFFECTED BY TODAY'S PROPOSED RULE

Item No. and role of affected entities in manifest system	Entity count
1. Waste generators who may ship wastes off-site (shippers)	89,826
2. Waste transporters (truck, barge, rail operators)	500
3. Waste receivers (treatment, storage, disposal facilities)	2,024
4. State governments (which collect manifest data)	24
Total	92,350

E. How Much Burden and Cost Reduction Does EPA Expect From the Proposed Manifest Form Revisions?

Although there are up-front and annual recurring costs to states and to the private sector associated with all three components of today's proposed rule, EPA designed this rule so that it would have an overall net savings impact on affected entities, primarily associated with anticipated reduction in the annual labor burden for the existing paper-based manifest system. While the proposed rule includes both ''regulatory'' and ''de-regulatory'' features, the overall net impact should be a reduction in compliance burdens and costs.

In order to estimate the potential burden reduction for this proposed rule, EPA prepared two separate, but complementary, burden and cost savings estimation documents: (1) An ICR document for the proposed rule (''Information Collection Request 801.#'', (ICR), 19 July 2000) as required by OMB under the Paperwork Reduction Act of 1995, for the purpose of officially tracking paperwork burden hours, and (2) an ''Economics Background Document,'' (EBD), 12 May 2000), which applied a relatively broader, economic analysis approach to assessing potential burden reduction savings. (EPA also prepared a third economic study which examined the benefits and costs associated with the electronic equipment automation component of today's proposed rule, which is summarized elsewhere in this preamble).

Compared to the methodology of the ICR, the EBD includes other types of economic costs associated with the RCRA manifest system. For example, the EBD includes burden and costs associated with both Federal and State manifest information collection

requirements, whereas the ICR only covers Federal manifest information collection requirements. Consequently, the EBD estimates a larger baseline annual manifest burden, but it also estimates a larger annual burden savings than the ICR document.

EPA's analysis indicates that all of the components of today's proposed revision to the RCRA manifest system are expected to reduce administrative paperwork burden among all RCRA industrial hazardous waste handlers. The ''Information Collection Request Nr.801.#'' document estimates that all components of today's proposed revision to the RCRA manifest system, would achieve a reduction of 593,500 hours in national annual burden, representing 25% reduction in burden compared to the 2.335 million hour burden baseline as estimated in the ICR.

In comparison, the ''Economics Background Document'' (EBD) for this proposed rule suggests that the resultant reduction in waste manifesting burden from all of the proposed revisions combined, is expected to reach 1.241 million hours annually, consisting of 1.162 million hour reduction to waste handlers, and 79,000 hours to state agencies. Compared to the baseline annual RCRA hazardous waste manifest burden of 4.615 million hours as estimated in the EBD, this reduction in burden hours represents 27% annual burden savings. These estimates represent a 50% manifest adoption rate scenario in the EBD, which assumes for simplicity that 50% of manifests become automated in the first year after the today's rule is promulgated.

However, EPA realizes that the projected savings resulting from this rule will more likely be phased in over several years. EPA estimates that the paperwork burden reduction from this rule could eventually be 730,000 to 1.2 million hours per year, depending on the requirements actually promulgated in the final rule, and on the rate of adoption of electronic manifest systems. The actual timing of these burden reductions is therefore uncertain. The burden reduction (190,000 hours) associated with the manifest form revisions would occur over a two-year phase-in period for the new form after the final rule is promulgated. The remaining savings (540,000 to one million hours) could take several more years to realize. The timing of these savings would depend on whether or not EPA would need to issue supplemental proposals addressing manifest automation; the availability of the necessary software and hardware; and the willingness of states and waste handlers to adopt the electronic manifest approach.

F. Effective Date of Final Rule

The effective date of the rule is proposed to be six months after promulgation of the final rule. Upon the effective date of the rule, we are proposing a two-year ''delayed compliance date'' to allow manifest users to phase-in use of the new form. That is, for that two-year period, manifest users would be allowed to use either the old manifest form or the new manifest form. The Agency is proposing this phase-in period to allow time for vendors, states and waste handlers to get approval to assign manifest tracking numbers and to print forms, as well as to allow time for users to use up existing stocks and find new supplies.

If you use the old manifest form during this two-year period, the two-year delayed compliance date would also apply to proposed regulatory amendments that are directly related to use of the new form (i.e., form printing, manifest tracking numbers, and instructions for filling out the new manifest form) as it would be difficult for a waste handler to comply with these requirements if they are not using the new form. Waste handlers using the old form during this time period would have to comply with all other proposed regulatory requirements, but would continue to comply with the current manifest requirements directly related to use of the old form (i.e., acquisition hierarchy, manifest instructions). For example, a TSD rejecting a shipment of hazardous waste would have to contact the generator for a decision regarding an alternative facility but could use an old form (prepared in accordance with the current instructions for filling out the manifest) to manifest the rejected load.

If you do choose to use the new manifest form during the two-year period, you would be required to comply with the proposed requirements for form printing, manifest tracking numbers, and instructions for filling out the new manifest form. Once the two-year period ends, all manifest users would be required to use only the new manifest form and would also be required to comply with the requirements for form printing, manifest tracking numbers, and instructions for filling out the new manifest form.

The two-year delayed compliance date would not apply to any proposed regulatory amendments related to the electronic manifest proposal. Upon the effective date, waste handlers who opt to use an electronic manifest for a hazardous waste shipment would be required to comply with all the requirements associated with use of the electronic manifest at that time.[1] This would also include the proposed requirements for manifest tracking numbers, and instructions for filling out the new manifest form. EPA does not believe that a phase-in period would be necessary for the electronic manifest because use of the electronic manifest would be optional. Waste handlers would be able to use the paper system until they are prepared to implement the electronic manifest. In addition, waste handlers would probably not opt to use the electronic manifest system unless they were prepared to implement it in accordance with the final requirements.

EPA requests comment on whether a two-year delayed compliance date for the use of the revised uniform Hazardous Waste Manifest (and the proposed requirements directly related to use of the revised manifest) is sufficient. EPA also requests comment on whether a delayed compliance date would be appropriate for the electronic manifest system.

The Agency also requests comments from states on whether they need to make legislative changes to adopt the new manifest or the automation option and if so, how much time is necessary to complete such changes. See Section IX of this preamble for a detailed explanation of how the proposed regulatory changes would be administered and enforced in the States.

IV. The Revised Manifest Form

A. Manifest Form Acquisition

1. How Is EPA Changing the Way Manifest Forms Are Acquired?

EPA proposes to allow manifest users to obtain the form from a greater number of sources for use in any state. In particular, EPA proposes to allow State agencies, waste handlers (generators, transporters, and TSDFs) and commercial business form printers to print the form. EPA is proposing to require those who would print the new manifest to first register with the Agency. The purpose of the registry would be twofold: (1) to ensure that the forms are printed according to the prescribed federal printing specification (i.e., the standardized revised form) and (2) to ensure that a unique number for each manifest would be preprinted on

[1] In authorized states, whether or not a waste handler would be able to use an electronic manifest system would be determined by the RCRA authorized state program. We are tentatively proposing not to require States to adopt the proposed electronic manifest option as part of their authorized program. See Section IX for further discussion.

the form. Thus, generators could register to print manifest forms, or they could obtain a manifest form from any registered source of manifest forms.

Under these new proposed regulations, both the current printing arrangements and the acquisition requirements for manifest would change. Currently, authorized States are the primary source of manifests, and States either print these forms themselves or contract with printers to print the form according to the States' specifications. While States that currently print and distribute manifests are required to follow the Uniform Manifest format, the current regulations allow some variability among State manifests, particularly with respect to including and providing instructions for optional fields used in each State, minor formatting variations, and for describing copy submission and mailing requirements. As a result, there are now 24 different State variations of the Uniform Manifest. The current manifest acquisition regulation generally requires that generators obtain their manifests from a State agency, and determines which State manifest must be used. Under the procedures proposed today, State, waste handlers, and commercial form printers could register to print manifests, and the manifests printed by any registered printer could be used in any state.

2. Why Is EPA Proposing this Change?

EPA is proposing a new system for obtaining manifest forms, to reduce the burden that waste handlers currently encounter in obtaining manifests from multiple States, and to reduce or eliminate the variability among states on what forms to use, what is printed on them, and how to use them.

Under the current regulations, a hazardous waste generator must check at least two different State agencies' manifest requirements to determine how and where to obtain a manifest. The current manifest acquisition requirements are set forth in 40 CFR 262.21, which contains a hierarchical scheme for determining which state's manifest should be used for a particular waste shipment. EPA and DOT developed this approach in the 1984 Uniform Manifest Rule, in order to accommodate States that wished to collect and track manifest data, while avoiding conflicts between States' requirements. EPA explained in the 1984 rulemaking that it did not intend to print and supply manifest forms, and the hierarchy approach resulted from the Agency's efforts to effectively arrange the distribution of manifests by the States. 49 FR 10490 at 10495 (March 20, 1984).

The § 262.21 acquisition hierarchy requires a generator to first look to the manifest requirements of the consignment (i.e., the state in which the hazardous waste shipment will be transported to, and subsequently managed in that state) State. If this State supplies a manifest and requires its use, then the consignment State's manifest must be used for the waste shipment. If, however, the consignment State does not supply a manifest, but the generator's State does supply a manifest and requires its use, then the generator must use the manifest required by the generator's state. If neither the consignment nor generator State supplies a manifest, then the generator may obtain the manifest from any source. When EPA announced this hierarchy regulation in 1984, the Agency explained that this approach would serve two important interests: (1) It would help consignment States inform out-of-State generators of requirements to submit manifest copies to the consignment States (i.e., the form would contain a notice to this effect); and (2) it would allow consignment States to pre-print a State manifest document number on each manifest, to aid in tracking the manifest in the States' tracking systems. 49 FR at 10496. The acquisition hierarchy establishes a preference for obtaining the form from the consignment State, as EPA determined in 1984 that a consignment State's interest in overseeing waste management within its borders outweighed any convenience that would result to generators if they were allowed to obtain manifests from a single source. Id.

EPA believes that the current acquisition hierarchy puts unnecessary administrative burden on certain waste handlers, particular those who conduct business in multiple states that require the use of their state manifest. For example, if a waste handler conducts business in multiple states, then he/she must make arrangements to acquire manifest forms from each state or keep stocks of inventory of the varying manifest formats. In addition, waste handlers must become familiar with instructions for the different forms to ensure that they complete the manifests correctly. Removing the current acquisition system, eliminates the aforementioned inconveniences, since the form supplied by states and other manifest sources would be the same.

EPA believes that the factors relied upon in 1984 to support the current acquisition hierarchy would not be significant under the revised manifest proposed today. EPA is proposing to eliminate all but two optional fields (waste codes and handling codes), and EPA believes that most manifests would include these ''optional'' data as the normal practice. The 6-copy form with unique, pre-printed manifest tracking numbers under the Federal specification would satisfy many of the needs States have previously identified as reasons for controlling the distribution of the manifest. Also, information on State-only wastes, use of optional fields, and State-specific copy submission requirements can be obtained by contacting the States directly, or through published or on-line sources. State contact information and telephone numbers can be found, for example, on the Internet at EPA's website (http://www.epa.gov/epaoswer/osw/stateweb.htm).

EPA believes that the informational purposes served by allowing States to distribute the manifests under the acquisition hierarchy can be met adequately by other means. There would be little, if any, variability remaining in the proposed revised manifest form, and information describing State-specific requirements can be obtained through other means than distribution of the form. In addition, EPA believes that the States' interest in ensuring that unique tracking numbers are provided for each manifest can be met by the proposed printing registry approach.

The proposed change regarding the printing and distribution of the paper form would also be consistent with the changes proposed to implement the electronic manifest system. Thus, the Agency believes that both the electronic and paper formats would be distributed more efficiently and with less burden under the approach proposed today. While the remainder of this discussion focuses on the registry and acquisition requirements for the paper form, the Agency points out that as with the printers of paper manifests, waste handlers who originate an electronic manifest would have to register to get an approved tracking number system.

3. How Much Burden Reduction Does EPA Expect From the Proposed Manifest Form Revisions?

EPA's analysis indicates that today's proposed revision to the RCRA hazardous waste manifest form is expected to reduce administrative paperwork burden among all RCRA industrial hazardous waste handlers who ship wastes off-site. The ''Economics Background Document'' (12 May 2000) for this proposed rule estimates that the resultant reduction in

waste manifesting burden from the proposed revisions to the manifest form, would be 188,000 hours annually to RCRA hazardous waste handlers. This reduction in burden hours is expected to account for between 16% and 26% of the annual burden hour savings to waste handlers expected from all of the RCRA manifest system revisions proposed today.

4. Where Would a Waste Handler Get Paper Manifest Forms?

Generators and other waste handlers needing the manifest would be able to register with EPA and print their own manifests. Generators could also obtain their manifests from other sources, however. The proposal would allow waste generators to obtain blank copies of the manifest from any of the following sources:

- Any state hazardous waste agency that registers as a printer and prints manifests;
- Commercial business forms printers who register to print the form; and
- Transporters and TSDFs who register to print the form. These companies often provide the manifest as a service to their generator customers.

5. Must a Generator Still Contact the State?

Yes, you would still need to contact the consignment state periodically to determine which of the state-only blocks of information on the manifest you are required to fill out. Also, as mentioned above, EPA determined that while it was not necessary to impose a federal requirement that generators submit copies of each completed manifest form to a State or to EPA, the Agency recognized that states could impose a more stringent manifest system that could involve the submission by generators of copies of every completed manifest form. This proposal does not affect the ability of a state to require the submission of manifests. However, states would no longer be able to print a notice of such requirements on the manifest form. To continue to give states the ability to track manifested shipments of waste, it is still necessary to contact your state to see what they require in terms of state-required information on the manifest and in terms of submitting manifest copies to states.

6. What Special Requirements Would Apply to the Printers of the Universal Manifest?

- You would be required to register with EPA as a forms printer to get your manifest tracking number system approved and to ensure that you adhere to Federal printing specifications and procedures;
- No additional boxes could be added;
- No existing boxes could be deleted;
- You would be required to print a form that had at least the following six copies:

—Copy 1: TSDF to destination State (if required);
—Copy 2: TSDF to generator State (if required);
—Copy 3: TSDF to Generator;
—Copy 4: TSDF's signed file copy
—Copy 5: Transporter's file copy
—Copy 6: Generator's initial copy.

- You would be required to print the form so that the manifest dimensions are 8½×11 inches;
- You would be required to print the form in black ink so that it can be photocopied or faxed;
- You would be required to provide the standardized instructions outlined below;
- You would be required to follow the same copy naming structure as outlined below; and

7. What is the Naming Convention for the Different Copies of the Manifest?

Page 1 (top copy): ''Designated facility to consignment State'' (if required);
Page 2: ''Designated facility to generator State'' (if required);
Page 3: ''Designated facility to generator'';
Page 4: ''Designated facility copy'';
Page 5: ''Transporter copy''; and
Page 6 (bottom copy): ''Generator's initial copy.''

If the generator is required to submit a copy of the manifest to the generator state, the generator should make a photocopy of the manifest to supply this additional copy. Also, note that a completed manifest may contain fewer pages if the state does not require submission of forms; however, the printer would be required to print a 6-copy form. Under certain circumstances (e.g., exports, imports, additional transporters, exception reporting, and/or states requiring additional copies), more than 6 copies of a manifest may be necessary. In these cases, the generator or transporter should photocopy the most legible copy of the form available to ensure that the extra manifest copies are legible.

8. How Would the Acquisition Regulation Change?

EPA is proposing to replace the current acquisition hierarchy in § 262.21 with a simple requirement that a generator may print its own manifest if it has registered with EPA to do so, or a generator may use a manifest obtained from any commercial printer, state, or other waste handler that has registered with EPA to print the manifest. In addition to amending 40 CFR 262.21, the provisions currently found at 40 CFR 271.10 for States that print manifests and/or require completion of state optional fields would be revised accordingly.

9. How Would Manifest Tracking Numbers be Changed by the Proposal?

Under this proposal, the current fields for the generator's manifest document number (i.e., the generator's U.S. EPA ID number plus a unique 5-digit number that the generator assigns to each manifest) and the state manifest document number would be replaced with one mandatory field that would be called the manifest tracking number (Item 3). Note, that the generator's EPA ID number would still appear on the form; however, it would not be part of the manifest tracking number. The manifest tracking number would be a unique pre-printed number that would be supplied by a registered manifest printer. A waste generator could register with EPA to print its own manifests and assign its own manifest tracking numbers, or, the generator could obtain manifest tracking numbers from other registered sources who print for the generator, including States, transporters, TSDFs, or commercial business form printers.

An entity that wants to print manifests would register with EPA and demonstrate that they have a system in place to ensure that unique, pre-printed numbers would be assigned to each manifest. Similarly, entities implementing an electronic manifest system would register with EPA to ensure that their electronic system would apply a unique manifest tracking number to each electronic manifest.

The advantage of this manifest tracking number requirement is that it would allow waste handlers to acquire uniquely numbered manifests from numerous sources, without having to obtain a different set of forms from each State in which it does business. The proposal would eliminate an ''optional'' field from the current manifest, and a new mandatory field would replace two existing fields on the manifest. Also, waste handlers with significant involvement in hazardous waste activities would be able to register and print their own manifests for use within their own sites or for use by their multi-state customers. Multi-state operations would benefit especially, as they would no longer need to stock multiple state formats of the manifest.

10. Could States Still Require Use of Only Their Manifests?

When EPA adopted the acquisition hierarchy in 1984, we recognized the need for a regulation that would arbitrate possible conflicts between State manifest requirements for generators located in one state, but disposing of their waste in another. The acquisition hierarchy in current § 262.21 arbitrates such conflicts by establishing a rule that one State manifest is always sufficient for any hazardous waste shipment, and by designating which state's manifest must be used.

With today's proposal, it is still EPA's intent that only one manifest need be obtained to accompany any off-site shipment. Under the revised Uniform Manifest proposed today, variability in the form would be eliminated, and the source of the manifest form used would be immaterial. So, when today's proposed approach becomes effective, States would not be allowed to require use only of a manifest form printed or distributed by the State. States would, of course, be eligible to register and distribute manifests, but State laws which purport to require use only of a form distributed by the State would be deemed inconsistent under 40 CFR 271.4. Otherwise, waste handlers could be required to obtain multiple manifests to satisfy conflicting and duplicative State law requirements for their specific manifests. This result would, in EPA's view, frustrate the accomplishment of our objective to introduce a truly standard manifest form, and amount to an unreasonable burden on the free movement of waste in commerce.

11. Request for Comments

EPA requests comments on the new approach proposed today for printing and obtaining manifests. Would the proposed approach be effective in eliminating burden and variability in the manifest system, or, would it more likely cause disruption to arrangements that are well understood and work well? Is the proposed registry approach the most efficient means for EPA to ensure a standard manifest with pre-printed, unique tracking numbers? Would many waste handlers find it advantageous to print manifests for their own use or the use of their customers? How would the proposal affect these firms' burdens, costs, and manifest operations? Would States that currently derive revenue from the distribution of manifests be disadvantaged unduly by the proposal? Would some States face statutory obstacles to altering their current manifest distribution requirements? Comments addressing these issues would be helpful to the Agency.

EPA also requests comments on an alternative option that would retain the proposed Federal printing specification, but not the proposed registry. Under the alternative option, States would still be the primary source of manifests, and the current acquisition hierarchy would be retained to determine from which State the manifest must be obtained. This option would retain the benefits of the standard manifest format, without disrupting current arrangements for obtaining manifests from States. However, as with the current system, waste handlers would not generally be able to print their own manifests as allowed under the proposed option.

B. International Shipments

1. What is EPA Proposing With Respect to Manifests for Imports and Exports?

EPA is proposing to amend slightly the manifest requirements and the manifest form to provide more clear information on the manifest about import or export shipments. Under today's proposal, the manifest would contain a new ''International Shipments'' Block. In this new block, the primary exporter or importer of a hazardous waste shipment would be required to check whether a shipment is an export or import and to note the port of exit or entry. In addition, space would be provided in this block for the transporter of an export shipment to sign and date the manifest to indicate when the shipment left the United States. For imports, the transporter would be required to leave a copy of the manifest at U.S. Customs, as is currently required for exports.

2. Why is EPA Proposing This Change?

Under the current regulations for exports, transporters are required to leave a copy of the manifest at U.S. Customs. The current regulations and manifest instructions further require that export manifests include information in the ''Special Handling Block'' identifying the port of exit, as well as the transporter's signature attesting to the date when the export shipment left the U.S. According to a national transporters' association, the current rules are not well understood, and this has resulted in inadvertent violations by transporters. In part, this is because the manifest form itself is not sufficiently clear on how this information is to be entered. In addition to hindering compliance by transporters, this lack of clarity has also resulted in incomplete submissions that impair EPA's ability to accurately track exports of hazardous waste. To address these concerns, the Agency is proposing to make the existing export tracking requirements more clear in the regulations and on the manifest form itself, which would include an International Shipment Block for collecting the data.

In addition, the Agency is proposing new requirements in connection with imports of hazardous waste. First, the importer would be required to indicate on the new International Shipment Block of the manifest whether a shipment is an import and the port of entry. Second, the transporter bringing import shipments into the U.S. would be required to leave a copy of the manifest with U.S. Customs. Currently, a manifest is required to accompany waste shipments that enter the U.S., but transporters are not required to leave a manifest copy with U.S. Customs for imports. Several ports have nevertheless encouraged the collection of import manifests, and all of the ports collect the export manifests which transporters are currently required to leave with U.S. Customs. Moreover, for international shipments of hazardous waste for recovery within the Organization for Economic Cooperation and Development (OECD), of which the U.S. is a member, a facility in the U.S. receiving an import covered by regulations at 40 CFR Part 262, Subpart H must send a copy of the OECD tracking form to EPA. By requiring that transporters leave a copy of import manifests with U.S. Customs, EPA would achieve better consistency with the current requirements in 40 CFR Part 262, Subpart H that require tracking information on import shipments to be provided to the Government. These import manifests would aid EPA's oversight of waste imports, as the manifests collected by Customs could be turned over to EPA's Import/export program for tracking purposes.

3. How Would the Manifest and the Regulations Change?

To make the requirements more clear, the Agency is proposing to add an International Shipment Block to the manifest. This block would contain checkboxes to indicate whether the shipment is an export or an import, and space to enter the port of exit or entry. For export shipments only, the block would include space for transporters to sign and date the manifest to indicate when a shipment has left the U.S. This block would provide more explicit direction for entering data with respect to exports and imports.

In addition, the regulations at 40 CFR 262.54, 262.60, and 263.20 would be

changed to clarify that primary exporters and importers are to fill out the International Shipment block on the manifest and that transporters of both exports and imports are to leave a copy of the manifest with the U.S. Customs official at the port of exit from the U.S. or at the port of entry to the U.S. EPA would also modify § 271.11(c), since a waste handler who imports waste shipments into the U.S. would be required to leave a copy of the manifest with U.S. Customs.

C. Bulk Packaging

1. How is EPA Changing Its Regulations Related to Bulk Containers?

EPA proposes to change its regulations that relate to bulk containers to be consistent with the DOT definition for bulk packaging which includes any container with a capacity greater than 119 gallons (0.45 cubic meters, 450 liters, or 15.9 cubic feet) or more. Because of this change some containers currently considered bulk under EPA's regulations would no longer be considered bulk. Current RCRA regulations treat as ''bulk'' containers which hold more than 110 gallons. Under this proposal, a container which holds 119 gallons or less would no longer be considered bulk, including containers of 110 gallons.

The 110 gallon standard was based on DOT requirements which, at the time, defined bulk packaging as 110 gallons or more (47 FR 36092; August 18, 1982). DOT revised these standards [2] in 1991 to make U.S. standards more consistent with international requirements. (See 55 FR 52471, December 21, 1990.) Today's notice proposes to revise RCRA regulations pertaining to bulk containers to be consistent with the DOT definition of bulk packaging.

2. Why is EPA Changing Its Rules Related to Bulk Packaging?

This change would bring EPA into conformity with the standard already used by DOT and the international community, and would increase uniformity in manifesting practices. Generators would be able to use the same standard measurement for bulk containers for all shipments of hazardous materials.

3. How Would This Affect Me?

If you:

(1) handle residues of hazardous waste in containers according to the provisions at § 261.7(b),

(2) are a generator who sends bulk containers of hazardous wastes off-site (see 262.32(b)),

(3) are a transporter who transports bulk shipments by water (see 263.20(e)), or

(4) are a TSDF who receives bulk shipments for management (see 264.71(b)), then: you would have to confirm whether the containers you are managing would still be considered bulk. If the containers you are managing do not meet DOT's definition of bulk, then you would no longer be allowed to handle the waste as bulk under EPA regulations.

4. How Would the Regulations Change?

First, the regulations at 40 CFR 261.7 Residues of hazardous waste in empty containers would change slightly to incorporate DOT's definition of bulk packaging. 40 CFR 261.7 discusses how much hazardous waste may remain in a container that is empty. Among other things, these regulations require that a container must be emptied using the practices commonly employed to remove material from that type of container e.g., pouring, pumping, and aspirating, and that no more than a specified amount of waste must be left in the container. One method of determining whether a container is RCRA ''empty'' is based on whether the container is greater or less than 110 gallons total capacity.

For containers less than 110 gallons, the regulations at 40 CFR 261.7(b)(1)(iii)(A) state that a container is empty if: ''No more than 3 percent by weight of the total capacity of the container remains in the container or inner liner if the container is less than or equal to 110 gallons in size * * *''

If the container is greater than 110 gallons, the regulations at 40 CFR 261.7(b)(1)(iii)(B) state that a container is empty if: ''No more than 0.3 percent by weight of the total capacity of the container remains in the container or inner liner if the container is greater than 110 gallons in size.''

This proposal would modify the regulations so that 40 CFR 261.7(b)(1)(iii) would define a container as empty if:

(A) No more than 3 percent by weight of the total capacity of the container remains in the container or inner liner if the container is less than or equal to 119 gallons in size, or (B) No more than 0.3 percent by weight of the total capacity of the container remains in the container or inner liner if the container is greater than 119 gallons in size.

Second, the regulations for generators at 40 CFR 262.32 Marking would change slightly to incorporate DOT's definition of bulk packaging. 40 CFR 262.32(b) requires a generator to mark each container of 110 gallons or less used in transportation with the words ''HAZARDOUS WASTE -Federal Law prohibits Improper Disposal. If found, contact the nearest police or public safety authority or the U.S. Environmental Protection Agency,'' and write the generator's name, address, and the manifest tracking number on the container. Under the proposed revisions, this marking requirement would apply to containers of 119 gallons or less.

Third, the regulations which refer to ''bulk shipment'' would not change. The term ''bulk shipment'' is used in 40 CFR 262.23, 263.20, and 264.71. Where the regulations use the term, these regulations would apply to shipments of a capacity of more than 119 gallons, rather than shipments of more than 110 gallons. Therefore, you would no longer be able to manage a container of between 110 gallons and 119 gallons as a bulk container.

Please note, other than to incorporate the DOT definition for bulk packaging, EPA is not reconsidering, reopening, or requesting comment on the provisions described above.

D. Use of Fractions

1. What Is EPA Changing With Respect to the Use of Fractions in the Quantity Description on the Manifest?

EPA is clarifying that generators and others completing the quantity description for waste being shipped (see Item 13) should use whole numbers to describe non-bulk shipments (less than or equal to 119 gallons) of hazardous waste and that bulk shipments (greater than 119 gallons) may be described using whole numbers where possible, or fractions if necessary.

2. Why is this clarification necessary?

EPA's regulations are silent on the use of fractions on the manifest. EPA has in the past stated that no fractions or decimals should be used and continues to prefer that the quantity description should not include fractions. In March 20, 1984, EPA stated that it ''. . . does not believe that the quantity description should include fractions. Rather, the Agency believes that the quantity description should be the most accurate

[2] In 49 CFR 171.8, DOT defines ''bulk packaging'' to mean ''a packaging, other than a vessel or a barge, including a transport vehicle or freight container, in which hazardous materials are loaded with no intermediate form of containment and which has: (1) A maximum capacity greater than 450 (119 gallons) as a receptable for a liquid; (2) A maximum net mass or greater than 400 kg (882 pounds) and a maximum capacity greater than 450 L (119 gallons) as a receptable for a solid; or (3) A water capacity greater than a 454 kg (1000 pounds) as a receptable for a gas as defined in § 173.115 of this subchapter.''

possible without using fractions or decimals.''[3]

Despite this past statement, states have experienced an increase in the number of manifests containing descriptions with fractions. State databases may have difficulty accepting numbers such as 30.5 pounds, making the data entry process more difficult. To minimize this, states asked EPA to require that generators and others preparing the manifest only use whole numbers when indicating quantities of waste on the manifest.

While this is a workable solution for non-bulk shipments, the Agency realizes that bulk shipments of hazardous waste may be transported in large containers such as tank trucks, and that fractions may be the best way to accurately describe the contents of the container. Because there would be a significant discrepancy in the amount of hazardous waste recorded on the manifest if one ton were used to describe a container with 0.5 tons of waste, EPA believes that the use of fractions is warranted in bulk containers. Thus, EPA is clarifying that whole numbers should be used for non-bulk shipments of hazardous waste, and that fractions may be used for bulk shipments where necessary.

3. What Would Change?

EPA is proposing to include in the manifest instructions (item 12) a statement that generators and others completing the form must use whole numbers for non-bulk shipments of hazardous waste, except that fractions may be used for bulk shipments where necessary.

E. Emergency Response Phone Number

1. What Is EPA Proposing Related to Emergency Response Phone Numbers on the Manifest?

EPA proposes to designate one space on the manifest for Emergency Response information. DOT currently requires you to use an Emergency Response phone number for most shipments of hazardous materials including all hazardous wastes that are manifested. (See 49 CFR 172.604) While hazardous waste shipments must be shipped with an Emergency Response phone number, the current manifest does not contain a separate block for this information. DOT requires an emergency response phone number in addition to other information to identify the waste. This information is important in aiding emergency responders in dealing with an emergency involving hazardous wastes.

The emergency response phone number must:

- be the number of the generator or the number of an agency or organization who is capable of and accepts responsibility for providing detailed information about the shipment;
- reach a phone that is monitored 24 hours a day at all times the waste is in transportation (including transportation related storage); and
- must reach someone who is either knowledgeable of the hazardous waste being shipped and has comprehensive emergency response and spill cleanup/incident mitigation information for the material being shipped or has immediate access to a person who has that knowledge and information about the shipment.

Currently, you may place this number in the Special Handling Instructions and Additional Information Block (Item 15), in the Generator's Phone Number Block (Item 4), and in some cases in the margin or on the back of the form. Some generators place this information in the DOT description box, especially if more than one emergency response phone number is needed.

2. Why is EPA Proposing These Changes?

Because there are no explicit directions on the manifest to supply an emergency response phone number, and because there is no designated space for this number, some generators may not be aware that this is a requirement, and emergency responders may not be able to quickly find this information on the form. EPA is proposing to make it more clear that the emergency response phone information is required on the form, and make this information easier to find by designating one space on the manifest for emergency response contact information.

EPA expects that this additional instruction and the removal of other redundant or unnecessary waste handler phone numbers (see discussion below in Section IV.G) would reduce paperwork burden and facilitate the emergency response process by making it clearer which number is to be used in an emergency.

3. How Would This Change Affect the Regulations?

The manifest form would be modified by adding a box specifically for emergency response information, and the instructions would be modified to reflect the addition of this box.

F. Generator Certification

1. How Would the Generator Certification Statements on the Manifest Be Modified?

This proposal would modify the wording of the ''shippers certification'' and the appearance of the ''waste minimization certification'' statements. The changes proposed today, however, would not modify the current requirement that generators must sign these certifications on the manifest form each time a manifest is prepared.

2. What Are the Current Requirements to the Generator Certification?

Generators must sign the Generator's Certification found on the manifest form each time a manifest is prepared. The ''Generator's Certification'' consists of a signature attesting to a statement that the shipment has been properly prepared for transportation (a shipper's certification) and a statement that the generator has a program in place to reduce the volume and toxicity of waste generated (the waste minimization certification). Today's proposal does not modify the requirement that generators make these certifications on the manifest each time a manifest is prepared

The shipper's and waste minimization certification statements are found in Block 16 of the current Uniform Hazardous Waste Manifest followed by space for a single signature (i.e., a single signature is used to attest to both certifications). The content of the shipper's certification statement is as follows:

> I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

Today's proposal would slightly modify this statement. The content of the waste minimization certification statement is as follows:

> If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Today's proposal would not modify the waste minimization certification

[3] See the March 20, 1984 **Federal Register** (49 FR 10498) for this discussion.

statement, but the complete text of this certification statement would no longer appear on the manifest. The single signature in Block 16 would still attest that the signatory certifies both statements.

3. How Would EPA Modify the Language of the Shipper's Certification?

EPA proposes to update the first part of the shipper's certification statement so that it conforms to the DOT shipper's certification (49 CFR 172.204). On December 29, 1994 (59 FR 67487), DOT slightly changed the wording of the Shipper's Certification found at 49 CFR 172.204(a). These changes appear in bold in the following text:

I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labelled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

In addition, EPA proposes to delete the words ''by highway'' from the shipper's certification statement. Currently, if a transportation mode other than highway would be used, generators are instructed to line out the words ''by highway'' and insert the appropriate mode of transport (i.e., rail, water, or air). EPA does not believe it necessary for the mode of transport to be specified as part of the shipper's certification (see DOT's shipper's certification which does not specify the mode of transport) and eliminating the words ''by highway'' from this certification would eliminate the need for generators to modify the statement when other forms of transportation are utilized.

EPA currently requires primary exporters to add at the end of the first sentence of the shipper's certification statement the words ''and conforms to the terms of the EPA Acknowledgment of Consent to the shipment.'' EPA is not proposing to change this requirement.

The new shipper's certification statement on the manifest would read as follows:

I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labelled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

4. How Would EPA Change the Appearance of the Waste Minimization Certification Statement?

EPA proposes to replace the current waste minimization certification statement on the manifest with the following statement of certification: I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) or authorized equivalent state regulations is true with respect to this shipment. Section 262.27 would read as follows:

A generator who initiates a shipment of hazardous waste must certify to one of the following statements in Item 16 of the uniform hazardous waste manifest:

(a) ''I am a large quantity generator. I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment'; or

(b) ''I am a small quantity generator. I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.''

5. Why Is the Agency Proposing this Change to the Appearance of the Waste Minimization Certification Statement?

EPA is proposing these changes because they are necessary to ensure that other proposed form changes such as the inclusion of new fields for rejected loads, container residues, and international shipments would fit on the form. The text of the generator waste minimization statement currently occupies a significant amount of space on the manifest form. Leaving the statement as is, along with the proposed additions to the manifest form would cause the form to exceed a single page. EPA would prefer to maximize the space of the current one page 8½ by 11″ form rather than make it a multiple page form, because we do not want to increase the volume of paper that manifest users already keep on file. In order to accommodate the addition of new fields to the 8½ by 11″ form (i.e., fields for rejected loads, container residues, and international shipments), EPA proposes to remove the full text of the waste minimization statement from the form. The waste minimization certification would still be made on the manifest form, with the waste minimization statements located in the regulations for reference.

G. Elimination of Certain State Optional Boxes

1. Why Is EPA Proposing To Reduce the Number of State Optional Boxes?

EPA proposes to eliminate certain State Optional Boxes to (1) reduce the amount of time spent completing the manifest form, and (2) to reduce the amount of duplicate information. EPA also proposes to remove certain optional fields that might have some significance to certain States, but reportedly do not have wide use and information provided in these fields can be readily obtained elsewhere.

Currently, the Manifest contains eleven Optional blocks (Block A–K). EPA does not require that you complete these blocks. States, however, may require that you complete these blocks to collect specified additional information about the waste that is being shipped, and about those who handle the waste listed on the form.

2. Which Boxes Would Be Eliminated?

EPA proposes to remove the following nine blocks from the manifest form:

Block No.	Name of block
Item A	State Manifest Document Number.
Item B	State Generator's ID.
Item C	State Transporter's ID.
Item D	Transporter's Phone.
Item E	State Transporter's ID.
Item F	Transporters Phone.
Item G	State Facility's ID.
Item H	Facility's Phone.
Item J	Additional Descriptions.

3. Why Is EPA Proposing To Remove Each of These Boxes?

When EPA promulgated the uniform hazardous waste manifest in 1984, it believed that the uniform manifest would reduce regulatory burden on generators and transporters by providing a uniform format for information necessary for the transportation of hazardous waste. The Agency also believed that inclusion of blocks A through J would provide states with space on the form to substantially meet the information needs of their hazardous waste program. In fact, the 1984 rule indicates that the Agency had chosen the optional spaces based on received comments, including recommendations from the (Hazardous Materials Advisory Council) HMAC and ASTSWMO joint task group. However, since the promulgation of the joint EPA/DOT uniform manifest rule EPA has received a number of complaints from the regulated community regarding the burden associated with variability among states manifest requirements. In addition, ASTSWMO created a Task Force (the Task Force consisted of several State hazardous waste program managers), which in 1990 submitted a petition to EPA with recommendations to modify existing manifest regulations, including recommendations to remove certain optional fields from the manifest form entirely. The ASTSWMO petition indicated that the primary objective for

the recommended changes to the nation's hazardous waste management system is to increase uniformity among States. EPA agrees that the manifest form and certain manifest requirements should be modified and that the proposed revisions discussed in today's rule would increase the effectiveness of the manifest system, through the standardization of required and optional fields on the form.

The Agency notes, however, that today's action does not reflect all recommendations provided in the ASTSWMO petition and some of the modifications proposed today conflict with some of the recommendations (e.g., removal of optional field H, Facility phone number). The Agency believes, however, these changes are necessary because, among other reasons, EPA has proposed to include additional blocks on the form for special shipment waste (i.e., emergency response information, rejected loads, container residues, and international shipments) to better track these shipments from cradle to grave. (See sections VI of this preamble for container residues, rejected loads, and section IV.B for international shipments.)

Since the regulated community, including some of the participants of the ASTSWMO petition prefer a one page 8½ by 11″ manifest form (see page 35 of the ASTSWMO petition), the inclusion of these elements on the proposed new form would make it extremely difficult to ensure that these additions, which the Agency believes needs to be added, as well as other proposed changes to the form would fit the one page 8½ by 11″ format. The Agency believes, however, that today's proposed rule is consistent with the goal of the ASTSWMO petition's recommended changes. Further explanations regarding the removal of blocks A through K from the form and combining block J with Item 15 are provided below.

Item A—State Manifest Document Number. EPA proposes to remove the State Manifest Document Number and replace it with a mandatory federal field entitled ''Manifest Tracking Number.'' EPA understands the importance of a unique tracking number for States that actively track manifests and therefore, would provide a single block in which a unique number would be placed. EPA proposes to delete the old federal document number (which consisted of the generator's EPA ID number and a five-digit number assigned by the generator) and the old Item A and replace it with a single federal block called the Manifest Tracking Number. Printers of the manifest would be required to preprint a unique tracking number on each manifest. Forms printers would register with EPA for approval of a unique prefix and of their (sequential) numbering system. Although EPA is removing the state manifest document number, its replacement would allow states to continue to request additional information about the shipment. See section IV.A for further details.

Item B—State Generator's ID. EPA proposes to remove the State Generator's ID block because EPA believes that most States no longer use the State Generator ID number. The ASTSWMO petition supports this and indicates that while some states do use state ID's, the use of the State ID number is limited and has no meaning in other states. The Agency believes that those States that currently use information from the State ID Block can obtain equivalent information with the generator's EPA ID number. The two numbers provide equivalent information about the generators identity, presumably a State could use the EPA ID number to obtain generator information by linking into the Resource Conservation Recovery Information System [4] (RCRIS) with the EPA ID. Therefore, a State that uses the State Generator ID number for tracking purposes should be able to use an EPA ID number as the site specific identifier, by converting their current database system to EPA ID numbers. The ASTSWMO petition also states that the ''wave of the future'' would be toward converting to EPA ID numbers as site specific identifiers.'' EPA agrees that the EPA ID number provides site-specific information and believes that the EPA ID should replace the State ID number on the manifest form.

Item C—State Transporter's ID and Item E—State Transporter's ID (for second transporter). EPA proposes to remove Items C and E (State Transporters ID for first and second transporters) from the form for the same reasons mentioned above regarding generator EPA ID numbers. The manifest instructions also require a transporter to enter his/her EPA ID number on the form. Since hazardous waste transporters are required also to enter EPA ID numbers on the manifest form, States should be able to use the EPA ID number as a transporter identifier instead of the State Transporter ID number.

In addition, EPA is proposing to remove the Transporter ID number from the form because it believes that a large number of States use the State Transporter ID number field for purposes other than its original use. The ASTSWMO petition indicates that many States require waste handlers to record the license plate numbers of transporter vehicles in the Transporter ID. number block.

Item D—Transporter's Phone and Item F—Transporter's Phone (for second transporter). EPA proposes to remove the transporter's phone number blocks for a few reasons. First, the generator and the TSDF both have direct contact with the transporter and would likely have other means of obtaining this information. In addition, a State could obtain the name and phone number of a company contact person from RCRIS. Third, the ASTSWMO petition indicates that the Transporter phone number is most important for emergency response purposes. However, the number typically provided in this block may not be manned 24 hours a day, and thus, is not appropriate as an emergency contact number. As mentioned in Section IV.E. of this preamble, EPA is proposing to designate one space on the manifest for Emergency Response information which would require an emergency response phone number. Therefore, the Agency believes that the transporter phone number is no longer needed on the manifest.

Item G—State Facility ID. EPA proposes to remove the State Facility ID number because the number duplicates information provided by the federal requirement to enter the EPA ID number on the manifest. The TSDF's EPA ID number provides information regarding the TSDF's identity, location, and waste management practices and this information can be accessed from RCRIS by using the federal EPA ID number. The Agency believes that States that currently use the State Facility number to gather information about the TSDF

[4] Under the Resource and Recovery Act (RCRA), generators, transporters, treaters, storers, and disposers of hazardous waste as defined by the federally recognized hazardous waste codes, are required to provide information concerning their activities to state environmental agencies, who in turn provide the information to Regional and National U.S. EPA office. The Resource Conservation and Recovery Information System (RCRIS) is a national program management and inventory system of RCRA hazardous waste handlers and is used by the EPA to support its implementation of RCRA, as amended by the Hazardous and Solid Waste Amendments of 1984 (HSWA). The system is primarily used to track a handler's permit or closure status, compliance with Federal and State regulations, cleanup activities, waste handler inventory, and environmental program progress assessment. Handlers can be characterized as fitting one or more of the following categories: treatment, storage, and disposal facilities (TSDFs), large quantity generators, small quantity generators, and transporters. RCRIS information is available from ENVIROFACTS at EPA Headquarters Web Pages: http:/www.epa.gov/enviro/html/rcris/rcris__overview.html.

could get this information from RCRIS. The accessibility of information about receiving facility reduces the need for the State Facility ID number on the manifest form.

Item H—Facility Phone. EPA proposes removing the facility phone number block from the manifest form. Both the ASTSWMO petition and the Negotiated Rulemaking committee supported keeping this phone number on the manifest form because the generator may need it to follow up with the TSDF about lost shipments, etc. However, the Agency believes that the phone number is not necessary on the manifest because the generator can easily obtain this information from company phone lists and business cards. The transporter is also expected to have regular contact with the TSDF and customarily devises a mapping plan separate from the manifest containing directions and telephone numbers. Further, by adding an emergency response information block to the form (See discussion in section IV.E) and retaining the generator's phone number, vital information about the shipment can be readily obtained, eliminating the need for the Facility Phone number block.

Item J—Additional Descriptions for Materials Listed Above & Item 15—Special Handling Instructions and Additional Information. EPA is proposing: (1) To remove item J and to combine information normally entered in Item J with the Special Handling Instructions and Additional Information Block (Item 15); (2) to modify the Special Handling Instructions and Additional Information Block by designating it as Item 14 on the new form; and (3) to modify the manifest instructions for Item 15, allowing for information normally placed in Item J to be placed in new Item 14. The new block would be renamed Additional Descriptions and Special Handling Instructions are currently provided in the Appendix to 40 CFR Part 262. The Agency believes these changes are necessary because they result in a form with more space to accommodate new fields without significantly reducing the ability to provide additional information on the manifest.

Today's proposal removes the instruction, for international shipments, that requires generators to enter the point of departure (City and State) for those shipments destined for treatment, storage, or disposal outside the jurisdiction of the United States. This requirement is no longer necessary because EPA has added separate space on the form, Block 16, to enter export information. (See Section IV.B for further detail).

In addition, today's proposal removes the instruction that prohibits states from requiring additional, new, or different information in the old Block 15. The removal of this instruction is necessary since the proposal would allow information previously entered in Item J (a state optional block normally used for additional state optional information) to be entered in the new Item 14. Today's rule does not change the current manifest instruction under Item 15, which states that the space under Item 15 may be also used to indicate special transportation; treatment, storage, or disposal information; and/or bill of lading information. Today's action merely moves this instruction to Item 14 of the new form. This instruction would be applied to new Item 14, and an addition made to allow state information to also be entered. The proposal would restrict, however, the types of information that States could require generators to enter in Item 14. A State would only be allowed to require generators to enter into Item 14, information relevant to the waste shipment for which there is no specific space on the manifest. Thus, generators may use Item 14 to record information such as chemical names, constituent percentages, physical state, and waste management method. With the exception of information that States might require, generators may only use Item 14 to enter the following information:

- Universal waste shipments;
- Additional waste codes;
- Alternate facility designation;
- Name, address, and phone number of any person other than the person identified in Item 4 (Generator's Name, Mailing Address, and Phone Number) preparing the manifest;
- Name, address, phone number, and EPA identification number of any person who shares generator responsibilities (i.e., co-generators) with the person identified in Item 4 (Generator's Name, Mailing Address, and Phone Number); and
- To reference the ''old'' manifest tracking number.

The new Additional Descriptions and Special Handling Instructions block may also be used by transporters to indicate that they have combined or divided loads at transfer facilities and to document new or combined manifests and other transportation related information.

4. Why Is EPA Proposing To Amend Items 15 & J of the Old Form?

EPA is proposing to combine Items 15 & J because the proposed additional elements to the form such as Item 16 (International Shipments), necessitate that EPA restructure the form so that it does not exceed the one page 8½ by 11″ format. In addition, the ASTSWMO petition recommended that EPA combine the two optional fields into one block. Also, combining the two boxes reduces the number of spaces provided for narrative information that is not consistently entered and that cannot be easily entered into a computer database.

5. What Regulations Would be Affected by Reducing the Number of State Optional Blocks and Combining Items J and 15 To Create New Item 14?

EPA would revise § 271.10(h) to conform to the proposed revisions mentioned above. These revisions include:

- Modifying § 271.10(h)(1);
- Incorporating paragraph § 271.10(h)(1)(v) in § 262.21(d)(5);
- Modifying and renumbering paragraphs §§ 271.10(h)(2)(v) and (vi) as §§ 271.10(h)(1)(i) and 271.10(h)(1)(ii), respectively;
- Adding new paragraph § 271.10(h)(1)(iii);
- Removing paragraphs § 271.10(h)(2)(i), § 271.10(h)(2)(ii), and § 271.10(h)(2)(iii);
- Removing paragraph § 271.10(h)(2)(iv).
- Modifying and renumbering paragraph § 271.10(h)(2)(vii) as § 271.10(h)(2);
- Adding new paragraph § 271.10(h)(4); and
- Adding new paragraph § 271.10(h)(5).

In addition, today's rule modifies 40 CFR 271.10(j)(1) to conform to the changes made to the Waste Minimization certification. For further details on this revision, please refer to section IX of this preamble.

6. EPA Invites Comment on Today's Proposal to Reduce the Number of State Optional Fields on the Manifest

EPA is specifically requesting comment on the following issues:

- EPA has always required the generator's mailing address on the manifest form. Some states have expressed interest in requiring the physical site address of the generator on the manifest, where that address differs from the mailing address. However, EPA is not inclined to add mailing address information because of increased burden, redundancy with the generator's EPA identification number (i.e., states should be able to obtain the physical site address using the EPA identification number), and lack of space on the manifest form. The Agency is requesting comments on whether the

site address should be added to the manifest form and if so, whether it should be used in addition to or in lieu of the mailing address.

• With the elimination of most of the state optional fields, the only state optional fields that would continue to be included on the manifest are (1) federal and state waste codes (new Block A—see Section I below for an explanation), and (2) BRS system type codes (new Block B—see Section H below for an explanation). The Agency requests comment on whether it would be easier on the regulated community, states, etc. to make these two fields mandatory instead of continuing to use them as state optional fields. If so, would further standardizing the manifest in this way offset any burden increase from making those two fields mandatory? The Agency also requests comment on whether generators complete these two fields regardless of whether States require it as part of their State program?

H. Block K Coding System

1. How Would the Requirements for the Codes Used in Block K (Handling Codes) Change?

(Note that the form would be renumbered and Block K (Handling Codes) become Block B (renamed Biennial Report System Type Codes) and be moved to the bottom of the manifest to the section that is filled out by the designated facility.)

Today's rule proposes to use Biennial Report system (BRS) type for the completion of new Block B and to change the name of new Block B to Biennial Report System Type Codes (currently Block K—Handling Codes). This block would only be completed if required by the generation or receiving state. Under RCRA, large quantity generators and TSDFs are required to report every two years on the hazardous waste they generate and manage. One of the elements that generators and TSDFs report in this Biennial Report is the System Type Code, which describes the way in which a waste is managed. System type codes are mandatory data elements on the GM (Generation and Management) and WR (Waste Received) Forms, which must be submitted by Large Quantity Generators (LQGs) and TSDFs for each RCRA hazardous waste generated on-site in a given year. States or EPA regional offices enter the data from the GM Form into a computer database that is eventually assembled into the Hazardous Waste Report (also known as the Biennial Report). The EPA Regions check the quality of the data by comparing the system type code information on a GM Form to manifest data. These comparisons allow Regions to:

• Identify or resolve discrepancies;

• Target LQGs or TSDFs that did not make a BR submission;

• Identify LQGs or TSDFs that need assistance in improving their facility plan;

• Examine waste minimization activities.

Block K (new Block B) is a state optional element of the manifest and EPA proposes that it remain so (we request comment on this issue below); however, the codes used in this box would no longer vary depending on your state, as is the case under the current manifest regulations. Currently, states which require the submission of information in this box also provide the instructions for the codes that should be entered, and these codes differ across the country. Under this proposed rule, there would be no state-specific instructions on how to complete Block B. Instead, only the standardized federal version of the instructions would be used if states require the submission of information in this box.

This standardization should reduce the burden related to completing the manifest by selecting one set of codes that would be used in every state, rather than having the regulated community learn several different coding systems. By proposing to use the System Type Codes found in the Biennial Report instructions as the codes for Block B, this proposed change would increase consistency with the Biennial Report requirements, thus, aiding in the completion of the Biennial Report and reducing the burden associated with the Biennial Report.

Also as part of the proposed change to the manifest, EPA is proposing to change the Block B heading to ''Biennial Report System Type Codes for Wastes Listed Above.'' This would avoid confusion that might arise if the old handling code heading (''Handling Codes for Wastes Listed Above'') were to remain with the new instructions for submission of BRS system type codes. The Biennial Report list is comprised of 65 system type codes. These codes indicate the type of management a waste receives (i.e., metals recovery or incineration sludge treatment).

2. What Are the Biennial Report System Type Codes That EPA Proposes To Use?

EPA plans to develop a new list of system type codes for inclusion in the 2001 Biennial Report. This Biennial Report will be published about Fall 2000. Shown below is the full list of system type codes found in the 1999 Hazardous Waste Report Instructions and Forms. Any changes made to those codes during subsequent Biennial Report periods would be adopted accordingly.

List of System Type Codes

Metals Recovery (For Reuse)

M011 High temperature metals recovery
M012 Retorting
M013 Secondary smelting
M014 Other metals recovery for reuse: e.g., ion exchange, reverse osmosis, acid leaching
M019 Metals recovery—type unknown

Solvents Recovery

M021 Fractionation/distillation
M022 Thin film evaporation
M023 Solvent extraction
M024 Other solvent recovery
M029 Solvents recovery—type unknown

Other Recovery

M031 Acid regeneration
M032 Other recovery: e.g., waste oil recovery, nonsolvent organics recovery
M039 Other recovery—type unknown

Incineration Treatment

M041 Incineration—liquids
M042 Incineration—sludges
M043 Incineration—solids
M044 Incineration—gases
M049 Incineration—type unknown

Energy Recovery (Reuse as Fuel)

M051 Energy recovery—liquids
M052 Energy recovery—sludges
M053 Energy recovery—solids
M059 Energy recovery—type unknown

Fuel Blending

M061 Fuel blending

Aqueous Inorganic Treatment

M071 Chrome reduction followed by chemical precipitation
M072 Cyanide destruction followed by chemical precipitation
M073 Cyanide destruction only
M074 Chemical oxidation followed by chemical precipitation
M075 Chemical oxidation only
M076 Wet air oxidation
M077 Chemical precipitation
M078 Other aqueous inorganic treatment: e.g., ion exchange, reverse osmosis
M079 Aqueous inorganic treatment—type unknown

Aqueous Organic Treatment

M081 Biological treatment
M082 Carbon adsorption
M083 Air/steam stripping
M084 Wet air oxidation
M085 Other aqueous organic treatment
M089 Aqueous organic treatment—type unknown

Aqueous Organic and Inorganic Treatment

M091 Chemical precipitation in combination with biological treatment
M092 Chemical precipitation in combination with carbon adsorption
M093 Wet air oxidation
M094 Other organic/inorganic treatment
M099 Aqueous organic and inorganic treatment—type unknown

Sludge Treatment

M101 Sludge dewatering
M102 Addition of excess lime
M103 Absorption/adsorption
M104 Solvent extraction
M109 Sludge treatment—type unknown

Stabilization

M111 Stabilization/chemical fixation using cementitious and/or pozzolanic materials
M112 Other stabilization
M119 Stabilization—type unknown

Other Treatment

M121 Neutralization only
M122 Evaporation only
M123 Settling/clarification only
M124 Phase separation (e.g., emulsion breaking, filtration) only
M125 Other treatment
M129 Other treatment—type unknown

Disposal

M131 Land treatment/application/farming
M132 Landfill
M133 Surface impoundment (to be closed as a landfill)
M134 Deepwell/underground injection
M135 Direct discharge to sewer/POTW
M136 Direct discharge to surface water under NPDES
M137 Other disposal

Transfer Facility Storage

M141 Transfer facility storage—waste was shipped off site without any on-site treatment, disposal, or recycling activity

3. What are the Problems with the Current Coding Systems Used to Complete Block K?

There are two main problems associated with the use of the current coding system:

(1) Handling Code Information Submitted in Block K is Non-standardized. Different States request waste handlers to complete Block K with different information. Some States refer to 40 CFR Parts 264 and 265, Appendix I, Table 2 (i.e., Handling Codes for Treatment, Storage and Disposal Methods) and others refer to state-created codes. The problem of non-standardized codes submitted in Block K is compounded when there is interstate travel of hazardous waste. When more than one State has its own form, the manifest form of the destination state is required instead of the manifest form of the destination state. Generators may be required to learn and use multiple coding systems on the manifest on a regular basis because their wastes may cross state lines and their operations may be located in more than one state.

(2) Differences in Terms Creates Problems Converting from State Codes to System Type Codes. There are a number of differences and similarities among handling codes, state-created codes and system type codes. Some states reference or list both handling codes and state-created codes when they provide instructions for completing Block K. Although the different coding systems may be converted to system type codes for the completion of the Biennial Report, the conversion process may be difficult and labor-intensive for waste handlers and States because of inconsistencies between the different lists of codes and because numerous codes may be listed. Attempts to reconcile lists of codes may result in code matches that are greater than one-to-one, because some states may use more than one handling code to describe the waste management method used on a particular waste stream. The conversion process is further complicated when wastes travel between states and industry, and states are not familiar with the coding systems required by other states. Also, the use of different coding systems may impede state and federal inspections.

4. How Can the Biennial Report System Type Codes Help Resolve the Problems?

The Agency believes the BRS system type codes are useful because the regulated community is already familiar with these codes, and that this familiarity should increase the accuracy of data supplied by the facility owner or operator. In addition, some states have indicated to EPA that any single coding system would be an improvement over the current multiple coding systems that must be converted to system type codes by LQGs, TSDFs and states to assist them with completion of Biennial Report forms. In December of 1997 and January of 1998, EPA held public meetings on the hazardous waste manifest proposed rulemaking. Industry and State participants both suggested, among other things, that EPA should consider combining the manifest data collection activities with the Biennial Reporting System (BRS) data collection activities. Further, some participants suggested that as a first step to integrate BRS and manifest data collection, EPA should consider requiring manifest users to use BRS system type codes to complete Block K on the current manifest, instead of the handling codes currently found in Table 2, Appendix I of Part 264. These participants further stated that a combination of manifest and BRS reporting requirements, rather than separated data collection programs, may result in streamlined reporting and significant burden reductions.

5. Where Would I Find a List of the Codes to be Used in Block B?

EPA would publish the system type codes in the following places:

—in the electronic and hard copy versions of 40 CFR Part 262 Appendix 2-Biennial Report system type codes (full list of the system type codes); and

—in the instructions for completing the Biennial Report—(full list).

In addition, in the manifest instructions for completing Block B, EPA would refer users to the full list of system type codes in Appendix 2 of 40 CFR Part 262 and in the Biennial Report instructions. When the list of system type codes change in the Biennial Report instructions, 40 CFR 262, Appendix 2 would also be changed. This information would also be available on EPA manifest website.

6. Who Would Be Affected by the Proposal To Change Block K to Block B?

States, generators and TSDFs may be affected by this proposal. The proposed instructions would specify who would be required to complete Block B. Because TSDFs are the most familiar with the processes that best describe the way in which a waste is managed at their facility, EPA is proposing that TSDFs be responsible for completing Block B. EPA's preference is for TSDFs to assume this role due to their technical expertise and because circumstances may warrant the need for TSDFs to change their decisions on how to store, treat or dispose of the hazardous wastes they receive from generators. Additionally, the first TSDF (sometimes referred to as the interim TSDF if the waste is to be stored or treated and then sent on to another TSDF) that receives the shipment should be responsible for filling out Block B because the original manifest is often terminated at this point and a new manifest is generated. The Agency specifically requests comment on whether the TSDF should be responsible for filling out Block B of the manifest (where required).

7. How Would Block B Be Filled Out?

One system type code per waste is proposed to be used in Block B. Each system type code in Block B should be clearly linked to the waste it describes in Item 10, ''U.S. DOT Description (Including Proper Shipping Name, Hazard Class, ID Number, and Packing Group).'' Specifically, the BRS system type code entered in ''field a'' of Block B should correspond to the U.S. DOT description information provided in ''item 10a'' of the form. Similarly, BRS system type codes entered in ''fields b, c, and d'' of Block B should correspond to the U.S. DOT description information entered in ''fields 10b, c, d,'' respectively. If the space in Block B is insufficient for listing system type

codes, then new Item 14, ''Special Handling Instructions and Additional Information,'' may be used.

Block B should be completed as follows:

B. Biennial Report System Type Codes for Wastes Listed Above
a. (enter system type code for first waste code listed in Block 10a)
b. (enter system type code for second waste code listed in Block10b)
c. (enter system type code for third waste code listed in Block 10c)
d. (enter system type code for fourth waste code listed in Block 10d)

8. How Would the Regulations Change?

The manifest form would be changed to include a new box entitled ''Biennial Report System Type Codes,'' and the manifest instructions in the Appendix to Part 262 would be changed to instruct the TSDF to use the Biennial Report system type codes. New instructions would be added instructing those TSDFs completing Block B to use Biennial Report codes and a list of the Biennial Report system type codes would be added to 40 CFR part 262 as Appendix 2.

The Agency is also considering two alternatives to today's proposal. The first alternative considers using a new list of codes instead of the full list of system type codes from the existing Biennial Report System. EPA could develop a new simplified list of codes that are similar to the current categories for system type codes found in the Biennial Report. Current BRS system type codes describe the type of hazardous waste management system used to treat or dispose a hazardous waste. One example of system type codes for a hazardous waste management category is ''Solvents Recovery,'' which has within it, a set of unique codes for fractionalization/distillation, thin film evaporation, solvent extraction, other solvent recovery, and solvent recovery. The alternative system would only include the general category found in the system codes list and if ''solvent recovery'' is taken as the example, would omit the unique codes within ''Solvent Recovery.'' Thus, a facility using solvent extraction to treat a hazardous waste, would only enter ''Solvent Recovery.''

The second alternative approach EPA is considering would be to require the generator to complete new Block B of the manifest, rather than the TSDF. The Agency is considering whether the information provided by the generator is of greater use than similar information provided by the TSDF.

9. EPA Invites Comment on Today's Proposal and Also Welcomes New Ideas for Manifest and System Type Code Burden Reduction

EPA is specifically requesting comment on the following issues

(a) As an alternative to today's proposal of using the full list of system type codes from the existing Biennial Report System, would industry, states, and other stakeholders prefer a new list of codes that are similar to the current categories for system type codes? (Examples of categories include ''Solvents Recovery'' and ''Incineration.'')

(b) As an alternative to requiring the TSDFs to complete Block B of the manifest, should EPA require the generators to complete that section? If so, what are the advantages? How would generator accountability for wastes from ''cradle-to-grave'' and completion of the Biennial Report be impacted? What other impacts would be expected?

(c) Would industry, states, and other stakeholders prefer standardizing the handling codes from Table 2 of Appendix I, Part 264 and use the standardized handling codes for the completion of new Block B?

(d) Should the entry of information in new Block B of the manifest remain an optional field as proposed, or should it be mandatory?

(e) In looking at manifest and Biennial Report burden together, could an increase in manifest burden lead to or be offset by Biennial Report burden reduction? (For example, if Block B were to change from a state optional element to a mandatory federal element, would manifest burden increase in the short run and Biennial Report burden decrease in the long run?) Which areas of the manifest and Biennial Report should EPA consider or further analyze to achieve net burden reduction in the long run?

I. Block I Waste Code System

1. How Would the Requirements for the Codes Used in Block I Change?

(Note, that the form would be renumbered and Block I (Waste No.) become new Block A (Waste Codes).)

EPA proposes to provide additional space in this optional block so that waste handlers can enter state and federal waste codes in separate locations under new Block A. EPA is also proposing to change the name of this block.

Block A would be divided into two sections—a section for entering federal waste codes and another for entering state waste codes. The top section of Block A would allow reporting of three federal waste codes and the bottom section would allow reporting of three state waste codes. If states require the completion of Block A, then the waste handler must enter Federal waste codes in the appropriate section of Block A according to a hierarchy, with the highest toxicity waste appearing first to alert users of the manifest of their presence.

EPA believes that in most cases six waste codes would be sufficient to adequately describe the waste in Block A. However, it also may be appropriate at times to report more than six codes for a particular waste (for example, a lab pack could contain more than 6 waste codes). For these specific circumstances, the generator would use both Item 10, ''U.S. DOT Description (Including Proper Shipping Name, Hazard Class, ID Number, and Packing Group)'' and proposed Item 14, ''Special Handling Instructions and Additional Information,'' to describe such a waste.

EPA is also changing the title of Block I from Block I ''Waste No.'' to Block A ''Waste Codes'' to more accurately reflect what should be entered in this block and more commonly used terminology. This block would need to be completed only if a state required it.

The proposed format for Block A is shown below:

A. WASTE CODES

Federal Waste Code, four partitions	Federal Waste Code, four partitions	Federal Waste Code, four partitions.
State Waste Code, four partitions	State Waste Code, four partitions	State Waste Code, four partitions.

2. What Is the Problem With Current Block I Reporting Procedures?

Under the current manifest system, waste handlers can use the manifest form for shipments where hazardous and non-RCRA wastes are a part of the same shipment. This may occur because some states regulate non-RCRA waste as hazardous waste and prefer that generators indicate state regulated hazardous waste shipments on the same manifest form. Also, these states may

require that waste handlers enter the federal waste codes for the RCRA regulated wastes and state waste codes for the State-only regulated hazardous waste in Item I of the current form.

Federal and state waste codes are important because they provide a range of useful information about waste shipments and assist states with enforcement, generators with describing a hazardous substance in accordance with DOT regulations, and TSDFs with determining whether a waste can be accepted under its permit. However, under current reporting procedures, such benefits are diminished due to the format of Block I and the lack of clear, uniform instructions. Block I does not distinguish between federal and state sections, nor does it make clear that both federal and state waste codes may be reported. Also, states provide varying instructions, if any, on how to fill out Block I. The ASTSWMO petition addressed this issue and considered, among other things, an option for states to create a separate manifest for reporting ''non-RCRA regulated waste'' but the petition did not recommend this option. Explanations provided in the petition for not creating a separate manifest rationalized that one manifest ensures uniformity and that a separate manifest would cause confusion for generators because a separate form would require a separate set of instructions, numbering, etc. Further, waste handlers would have to become familiar with several manifest forms, if states required a separate manifest. The Agency agrees with these reasons and also believes that generators would prefer completing one manifest instead of two for combined shipments of hazardous and state-regulated nonhazardous wastes.

3. Who Would Be Affected by This Proposal?

States and waste handlers (i.e., generators) would be affected by this proposal. Block A is a state optional element of the manifest and would remain so, but there would no longer be a need for state-specific manifests with varying instructions on how to complete Block A. The federal manifest would contain standardized instructions for submission of federal and state waste codes in Block A. Generators would complete Block A when required by the generator state, the destination state or both states. EPA believes that this change would not reduce the state's ability to collect this information, and the standardized format (along with the elimination of state-specific manifests) would reduce the time required to complete this block.

4. How Would Block A Be Filled 0ut?

When the generator state, the destination state or both states require completion of Block A, several reporting scenarios may apply, including use of Item 10 and Item 14. In general, Block A should be used first. Examples follow:

Reporting Waste Codes in Item 10 of the manifest: ''US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)'' and in Item 14: ''Special Handling Instructions and Additional Information''. Federal waste codes (either the listed waste code or the code for a hazardous waste characteristic) would be reported in Block A, as applicable. Federal waste codes also may be reported in Item 10 if the generator wants to include that information in Block 10. If more space is needed to report federal waste codes, then Item 14 may be used. Also, Item 14 may be used to report additional state waste codes.

Reporting Federal Waste Codes According to Toxicity. Federal waste codes would be reported according to a hierarchy of the highest toxicity waste appearing first and less toxic wastes appearing thereafter. The proposed hierarchy reflects the Negotiated rulemaking committee's recommendation that wastes with the highest toxicity should be listed first (i.e., acutely hazardous wastes) to alert users of the manifest to their presence. The hierarchy is listed below:

- All acutely hazardous wastes, including all P listed wastes and all acutely hazardous F listed wastes;
- U listed wastes (toxic);
- K listed wastes (specific sources);
- Non-acute F listed wastes (non-specific sources); and
- D wastes (characteristic).

Although today's proposal would require waste handlers to enter waste codes in Block A according to the proposed hierarchy, EPA understands that wastes that are ignitable or reactive may be better described (for safety reasons) if the waste codes for these characteristics are listed first in the hierarchy. Therefore, the Agency proposes that if a state requires waste handlers to complete the new Block A on the manifest, then waste handlers must enter Federal waste codes in block A in accordance with the hierarchical system, unless the wastes in question are ignitable or reactive. In such situations, the Federal waste codes for the ignitable or reactive wastes may be entered first in Block A, if the state allows the generator to do so.

EPA notes that the proposed hierarchical system would apply to Federal waste codes only. EPA did not propose the hierarchical system for state waste codes because it had insufficient information about state waste codes. Therefore, the Agency believes that it would not be appropriate to propose a standardized coding system for state-regulated wastes and believes that it is more appropriate for generators to contact States directly, if necessary, regarding the assignment of state waste codes for a particular state-regulated waste. The Agency would place, however, a list of waste codes for each state on its EPA website so that waste handlers can obtain state waste code information quickly. EPA, however, recommends that generators contact both its state and the consignment state to obtain further instructions to complete Block A.

Reporting Federal Waste Codes According to Toxicity. Hazardous waste that is described by more than one federal waste code within one of the P, U, K, F and D categories would be listed according to toxicity. EPA believes that on occasion, some hazardous waste shipments may contain waste codes from the same hierarchy category. In such cases, the waste handler should list waste codes from the same category in the order which he/she believes is most representative of the waste's attributes. The Agency requests comment on whether the hierarchy approach is the most appropriate method to listing wastes in Block A.

Reporting State Waste Codes. EPA is proposing that the first state box would represent waste regulated by the generator state and the second state box would represent waste regulated by the destination state. State waste codes would be reported as follows:

- If the waste is regulated by the generator state or the destination state, then enter the generator state waste code in the state box and the destination state waste code in the second box:

A. WASTE CODE

(Generator State Waste Code)	(Destination State Waste Code)	

If additional space is needed to report state waste codes, use Item 14, ''Special Handling Instructions and Additional Information.''

5. How Would the Regulations Change?

The instructions for the manifest found in the 40 CFR 262 Appendix would change to include the Federal waste code hierarchy and the instructions for completing Block A. Also, Block A would be relabeled ''Waste Codes'' on the manifest form.

6. EPA Invites Comment on the Following Questions Related to the Proposed Changes to Block A.

- Under today's proposal, would the quality of waste code reporting improve, while keeping manifest burden to a minimum?
- Are the proposed format of Block A (i.e., space for 4-digit waste codes) and new standardized procedures for reporting waste codes clear? Are there alternatives that EPA should consider?
- Although today's rule does not propose to establish generic waste codes for lab packs, spent carbon, and incinerator ash, EPA may pursue this in the future as resources permit and welcomes comment on codification of such codes.
- **What alternatives to the proposed toxicity hierarchy would you suggest**

Unmanifested Waste Reporting

1. How Is EPA Changing the Way TSDFs Report Unmanifested Waste?

Today's rule proposes changes in the way a TSDF may submit the ''Unmanifested Waste Report'' to the EPA Regional Administrator, which is required within 15 days after accepting the waste at a TSDF. Currently, EPA requires TSDFs who accept unmanifested waste to prepare an ''Unmanifested Waste Report'' (form 8700–13B) for waste that should normally be shipped using a manifest. (See 40 CFR 264.76 and 265.76) Under this proposal, a typed, handwritten, or electronic note may be submitted instead of this report. The typed, handwritten, or electronic note must be legible, and must contain the following information:

(a) The EPA identification number, name, and address of the facility;

(b) The date the facility received the waste;

(c) The EPA identification number, name, and address of the generator and the transporter, if available;

(d) A description and the quantity of each unmanifested hazardous waste the facility received;

(e) The method of treatment, storage, or disposal for each hazardous waste;

(f) The certification signed by the owner or operator of the facility or his authorized representative; and

(g) A brief explanation of why the waste was unmanifested, if known.

2. What Is Unmanifested Waste?

Unmanifested waste is hazardous waste that a TSDF accepts from an off-site source without the required accompanying manifest or shipping paper (in the case of rail and some water shipments). Regulations governing unmanifested waste found at 40 CFR 264.76 and 265.76 should not be confused with similar reporting requirements under regulations for manifest discrepancies found at 40 CFR 264.72 and 265.72 and exception reporting found at 40 CFR 262.42.

3. What Is the Problem With Current Requirements for Unmanifested Waste Reporting?

Current regulations found at 40 CFR 264.76 and 265.76 require TSDFs to submit EPA form 8700–13B, which must be designated ''Unmanifested Waste Report.'' However, EPA announced in the January 28, 1983 *FR* that it was deleting EPA form 8700–13B and its predecessor, EPA form 8700–13, which had appeared in the May 19, 1980 *FR.* Although both forms were linked to annual reporting requirements at that time and were supposed to be adapted for unmanifested waste reporting, EPA deleted them due to the change from annual to biennial reporting. EPA never published a new form for unmanifested waste reporting and the form now required for biennial reporting, EPA form 1300–A/B, ''Hazardous Waste Report Instructions and Forms,'' is not adaptable for unmanifested waste reporting. Although EPA never published a replacement form for reporting unmanifested waste, the regulations still require this form which is generally unavailable to those seeking a copy.

4. How Do Regulations for the Unmanifested Waste, Manifest Discrepancies, and Exception Reporting Compare?

Some aspects of the reporting requirements are similar. See the table below for a comparison.

COMPARISON OF REGULATIONS—UNMANIFESTED WASTE REPORT, MANIFEST DISCREPANCIES, AND EXCEPTION REPORTING

Regulation	Description	Synopsis of reporting requirements
Unmanifested Waste Report 40 CFR 264.76 and 265.76.	Unmanifested waste is hazardous waste that a TSDF accepts without an accompanying manifest or shipping paper, and which is not exempt from the manifest requirement.	*Current:* TSDF must submit to the EPA Regional Administrator an unmanifested waste report on EPA form 8700–13B within 15 days after receiving the waste. *Proposed:* TSDF must submit an unmanifested waste report using a typed, handwritten, or electronic note submitted to the EPA Regional Administrator within 15 days after receiving the waste.
Manifest Discrepancies 40 CFR 264.72 and 265.72.	Manifest discrepancies are differences between the quantity or type of hazardous waste designated on the manifest or shipping paper and the quantity or type of waste actually received at a facility. We are proposing to include container residues and rejected loads as manifest discrepancies.	TSDFs that receive wastes with any significant manifest discrepancy must attempt to reconcile the discrepancy upon discovery and report the discrepancy to the EPA Regional Administrator if the discrepancy is not resolved within 15 days after receiving the waste. We are proposing that TSDFs that reject a load or send a residue off-site would have to prepare a new manifest as instructed under proposed §§ 264.72(c–d) and 265.72(c–d).

COMPARISON OF REGULATIONS—UNMANIFESTED WASTE REPORT, MANIFEST DISCREPANCIES, AND EXCEPTION REPORTING—Continued

Regulation	Description	Synopsis of reporting requirements
Exception Reporting 40 CFR 262.42	Exception reporting is required of LQGs and SQGs when they do not receive the return copy of the manifest signed by the TSDF within a specified time after the waste was accepted by the initial transporter.	A LQG who does not receive the return copy the manifest signed by the TSDF within 35 days after the waste was accepted by the initial transporter must contact the TSDF to inquire of the status of the waste. If the LQG does not receive the return copy of the manifest signed by the TSDF within 45 days of the date the waste was accepted by the initial transporter, the LQG must submit an exception report to the EPA Regional Administrator. A SQG who does not receive the return copy of the manifest signed by the TSDF within 60 days after the waste was date the waste was accepted by the initial transporter must also submit an exception report to the EPA Regional Administrator.

VI. Residues and Rejected Loads: How Must These Shipments be Manifested?

1. What are Residues and Rejected Loads?

Residues

A residue is the hazardous waste that remains in containers such as drums and in vehicles used for transport (such as tanker cars or box cars) after most of the contents of the container have been removed. These residues may be difficult to remove because the contents may have congealed and the receiving facility may not have the equipment to completely empty the container. As a result, the container may hold more than the regulatory threshold for meeting the RCRA definition of ''empty,'' that is, more than 3% of a hazardous waste in a container less than or equal to 119 gallons, or more than 0.3% of a hazardous waste in a container greater than 119 gallons, and must be managed as hazardous waste. (See section IV.C of this rule for a discussion of the proposed changes regarding the term ''bulk packaging.'')

Rejected Loads

A rejected load is a shipment of hazardous waste that a facility receives, but cannot accept, either because of restrictions in the facility's permit, or due to capacity limitations. A rejected load includes all shipments a facility rejects, in whole or in part, whether rejection occurs before or after the facility has signed the manifest. EPA does not view shipments that are undeliverable for reasons other than rejection by a party at the designated facility as being covered by the term ''rejected loads.'' At 40 CFR 263.21(b) of the current regulations, there is a provision that addresses hazardous waste shipments that cannot be delivered by the transporter. This provision was included in the regulations to deal with emergencies that prevented a delivery to a designated facility, such as a labor strike or fire that causes the designated facility to close. The current § 263.21(b) allows a transporter to deal with such emergency events by contacting the generator for further directions and then revising the manifest according to the generator's instructions. These ''undeliverable waste'' events that do not involve a rejection by the destination facility would continue to be addressed by the existing regulatory provision, which today's proposal would recodify as 40 CFR 263.21(b)(1). EPA is not reopening or reconsidering the current § 263.21(b) provisions for undeliverable waste; however, we are proposing a new section to § 263.21(b) to clarify the transporter's responsibilities for both ''undeliverable'' waste and ''rejected loads. This proposal would also clarify the procedures to be followed by the rejecting designated facility in connection with noting the rejection on the original manifest, and preparing a new manifest to direct the rejected shipment on to its next destination.

2. What Is EPA Proposing Related to Residues and Rejected Loads?

EPA proposes to improve the tracking of these hazardous waste shipments by adding new data elements on the manifest form for identifying rejected wastes and residues, and by clarifying the requirements and procedures for tracking these wastes with the manifest. The proposed rule addresses both the manifest procedures that would track rejected wastes and residues to alternative facilities, as well as the procedures for dealing with the rare occasions when a facility must return rejected wastes or container residues to the generator. In all such cases, the new regulations would require facilities to note information about the rejected waste or regulated residue on the original manifest, to sign the original manifest certification, and to issue a new manifest to continue the shipment of the rejected load or residue to another off-site destination. EPA is proposing to modify the discrepancy block on the manifest to provide more explicit tracking features for regulated residues and rejected wastes. Space would be provided to identify the material affected by the discrepancy and the reason for the discrepancy. In addition, the facility would cross-reference the manifest tracking number for the new shipment on a space provided for this purpose on the discrepancy block of the original manifest. On the new manifest, the facility would also reference the ''old'' manifest tracking number in the Special Handling Block. The discrepancy space and facility certification on the new manifest would be reserved for use by the next facility, if necessary (e.g., if the shipment is rejected a second time).

3. To Whom Do These New Requirements Apply?

The new requirements apply to you if you are:

- A ''designated facility'' that cannot completely ''empty'' a container to ''RCRA empty'' standards in § 261.7(a); and
- A TSDF or a hazardous waste recycler who must reject a shipment of hazardous waste, in full or in part; and

• A generator who must receive a returned shipment of a residue or rejected load when there is no alternate facility to which it may be sent.

4. Where Would the Proposed Requirements for Tracking Rejected Wastes and Residues Be Codified?

Today's proposal would result in modifications to several existing regulatory provisions. First, the proposal would modify 40 CFR 264.71 and 264.72 (40 CFR 265.71 and 265.72 for interim status facilities) so that these provisions provide more explicit requirements for tracking rejected wastes and regulated container residues. The proposal would accomplish this by clarifying in § 264.71(a) that a facility must sign the facility owner or operator certification on the manifest for both waste receipts and waste rejections. EPA emphasizes that the facility certification attests to the receipt of the hazardous wastes described on the manifest, except as noted in the discrepancy space. This proposal would clarify that residues and rejected wastes, including full or partial load rejections, are discrepancies to be reported on the discrepancy space. So, facilities would be required to sign the owner or operator certification on every manifest relating to shipments brought to a facility for delivery, either to acknowledge receipt of all the materials on the manifest, or to acknowledge that those materials identified in the discrepancy space (including rejected wastes and residues) were not received for management at the facility.

The proposal would modify § 264.72 (§ 265.72 for interim status facilities) to reflect the changes proposed to the discrepancy space of the manifest form. The form would be revised to include new data fields in the discrepancy space to track rejected wastes and residues. So, § 264.72(a) would be revised to clarify that the scope of the term ''manifest discrepancies'' would be broadened to include not only the significant differences in waste quantities or types that are the subject of the current discrepancy regulation, but also rejected wastes and regulated container residues. The current regulation's requirements for identifying, reconciling, and reporting ''significant discrepancies'' would be retained in proposed § 264.72(b) and (c), which would address these as ''significant differences'' in quantity or in type of wastes. The procedures for addressing rejected wastes or regulated container residues as manifest discrepancies would appear in new § 264.72(d) and (e) for permitted facilities, and in new § 265.72(d) and (e) for interim status facilities. For those instances where an alternative facility is not available to receive a rejected waste or residue shipment, proposed §§ 264.72(f) and 265.72(f) would add procedure governing the return of these wastes to generators. These procedures are discussed below in greater detail.

EPA is also proposing to amend 40 CFR 263.21(b), to add language clarifying the distinction between the transporter responsibilities for ''undeliverable'' wastes that are not deliverable because of emergencies that prevent delivery, and for rejected wastes. As we discussed above, EPA would retain as § 263.21(b)(1) the existing transporter requirements that apply to shipments that cannot be delivered because of an emergency, e.g., a strike, fire, or similar emergency event which closes the designated facility's or next transporter's operations or which otherwise precludes the transporter from delivering the waste. In such emergency cases, the transporter that cannot deliver the waste shipment to the designated facility, alternate designated facility, or next designated transporter, would still be required to contact the generator for further directions and to revise the manifest according to the generator's instructions. EPA is not reconsidering, reopening, or requesting comment on these existing requirements. The proposal would merely recodify this existing provision at § 263.21(b)(1).

Proposed § 263.21(b)(2) would specifically address transporters' responsibilities respecting rejected wastes. Transporters would be required under this proposal to obtain the facility owner's or operator's signed and dated certification on the manifest identifying the rejection. The transporter would also be required to retain one copy of this manifest, and to give any remaining copies of the manifest to the rejecting TSDF, so that they could be processed in accordance with the new procedures proposed for facilities rejecting wastes at § 264.71, 72.

5. Why Is EPA Proposing These Changes?

EPA is proposing these changes in response to stakeholder recommendations made during the prior Negotiated Rulemaking and an audit conducted by EPA's Office of Inspector General (OIG) in 1995. In the final agreement for the RCRA Manifest Regulatory Negotiation, several recommendations related to residues and rejected loads were made. For residues, the committee recommended that residues in cargo tanks and tank cars that are not RCRA-empty should be manifested as partially rejected loads by the facility that received the shipment. For rejected loads, the committee came up with different recommendations depending on whether the rejected load was rejected in full or in part, and whether the TSDF had signed the manifest or not. Generally, the committee recommended that rejections be noted in the discrepancy box, that rejected waste should in some instances be allowed to be returned to the generator, and that the generator should be involved in the decisions on where rejected wastes should be sent.

The OIG's audit identified several areas where the Agency could make changes to improve the manifest system so that the manifest system provides generators, EPA, or the states with the means to track hazardous waste shipments to their final destinations. The OIG audit provided two specific recommendations related to residues and rejected loads: (1) Require that original generators and manifest numbers be referenced on any new manifests created for reshipments of hazardous waste, and (2) ensure that generators be consulted when partial or full loads of hazardous wastes are rejected or when hazardous wastes remain in ''non-empty'' containers. EPA believes the changes suggested by the Negotiated Rulemaking stakeholders and the OIG would improve hazardous waste tracking. Specific reasons for making changes in these areas are discussed below.

Problems With Hazardous Waste Residues Left in Containers

Hazardous waste residues are sometimes left in containers such as drums and in vehicles such as tanker trucks or box cars after the waste has been removed from the containers by the designated facility. This can at times represent a significant amount of material. For example, a 6,000 gallon tank trunk that is emptied just to the 0.3% threshold for ''empty'' would still contain about 20 gallons of hazardous waste. Under current regulations, a hazardous waste container is considered ''empty,'' only if the waste has been removed so that no more than 2.5 centimeters (1 inch) of the waste (or 3% of the waste in containers of less than or equal to 110 gallons (see discussion regarding ''bulk'' packaging in Section IV.C), or 0.3% of the waste in containers greater than 110 gallons) remains in the container and all waste that can be removed by commonly employed practices has been removed. Containers holding acute hazardous wastes must be triple rinsed. Acute hazardous wastes are those waste that are considered

highly toxic by EPA and are given the hazard code ''H'' in the hazardous waste lists at 40 CFR 261.31 and 40 CFR 261.33 (i.e., all P-listed wastes and certain F-listed wastes).

When a facility cannot thoroughly clean the container, and is unable to manage the container properly, it must send the ''RCRA-regulated'' container to an alternate facility. Current regulations do not clearly define the appropriate manifest procedures for such a situation—i.e., it is unclear whether the facility should contact the generator and whether the original manifest, or a new manifest, is required to accompany the shipment to the next facility. States have developed different approaches to dealing with these situations. As a result, these shipments can impose significant burdens on facilities in terms of consulting with state regulatory authorities and sorting out applicable procedures. Also, a facility might complete a new manifest for the shipment to the alternate facility without consulting with the generator of the shipment. The generator might only receive the signed manifest returned by the first facility, but may not receive a copy of the second manifest indicating the ultimate disposition of the regulated container and residue. Thus, the generator may be left unaware of the final disposition of the hazardous waste. When this occurs, one of the main purposes of the manifest—to assist regulated entities and regulatory authorities in tracking hazardous waste from ''cradle to grave''—is impaired because there is no systematic approach for linking information about the second shipment to the original manifest and generator. The current regulations require only that the facility shipping the waste residues to the next destination facility be apprised of the disposition of the waste; the original generator is not in the loop for obtaining such information.

The changes to the manifest form and procedures proposed here would ensure that hazardous waste generators are informed of and involved in decisions concerning the ultimate disposition of their hazardous waste, so that regulated quantities of hazardous waste residues can be tracked from the original generating site to the site of ultimate disposition.

Problems With Rejected Loads

In most situations involving off-site transportation of hazardous waste, the hazardous waste shipment arrives at the designated facility without incident and is accepted and ultimately is managed at the designated facility. However, on rare occasions, the owner or operator of the designated facility cannot accept a waste shipment. For example, the TSDF might require the waste have a certain British Thermal Units (BTU) level in order to accept the waste for treatment. If the shipment of waste does not have the required BTU level, the TSDF might reject the waste shipment. Other reasons why a TSDF may not accept a hazardous waste shipment vary, but may include capacity restrictions at the time the waste arrives, equipment failure, or other unanticipated situations. The designated facility may reject a load at the time it arrives at the facility. The designated facility may also reject a load after it has signed the manifest and accepted delivery of the waste shipment, because current regulations allow the facility to sign for receipt of the waste and then test the waste at a later time and reject it if necessary. Current regulations do not clearly define the appropriate manifest procedures for either situation. As with container residues, it is unclear whether the facility should contact the generator and whether the original manifest, or a new manifest, is required to accompany the shipment to the next facility. In current practice, if the facility rejects all or part of a load after having already signed the original manifest, it may prepare a new manifest for the rejected waste and send it to an alternate facility without consulting with the generator. Thus, the original generator may be left unaware of the final disposition of its hazardous waste, because there is currently no consistent approach followed for tracking these shipments and linking the second shipment to the original manifest and generator. The changes to the manifest form and procedures proposed here would also ensure that hazardous waste generators are involved in decisions concerning the ultimate disposition of their hazardous waste and that rejected wastes can be tracked from the generating site to the site of ultimate disposition.

6. How Long Does the TSDF Have To Accept or Reject the Hazardous Waste Shipment?

While EPA does not intend that a TSDF must test the waste before signing the manifest, EPA expects that TSDFs would use good business practices and make a determination within a reasonable time whether to accept or reject all or part of a hazardous waste shipment. Additionally, EPA recognizes that some loads may be rejected after the designated facility has signed the manifest and taken delivery of the waste. The Agency recognizes that the facility's signature on the facility certification of receipt reflects the facts known to the facility at that time, and does not always mean that the TSDF has finally accepted the waste for treatment, storage or disposal.

7. Who Is Responsible for Deciding Where To Send a Residue or Load Rejected by the TSDF?

Because a hazardous waste generator has the most knowledge about its waste and is typically responsible for decisions about the disposition of its hazardous waste, EPA believes it is appropriate to require that the designated facility must contact the generator for his or her decision about the next destination for a rejected load or residue. This approach is consistent with the current manifest system, which generally places the burden on hazardous waste generators to ensure that hazardous waste shipments arrive at their proper destinations. See, e.g., 40 CFR 262.42 regarding ''exception reports.''

As part of obtaining the generator's decision, the facility should also work out with the generator how the waste should be transported to the next facility and who should be listed as the transporter on the new manifest. If it is not possible to locate in a timely manner an alternative facility that can promptly receive the waste, then the generator may instruct the facility to transport the hazardous waste shipment back to the generator. EPA expects that shipments would be returned to generators only on very rare occasions. The rejecting facility, in consultation with the generator, would first have to attempt to locate another facility that can appropriately manage the waste before resorting to a return shipment to the generator.

The facility rejecting hazardous wastes must ensure that secure custody of the hazardous waste is maintained while arrangements are being made to forward the waste to another facility. In many such situations, EPA expects that the transporter who attempted to deliver the rejected wastes would simply remain at the facility's premises and retain custody of the rejected waste until transportation resumes under the new arrangements made by the facility and generator. The transporter may assist the facility with the arrangements made for forwarding the rejected waste and preparing it for transportation. In those situations, however, where the delivering transporter does not remain on the facility's premises, the rejecting facility must take temporary custody of the waste, and hold it at a secure location until transportation of the waste continues under the new manifest.

8. Must TSDFs Who Reject Waste or Who Have a Regulated Residue Prepare a New Manifest For the Shipment to the Alternative Facility?

Yes. Today's rule clarifies that a TSDF who either rejects hazardous waste or has a regulated residue that must be sent off-site must prepare a new manifest for the shipment to the alternate facility. This clarifies conflicting policies that have arisen under the existing regulations. For example, differing policies have been followed in the past, based on distinctions between fully rejected loads and partially rejected loads, or on distinctions between rejections that occur at the time of attempted delivery of a shipment and those that occur after the original manifest was signed. In some instances, current policies allowed the original manifest to be amended, while in other instances, the policies suggested that a new manifest should be prepared. The work group developing today's proposal concluded that existing policies in this area were conflicting and very confusing. The work group recommended that one consistent approach should govern all rejected waste and residue shipments. Therefore, EPA is today proposing that a new manifest must be prepared in all cases involving a rejected waste or a residue shipment. The designated facility must in all cases close out the original manifest by noting the rejection or the regulated residue, and then prepare a new manifest to send the rejected waste or residue shipment to the alternate facility.

The designated facility would be required to: (1) Check the rejected load or residue box in the discrepancy block of the original manifest; (2) sign the facility certification on the original manifest to certify that the waste shipment was received except as noted (i.e., the rejected waste or residue) in the discrepancy block; (3) write the manifest tracking number of the new manifest on the space provided for this purpose in the discrepancy block of the original manifest; and (4) complete a new manifest for the rejected waste or residue. If the facility rejects all or part of a shipment, or discovers regulated residues, after the facility has signed and returned the original manifest, it would send the generator and delivering transporter an amended copy of the original manifest, revised to show the rejected waste or residue information in the discrepancy space, and showing a new signature certifying to the facts as amended and showing the date of the amendment. These amended manifest procedures would be included in § 264.72(g) and § 265.72(g) of today's proposal.

9. Whose Facility Information Would Go in the ''Generator'' Block of the Manifest?

Previous policies on tracking rejected loads and residues usually required the designated facility with rejected waste or residues to identify itself in the generator information block of the manifest for the second shipment to the alternate facility. Under this approach, the rejecting facility would provide its EPA ID Number in the Generator's EPA ID Number field, and provide its name and address information in the Generator information fields. When delivering the waste to the first transporter, the rejecting facility would also sign the Generator's Certification statement. However, this approach continues the problem of not keeping the original generator informed of the final disposition of its waste. This results because the alternative facility named as the designated facility on the second manifest would be required under § 264.71(a)(4) to send a copy of the manifest to the rejecting facility, and not the actual ''generator'' of the hazardous waste, when closing out the second manifest. To avoid this result, EPA is today proposing that in those cases where rejected waste is being forwarded to an alternate facility, and there has been no change in the form of the waste—i.e., the first designated facility performs no treatment and does little more than hold the waste (or repackage it) temporarily so that it may continue in transportation—then the original generator must be identified in the generator information block on the new manifest. As long as the form of the waste has not changed and the waste still carries the same DOT shipping descriptions that it carried when it was brought to the rejecting facility's site, a new waste has not been generated by the rejecting designated facility. The designated facility must, of course, consult with the generator, and once authorized by the generator to ship the rejected wastes or residues to another facility, the rejecting facility would sign the generator's certification to indicate that it has offered the hazardous waste in transportation.

If, however, the designated facility has treated the waste or otherwise managed the waste in such a way as to change its form, change the applicable DOT description for the waste, or generate a new waste, then this procedure would not apply to the second shipment. Instead, the designated facility would be identified on the manifest (Items 1 and 4) as the generator, and would sign the generator's certification in its capacity as a waste generator shipping its waste off-site.

In those instances where the designated facility must return a rejected waste or regulated residue to the generator, the proposal would not require the designated facility to list the actual generator's information in Items 1 and 4 of the manifest. In such instances, the proposal would require the designated facility to identify itself in the generator information section on the new manifest of the return shipment to the generator. This modification is important in order to ensure that the return shipment back to the initial generator can be verified. Under current RCRA requirements, the entity initiating the shipment of hazardous waste (typically the actual generator) is responsible for confirming that the shipment is received by the designated facility (see, 40 CFR 262.42). Thus, if the actual generator were to be identified on the new manifest as both the generator and the destination facility, the rejecting facility would not be able to verify that the waste was indeed received by the actual generator. By identifying the designated facility in the generator information section on the new manifest for the return shipment, the designated facility would be in a position to verify that the generator received the return shipment, or, file an exception report if verification is not received in a timely manner.

Under RCRA regulations, a RCRA ''generator'' is defined as a person whose act or process produces a hazardous waste, or whose act first causes the waste to be subject to regulation. See 40 CFR 260.10. In the great majority of cases, the person completing the manifest and signing the generator's certification statement is in fact a RCRA ''generator'' who produced the hazardous waste undergoing transportation. There are times, however, when our Subtitle C regulations require persons other than generators to prepare hazardous waste shipments for transportation. For example, a new manifest must be prepared in cases where a permitted storage facility consolidates wastes from various incoming shipments and later ships the consolidated wastes under a new manifest to another facility, or, when a hazardous waste transporter mixes wastes of different DOT descriptions in a single container. In each of these situations, the consolidating TSDF or transporter is responsible for a limited set of what are typically generator responsibilities, including preparing a manifest for the

shipment. These entities are not considered to be RCRA ''generators'' (e.g., their processes do not produce the waste), but they may need to complete a new manifest and sign the generator's certification statement in the course of discharging their responsibilities and offering the waste in transportation.

Similarly, today's proposal would clarify the requirements that designated facilities must follow when preparing a new manifest in order to offer rejected wastes or regulated residues in transportation. When a designated facility prepares a rejected waste or residue shipment for off-site transportation under these procedures, it would not assume under this proposal the role or general responsibilities of a RCRA ''generator.'' Rather, the rejecting facility would be responsible for a limited set of generator responsibilities, including the preparation of the new manifest in accordance with 40 CFR Part 262, Subpart B, and ensuring that the waste is properly packaged, marked and labeled in accordance with the current provisions (40 CFR 262.30–33) prescribing pre-transportation requirements that apply to hazardous wastes offered in transportation. Today's proposal would thus clarify how the generator information blocks (Items 1 and 4) and the generator's certification would be completed by a facility shipping these types of wastes.

First, in every case where a designated facility offers rejected waste or regulated residues in transportation, the facility must sign the generator's certification statement. This certification statement includes the ''shipper's certification'' language certifying that the shipment has been described accurately and prepared properly in all respects for transportation in accordance with national and international laws. The designated facility offering rejected wastes or residues in transportation is responsible for ensuring that the pre-transportation requirements have been complied with, and must certify to their proper execution as a final step in preparing the manifest and offering the wastes in transportation. While the generator's certification statement also includes a waste minimization certification, designated facilities that are not in fact RCRA ''generators'' of the waste being shipped would not be bound by the waste minimization statements when they sign the generator's certification statement.

Second, on every new manifest prepared by a designated facility for a rejected waste or residue shipment, the appropriate entity to receive back a copy of the manifest from the next designated facility must be identified in the generator information blocks (Items 1 and 4) of the manifest. For waste sent to an alternate facility, that entity would be the actual generator of the hazardous waste, and for waste sent back to the generator it would be the designated facility rejecting the waste. For rejected waste or residue shipments being forwarded to an alternate facility, EPA believes that the generator of the initial shipment should receive a copy of the new manifest from the alternative facility so that the generator would be informed of the fate of these wastes. For shipments being returned to the generator, EPA believes that the rejecting designated facility is the appropriate entity to be identified in Items 1 and 4 of the new manifest, so that the rejecting facility can verify the receipt of the returned shipment by the initial generator named as the designated facility on the new manifest. In this latter situation, EPA's goal of ensuring that the generator is informed of the ultimate disposition of its hazardous waste would be met because the generator would actually be receiving back its hazardous waste shipment. However, the generator is not in the ideal position to verify receipt of the shipment. Consistent with the current manifest requirements (e.g., 40 CFR 262.42), EPA would prefer that a party other than the party to whom the waste is being shipped be responsible for verifying receipt of the shipment. Thus, the proposal would require the rejecting facility to complete the generator information blocks on the new manifest. In every case, however, the proposal would require the rejecting facility preparing the new manifest to sign the generator's certification, as it would be offering the return shipment in transportation, and would be responsible for performing the pre-transportation requirements and certifying to their proper performance.

EPA requests comment on these proposed procedures for facilities to prepare new manifests when forwarding rejected wastes or regulated residues to alternate facilities or when returning such wastes to generators. EPA believes that TSDFs encountering rejected wastes or residues are in the best position to consult with generators on the disposition of these wastes, and to prepare the subsequent shipments in accordance with the generator's directions. The Agency believes that this proposed approach is preferable to requiring the initial generator or delivering transporter to complete a new manifest, since this could bring about unreasonable delays in shipping the waste to its next destination, and result in uncertain management responsibilities while arrangements for the next shipment are pending.

EPA requests comment as well on the proposed approach for completing Items 1 and 4 (the generator information) on the new manifest and for signing the generator's certification. Is it appropriate that the initial generator should be identified as the generator on the new manifest for wastes being forwarded to alternate facilities? For return shipments to generators, do commenters agree with the Agency's conclusion that the interest in tracking receipt of the return shipment requires the rejecting TSDF to complete the generator information (Items 1 and 4) on the new manifest?

Under the proposal, the rejecting facility forwarding or returning rejected wastes or residue shipments would always sign the generator's certification, since EPA believes that this facility would have firsthand knowledge of how the new shipment was prepared and would be in the best position to certify to these facts. So, the rejecting facility offering these wastes in transportation would sign the certification in its capacity as the one shipping or offering the wastes in transportation, and would be liable in this capacity for the truth of the ''shipper's certification'' language included in the generator's certification statement. Since the rejecting facility is not in fact a RCRA generator, it would not be bound by the waste minimization certification language, which applies only to generators of hazardous waste. EPA requests comment on whether the proposal properly allocates the liability for these pre-transportation acts to the rejecting facility.

Alternatively, EPA could require the rejecting facility to consult with the generator on the disposition of the rejected waste, and then sign the generator's certification ''on behalf of'' the initial generator. The alternative approach would result in the manifest otherwise being completed in the same manner (i.e., Items 1 and 4 and listing the destination facilities) as under the proposed approach. However, by signing the generator's certification ''on behalf of'' the initial generator, the generator would be bound by the rejecting facility's signature on the certification statement. The rejecting facility would sign the certification only as the generator's authorized agent, and the facility would not be liable itself for the proper execution of the pre-transportation acts included in the certification. Does this alternative have more merit than the proposed approach, or, is it not fair to hold the generator

liable for the proper execution of the pre-transportation acts which it authorizes the rejecting facility to perform, but cannot really supervise from a distance? The Agency requests comment on how best to allocate the shipper/offeror responsibilities included in the generator's certification between the generator and the rejecting facility.

10. What Would You Be Required To Do Under the New Regulations?

Residues Being Sent to an Alternate Facility

If you are a TSDF or hazardous waste recycler or other designated facility who cannot fully empty a container according to 40 CFR 261.7, and you are unable to manage the container yourself and have to send a container with a residue off-site to an alternate facility, you would be required to follow these directions:

- Sign the original manifest acknowledging receipt of the waste and identifying the residues in the Discrepancy block of the original manifest;
- Contact the generator for a decision about where and how to forward the hazardous waste from your facility, and for authorization to prepare a new manifest for the shipment;
- Write the generator's name, address and U.S. EPA ID number in the generator's name and mailing address box on the new manifest (Items 1 and 4);
- Write the name of the alternate designated facility and the facility's U.S. EPA ID number in the designated facility block (Item 9) of the new manifest;
- Copy the manifest tracking number found in Block A or Item 3 of the new manifest to the manifest reference number line in the Discrepancy Block of the old manifest (Item 20);
- Write the DOT description for the residue in the Item 10 (U.S. DOT Description) of the new manifest and write the container types, quantity, and volume(s) of waste;
- Indicate ''residue waste from Shipment No. * * *'' in the Special Handling block of the new manifest; and
- Sign the Generator's Certification to certify, as the offeror of the shipment, that the waste has been properly packaged, marked and labeled and is in proper condition for transportation.

Residues Being Sent Back to the Generator

If you are a TSDF or a hazardous waste recycler who cannot fully empty a container according to 40 CFR 261.7, and you have to send the residue back to the generator, you would be required to follow these directions:

- Sign the original manifest acknowledging the waste that was received, and noting the residue in the Discrepancy block of the manifest;
- Contact the generator for a decision about where and how to forward the hazardous waste from your facility;
- Write your name, address and U.S. EPA ID number in the generator's name and mailing address box (Items 1 and 4);
- Write the initial generator's name, address and U.S. EPA ID number in the designated facility block (Item 9);
- Copy the manifest tracking number found in Block A or Item 3 of the new manifest to the manifest reference number line in the Discrepancy Block of the old manifest (Item 20);
- Write the DOT description for the residue in Item 10 (U.S. DOT Description) of the new manifest and write the container types, quantity, and volume(s) of waste;
- Indicate ''residue waste from Shipment No. * * *'' in the Special Handling Block of the new manifest; and
- Sign the Generator's Certification to certify, as offeror of the shipment, that the waste has been properly packaged, marked and labeled and is in proper condition for transportation.

Rejected Loads Being Sent to an Alternate TSDF

If you are a TSDF or a hazardous waste recycler who rejects a load and receives instructions from the generator to send the load to an alternate TSDF, either in full or in part, you would be required to follow these directions:

- Sign the original manifest acknowledging any received waste, check the rejection box in the Discrepancy block, and describe the quantity and type of rejected waste and the reason for the rejection in the description line of the Discrepancy block;
- Contact the generator for forwarding information and for authorization to prepare a new manifest for the rejected waste;
- Write the generator's name, address and U.S. EPA ID number in the generator's name and mailing address box (Items 1 and 4);
- Write the name of the alternate designated facility and the facility's U.S. EPA ID number in the designated facility block (Item 9);
- Copy the manifest tracking number found in Block A or Item 3 of the new manifest to the manifest reference number line in the Discrepancy Block of the old manifest (Item 20);
- Write the DOT description for the rejected load in Item 10 (U.S. DOT Description) of the new manifest and write the container types, quantity, and volume(s) of waste.
- Indicate ''rejected waste from Shipment No. * * *'' in the Special Handling Block of new manifest;
- Sign the Generator's Certification to certify, as offeror of the shipment, that the waste has been properly packaged, marked and labeled and is in proper condition for transportation.

Rejected Loads Being Sent Back to the Generator

If you are a TSDF or a hazardous waste recycler who rejects a load and receives instructions to send the load back to the generator, either in full or in part, you would be required to follow these directions:

- Sign the original manifest acknowledging any received waste, check the rejection box in the Discrepancy block, and describe the quantity and type of rejected waste and the reason for the rejection in the description line of the Discrepancy block;
- Contact the generator for forwarding information;
- Write your name, address and U.S. EPA ID number in the generator's name and mailing address box (Items 1 and 4);
- Write the generator's name, address and U.S. EPA ID number in the designated facility block (Item 9);
- Copy the manifest tracking number found in Block A or Item 3 of the new manifest to the manifest reference number line in the Discrepancy Block of the old manifest (Item 20);
- Write the DOT description for the rejected load in Item 10 (U.S. DOT Description) of the new manifest and write the container types, quantity, and volume(s) of waste;
- Indicate ''rejected waste from Shipment No. * * *'' in the Special Handling Block of the new manifest; and
- Sign the Generator's Certification to certify, as offeror of the shipment, that the waste has been properly packaged, marked and labeled and is in proper condition for transportation.

11. What Conditions Would Apply to a Rejected Waste or Container Residue Shipment Once the Generator Receives It Back From the TSDF?

A generator would have up to 90 or 180 days (depending on his/her SQG or LQG status at the time the generator sent the rejected shipment or container residues to the TSDF) to send the rejected shipment or container residue to an alternate TSDF. Generators would not be required to obtain a RCRA permit for the period of time that the returned

waste is on-site as long as they comply with § 262.34(a) (for generators with 1000 kg or more on-site at time the waste is sent) or § 262.34(d) (for generators with less than 1000 kg on-site). Because EPA intends and expects that hazardous waste would be returned to the generator infrequently (only when an alternate facility is unavailable), the Agency decided not to propose a new time frame, or other requirements, to address these rare occurrences. We believe the simplest approach would be for generators to manage rejected wastes and residues within the existing framework for on-site accumulation, since generators are already set up to handle hazardous waste within 90 or 180 day time frames, and are familiar with managing waste in accordance with the provisions of § 262.34. Please note that small quantity generators would not be able to accumulate greater than 6,000 kg of hazardous waste on-site at any time. The Agency emphasizes that it is not reconsidering, reopening, or requesting comment on the provisions of § 262.34.

In addition, it is important to note that a generator would only be allowed to accumulate a rejected load or residue if that hazardous waste was originally sent to the designated facility with the understanding that the designated facility could accept the waste. In other words, this provision only covers generators who sent the hazardous waste to the designated facility in good faith. EPA would consider a range of factors—e.g., whether a generator has repeatedly sent waste off-site to TSDFs, only to have it rejected and returned, or whether the generator knew or should have known that the TSDF could not accept its waste—in determining whether a given shipment was in good faith or a sham.

12. On What Issues Would EPA Like To Receive Comments?

You are being asked to consider whether these proposed provisions for residues and rejected loads would improve hazardous waste tracking for these shipments. Specifically, EPA would like comments on the following:

- Should EPA require a TSDF to close out the original manifest and prepare a new manifest for all instances where waste is rejected or a regulated residue requires off-site management? Is it desirable to require facilities in all such cases to use the facility certification and discrepancy block to positively identify waste rejections and the reason for the rejection? Are there instances where it is more practical to revise the original manifest rather than generate a new manifest. Is there merit to EPA's proposal to follow one consistent approach (using a new manifest) for all rejection scenarios?
- Are the procedures clear on how rejecting TSDFs must complete the generator information spaces on the new manifest (Items 1 and 4) and sign the generator's certification? The proposal would have the rejecting TSDF responsible for ensuring that the pre-transportation requirements are properly performed with respect to rejected wastes and container residues. Is this an appropriate allocation of responsibility?
- How would transporters be affected by the proposed rejected waste and residue procedures? When a waste is rejected at the time of attempted delivery, is the transporter or the designated facility better suited to contact the generator to obtain instructions for forwarding waste to another facility? Would transporters be delayed unreasonably by the proposed procedures if they must wait for the designated facility to prepare a new manifest?
- What should be the designated facility's responsibility for managing rejected waste while it is awaiting shipment to an alternative facility?
- Do the proposed procedures for rejected loads and residues ensure generator notice and decision-making with respect to the disposition of rejected wastes and residues? Do generators want or need to be involved in decisions involving such wastes?
- Are the directions clear? If not, how can they be made more clear?
- Should a generator be allowed to received his/her own rejected shipment or container residues back from a TSDF? If yes, how long is reasonable for a generator to hold his/her rejected waste before sending it to on to an alternate TSDF? Should EPA allow the accumulation clock to run anew (as proposed), or limit the total time for accumulation to 90 or 180 days? Note: EPA is not reconsidering or requesting comment on the current provisions of § 262.34. We are only requesting comment on those provisions as they would apply to the accumulation of rejected loads or residues under this proposal.

VII. Automation of the Manifest System

A. Introduction

1. Summary of Today's Electronic Manifest Proposal

EPA is today proposing to allow waste handlers (generators, transporters, and treatment, storage or disposal facilities) the option of preparing, transmitting, signing, and storing their manifests electronically. EPA believes that electronic manifesting could greatly reduce the paperwork burdens of the current system, while improving the effectiveness of tracking waste shipments and managing data. In addition, in those states that collect manifests and maintain databases to track manifest data, the proposal would foster a consistent approach for submitting manifest copies electronically to the states. The proposal includes standardized electronic data interchange (EDI) formats and an Internet Forms format for the electronic manifest. These formats should permit the exchange of electronic manifests among waste handlers in a manner that ensures the compatibility and interoperability of these files. The standardized electronic formats should also facilitate the management of manifest data by state programs, as the standard formats would minimize the need for manual data entry or other time-consuming processing of the data prior to its import into the states' tracking databases.

The manifest automation standards in today's proposed rule include 3 major components: (1) the proposed EDI and Internet Forms file standards for the electronic manifest; (2) a proposed standard for electronically signing the manifest with electronic signatures; and (3) a proposed set of computer security standards for computer systems that would create, process, and store electronic manifest records. EPA believes that standards in these 3 areas are essential to the successful implementation of an automated manifest.

In addition to proposing the electronic manifest standards summarized above, this proposed rule would eliminate impediments to an electronic system in the current regulations. Thus, explicit references in the current regulations to the use of specific paper forms and the use of ''by hand'' signatures would be amended to allow for their electronic equivalents. Likewise, regulatory provisions that now require all manifest copies to be physically carried with the waste shipment would be expanded to allow manifest copies to be transmitted electronically. Moreover, the current record retention requirements would be amended to clarify that the storage and use of electronic records bearing the required electronic signatures would have the same legal effect under RCRA as retaining and using paper copies signed with conventional pen-and-ink signatures. Generally, RCRA regulations require that manifest records be retained for three years from the date of a

shipment, but in many cases, facilities may retain these records indefinitely in order to address potential liabilities for future site cleanups.

2. Why Is EPA Proposing These Changes?

EPA is proposing an electronic approach for manifesting hazardous waste, because the Agency believes that information technologies present tremendous potential for reducing the significant paperwork burdens of the current manifest system. EPA's Regulatory Impact Analysis for this rulemaking estimates that the current manifest system imposes a total paperwork burden on waste handlers and States of more than 4.6 million hours annually, and results in costs of more than $193 million. We discuss the potential burden reduction from the electronic manifest later in this preamble section (see heading 5). We also believe that electronic manifests would give rise to the exchange of higher quality manifest data, and to more timely and efficient access to this data. Data would be of a higher quality, because the direct import of waste shipment and receipt data between electronic manifests and facilities' and states' data bases would give rise to fewer data transposition and interpretation errors than occur now when manifest data must be manually processed from paper forms. As a result, both the tracking of hazardous waste shipments by waste handlers and the management of state hazardous waste programs should be more effective.

Further, this action is consistent with the requirements of the Government Paperwork Elimination Act (GPEA). GPEA generally mandates that agencies accept, by October 2003, electronic documents and electronic signatures for the transactions that agencies conduct with the public and with regulated parties.

While the transition to fully electronic systems would take some time to implement, the Agency is motivated by a desire to transform the manifest system quite dramatically from its current paper-based approach to one that supports paperless manifest completion and transmission. The Agency further desires to establish an ''open'' or non-proprietary set of standards that would allow the information technology community broad latitude to develop innovative hardware and software solutions. We believe that our proposed approach to manifest automation would allow electronic options to develop for both large and small facilities, so that many may benefit from the greater efficiencies available with an electronic system. EPA emphasizes, of course, that the electronic manifest would be an option available to those who wish to use it; it is not the Agency's intent to mandate its use. Those entities that are more comfortable with the paper form would still be able to obtain and use the paper manifest form to track their hazardous waste shipments.

This approach is consistent with EPA's efforts across all its environmental programs to promote the adoption of electronic reporting, and to ensure implementation in a consistent manner that is compatible with current practices in the private sector. EPA is evaluating all of its programs for regulatory and procedural barriers to the use of electronic records and reports. Thus, this proposal aims at both eliminating impediments to an electronic manifest in the current regulations, and at developing standards that would promote consistent and widespread implementation of an electronic waste tracking system.

3. Who Would Be Affected by These Changes?

EPA anticipates that the electronic manifest would affect all types of hazardous waste handlers, including large and small quantity generators, transporters, and treatment, storage, and disposal facilities (TSDFs). State hazardous waste agencies that collect manifests would also see a large impact on the procedures and resources they use to process manifest copies and enter manifest data into their tracking systems. Currently, about 24 states collect manifests and track this data. States and waste handlers have also expressed support for using electronic manifest data for preparing more easily their submissions to EPA's Biennial Reporting System.

The Agency developed this proposal to ensure that electronic manifesting would be accessible to all types of waste handlers. For example, large generators and TSDFs may find it convenient and economical to extend EDI systems that may already be in place for financial/purchasing information to their waste management departments. These larger facilities may adopt a traditional EDI model that involves transmitting the standard EDI formats across secure Value Added Networks or VANs, or choose to deploy a non-traditional EDI model which uses secure E-mail technology or Secure Socket Layer (SSL) transmissions to pass EDI transaction sets over the Internet. Mid-sized firms and some small entities may find it more practical to implement the electronic manifest as a web form which they access and complete while connected to the Internet. Finally, this proposed approach should also be accessible to many other small generators, who would not otherwise find it practical or efficient to obtain or use their own computer equipment to transmit only a handful of manifests. The proposed rule would clarify that, as with the existing paper manifest system, a generator may authorize another person (e.g., a contractor, transporter or TSDF) to complete and sign the manifest on the generator's behalf. Alternatively, transporter personnel picking up shipments could use remote, portable devices to obtain a generator's electronic signature on an electronic manifest.

4. What Manifest Automation Is Already Occurring?

Existing efforts to automate the manifest can be characterized as limited and uncoordinated. For example, at the ''front end'' of the manifest system, a variety of customized as well as commercial software products are in place or available to assist generators in tracking their hazardous materials and hazardous waste inventories. Several of these products support the automated preparation of manifests, and the development of manifest templates to be completed in connection with commonly encountered waste streams and shipment profiles. However, consistent with current manifest requirements, these products generate a manifest document which must be printed and signed, and the paper copies then travel with the shipment in the conventional manner. So, any paperwork burden reduction achievable now is limited primarily to the manifest preparation effort.

Similarly, at the ''back end'' of the manifest system, several states have encouraged their higher volume reporting facilities to submit manifest copies to states in electronic formats. Several states have specified ''flat file'' standards which are peculiar to each state's database platform and structure, and which define the content fields for each data element in a record strictly according to its physical position in the file. Other states have attempted to use scanners and optical character recognition (OCR) technology to convert paper copies they receive to electronic files that can then be more readily manipulated. More recently, a few states have tried in the past to establish pilot programs allowing their larger waste facilities to submit electronic copies using an EDI approach. These initial pilots were hampered by certain regulatory impediments to a complete

electronic manifest system, and by the small volume of manifests involved, which did not justify investment by waste handlers or state agencies in EDI software and infrastructure.

These limited efforts to date at reporting manifest data electronically have primarily benefitted the state agency receiving the data, by eliminating the resource intensive process of manually re-keying the data from the forms to the tracking system. While these initial efforts have led to some modest improvements in preparing and processing manifests, they have not been sufficiently comprehensive in their scope nor coordinated enough to bring about more meaningful paperwork burden and cost reductions. A preferred approach would be one that would enable a manifest to be initiated electronically, transmitted and signed electronically, stored electronically, and where necessary, reported to states electronically, without the need to convert between paper and electronic formats. This approach would be more effective, because it would eliminate (with minor exceptions) the inefficiency of maintaining both paper and electronic copies for the same shipments, and it would eliminate the manual and burden-intensive processes needed to convert between paper and electronic formats. In addition, if a standard electronic file format were specified as part of this approach, the regulated community could avoid a situation where they would be required to support multiple file formats prescribed by the various states. Thus, this proposal aims at establishing standards for electronic manifesting that could extend to nearly all aspects of the manifest cycle. This proposal would not, however, affect DOT's shipping paper requirements, including the requirement that a paper copy of the manifest or a shipping paper be carried on the transport vehicle. In other limited instances (e.g., a transporter unable to participate in an electronic system), additional paper copies might also be necessary. However, the proposal would promote as far as possible the elimination of paper manifest copies and their related paperwork burdens.

5. How Much Reduction in Burden and Cost Would Be Achieved by Automation?

EPA's analysis suggests that automation of manifest activities would reduce paperwork burdens substantially among all waste handlers. The baseline paperwork burden imposed on waste handlers from all current Federal and State requirements is estimated to exceed 4.4 million burden hours annually. These Federal and State requirements impose compliance costs on waste handlers exceeding $187 million per year. The Regulatory Impact Analysis for this proposal suggests that the reduction in waste handler burden from the electronic manifest would range between 488,000 hours and 938,000 hours annually, assuming that all States would eventually recognize the validity of electronic manifests. This reduction in burden hours from automation is expected to account for between 69% and 82% of the total savings expected from all the manifest system revisions proposed today. In terms of cost reductions, EPA projects that manifest automation could produce between $14.4 million and $26.6 million in cost savings to waste handlers.

In addition, among the States that collect manifest copies and track manifest data, EPA's Regulatory Impact Analysis estimates that these States collectively incur about 200,000 burden hours each year as a result of processing manifests. We further estimate that the submission of electronic copies in standardized electronic formats could reduce these states' manifest processing burden by as much as 79,000 annual hours. Overall, states could realize a cost reduction of about $1.5 million (roughly 25% of current costs) annually in operating their manifest programs, because of reduced data processing costs. Initially, these cost reductions would be offset somewhat by costs which the states would incur as they establish the capability to receive inbound electronic manifests, revise their data bases to reflect the proposed form revisions, and map the electronic documents to their particular information systems.

6. What Other Benefits Would Result From an Electronic Manifest System?

In addition to the significant paperwork burden and cost reductions summarized above, EPA believes that a successful implementation of an electronic manifest system would produce other benefits for waste handlers and state oversight agencies. First, waste handlers could determine in nearly ''real time'' the status of their waste shipments. A generator could receive nearly immediate electronic confirmation of the receipt of their waste at the designated waste management facility, rather than waiting a month or more (as the current regulations allow) for a written confirmation to arrive in the mail. This could afford waste shippers a level of tracking service that is similar to that already available from commercial package delivery services. This level of tracking is not available under the current paper-based system, which assumes that clerical staff would need several days or weeks to review, mail, and respond to paperwork related to their hazardous waste shipments.

Second, both waste handlers and state agencies could receive more immediate notice of problems that arise during the transportation of a waste shipment. TSDFs could report to generators any significant discrepancies in waste types or amounts or rejected loads within moments of discovering the problem. Likewise, generators would be likely to spot and try to reconcile ''exceptions'' (occasions when a signed manifest confirming receipt of a shipment by the TSDF is overdue) more quickly than is possible under the current paper-based system, which requires a generator to wait for 35 days to pass before inquiring about the status of a shipment for which written confirmation of receipt is lacking. The current system delays notification of discrepancies and exceptions, because it loads into the notification process the time needed for facility personnel to review their paper files and then mail verifications or other notices to generators. Conceivably, an electronic system would allow this information to be transmitted at or near the time the problem was discovered (i.e., at the time the manifest was signed by a TSDF's receiving personnel), rather than waiting for clerical staff to catch up with several days or weeks of accumulated paperwork.

Third, the proposal should produce higher quality manifest data, since there would be fewer data entry steps that would otherwise invite errors from data interpretation or transposition. State personnel and waste handlers receiving electronic copies would not be as likely to be confronted with illegible manifests, which occur with some frequency with handwritten manifests and carbon copies that do not print clearly. Since electronic forms could be entered into state tracking systems upon receipt at the state agency, access to this data would also be more timely. Many states have advised us that it may take several weeks or even months for data entry personnel to enter data from paper forms into their tracking systems. Therefore, reports generated from electronic systems would be based on more accurate and up-to-date information, and fewer resources would be required to manage the data.

Fourth, when fully implemented, enforcement officials could conduct electronic record searches that would more efficiently target enforcement

activities. Not only would electronic searches of files more quickly focus inspection resources on transactions of interest, but it is conceivable that the record inspections could be conducted off-site in advance of on-site activities. So, on-site inspection efforts could be directed more closely at a discussion of significant issues disclosed by the records previously reviewed, rather than exhausting substantial time and resources examining file drawers of paper manifests at the facility.

7. What Are the Concerns Associated With Automated Systems?

There are several potential concerns involved with the transition to an electronic waste manifest system. An emphasis of this proposed rule is to establish requirements for security and data integrity that would minimize these problems. EPA has considered each of these concerns in the course of developing this proposal, and has attempted to address them with appropriate controls. The proposed controls and security requirements that deal with each of these concerns are discussed in section VII.F. of this preamble. We request your comments on these and alternative options to ensure secure transactions, accountability, and data integrity.

a. *Inadvertent or deliberate corruption of records.* Computer software applications manipulate data extremely efficiently, but the power of these programs can also pose serious consequences for data integrity when problems arise. By accident or by design, an individual operating such software could delete or substantially alter their files. For example, hundreds of records stored on a hard disk drive or on floppy disks can be lost if the operator instructs the operating system to format or erase the disk. Also, an original record could be mistakenly or purposefully overwritten by a replacement file that is stored under the same name. So, safeguards must be established to minimize the threat of data loss or corruption. With some digital media, data could be altered without leaving the traceable evidence of alteration that is commonly found with paper erasures and ''white-outs.'' Thus, investigators and prosecutors alike are concerned that it may be more difficult to detect and prosecute at least some cases of computer fraud and forgery. These concerns are balanced, however, by the recognition that using properly designed and implemented electronic systems for processing data can also reduce the likelihood of data loss and the potential for fraud. This results because records can be authenticated electronically and more readily stored in multiple locations. Today's proposal would include electronic signature standards that preclude the alteration of documents after they are signed, the requirement of backup copies to deal with accidents or disasters that cause electronically stored documents to be lost or corrupted, and audit trail requirements to identify the date, time, and source of all operator entries that would create or alter a document. The digital signature method discussed later in this preamble is one effective way to guard against this concern, since digitally signed documents are much less (if at all) susceptible to data alterations than documents signed with other methods.

b. *Unauthorized access to systems or data.* The press has publicized broadly tales of ''hackers,'' that is, individuals who have penetrated computer systems to conduct theft, sabotage, espionage, or other mischief. However, in many instances, the greater threat may be posed not by outsiders, but by insiders who should not have been granted access to the system. A related risk is the danger that persons who create electronic records may rely on the perception that electronic systems are vulnerable to unauthorized access to repudiate documents they have created. Typically, passwords and personal identification numbers (PINs) are employed to control access, and to limit system use to those with a need to know the data. Today's proposal would require electronic systems to use authority checks to limit system access (including access to input or output devices) to authorized persons. Electronic systems would need to be designed to detect attempts at unauthorized access as well as invalid or altered records.

c. *Limited human involvement and speed with which transactions are executed.* With an automated system, information can be created and sent to the recipient in an instant, perhaps without adequate human oversight over data quality. The immediacy and irrevocability of electronic transactions thus require much care on the part of users. At the same time, computer systems are able to perform automatic quality control on transactions quickly, while integrating multiple sources of information. So, in many instances, computer systems may detect problems or data entry errors far more readily than is possible with paper-based systems.

d. *Natural disasters and system failures.* Floods, fires, and earthquakes can quickly wipe out an information system and all its stored records, unless safeguards have been followed and back-up systems and records created. Moreover, networks may ''go down,'' and system crashes can interrupt electronic systems unless they are promptly serviced or backed up with other equipment. On the other hand, paper records are susceptible to many of these same problems, especially where natural disasters are concerned. Paper records may also become useless if they are not indexed or filed properly. Today's proposal would require electronic systems to be designed to protect records from intentional or accidental damage, and to produce secure back-up copies or provide for data recovery in the event of a loss. In addition, as with the current paper-based manifest system, electronic manifest copies would be sent to multiple entities involved with handling the waste or tracking the receipt of waste, including generators, transporters, TSDFs, and states. This redundancy in distributing manifest copies would provide additional protection against loss or undetected data alteration.

e. *Software defects and interoperability issues.* Our increasing reliance on information technology has given rise to the development and use of software applications that are very complex and which are frequently updated or replaced. Even software products that have been heavily tested and widely distributed have been found to contain hidden defects or ''back doors'' that have hindered their use or have allowed security features to be overridden. As more products become available to support a function, concerns arise about the interoperability of different systems and whether data can be exchanged and processed consistently. As systems are replaced and upgraded, there is also the concern that data that were created by and accessible on the original system would not be accessible on the replacement system. All of these factors may reduce confidence in the trustworthiness of electronic records. Today's proposal addresses these concerns by requiring electronic manifest systems to be validated for their consistent performance and their interoperability with other systems with which data would be exchanged. In addition, the proposal would require facilities to retain prior versions of software and hardware as necessary to access manifest records throughout their retention period.

B. EPA's Current Electronic Reporting Policy

1. What Is EPA's Current Electronic Reporting Policy?

On September 4, 1996, EPA published a ''Notice of Agency's General Policy for Accepting Filing of Environmental Reports via Electronic Data Interchange (EDI)'' (61 FR 46684). The September 4, 1996 policy sets forth the basic approach for EPA to implement EDI for environmental reporting. The policy does not mandate the use of EDI; rather, it establishes a consistent framework for implementing EDI across EPA programs, so that the benefits of EDI may be maximized. The policy specifically recognizes that other methods of conducting electronic commerce would emerge, and that EDI may not be appropriate for all types of facilities and reports.

EPA first endorsed EDI for environmental reporting in its earlier ''Policy on Electronic Reporting,'' 55 FR 31030 (July 30, 1990). This initial EPA policy statement was intended to promote a uniform Agency approach to electronic reporting that was compatible with current industry and government practices. The policy advocated a standards-based approach grounded on the use of American National Standards Institute (ANSI) Accredited Standards Committee (ASC) X12 standard formats and communications protocols for EDI.

As described in the September 4, 1996 notice, facilities would, under certain conditions, be able to submit required reports electronically to EPA using EDI. First, the 1996 policy would require reporting facilities to enter into a Terms and Conditions Agreement with the Agency (61 FR 46684). The Terms and Conditions Agreement includes mutual recitals under which the parties recognize the validity and enforceability of electronic submissions, and agree not to contest their validity. The Agreement also contains provisions dealing with when documents are considered to be received, when they should be re-transmitted, when they must be acknowledged, and when they are considered to be signed. Based on EPA's assessment of technology that was current in 1996, as well as costs and the level of certainty thought to be necessary for authentication of most environmental reports, EPA adopted a personal identification number (PIN) based approach for signing and certifying electronic reports. Therefore, the Generic Terms and Conditions Agreement in the 1996 Policy contains provisions dealing with the assignment and management of PINs. The Policy defines a PIN as a sequence of alpha-numeric characters, and it specifies that the appearance of an individual's PIN on an electronic message shall be deemed to indicate the authenticity of the message. 61 FR 46686. Finally, under the 1996 Policy and its Generic Agreement provisions, facilities would be required to adhere to certain security and audit/control requirements, including requirements to retain transmission logs and PIN records. 61 FR 46687.

Significantly, the 1996 Policy was not intended to specify all the requirements applicable to electronic reporting of a specific environmental report. Rather, the 1996 Policy anticipated that program-specific notices would follow, incorporating the explicit technical EDI implementation guidance necessary for a specific program report, as well as any additional security or administrative requirements required by specific EPA programs. Therefore, today's proposal would provide the implementing regulations and specific procedures that authorize the use of EDI for the RCRA hazardous waste manifest program. Today's proposal also expands on or modifies some provisions of the 1996 EDI Policy as it affects the manifest program, reflecting both changes in technology and the specific needs of the manifest program.

2. What Is Electronic Data Interchange (EDI)?

Electronic Data Interchange (EDI) is the transmission, in a standard syntax, of unambiguous information between the computers of organizations that may be completely external to each other. It thus allows for the exchange of information between computer systems that would otherwise be incompatible with one another. It has been widely used by the private and public sectors for commercial transactions and general data transfer, particularly for transactions of a routine or repetitive nature. As an ''open systems'' approach to data exchange (i.e., data exchange is not limited to entities within a company's own system or closed network), EDI is largely independent of specific technology environments, so it provides a transparent bridge between various hardware and software platforms.

From aerospace and automobile manufacturing to warehousing and wood products, EDI is a dominant form of electronic commerce. In the United States, EDI is based on standard formats and protocols developed and maintained by an independent organization, the ANSI Accredited Standards Committee X12. Supporting these standards are a wide array of commercial software packages and communications networks, and there is a growing reservoir of industry EDI experts that are available to both EPA and the regulated community.

3. How Does EDI Work?

EDI is essentially a series of computer language translations. If two companies agree to exchange data via EDI, each translates their outgoing data into a common EDI ''language'' which can be read by the EDI translator of the other company. Each company receiving an EDI transmission then converts the incoming data from the common EDI language into a format that can be read by its computer and used in its data base system. Typically, the data transmissions are sent through a third party Value Added Network (VAN), and delivered to each company's mailbox on the VAN. More recently, some companies have begun to use secure E-mail on the Internet as an alternative to using VANs. The EDI standard formats, or transaction sets, are non-proprietary, and data can be sent or received in the standard format independently of the type of software or computer system used by the sender or receiver. Unlike a ''flat file'' format, which defines the content fields for each data element by its physical position in the file, an EDI transaction set is a relational file format, which contains predefined tagging structures and well defined hierarchical data file structures. The predefined tagging structures specify how the data should be formatted so that the EDI software can interpret the specific contexts and relationships of the data presented in a file. These tags then enable data in EDI files to be defined, transmitted, validated, and interpreted between applications and organizations, since the tagging structures and the data element relationships defined by the tags are understood by all EDI compliant software. The hierarchical data file structures are also significant for EDI, because they represent an orderly scheme for formatting and organizing related pieces of information in a hierarchical manner, that is, in the shape of a pyramid, with each row a collection of information that is linked in a specific way to the information presented directly beneath it. Once users of EDI systems complete the initial installation of EDI software and configure it to map the EDI transaction sets used to their specific information systems, both senders and receivers are free to use their existing information management systems to report, import or manipulate data. They are also spared the trouble and expense of having to develop and maintain their own

customized reporting software, or the file standards and communications protocols that enable data to be exchanged with others.

4. Why Would EDI Be Suited to an Automated Manifest System?

EPA believes that an EDI approach to automating the manifest makes sense for several reasons. First, the EDI technology is already used extensively for the exchange of data in the business arena. Although the manifest is not a business transaction, EPA believes that the existing expertise and the existing commercial software products and networks which support the exchange of business data can be leveraged for use with manifest data. Second, the manifest is a high volume, recurring transmission for many larger generators and hazardous waste handlers. EDI is most appropriately applied to routine and repetitive transactions, such as the submission of invoices or health claims forms. Third, EDI is a common method for integrating electronic reporting with existing information systems. Currently, about 28 states maintain manifest tracking databases using different hardware and software platforms and database structures. Many waste handlers also have developed or purchased information systems which they use to track their hazardous wastes and other materials inventories. So, EDI could be a sensible way to accommodate the legacy systems already installed by industry and the states. Also, because EDI is an ''open systems'' approach maintained by an independent standards body, our adoption of an EDI standard in this proposal would not give an undue competitive advantage to any vendor's particular proprietary product. Further, neither EPA nor our authorized states would need to develop and/or maintain software products and standards under an EDI-based manifest approach.

5. Would a Terms and Conditions Agreement Be Required?

A major component of the September 1996 Electronic Reporting Policy was the requirement that facilities wishing to report electronically to EPA enter into a Terms and Conditions Agreement with the Agency. The major requirements for electronic reporting programs were to be included in this agreement, and the parties to the Agreement would agree not to challenge the validity of electronic documents.

EPA has decided that it is more practical in this rulemaking to specify the key terms and conditions for electronic manifesting in enforceable regulations rather than require entities to enter into Terms and Conditions Agreements. While it may be practical to require an agreement between EPA and individual members of the regulated community to govern their direct reporting to EPA, these are not the circumstances which operate with respect to the manifest. Most electronic transfers of manifests would occur between numerous waste handlers (i.e., EPA is not involved), and it would be very burdensome to require each waste handler to negotiate an agreement with all the entities with whom they might exchange manifests. Therefore, a Terms and Conditions Agreement would not be required for automated manifesting. Key elements of the September 1996 Policy have been incorporated into this proposed rule, and the Policy's content on the issuance and management of PINs has been replaced in this proposal by the proposed requirements for digital signatures and secure digitized signatures. Parties establishing electronic manifesting systems may require others to agree to terms and conditions on the use of their systems, but such contractual matters would not be covered by or affected by this proposal.

6. What Alternatives to Traditional EDI Is EPA Considering?

The Agency is currently evaluating a number of alternative means for transmitting manifests electronically. This evaluation is being guided not only by the September 4, 1996 policy statement, but also by manifest automation pilot tests and other electronic reporting initiatives which EPA has supported in recent years. While the September 1996 policy was based on a traditional EDI approach involving the exchange of ASC X12 transaction sets across a Value Added Network by parties subject to Terms and Conditions Agreements, other approaches may also be viable and in some cases, more practical than conventional EDI conducted across VANs. For those companies using EDI systems, one alternative approach might be to offer these firms the option of securely transmitting EDI transaction sets using ''E-mail'' and/or File Transfer Protocol (FTP) provided through a third party Internet Service Provider (ISP), rather than a VAN. The Agency is also particularly interested in promoting the use of the Internet for electronic manifesting, as this may be a more practical medium for many facilities who may not be equipped to engage in traditional EDI. So, EPA is examining the merits of an approach under which an electronic manifest would be completed as a ''web form,'' and then transmitted in an Internet markup language known as the Extensible Markup Language or XML. The proposal includes a proposed Document Type Definition format for the manifest. Alternatively, ''web form'' manifests might be translated to an EDI format by a server hosting EDI translation services, and then transmitted as an ASC X12 compliant manifest to recipients using Internet data transfer protocols.

EPA is today proposing both an EDI option and an Internet Forms (XML language) option for conducting electronic manifesting. We are also interested in taking comments on other approaches that may not be described in today's proposal, but which also appear to have merit given the purposes and workflow process associated with the manifest. The Agency emphasizes, however, that its preferred approach is to rely as much as possible on approaches that are based upon open standards, rather than those that depend upon specific hardware or software that implements proprietary standards.

7. What Are the Manifest Automation Pilots?

In 1998, EPA began conducting the first of several manifest automation pilot tests. The objectives of the pilot are to:

- Demonstrate the feasibility of automating the entire manifest cycle, including preparation, transmission and signing of copies, recordkeeping, and reporting;
- Demonstrate the feasibility of using EDI and other forms of electronic commerce to track waste shipments in a secure and practical manner;
- Facilitate the development of automation standards to be included in this rulemaking;
- Identify and address impediments to manifest automation; and
- Evaluate the savings and costs associated with an automated approach.

The first phase of tests demonstrated an EDI approach involving several waste handlers and state hazardous waste agencies in the States of Illinois, Indiana, and Minnesota. EPA purchased EDI translator software and VAN services from Sterling Commerce Corporation, which customized its Gentran:Smartforms™ software application to incorporate the approved federal convention mapping the ASC X12 Transaction Set 856 to the federal hazardous waste manifest. The software package featured an intuitive user interface and a customized data entry template with built-in edit checks and user aids to facilitate the preparation of EDI manifests. The 1st phase of tests required the 8 industry participants to send numerous manifest transmissions

to other trading partners during the period from July to December 1998. Some of these transmissions reflected real hazardous waste shipments, while others ''tracked'' simulated events. The tests were planned to model a variety of waste shipment events, including waste receipts, waste rejections, discrepancies, and intra-and inter-state shipments.

The 1st phase of tests relied upon PIN numbers to take the place of handwritten manifest signatures. A 2nd phase of EDI tests was conducted in the Fall of 1999. The 2nd phase of tests integrated the EDI software and manifest formats used in the 1st phase pilot with a security product named ''SecurEC™'' from Sparta, Inc. The SecurEC™ product added a digital signature authentication method and other security services to make the 1st phase EDI configuration compliant with the ASC X12.58 security protocol. A third phase of the pilot tests began in March 2000, and demonstrated with facilities in New York State, Pennsylvania, and Illinois the feasibility of using Internet Forms technology and digitized signatures to complete and transmit manifests. As these additional tests are completed, EPA would include reports summarizing the results and key lessons learned from the pilot in the record for this rulemaking. Current information about the Manifest Automation Pilot tests is also available on EPA's World Wide Web site at http://www.epa.gov/epaoswer/hazwaste/gener/manifest/

C. Overview of the Electronic Manifest Proposal

1. What Is Included in Today's Proposal on the Electronic Manifest?

Today's proposal includes several components which together define a framework for automating the hazardous waste manifest. The proposal includes several regulatory amendments (summarized below) that would eliminate impediments in the existing regulations to an electronic manifest. The proposal also would add new provisions that set forth standards for the electronic file formats that may be used as electronic manifests, standards for electronic signatures, and standards for trustworthy electronic systems, including electronic record storage.

The proposed electronic manifest system requirements consist of technical standards and computer security controls which EPA believes are necessary in order to ensure system trustworthiness and data integrity in electronic manifests. These controls are also necessary to establish a sufficient foundation for the admissibility of electronic manifest data as evidence in civil or criminal proceedings. In addition, EPA believes these controls would foster commercial acceptance of the electronic manifest as a tool for tracking waste shipments.

2. Is Electronic Manifesting Mandatory for Waste Handlers?

No. Today's proposal would only establish requirements and standards for those regulated hazardous waste handlers (*i.e.,* generators, transporters, and TSDFs) that elect to transmit manifests electronically. It is not the Agency's intention to mandate the use of the electronic manifest by waste handlers, and the paper Uniform Manifest (Forms 8700–22 and 22–A) would remain available for those desiring to complete and transmit their manifests manually. Likewise, nothing in this proposal would require waste handlers to report manifest copies to their states, if they are not already required to do so as a matter of state law.

3. Must Authorized State Programs Adopt Electronic Manifesting?

Today's proposal would not require States to adopt electronic manifest authorities as a part of their authorized RCRA programs. However, EPA is still considering whether States should be required to adopt such authorities in order to ensure consistency with the Federal program and other State programs, and we may include such a requirement as part of the final rule. If States elect to adopt the electronic manifest option, they would be required to adopt authorities addressing the standard electronic formats, the electronic signature standards, and the computer security controls described in this section. The State implementation issues are discussed further in section IX. of the preamble. EPA requests comments on whether specific electronic manifesting requirements are necessary components of states' programs, and on the potential impacts of such requirements.

4. What Happens if the Transporters of My Hazardous Waste Don't Automate?

EPA recognizes that there may be times when an electronic manifest cannot be passed to all the waste handlers involved in a waste shipment. Fundamentally, a TSDF must be able to receive and process electronic manifests, and either the generator or transporter should also have the capability to create or transmit an electronic manifest.

EPA has established these proposed standards so that generators and TSDFs could substantially automate their manifest programs, even if the transporters involved with a shipment do not participate in manifest automation. So, a generator may still participate in electronic manifesting with the designated TSDF receiving the waste shipment, as well as any state agencies that elect to collect manifest copies electronically. Even if the transporters do not participate electronically, the preparation function, recordkeeping and reporting functions, and the key function of verifying receipt by the TSDF could still be accomplished electronically. In such a case, the transporter could provide the generator with a hand-signed copy of the manifest or other shipping paper under 49 CFR Part 172, Subpart C, as DOT shipping paper requirements would not be affected by this proposal. The transporter could retain a hand-signed copy of this paper for its files, and the generator could pass an electronic manifest copy directly to the TSDF with a notation in the transporter signature block that a manual signature is on file. The TSDF could then transmit to the generator electronically its verification of receipt, discrepancy information, or other response related to the shipment. All the waste tracking, signature accountability, record keeping, and emergency response functions of the manifest system are preserved by such an arrangement, even though a part of the shipment record may consist of a signed shipping paper and another part consist of the electronic manifest. Where a signed shipping paper is retained as a generator's or transporter's record, it must also bear the manifest tracking number assigned to the electronic manifest for that shipment, so that the shipping paper records can be linked to the manifest in the event questions are later raised about the shipment, or in the event of an inspection of these records by a RCRA inspector.

5. What Happens if the Generator Is Not Able To Prepare an Electronic Manifest?

While the above discussion deals with the situation where a transporter is not automated, EPA expects that the more frequently encountered issue would be that generators would not be equipped to prepare manifests electronically. Indeed, the electronic manifest would more likely be brought to generators sites by the larger transporters and TSDFs with integrated waste transportation and waste management functions. These entities deal with large numbers of hazardous waste shipments on a day-to-day basis and would have a greater incentive to automate their waste

tracking and data management activities.

In those instances where the generator is not automated, the transporter could prepare the electronic manifest data for a particular shipment, and obtain the generator's electronic signature by using a portable device (e.g., a digitizer pad joined to a wireless unit) that captures the generator's signature and initiates the shipment. This approach would mimic closely the current procedure for the paper manifest, and it would not require the generator to purchase or use any of its own computer equipment to enter its manifests into the electronic system. Of course, in a case where the generator signs an electronic manifest using a portable device provided by a transporter, the transporter would need to provide the generator with a hard copy of the manifest for the generator's records.

Alternatively, a non-automated generator could authorize the transporter personnel who come on-site and prepare the shipment for transportation to sign the manifest electronically on the generator's behalf. As with the current paper manifest system, this proposal would also allow a person other than the generator (e.g., a transporter or TSDF) to be authorized by the generator to prepare the manifest and sign the generator's certification on its behalf. Thus, generators that do not participate directly in the automated system may still participate through the efforts of their authorized preparer. This aspect of the proposal is discussed in greater detail below in section VII.G. of this preamble.

EPA believes that participation in the automated system would grow over time, as market forces and customer relationships cause others to become trading partners in the electronic manifest. Companies may decide to offer automated manifesting to their customers to remain competitive with others providing this service. In addition, large generators with multiple sites and highly integrated commercial waste management companies may find it advantageous to purchase multi-site licenses for waste tracking software, which they would deliver to their various sites or generator customers so that they can maximize the benefits which they would realize from automating the large numbers of manifests that they must process.

6. Where Would the New Requirements for Automated Manifesting Be Codified?

The key requirements would be codified in several proposed new sections of 40 CFR Part 262. First, EPA would expand existing 40 CFR 262.20(a) to include a specification for both the paper manifest form and the electronic format allowed under this proposal. The proposal would retitle existing 40 CFR 262.23 (use of the manifest) to focus this section on the paper manifest, and it would add a new 40 CFR 262.24 to discuss the procedures for using the electronic manifest. EPA is also proposing to add a new 40 CFR 262.26 to Subpart B of part 262. This new section would set forth the requirements for electronic manifesting systems, and clarify that electronic manifests that are issued by systems which meet these requirements would be considered the legal equivalent of paper manifests bearing handwritten signatures. Thus, such electronic manifests would be deemed to satisfy any Subtitle C requirements to complete, transmit, retain, or submit a manifest copy, or to produce it for inspection.

A significant new addition to the regulations would be codified at § 262.25, which contains definitions and requirements addressing electronic manifest signatures. This section would include standards for the electronic signatures which may be used to authenticate electronic manifests. Electronic manifest copies would have to be signed with one of the described electronic signature methods and would have to meet the § 262.26 security standards in order to be recognized as the legal equivalent to a hand-signed paper manifest. The proposal further explains that the proposed electronic signatures would consist of either a specific type of electronic signature known as a ''digital signature,'' or an electronically captured form of a handwritten signature, which the proposal defines as a ''secure digitized signature.'' In connection with the proposed ''digital signature'' standard, section VII.F.11 of this preamble discusses options for establishing a so-called Public Key Infrastructure or PKI to support the issuance, management, and use of the digital certificates that are necessary elements of digital signature systems.

These proposed federal regulations would, however, confer no immediate right or privilege to anyone to begin using electronic manifests in ways not authorized under existing regulations. Before electronic manifesting can begin, a final regulation would need to be promulgated, and waste handlers would need to consult with their state regulatory agencies to determine if their state(s) would recognize the validity of electronic manifests. States that choose to recognize electronic manifests would need to revise their programs to include appropriate manifest automation standards. Waste handlers and state agencies that collect electronic manifests would also need to agree to send and accept electronic manifest transmissions, and would need to prepare themselves technically to initiate such programs. The effects of this regulation on state hazardous waste programs and on state authorization are discussed below in section IX. of this preamble.

D. What Impediments to Automation Would Today's Proposal Remove?

This proposal would amend several current regulations which appear to pose obstacles to implementing an automated hazardous waste manifest system. The impediments arise because the existing regulations which describe the format for the manifest and how to use it were developed nearly 15 years ago, at a time when the current capabilities in electronic commerce were not anticipated. Therefore, the existing regulations describe a specific, multi-copy paper form which must be physically carried among waste handlers, and which must be hand-signed as custody of waste shipments change. These impediments, and the revisions to them proposed in this notice, are summarized in this section of the preamble.

1. Specific Paper Form Designations

Several provisions in the current regulations require the use of specific paper forms for the manifest. Sections 260.10 and 262.20(a) each refer specifically to the use of the current federal forms, that is, EPA Form 8700–22 (the manifest) and, if needed, EPA Form 8700–22A (the continuation sheet). Today's proposal would update these form designations by clarifying that the approved standard EDI formats (ANSI ASC X12) may also be used to convey manifest data electronically. This proposal amends §§ 262.10 and 262.20(a) to add the EDI and Internet Forms formats to the designation of acceptable hazardous waste manifests.

2. ''By-hand'' Signature Requirements

Certain of the existing regulations appear to bar the use of anything other than a handwritten signature, that is, the traditional act of signing in which the signer uses a stylus or other writing instrument to create the signer's scripted name or other mark on the document. The current references to handwritten signatures are found in § 262.23(a)(2), which requires the generator to sign the manifest by hand and obtain the handwritten signature of the first transporter accepting the waste shipment, and in § 263.20(d)(1), which

requires the transporter to obtain the handwritten signature of the next transporter, or the designated facility. Today's proposal eliminates the restriction to only by-hand signatures, and adopts new language which recognizes that both by-hand signatures and the proposed electronic signature methods may each be used to sign manifests.

3. Physical Transmission of Manifests

Several existing provisions in the regulations suggest that the manifest may only be transmitted physically with the shipment, and the copies manually delivered to the waste handlers involved with a specific shipment. Existing § 263.20(a) states that a transporter cannot accept hazardous waste from a generator unless it is accompanied by a manifest. Sections 262.23(b) and 263.20(d)(3) also discuss the handling of the manifest, and require that the generator or transporter that is delivering the waste shipment to the next transporter or to the TSDF must keep a copy for its files, and then give the remaining paper copies to the waste handler receiving the shipment.

Today's proposal would clarify that in those instances where the electronic manifest is being used, the manifest copies may be transmitted electronically among the waste handlers, and a paper copy of the manifest would not have to be carried with the shipment during transportation if, instead, a hazardous materials ''shipping paper'' is carried with the shipment. The currently required practice of physically delivering copies of the manifest to waste handlers and carrying a copy of the manifest during transportation would not change for waste handlers who continue to use the conventional paper manifest.

RCRA requires EPA to promulgate regulations applicable to generators and transporters of hazardous waste, including requirements for the use of a manifest system, as necessary to protect human health and the environment (RCRA sections 3002 and 3003). As discussed previously, the manifest serves to protect human health and the environment during transportation of hazardous waste, as well as being a device that ensures that waste can be tracked from its origin to its destination site. As a form of ''shipping paper,'' the manifest conveys essential emergency response information required during transportation, specifically, the proper shipping name, hazard class, hazardous material ID Number, and packing group for hazardous waste shipments, and phone numbers enabling responders to obtain additional information about a shipment in the event of an emergency. EPA incorporated DOT's ''shipping paper'' requirements into the current hazardous waste form in order to ensure the protection of human health and the environment during the transportation of hazardous waste. In addition, additional waste shipment tracking elements appear on the current manifest, including the EPA ID Numbers identifying each waste handler involved with a shipment, and space for each of the handlers to sign the manifest when they receive custody of a shipment. These manifest elements are intended to ensure that the waste can be tracked from its site of origin to its destination site. Thus, the current manifest form incorporates both DOT ''shipping paper'' elements to deal with the transportation hazard aspects of a waste shipment, and additional tracking elements unique to RCRA to ensure that hazardous waste shipments are designated for, and in fact arrive at, facilities permitted to handle the hazardous waste.

Today's proposal would clarify that when the electronic manifest is transmitted and signed electronically by waste handlers, a paper manifest would not have to be carried with the hazardous waste shipment during its transportation. This proposal recognizes that the waste tracking functions of the manifest system can be conducted entirely electronically, without carrying and delivering paper copies of the manifest with the shipment. In order to ensure that information about the hazardous waste shipment would be available during its transportation, the proposal would not affect DOT's requirement that a shipping paper be carried on the transportation vehicle. So, a hard copy of a shipping paper would be carried on transportation vehicles to address the transportation hazard and the needs of emergency responders. This requirement would be met under today's proposal by either a print-out of the manifest or other allowed form of DOT shipping paper (e.g., bill of lading) under 49 CFR Part 172, Subpart C. In such a case, we believe that the combination of the DOT shipping paper on the vehicle and the electronic manifest information transmitted electronically would meet all the requirements that arise under RCRA. Specifically, the DOT shipping paper would present all the critical emergency response information required about a shipment during its transportation, and the electronic manifest would preserve the waste tracking functions of the manifest. EPA requests comments on this aspect of the proposal.

4. Electronic Storage of Manifest Copies

Today's proposal also specifies when manifest copies may be stored on electronic media and meet the record retention requirements of the manifest regulations. EPA has previously issued an interpretive letter that provided guidance on this issue, but this rulemaking provides the opportunity to identify more formally the standards which would govern electronic storage.

In May 1996, Safety-Kleen Corporation approached EPA seeking clarification that the federal Subtitle C regulations would permit that company to store image files of signed manifests received at its Denton, Texas, recycling facility. The company had installed equipment at the Denton facility which would enable it to scan completed paper manifests and then store the image files of these manifests on optical disks. An automated index system was created for these manifests, and this permitted one to search for stored manifests by several data elements. The system could display retrieved manifests on the computer screen, or print them as hard copy. EPA concluded that Safety-Kleen's proposed electronic storage system would meet existing RCRA regulations for retention of manifest records. This conclusion was supported by the Agency's findings that the image files would bear the required handwritten signatures, that the electronic records would be accessible to RCRA inspectors, and that the system included back-ups and other security features that satisfied EPA that data integrity would be maintained and that the records would be trustworthy. Since announcing this interpretation in November 1996, at least 11 states have followed this policy in their authorized RCRA programs.

Today's proposed standards for electronic manifest storage would clarify that RCRA allows additional types of manifest records to be stored, beyond the paper copies, image files or facsimile copies allowed under the current regulations. The proposal would also recognize the validity of electronic copies that are signed with the required electronic signatures and maintained by computer systems that meet the technical standards and security controls set forth in proposed § 262.26. These technical standards and controls are discussed in detail below in section VII.E. of this preamble. The controls are designed to ensure the trustworthiness of the computer systems which generate and process the manifest records, so that the data stored on these electronic records may be relied upon as complete

and accurate, and protected against accidental or intentional corruption, alteration, or loss. In addition to ensuring data reliability and integrity, the proposed standards would also require reasonable inspector access to the electronic records over the entire record retention period, and safeguards against repudiation. EPA believes that the proposed electronic signature requirements, taken together with the computer security controls of proposed § 262.26, provide a reasonable set of safeguards that would protect the integrity of the records and guard against repudiation by waste handlers who enter data and sign the records. These proposed standards would also afford RCRA inspectors reasonable access to electronic records for purposes of inspecting or copying facility files, or producing evidence for enforcement actions.

E. What Standard Electronic Formats Would Today's Proposal Require?

1. Overview

Sections 260.10 and 262.20(a) of the Subtitle C regulations would be amended by today's proposal to include the standard EDI format and an Internet Forms format that EPA would accept as the electronic hazardous waste manifest. The proposed EDI format is discussed in preamble section E.2. that follows immediately. Section E.3. of this preamble discusses the proposed Internet Forms format. Specific issues for which EPA requests comments are presented in preamble section E.4.

Today's proposal would require persons who choose to develop or participate in an electronic manifesting program to adhere strictly to the electronic manifest formats specified in this rulemaking. EPA has determined that in order to maintain consistency among Federal and authorized State programs, authorized States that choose to implement the electronic manifest options for waste handlers would not be permitted to require a different electronic format or to require additional information to be transmitted electronically in connection with shipments in or being offered for transportation. This is similar to the determination that EPA made with respect to the Uniform Manifest form in 1984, and the Agency believes that several of the same factors supporting our 1984 decision affect the electronic manifest. See 49 FR 10490 at 10491 (March 20, 1984). The free movement of waste shipments would be similarly burdened if transporters and TSDFs could not read or sign off on a manifested waste shipment because of incompatible electronic formats required by one or more states. Transporters entering a particular state requiring another format or additional requirements would need to incur the cost and inefficiency of acquiring additional software to support the other state's format or requirements, or face state enforcement actions if the additional formats/requirements are not supported. In addition, waste handlers called upon to support multiple State formats and differing requirements would likely need to incur the additional cost and inconvenience of acquiring and using software to convert files between the various formats supported by the states. It is conceivable that conflicts that would arise between different states' incompatible formats would actually bring waste handlers' systems down, and further delay the progress of shipments in transportation until such problems could be corrected. In addition to the confusion and burdens on the movement of waste that would result in such cases, EPA believes that non-standard formats would greatly complicate enforcement by RCRA inspectors, since inspectors would need to be trained and perhaps equipped differently to inspect manifests originating from different states. For multi-state facilities, there would likely arise the additional complexity, confusion, and cost of having to obtain software and hardware to support non-standardized manifest formats and procedures, as well as the capacity to convert files between state formats.

The above discussion focuses heavily on the interstate transportation and ''free movement of waste'' factors that EPA relied upon as well in 1984 when it prescribed the uniform manifest. However, with regard to the successful implementation of an electronic manifest system, EPA also believes that it is critical to recognize the inherently interstate nature of the electronic infrastructure that would need to develop to support electronic transmissions of data. That is, apart from the considerations noted above on how waste movements and transportation vehicles would be slowed or burdened by inconsistent electronic formats, there is the equally important consideration of how the interstate electronic data transmissions themselves would be hindered and burdened by inconsistent formats. The Agency's reliance on standard electronic formats is premised equally on the necessity of ensuring, for example, that an electronic manifest transmission originating with a generator in the State of New York can be readily received, read, and processed by a landfill operator in the State of Alabama, as well as by the transporters that may operate in the transit states that must be passed through en route to the destination facility. While non-uniform paper forms may entail the burden and inefficiency of needing to carry redundant paperwork, incompatible electronic formats can render the data being transmitted unreadable and useless. Additional costs and complexity would be incurred by system developers faced with having to address multiple formats. To the extent that the reliability and accuracy of the systems were to be impaired by format conflicts, the admissibility of the electronic documents in evidence during enforcement actions would similarly be impaired. Therefore, under the Part 271 authorization standards on consistency, any authorized States implementing electronic manifest programs must require only the standard electronic manifest formats promulgated in this rulemaking. Other formats would not be acceptable as a RCRA hazardous waste manifest.

2. Proposed EDI Format

This proposed rule identifies the American National Standards Institute (ANSI) Accredited Standards Committee (ASC) X12 standard formats for Electronic Data Interchange as the standard EDI formats acceptable for electronic manifests. These X12 standard formats (transaction sets) present specified data elements and content in a strictly standardized syntax and structure, which enables these formats to be exchanged unambiguously among different computer systems.

In analyzing the manifest process to determine an appropriate implementation of EDI, it became apparent that two distinct transactions support the tracking functions of the manifest. Initially, the manifest identifies the contents of a hazardous waste shipment as offered for transportation by the generator and received by the transporters. Upon receipt of the shipment by the TSDF, the purpose shifts to providing the generator with a record either verifying the receipt of the shipment by the TSDF, or noting any discrepancies connected with the shipment. During a meeting with industry and state agency stakeholders in April 1999, participants advised EPA that in the EDI setting, the dual functions of the manifest could be best accommodated with separate transaction sets. That is, to reduce potential confusion in the EDI setting, one transaction set should be used to

identify the contents of the shipment and track its transportation, while a distinct transaction set would be used to allow the TSDF to advise the generator of waste receipt or discrepancy information. Based on these recommendations, EPA has adapted two EDI transaction sets or formats to the manifest process. Under today's proposal, EPA would identify X12 transaction set 856 (''Ship Notice/Manifest'') for the manifest's waste tracking function, and X12 transaction set 861 (''Receiving Advice/Acceptance Certificate'') to carry out the manifest's verification of receipt/discrepancy function. The two transaction sets that EPA has selected for this proposal are fully capable of carrying all the data presently required on the manifest. Also, the 861 transaction set has the added benefit of allowing TSDFs to tie their comments (e.g., waste receipt, rejection or discrepancy) to a particular waste item listed on the manifest.

In order to conform the EDI transaction sets selected to the data requirements of the hazardous waste manifest, EPA developed a customized mapping or ''Implementation Convention'' for the 856 and 861 EDI transaction sets. As a follow-on step to the Implementation Convention development, EPA submitted the two transaction sets' Implementation Conventions to a federal review and approval process which involved public notice and comment. This approval process is managed by the Federal Electronic Data Interchange Standards Management Coordinating Committee (FESMCC), under the procedures of the Federal Information Processing Standard (FIPS PUB) 161–2, entitled ''Electronic Data Interchange.'' All approved Federal Implementation Conventions are registered with the National Institutes of Science and Technology (NIST). The NIST registry of approved Implementation Conventions, including the hazardous waste manifest IC (856W) and the hazardous waste receipt IC (861W), is located at *http://snad.ncsl.nist.gov/fededi/3060-ic.html.* These approved federal mapping conventions would be revised to reflect any changes to manifest data elements or to designated transaction sets that result from this rulemaking. The revised ICs would then be resubmitted to the FESMCC for approval. EPA would include information on the revisions to the manifest EDI mapping conventions in a technical guidance document that would be prepared to support the final rule notice for this manifest rulemaking.

Subsequent to the adoption of revised ICs in the final manifest rulemaking, EPA may from time to time decide to adopt a new version and release of the ASC X12 standard or to modify the conventional mapping for the manifest. These modifications would address minor, technical changes to the standard, but would not alter the content of the manifest. Proposed § 262.20(a)(3)(i) includes a notification process to deal with these upgrades and modifications. After any such upgrades or modifications have been submitted to the FESMCC Committee and approved under FIPS PUB 161–2 procedures (which provides for notice and comment), EPA would then publish a **Federal Register** notice announcing this change to the implementation convention and establishing the conversion date. After the conversion date, persons using the previous EDI format and convention would have a minimum of 60 days to convert to the new version. In addition, EPA would discontinue support for the previous version no sooner than 90 calendar days after the conversion date. EPA believes that this procedure would provide for a reasonable transition and support period as the ASC X12 standards and implementation conventions are updated.

3. Proposed Internet Forms Format

a. *Background.* The standard language for presenting data on the World Wide Web—the Hyper Text Mark-up Language (HTML)—is not alone well suited for completing manifests that can be signed electronically and preserved as intact records that can be later audited or produced as evidence of completed waste transactions. While web forms are frequently encountered on web sites, the data that is entered in the form fields during a typical HTML browser session are divorced during transmission from the form prompts that elicited the data. So, only the data stream supplied by the sender is sent to the host computer. This leaves HTML transactions open to challenges, since the person submitting the data can later argue that data he or she entered were in response to a different prompt or question, or that the browser altered the appearance of the form so that certain questions were not answered or answered out of order. This type of vulnerability is referred to as a repudiation challenge, and it can be avoided if the data entered are tied unequivocally to the form elements to which they respond. Several vendors have recently developed solutions designed to generate and preserve intact web forms which include both the fields and the responsive data, and which can be signed electronically as records. This results in a much more complete and irrefutable electronic record than is obtained when responding to simple HTML web forms. These products typically are installed as browser extensions or ''plug-ins,'' and they add executable programs or Java applets which modify the HTML language to generate the intact forms on the client computer.

EPA tested one such product during our Manifest Automation Pilot. In the 3rd phase of these pilot tests, EPA and several volunteer partners from industry and the states tested the Internet Forms technology developed by a company known as UWI.Com. (The company has recently changed its name to PureEdge, Inc.). This company's Internet Forms technology is based on a mark-up language known as the Extensible Forms Description Language (XFDL). XFDL is itself a variant of the recently developed Internet language known as Extensible Markup Language or XML.

During the pilot test, EPA developed considerable experience with UWI.Com's Internet Forms technology. The electronic manifest ''forms'' used in our pilot tests retained both the form structure and the manifest data, and were signed with digitized signatures using PenOp'' signature software. The electronic manifest developed for our pilot with the Internet Forms technology and the Action Works Metro work flow management software also supported these features:

- Retention of all the graphical elements familiar to the paper form. The manifests could be processed (prepared, signed, transmitted, and stored) in an entirely digital manner, or printed in hard copy;
- Inclusion of numerous on-line help features and edit checks, to assist users with the process of completing the manifest accurately and quickly;
- Packaging of form structure and data together in a single file that could be easily archived and retrieved;
- Integration with workflow or work group software so that the manifests could be routed to appropriate trading partners, while complying with organizations' specific business processes and logic rules; and
- Support for mapping data directly to a variety of back-end data bases, including Oracle, Sybase, SQL Server, and ODBC-compliant data bases.

b. *What is the Extensible Markup Language (XML)?* The Extensible Markup Language or XML is a relatively new markup language that has been developed to aid the Internet exchange of documents that contain structured information. While the basic language of the World Wide Web, i.e., HTML, is itself a markup language that can deal

with how the content of a document is displayed on a computer screen, XML has the additional capability of ''tagging'' a document's content to indicate what role the content plays.

On a more technical level, XML is defined as a series of related technical specifications that provide a syntax for identifying, exchanging, and displaying data. XML technical specifications are developed by the World Wide Web Consortium, and XML documents would facilitate data exchanges using World Wide Web transfer protocols. Its most significant attribute is its extensibility, a term which connotes the flexibility designed into XML to adapt to a variety of applications and computing environments that need to exchange and manipulate data. XML is not bound by rigid semantics, and it provides program developers with the alphabet and tools to define document element tags as they see fit, and to define the structural relationships between these tags.

XML has recently emerged as the *de facto* method for defining business data for the business to business Internet exchange of data and for commerce on the Web. Recent releases of commercially distributed web browsers, as well as several major commercial data base applications, now support XML specifications. Many information technology experts believe that XML would ultimately become the tool that would extend the benefits of EDI—exchanging routine business data in a structured but technology neutral manner—to web-based electronic commerce. The hope is that XML would make electronic commerce more cost-effective and accessible. XML can take advantage of the openness of the Internet and Web architecture, while perhaps offering lower costs than those currently associated with EDI software and VAN transmission fees.

However, XML has only recently captured significant attention among application developers, and it is still a maturing technology. One of the greatest challenges confronting the success of XML is the current lack of consensus on developing business standards for using the XML specifications. Without some agreement on how data element tags and their relationships would be defined for different business transactions, there is the potential for much fragmentation and chaos in the use of XML. In addition, government and international standards bodies generally are only beginning to examine the possibilities for using XML applications to support reporting data to government web sites. Recently, the United Nations Center for Facilitation of Administration, Commerce and Trade (UN/CEFACT), the international equivalent to the ASC X12 Committee, has chartered a work group to research and identify the technical basis upon which the global implementation of XML can be standardized. Specific subcommittees within the ASC X12, including the transportation committee that oversees transaction set 856, are now in the process of defining XML Document Type Definitions (DTDs) for the various X12 transaction sets.

The use of XML entails agreement on the so-called DTDs and ''schema'' that would define for different transactions the agreed document structures, the agreed tag identifiers and relationships, agreed data elements and document contents, and agreed exchange requirements. It is EPA's objective to develop in this rulemaking an XML-based manifest format that would establish a standard method for displaying and exchanging manifest data with XML enabled browsers and data base software. Therefore, in addition to the EDI formats discussed above, EPA is proposing an XML-based approach for preparing and transmitting manifests on the Internet. EPA has developed a draft for comment of the Document Type Definition (DTD) that would be used for transmitting the manifest data in the XML language. The draft DTD appears in Appendix A to this preamble. The XML-based manifest would capture and record the same waste shipment data as the paper form and the EDI formats, and would have functionality similar to EDI. The draft DTD for the manifest is set forth in detail in Appendix A to this preamble. EPA requests comment on the XML-based Internet Form manifest and the draft DTD that we are proposing today.

4. What Comments Would Be Helpful To EPA?

EPA requests comments on the proposal's electronic data interchange (EDI) standard and the proposal to include an XML-based Internet Forms approach for the manifest. EPA solicits specific comments on the following issues.

a. *Are the proposed EDI transaction sets appropriate?* EPA requests comment on the proposal to use both X–12 transaction set 856 (the Ship Notice/Manifest) and transaction set 861 (Receipt and Advice) to convey all the waste shipment tracking information required by the hazardous waste manifest. Are there significant business, technical, or practical issues that might arise from recording shipment tracking information with two transaction sets, rather than collecting the information on one format? Would the proposed two transaction set approach complicate the ability to retrieve, reconstruct, and inspect all the information about a waste shipment after it has been filed? Also, is EPA on target with its choice of transaction sets? Are there other business data that the regulated community would like to be able to transmit with data required by the manifest, and should our choice of transaction sets and implementation conventions be revised to reflect this?

b. *Is an XML approach feasible?* EPA acknowledges that XML is a relatively new technology, and that industry standards are generally lacking or only emerging in this field of electronic commerce. Is it feasible for EPA to develop a Document Type Definition in this rulemaking that would ''standardize'' the XML usage with respect to the manifest, or is this not an appropriate role for EPA? Would the specification of a DTD accomplish our objectives of ensuring free data exchange and interoperability between XML-enabled systems? Is XML a sufficiently stable technology to support EPA's purposes?

c. *Are there alternative formats that EPA should consider?* This proposal would adopt ASC X12 EDI formats (the X12 856 and 861 transaction sets) and their implementation conventions as an EDI standard for electronic manifesting. Alternatively, the Internet Forms approach based on the proposed XML Document Type Definition could be used by those wishing to use a non-EDI solution for transmitting manifests on the Web. EPA selected these standards because they represent technology-neutral approaches that could be supported by many vendors' products, and because they are mappable to and can integrate with existing data systems.

EPA solicits comment on the merits of the two optional electronic manifest approaches proposed today relative to other available options. The Agency recognizes that there are many attractive ''smart form'' types of software products and other systems available that could be adapted to an electronic manifest. The major shortcoming of these products, in EPA's view, is that they typically are designed around a specific vendor's proprietary product. Thus, the allowance of numerous proprietary formats would likely hamper the free exchange of manifest data and the interoperability of electronic manifesting systems. A variety of proprietary solutions could have the result of fragmenting the market among several incompatible formats, and actually might hamper the acceptance of electronic manifests. Nevertheless, EPA

requests comment on whether other formats should also be recognized, and if so, how the Agency might minimize the conflict between different formats.

d. *Should EPA Address Internet EDI Distinctly?* EPA has not included any distinct content in the proposal to address EDI conducted over the Internet, such as ''Web EDI'' or EDI transmitted over the Internet by secure E-mail technology. The proposal assumes that Internet EDI (i.e., transmitting EDI transaction sets via the Internet) using the EDI formats proposed in § 262.20(a)(4) would be an option available to those wishing to conduct electronic manifesting on the Internet, in addition to the Internet Forms standard proposed in § 262.20(a)(5). In other words, with Internet EDI, the same EDI transactions sets (ANSI X12 856 and 861) would be used to transmit manifest data, but the Internet would replace Value Added Networks as the delivery mechanism. In this proposal, we are distinguishing Internet EDI from the Internet Forms approach, which does not use ANSI X12 transaction sets to exchange data.

Several products are now emerging on the Internet that would perform so-called ''Web EDI.'' With Web EDI, data entered at the client computer in Hypertext Mark-up Language (HTML) is converted at the server hosting the Web EDI service to X12 standards and transmitted to other trading partners as EDI files. Once received in X12 format, the recipient can then map the incoming information to its specific data base application. The ''Web EDI'' products that are coming on-line require some initial configuration by the user, but beyond the requirement of browser software, there is no need for local installation of EDI translation software. These services typically charge a small sign-up fee, and charge a transmission fee per transaction.

Should EPA support the availability of both the Internet EDI and Internet Forms methods as options for those who would conduct waste manifesting on the Internet, or, should EPA restrict Internet users to one or the other approach? Does EPA need to require the use of a VAN for EDI transactions, or, could a less expensive Internet-based means of transmitting EDI data (e.g., E-mail or File Transport Protocol) be allowed, provided that companies implementing this approach follow Internet Engineering Task Force (IETF) recommendations (e.g., use third party ISPs and deploy security to protect such transmissions from interception)? See Requirements for Inter-operable Internet EDI, EDIINT Working Group of the IETF, July 8, 1997. Are other controls beyond those referenced in the IETF working document necessary to ensure that Internet EDI is as secure and auditable as traditional EDI conducted on a VAN?

Also, if web sites hosting translation services receive manifest data inputted from a browser, and translate it to an EDI compliant format, how would signatures be applied to these documents? Is it the HTML document or the X12 document that would be signed? Would the translation at the server complicate the verifiability of any digital signatures? Can ''Web EDI'' meet all of this proposal's requirements for authentication, data integrity, security and non-repudiation? Comments responding to these questions would be very helpful to EPA.

F. What Electronic Record System Controls and Procedures Would This Proposal Require?

The proposal would specify at § 262.26 a minimal set of controls and procedures applicable to computer systems that would prepare and process electronic manifests. The Agency believes that these system controls, when combined with the requirement that electronic manifest copies be signed with secure types of electronic signatures, would assure users and regulators of the authenticity and integrity of electronic manifest records. Specifically, EPA believes that the proposed electronic signature requirements and computer security controls address the following 5 key concerns that have been brought to the Agency's attention as critical to the reliability and enforceability of electronic documents.

i. *Identity.* The proposed controls would assist in demonstrating who affixed their signature to the document. Specifically, such controls as access checks, audit trails, signature agreements, and/or signature verification processes should be helpful to prevent unauthorized use of electronic signatures.

ii. *Intent.* The proposed security provisions would assist in showing that the signor acted with the required intent to adopt the document being signed or to be bound by its contents. This may also involve a showing that the signor understood the significance of the signature act, so that he or she cannot later repudiate their signature as unintended or mistaken. Signature procedures that include warnings about the consequences of affixing a signature, and an opportunity to review and verify the data presented for signature, should aid in demonstrating the requisite intent.

iii. *Tamper-resistance.* The proposed security provisions would also assist in demonstrating that a document was not altered after signature, since the ability to alter data after signature would permit the signor to later repudiate a document as different from the one that he or she actually signed. Signature methods that use encryption processes to inextricably bind the signature to the data signed can safeguard electronic documents from subsequent alteration, as can system audit checks that would disclose any changes to a record, or attempts to change a record.

iv. *Availability.* Copies of electronic manifests should be maintained in such a manner as to be accessible throughout the record retention period. System controls which require the retention of information on software and hardware versions used to create archived records, as well as requirements to retain and maintain previous versions of software, hardware, and system documentation, should ensure that this capability is not compromised.

v. *Interoperability and error detection.* Systems that would exchange electronic manifests should be interoperable, so that data are accurately and reliably processed, signatures verified, and security features necessary to data integrity maintained throughout the exchange of the electronic documents. In addition, electronic systems should be able to detect errors (i.e., altered/corrupt data or invalid signatures), so that invalid records can be flagged and corrected. System security controls, validation requirements, signature verification requirements, and requirements to respond to detected errors and invalid signatures can minimize the possibility of invalid documents being passed by electronic systems.

1. Validation of System Performance and Training

EPA expects that waste handlers would be able to select from numerous hardware and software configurations when establishing their electronic manifesting systems. Such systems may involve a combination of database software, EDI translator or Internet browser software and related plug-ins, work flow management software, operating system software, electronic signature software, communications software, and the related hardware that is involved in creating, processing, viewing, printing, and transmitting files. The Agency also expects that these automated systems may consist of both customized systems designed by or for the waste handler company, and ''off-the-shelf'' solutions developed by

commercial vendors that market products designed specifically for tracking hazardous wastes. In any case, the proposed rule would require that waste handlers establishing electronic manifest systems validate their systems, that is ensure that all the system components (including security features) operate together properly, that system performance ensures accuracy, reliability, and consistent, intended performance, that components are fully interoperable throughout the system, and that the system can meet the computer security requirements of this section and good security practices common to trusted electronic commerce systems, and that appropriate precautions have been taken to ensure that these security measures cannot be avoided or defeated. EPA believes that validation of automated systems is essential to establishing the reliability of such systems and the accuracy of the data they generate.

EPA is also proposing that the system validation would be performed and certified to by an independent third-party with expertise in information systems and their security. EPA is concerned that neither the waste companies developing or acquiring such systems nor the EPA or State RCRA inspectors that would inspect facilities for compliance with RCRA regulations would possess the requisite skills or expertise to validate electronic manifest systems. In addition, the use of an independent and qualified information systems professional should ensure that there has been an objective assessment made of the system's security features. Since the trustworthiness and utility of electronic records and systems would depend heavily on the performance and success of this validation step, EPA is proposing that the qualified systems professional would prepare a written assessment with a certification statement attesting to the system's performance. This written assessment and certification statement would need to be maintained among the facility's records, and made available on request during any EPA or State inspection. Under this proposal, for an electronic system to be validated, the qualified professional would need to certify that the system generates and processes data accurately and reliably, that the system performs consistently and as intended, that the system's hardware and software are fully interoperable with the hardware and software of any other systems with which manifests would be exchanged, that the system is designed and can be operated to meet all the security requirements of this rule and good security practices common to trusted electronic data exchange systems, and that appropriate precautions have been taken to ensure that these security measures cannot be avoided or defeated.

EPA requests comment on the proposed requirement for an independent written assessment of electronic manifest systems. Would validation be more objective and helpful if performed by independent information systems professionals, or would this add unnecessary burdens to the validation procedure? With respect to the system assessments, has EPA proposed a reasonable set of criteria, or, are there other information systems audit criteria and good security practices that we should require to be included in the assessment and certification? With respect to the independent systems professionals, is there some credential, training, licensing or other qualification that EPA should identify in the rule to ensure that only qualified individuals perform these validation assessments? EPA also requests comment on alternatives to independent third-party validation of systems. Should EPA require that software be developed by companies independent of the waste handlers that would use the systems? In the case of systems developed independently of waste handlers, and systems using ''off-the-shelf'' products, would third-party validation be necessary? Answers to these questions would be very helpful to the Agency.

2. The Ability to Generate Accurate and Complete Records Available for Inspection

As an additional control on electronic manifest systems, this proposal would require that waste handlers' systems have the ability to generate accurate and complete records in both electronic and human readable formats, and which are suitable for and readily available for inspection and copying. In most instances, facilities would retain their electronic records in the electronic formats in which they were created and signed. However, during the course of RCRA inspection, federal or state inspectors may wish to have a human readable copy generated that they may inspect, copy, print, or remove from the facility. Thus, the system must have the capability of generating a readable copy, as well as the electronic copy that is electronically signed and retained as the facility record for the 3-year retention period required in these regulations. In either case, the system records must accurately and completely depict all the information that was entered on the record when it was created.

EPA emphasizes that the electronic formats of records must be available for inspection; it is not sufficient to offer the inspector access only to paper copies generated by the system. Access to electronic records may be vital, since the electronic records may often be the format that would bear the electronic signatures that would authenticate the document and enable the inspector to verify that the document has not been altered. These electronic records may also bear the metadata or audit trail information which may have direct bearing on the trustworthiness and reliability of the record. The signed, electronic copies may also be the format required as evidence in any adjudicatory proceeding in which the data on an electronic manifest are relevant to a disputed issue. In addition, RCRA inspectors would be able to conduct much more efficient inspections of the electronic records than of paper copies. EPA and the states should be able to use efficient, computerized methods to search electronic records and detect trends, inconsistent or erroneous information, possible violations, or other problem areas.

The inspector access required by this proposal must be reasonable access, consistent with section 3007(a) of the RCRA statute. Section 3007(a) of the Act states that any person who generates, stores, treats, disposes, transports, or otherwise handles hazardous wastes must permit inspectors at all reasonable times to have access to and to copy all records relating to their hazardous wastes. EPA understands that RCRA inspectors would lack familiarity with all the possible software that may be used to store, index, and access electronic records. However, the use of electronic record storage systems must not be allowed to become a barrier to inspector access to manifest records. Therefore, facilities should have a knowledgeable person on the premises who can assist the RCRA inspector with the operation of the software that searches and accesses stored manifest records. The indexes or search engines used to search and access these records should be designed with a reasonably intuitive user interface, so that the RCRA inspector can, after a brief orientation session, effectively operate the system, select relevant search parameters, find responsive records, and validate electronic signatures on these records. Nevertheless, the use of new technologies compels the result that access to records may generally require

instruction from and the cooperation of the facilities undergoing inspection.

The requirement to retain electronic manifest records for inspection over several years does raise an issue about maintaining the ability to authenticate these records. For example, with electronic documents that are digitally signed, this requires the digital signature to be verified and the signer's digital certificate to be validated as of the time of the signature. Is the long-term validation of such signatures feasible, given the costs and technical challenges of maintaining a long-term capability to validate digital certificates? Are there practical ways to ensure long-term enforcement capability and liability protection for companies using manifests without imposing the burden and cost of indefinite signature validation mechanisms?

3. The Ability To Protect Records

As a third control on electronic manifest systems, the proposal would require that these systems be designed and operated so that they protect electronic records from damage or alteration, and ensure their accurate and ready retrieval during the entire record retention period. The RCRA regulations generally require that manifest records be retained for a 3-year period.

This control entails more than controlling access to data and audit trail protections against erasures and alterations caused by accident, vandalism, fraud, or sabotage; it also requires that systems and storage media be protected against possible physical causes of damage, such as contact with heat, fire, magnetism, water, etc. The system must also create secure back-up copies of records or otherwise provide for data recovery in the event of damage, errors, or a disaster.

The proposed requirements that records be protected and remain accessible throughout the record retention period imposes additional obligations with respect to system upgrades and revisions. As system upgrades are implemented, it is possible that the newer hardware and software may not be able to read or process files created with earlier versions of software or hardware. Therefore, facilities must either convert their files so that they can be accessed by the upgraded system, or, retain adequate hardware and software to ensure that electronic manifests remain accessible throughout the document retention period. Facilities should also retain information on which software version was used to create their records.

EPA has not specified in this proposal any particular storage media for retaining manifest records. Concerns have been expressed that such records should be retained on a more permanent medium, such as a CD–ROM. The Agency requests comments on the appropriateness and feasibility of a requirement that manifest records be periodically archived on a write-once, read-many medium.

4. The Ability To Limit System Access and Conduct Authority Checks

Authority checks are security devices that grant access to a system or to specific data only when an individual seeking access can establish (typically, by entering a User ID or password when prompted) that their access has been authorized. Access controls and authority checks form the first line of defense of record authenticity and integrity, since they support user identification and authentication. The proposed rule would require that electronic manifest systems be designed and operated with controls (e.g., User ID's and passwords) that limit system access to only authorized individuals, that is, individuals who are authorized to act for and bind the organization in creating, signing, or processing manifests. The integrity of an electronic records system would be readily assailable if unauthorized individuals could enter the system, override security measures, and thereby read or alter records that they are not authorized to see or manipulate. Uncontrolled access could leave a system vulnerable to sabotage or industrial espionage, and open up opportunities for signers to repudiate the genuineness of signed records. Therefore, basic system access controls must be included in every electronic manifest system. Such controls would include assurances that:

- Unique identifiers (e.g., User IDs) are assigned to each authorized person, and the identifiers assigned uniquely identify the user to the system, so that the system can authenticate the user, and ensure individual accountability;
- User authority is defined, and users' access is limited to data required to perform job tasks or other user needs;
- Procedures are in place for User ID and password administration and termination;
- The system enforces secure password procedures and access controls;
- Access and authentication policies and procedures are documented, shared with users, and reviewed periodically; and
- Auditable logs are retained of log-on attempts, and log-on failures or rejections.

The proposed rule would also require authority challenges and other checks to be included at critical points in the system, to ensure that only authorized individuals can use the system, sign records, access input or output devices, alter a record, or perform other discrete system operations. Keeping these functions confined to authorized persons is essential to protecting the integrity of records and ensuring record accuracy and reliability. While EPA believes that the inclusion of such authority checks is fundamental, it would be up to each organization to determine the nature, scope, and mechanisms for performing these checks.

5. Use of Secure Audit Trails

Because it is important to know that electronic records remain complete and accurate during their entire retention period, the proposed rule would also require audit trail controls to be implemented. In this regard, the proposal would require the use of secure, computer-generated, time-stamped audit trails to independently record the date and time of operator entries and actions that create, modify, or delete any electronic records. This control would require that a complete and accurate history of each record be retained, and would preclude modifications that would overwrite or obscure previously recorded information. In other words, the secure, computer-generated audit trail would provide a lasting record of who did what to a record, and when it was done. These audit trail records shall be retained for the same period of time (generally 3 years) as the electronic manifest records, and they shall be made available for inspection upon the request of a RCRA inspector. The audit trail information may be retained as a part of the electronic manifest record, or as a separate record.

The Agency emphasizes the need for strict objectivity in recording audit trail information such as date and time stamps. Therefore, EPA believes that it is vital that this audit trail information be created automatically by the computer system, independently of system operators. Also, the requirement that audit trails be secure means that operators shall not have the ability to either write or modify this data. The history of the record must be preserved, and individual accountability for record integrity maintained.

6. Software-Based Work Flow Controls and Operational System Checks

A key component of a secure and reliable electronic manifest system

would be work flow management software that implements the logic rules and process underlying the manifest. During our Manifest Automation Pilot tests, EPA gained special appreciation for the significance of these software-based controls. The manifest work flow is very complex; the manifest must be routed among generators, transporters, and waste management facilities in the proper sequence, and specific data must be entered by specific waste handlers (and signatures applied) at specific points in the circulation of the manifest. Multiple copies must also be distributed at appropriate times. Unlike the current paper manifest, copies of the electronic manifest may not physically accompany and be passed with the waste itself. Therefore, it is essential that an electronic system not leave the routing of the manifest and its proper execution to chance.

To ensure the reliability of the electronic manifest, EPA is proposing that electronic systems be designed with software-based work flow controls and operational system checks to oversee the work flow process. This work flow management software would ensure that the electronic manifest is routed to all waste handlers in the proper sequence, that waste handlers are prompted to sign manifests electronically in the proper sequence and on the appropriate signature blocks, that data entered by previous waste handlers cannot be altered once the previous handler has signed the document, and that the appropriate signed copies of the manifest are distributed to each waste handler involved with a shipment.

Another possible work flow and operational check would address an electronic manifest system's response to invalid signatures. The proposal would require that electronic signatures (digital signatures and secure digitized signatures) be capable of being verified. Both of these signature methods include document binding features (e.g., encrypted hash function or checksums) which enable the recipient to verify that a document has not been altered or corrupted since it was signed. What should be the appropriate system response when an invalid signature is detected? Should EPA include in the work flow controls a requirement that users be alerted to an improperly signed manifest and that the software block further use or transmission of an invalid electronic manifest until it has been replaced with a valid manifest for which the electronic signature can be verified? Alternatively, should the system be designed only to detect invalid signatures and alert the recipient to the requirement to obtain a valid manifest before proceeding? In the latter case, the manifest use regulations could be revised to make it absolutely clear that one may not use an electronic manifest shown to be invalid, but the electronic system would not itself block the use. EPA requests comments on these alternatives, and whether the final rule should include one or the other of these additional work flow controls.

7. Software-Based Data Presentation Features and Signature Prompts

Today's proposal includes two distinct electronic manifest formats, the proposed EDI format and the proposed Internet Form manifest in the XML language. While the Internet Form approach would typically present manifest data in a human readable form that looks like the paper form, the proposed EDI format includes codes and headings that may complicate the viewing of the embedded manifest data. This could be a concern, if the result were that a user wishing to sign the EDI manifest could not readily recognize and verify the data entered prior to signing the document. EPA believes that it is important to the accuracy and trustworthiness of electronic records that those using the EDI formats to satisfy regulatory requirements have a meaningful opportunity to verify data before applying their electronic signatures. Therefore, EPA is proposing that systems using the EDI formats must be able to display the manifest data to those signing manifests in a human readable format that permits the user to readily verify the entered manifest data prior to applying a signature. In practice, this would require that the data be displayed for the signor with the form's predetermined field labels, so that there could be little doubt that the data entered relates to a specific data field of the manifest. EPA requests comment on the feasibility of including these data presentation and verification features as system design requirements, particularly with respect to EDI systems. Typically, EDI systems are designed to minimize human involvement in data exchanges between automated systems. However, when an EDI system is used in a business process such as the completion of manifests, the affixing of electronic signatures is by nature an interactive process. Today's proposal would only require that the data presentation presented to the signor at the time of signature include the human readable display with the field labels. The proposal would not require these display features to be included as a part of the EDI document itself, which would, of course, comply with ANSI X12 structure and syntax requirements.

Moreover, there is a concern that electronic signature methods that deviate significantly from the traditional signature ceremony may not seem as formal or ''official'' as conventional handwritten signatures. For example, a digital signature may be executed by a mouse click on an item displayed on the computer screen. Therefore, EPA is proposing that electronic manifest systems display a warning message when users are prompted to electronically sign manifests. The warning should appear clearly and conspicuously, and should advise the signer that their electronic signature constitutes a signature for all legal purposes. This message would also remind the signer of the possible civil and criminal sanctions for the misuse of an electronic signature. For digital signatures, the warning message would remind signers that digital signatures can only be used by the person identified as the subscriber in the digital certificate, and that the right to use one's private key to execute digital signatures cannot be delegated to another. The proposed form of the signature prompt warnings is set out at proposed § 262.26(c)(7). EPA requests comment whether these warnings should be displayed for all electronic manifest systems. For example, the ''secure digitized signature'' method discussed later in this preamble would require the signer to execute their hand signature on a digitizer pad. Is it necessary to display the proposed warning messages for this method of signature, or should the warnings be included only in systems that incorporate the digital signature method, which does not involve a conventional signing ceremony? Also, for digital signature systems, should a warning be displayed prior to executing each signature, or could the same warning be conveyed more effectively at the time a user receives a digital certificate?

8. Full Interoperability of System Software

The quality and reliability of electronic manifest systems and data depend heavily on system developers using software that consistently supports and executes the standard electronic formats, electronic signatures and their verification, the work flow processes that ensure that manifests are routed, signed, and copied appropriately, and the audit trail and other security features of proposed § 262.26. If the software used within an entity, or between entities that exchange manifests, cannot consistently implement these features, then the

reliability and integrity of electronic manifests would be impaired. Therefore, EPA is proposing today that electronic manifests systems shall be designed and tested to ensure full interoperability of the software components, so that the above features are supported and executed consistently throughout the period that a manifest record resides on a system or is exchanged among waste handlers participating in an electronic system. If a person or entity wishes to exchange electronic manifests with another's system, the other system's software must also be fully interoperable with the software of the first system. EPA cannot designate a particular software configuration or specific vendors' products as required or recommended to meet the standards proposed today. However, consistent implementation and software interoperability are essential requirements for trustworthy electronic systems, and system software must be tested and validated for such performance as a part of the system validation assessment that would be required under proposed § 262.26(c)(1). One may not exchange manifests between system components, or between other systems, if interoperability and consistent performance have not been assured. EPA requests comments on this proposal.

Some have suggested that EPA should do more to ensure the quality, reliability, and interoperability of the software that entities adopt to implement the electronic manifest. Apart from the system validation assessments discussed above, there is a concern that available software components that companies might select for their systems should be evaluated more closely at the outset (i.e., prior to its being available for use in a manifest system) to ensure that it is properly designed and shown to be able to meet this rule's security and other performance standards. If software is not closely evaluated for quality, reliability, and interoperability, greater risks might arise that software used by different entities (or even within the same entity) would not perform consistently. Thus, the risks become greater that a software product on one system would be unable to prevent or detect data alteration or corruption, unable to recognize the processes used by other software to validate signatures or to bind signatures to record content, unable to route manifests correctly, and unable to maintain auditability of transaction events. Similarly, if software is not evaluated closely for quality and performance, there is the risk that software may include unnoticed flaws that undermine its security features. Such flaws could later be seized upon by those challenging the accuracy of electronic data, and could be a basis for invalidating manifests that were processed using the defective software.

While EPA believes that the system validation and certification requirements proposed above can diminish these risks, EPA requests comment on whether additional software evaluation mechanisms are necessary. If additional measures are warranted, how would they be structured and implemented? How would such additional evaluation measures enable EPA to ensure that the criteria of this rule are being met and applied consistently? What would be the benefits and adverse consequences of establishing additional evaluation steps?

A separate issue relates to how EPA and the States can know that new electronic manifest systems are being implemented. EPA is taking comment on one additional measure, which would require system sponsors to notify EPA on a one-time basis that they have developed and would be implementing an electronic manifest system. With such information, EPA would be able to gauge the timing and scope of the use of electronic manifests, aiding the Agency's training and outreach efforts and providing the basis for future data collections to evaluate electronic manifests. Notification would not be required from every waste handler using such a system, but only from the entity sponsoring or operating the electronic manifest system. EPA requests comments on whether such a one-time notification requirement would act as a disincentive to the adoption of electronic manifests.

9. Controls Over System Documentation

Errors in conducting system procedures and system maintenance are likely to occur unless controls are applied to the systems documentation that describes how a system operates or is maintained, including standard operating procedures. System documentation should fully and accurately describe the procedural controls employed in creating and maintaining records, and account for each link in the chain of events that produce records and preserve their integrity. This proposal would require the establishment of controls over this system documentation, including adequate controls over the distribution of, access to, and use of the documentation. This requirement would extend to revision and change control procedures as well.

10. Policies Holding Individuals Accountable

Any falsification of a signature or record is a serious matter, regardless of whether the falsification occurs with a paper or electronic record. In this regard, EPA emphasizes that the falsification of an electronic signature or the making of false representations in connection with an electronic manifest would be punishable by law and would carry the same penalties as similar acts done with paper manifests and ink signatures. Under RCRA Section 3008(d)(3), for example, any person who knowingly omits material information or makes false material statements or representations in any manifest, record, or other document prepared for purposes of compliance with RCRA regulations may be subject, upon conviction, to criminal sanctions that may include a fine of not more than $50,000 for each day of violation, or, imprisonment not to exceed two years, or both. In addition, 18 U.S.C. 1001 states more generally that false, fictitious or fraudulent statements or representations to the government may subject a person to criminal penalties.

Despite these strong sanctions that are well understood in the paper environment, there may be a perception that electronic signatures are less formal than handwritten signatures, and this may cause some to believe that errors or falsifications associated with their use are not as serious as errors or falsifications in signing paper records. Therefore, the proposed rule would require organizations using electronically signed electronic manifests to establish and adhere to written policies that hold individuals accountable and responsible for actions initiated under their electronic signatures. These policies are intended as a further deterrent of record and signature falsification. The individual employees who are subject to such policies would better understand the seriousness and consequences of signature or record falsification. Of course, a broad range of disciplinary measures would be available to organizations under their written policies, and organizations should have appropriate discretion to tailor their disciplinary actions so that they provide reasonable sanctions that address the level of employee complicity and intent, while deterring the more serious acts. The intent is that such policies would be implemented and enforced in a way that promotes a strong security environment.

In addition, EPA believes that the proposed digital signature and secure digitized signature methods discussed in section VII.H. of this preamble provide a reasonable basis for applying strict accountability policies. Digital signatures are not trustworthy if the ''private key'' of the signer is compromised. The compromise of a private key would likely involve either the complicity of or serious negligence of the owner of the key, such as allowing access to one's smartcard or hard disk where the private key is kept, along with the password or PIN necessary to use the private key. Likewise, one should be accountable if they allow others access to their signing devices (e.g., a digitizer pad) in such a way as to provide them the opportunity to ''forge'' an electronic signature.

EPA requests comments on this proposed set of system controls and procedures. Do these measures define an adequate computer security program that would ensure data integrity and record authenticity? Do these proposed controls provide sufficient flexibility? Can these controls be incorporated practically into commercially available products, and included in waste handlers' operations? How might EPA improve on these controls to make them more understandable and easier to implement?

11. Other System Requirements

In addition to the security and operational controls discussed above, today's proposal also includes several definitions of terms that are intended to provide greater certainty insofar as when an electronic manifest transmission has been received, and when there may be an obligation to retransmit an electronic manifest. Proposed § 262.26(e) would define an electronic manifest to be received by the recipient when it is accessible to the recipient in a format that the recipient can read. Should a recipient receive an unreadable transmission, or one bearing evidence of data corruption (e.g., garbled text or hash functions that do not calculate correctly), he or she would be required to request that the sender re-transmit a proper copy. Moreover, proposed paragraphs (f) and (g) of § 262.26 would aid the sender in establishing the fact of receipt by the recipient. § 262.26(f) would require recipient's systems to send promptly (typically, an automated, immediate response) an acknowledgment of receipt to the sender to acknowledge that a readable record was received by the recipient's system. According to proposed § 262.26(g), the acknowledgment of receipt from the recipient would establish conclusively the fact of receipt and the date of receipt. These proposals should provide assurances to the sender that their electronic transmissions were received in good order, and minimize the possibility of repudiation of the fact of receipt at a later date. Finally, proposed § 262.26(h) would create an obligation on the part of the sender to re-transmit an electronic manifest for which a positive acknowledgment of receipt was not received by the sender within 12 hours of the original transmission, while proposed § 262.26(i) would clarify that the inability of one to transmit a valid electronic manifest does not excuse that person from the obligation to initiate a hazardous waste manifest for their shipment. If a system is not operating properly and would not transmit valid manifests, the person responsible for providing a manifest must then use a paper manifest to accompany and track the progress of the waste shipment.

Similar proposals regarding receipt, acknowledgment of receipt, establishing date of receipt, retransmission, and inability to transmit are included for transporters and TSDFs. The similar transporter proposals are included at proposed § 263.23(d)–(g), while the proposed provisions applicable to facilities are set out at proposed §§ 264.78(f)–(j) and 265.78 (f)–(j). EPA requests comment on the appropriateness of these proposed terms, and whether they would meet our objective of establishing with certainty when electronic manifests are received and when they must be re-transmitted or replaced.

G. EPA's Proposed Electronic Signature Standard

1. Why Are Signatures Important to the Manifest?

A significant issue in this rulemaking is the designation of an electronic signature method that would be at least as secure and trustworthy as the conventional handwritten signature that has been in use for hundreds of years to authenticate paper documents. As a general matter, a signature is used to bind an individual signer uniquely to the text of a signed document, so that the source of the document can be clearly established, and so that the signer cannot later repudiate the transaction. Thus, signatures aid the authentication of a document.

In the context of the hazardous waste manifest, signatures also play more specific roles. The required manifest signatures are used to support certifications by waste handlers to specific facts, and more generally, to show the change of custody of waste shipments during their transportation to off-site treatment, storage, or disposal facilities. The hazardous waste generator initiates the manifest with its signature certifying that the contents of the shipment are fully and accurately described on the manifest by proper shipping name, that the contents are properly classified, packed, marked, and labeled, and that the shipment has been prepared properly for highway transportation. When the shipment arrives at the designated waste management facility, the TSDF signs the manifest as well, and this signature acts as its acknowledgment of the receipt of the shipment, except as specifically noted in the discrepancy space (current Block 19) of the manifest. In addition, as hazardous waste transporters accept custody of the shipment, they also sign off on the manifest form in the designated transporter blocks, and thus acknowledge with their signatures that they have received the materials.

Since the inception of the manifest in 1980, EPA's manifest regulations have required the hand-signed signatures of waste handlers to demonstrate the chain of custody, and to certify that the shipment was prepared properly by the generator or received by the TSDF. During public meetings conducted by EPA in December 1997 and January 1998, nearly all stakeholders attending voiced their support for retaining the role of signatures in the manifest. EPA believes that signatures are an effective means of demonstrating custody and acknowledging accountability. Therefore, this proposal would retain the role of manifest signatures, while authorizing the use of certain electronic signatures in automated systems.

2. What Are the Concerns With Electronic Signatures?

Hand-signed signatures are not perfect, and it is not uncommon for handwritten signatures to be the subject of crude or sophisticated forgery attempts. Nevertheless, the characteristic signature of each individual is an attribute that follows the individual and identifies him or her fairly uniquely to those who are familiar with and can recognize such a signature. When disputes arise, the courts are also familiar with the methods for using hand-signed records as evidence, and the types of expert testimony that can help resolve issues surrounding a disputed signature.

Electronic signatures are relatively new, and there are numerous technologies which purport to provide signature solutions that equal or exceed the level of assurance provided by

handwritten signatures. The technologies tend to be complex, and there is some concern that these technologies have not undergone the kind of review which conventional handwritten signatures have over many centuries of use.

The Agency understands the basis for this concern, and believes that over time, experience with the available signature methods would mitigate much of the concern. EPA believes that the electronic signature approaches proposed today can be made reliable and verifiable, so that they would identify individual signers of manifests to a very high legal and technical standard.

3. How Does Today's Proposal Address Electronic Signatures?

Today's proposal would require that electronic manifests be electronically signed with either a ''digital signature'' or a ''secure digitized signature.'' The proposal clarifies that electronic manifest copies bearing proper electronic signatures are the legal equivalent of paper manifests bearing handwritten signatures, insofar as meeting any requirement in these regulations to sign a manifest, to use a manifest, or to retain a copy of a manifest as a record.

The proposed amendments recognizing electronically signed manifests are found in proposed § 262.25, entitled Manifest Electronic Signatures, and in proposed § 262.26, which addresses electronic manifest systems and their security. These new provisions would together clarify that a manifest may be signed by either affixing a handwritten signature to a manifest form, or by signing an electronic manifest with a digital signature or secure digitized signature. Each mode of signature would be a valid method for a signer to authenticate the manifest. In this context, the term ''authenticate'' means simply that the signer is acknowledging that he or she is the source of the document that is signed, and that he or she approves or adopts the statements to which the signature relates. For electronic copies, § 262.26(a) states that electronic copies which are initiated and stored in computer systems which meet the § 262.26(c) procedures and controls, and which are electronically signed with signatures that meet the proposed § 262.25 electronic signature standards, may be used in lieu of hand-signed paper manifest copies to meet the manifest initiation, use, and retention requirements in the RCRA regulations.

Proposed § 262.25 includes at § 262.25(a) a definition of ''electronic signature.'' This term is defined generally to mean a method of signing an electronic document with a computer generated symbol or series of symbols in a way that indicates that a particular person as the source of the document, and indicates such person's approval of the content of the document, or an intent to be bound by the document. While this definition is technology neutral, paragraphs (b) through (f) would clarify that electronic manifests must be signed with one of two types of electronic signatures, the ''digital'' signature method proposed in § 262.25(c)–(f), or, the ''secure digitized signature method'' proposed in § 262.25(g). Proposed § 262.25(h) would establish a rebuttable legal presumption that may be of evidentiary value in adjudications that might arise surrounding electronically signed manifests. Under this proposal, proof that a particular individual's electronic signature was affixed to an electronic manifest would be evidence, and could suffice to establish that the individual identified as the signor affixed the signature and did so with the intent to sign the electronic manifest to give it effect.

4. What Is a ''Digital Signature?''

Section 262.25(b) of today's proposal would clarify that one type of electronic signature that may be used to authenticate the electronic manifest is a ''digital signature.'' Section 262.25(c) contains a definition of ''digital signature'' which explains that this is a specific form of electronic signature which is based on asymmetric cryptography. This type of cryptographic method is also known as private key/public key cryptography, since it relies on the mathematical relationship between a pair of ''keys'' (which are very long numbers) to execute and verify a signature. The technical basis for this signature technology is described below in greater detail.

This digital signature method proposed today in § 262.25(c)–(f) offers several performance advantages which ensure both reliable authentication and data integrity for electronic documents. Digital signatures are powerful authentication devices, because they are:

- Unique to the signer,
- Under the signer's sole control,
- Capable of being verified, and
- Linked to the data, so that any change to the data would cause the invalidation of the signature.

Thus, in addition to identifying the signer of a document, a digital signature has the additional advantage of providing positive verification that the electronic document has not been altered since it was signed. Thus, digital signatures provide enhanced security and data integrity when compared with personal identification numbers (PINs) and other types of electronic signatures. This also makes the digital signature approach more suitable for use in open systems such as the Internet. While the open network may itself be difficult to secure, the digital signature makes it possible to secure the individual signed documents, thereby ensuring the authenticity and integrity of records that are transmitted and received.

5. How Do Digital Signatures Work?

A digital signature is based on cryptography, which is an area of applied mathematics that is more commonly associated with scrambling and unscrambling transmitted messages so that they remain confidential. In creating and verifying digital signatures, however, there is no encryption of data. Instead, the cryptographic process is used only for authentication purposes.

Digital signatures rely on asymmetric or public key cryptography. In a public key system, each user would have two distinct keys known as the ''public key'' and the ''private key.'' The two keys in each key pair are mathematically related in such a way that: (1) the public key, and only the public key, can authenticate a message that was digitally signed with the related private key; and (2) one cannot feasibly determine or calculate the private key from knowledge of the public key. Once a user has a key pair, he or she must keep the private key secure from disclosure and never transmit it. On the other hand, the public key is distributed freely to all those with whom the user corresponds. Messages digitally signed with party A's private key can be authenticated by party B using A's public key which A has distributed or published. The great advantage of asymmetric cryptography is that communications can be secured across open networks, without the need to share or distribute any secret keys.

Digital signatures are possible because of the key pair relationship in asymmetric cryptography. This follows from the fact that if A's public key is able to validate the digital signature on a message received by B, then B knows with reasonable certainty that the message could only have been digitally signed with the corresponding private key that is held only by A. So, a digital signature created by party A when he ''signs'' an electronic message using A's private key can be verified by party B with A's public key, and this validation

would authenticate A as the source of the document.

The creation and validation of digital signatures is an involved process that involves complex mathematical operations known as encryption algorithms. However, the computations that create and validate digital signatures are conducted by signature system software, and occur transparently to the user. The complexity of the calculations is also what ensures the strength and security of the digital signature method.

To create a digital signature, the signer of a document first uses his or her signature software to create a digital ''fingerprint'' of the document or message that is being signed. A ''hash function'' is applied to the message, and the hash function acts on all the binary data in the document to produce a numerical result that is unique to the document. If even one character or punctuation mark in the document is changed, the hash function would compute a different numerical result for the document. This unique calculated number thus represents the entire document, and is called the ''hash'' or ''message digest.'' The signer's software then uses the message digest value and the signer's private key to generate the digital signature value. This value is forwarded to the recipient along with the text of the document. Upon receipt, the recipient's software verifies the message digest with the sender's public key, and also runs the hash function on the text of the received message. If the sender's public key successfully recovers the message digest, and the numerical result of the recovered digest matches the number calculated by the recipient's hash of the received text, then the digital signature is verified. Verification thus indicates that the digital signature was created with the signer's private key, and secondly, that the document was not altered since it was signed.

6. What Digital Signature Algorithms and Key Lengths Are Acceptable?

This proposal would require that electronic manifesting systems include application support for creating and validating digital signatures that comply with existing standards. Currently, there are several algorithms which can be used to generate a digital signature. In December 1994, the National Institute of Standards and Technology (NIST) adopted the Digital Signature Standard (DSS) as Federal Information Processing Standard 186. The 1994 DSS referenced the Secure Hash Algorithm (SHA) as the required method for calculating message digests. The SHA is a Federal Information Processing Standard that was published by the NIST in April 1995 as FIPS PUB 180–1. According to the Federal DSS, the message digest calculated under the SHA is then input to the DSS's Digital Signature Algorithm (DSA), and the resulting encryption of the message digest creates the digital signature. The DSS was developed to be a standard for federal information systems, in order to improve the utilization and management of computer and related telecommunications systems in the Federal Government.

Despite the specification by NIST of a specific DSS for federal systems, few signature software products were developed that supported the 1994 DSS. Instead, many of the commercial signature products have tended to embrace the algorithm developed by RSA Data Security. Because the RSA algorithm has been demonstrated to be strong and effective, and also because of its widespread commercial acceptance, the NIST determined in December 1998 to include the RSA algorithm in the Federal DSS. Thus, either the earlier DSA announced in 1994 by NIST or the RSA algorithm described in ANSI standard X9.31 may now be used for generating digital signatures in federal information systems. See NIST FIPS PUB 186–1, December 15, 1998.

In light of NIST's recent acceptance of the RSA algorithm, EPA is today proposing that digital signature products used in connection with the hazardous waste manifest must support the Secure Hash Algorithm (for creating message digests) described in FIPS PUB 180–1, and the RSA digital signature algorithm (see ANSI X9.31), in accordance with FIPS PUB 186–1, December 1998. The RSA algorithm is well understood and has been carefully tested, and should provide adequate strength and security for the foreseeable future. EPA believes it is appropriate to standardize manifest digital signatures around the RSA signature algorithm, to facilitate the use and ready verification of digital signatures generated by various commercial signature products.

Digital signature products used in connection with the manifest shall support ANSI X9.31 key generation methods. The modulus, which reflects the strength of the encryption used in creating a digital signature, shall not be less than 1024 bits.

EPA requests comment on the designation of the RSA algorithm and FIPS PUB 186–1 as the standard for manifest digital signatures.

7. Is a Digital Signature Alone Sufficient to Identify Individual Signers?

No. It must be emphasized that, unlike a handwritten signature, a digital signature is not a personal attribute or characteristic of the signer. When a recipient validates a digital signature with the sender's public key, the validation only establishes the fact that the public key and private key are mathematically related. The relationship of the keys to the individual signer is not certain, without additional safeguards that help to bind the signer to the use of the private key.

To ensure the reliability of digital signatures, two potential weaknesses must be safeguarded. First, it is essential that the holder or ''owner'' of the private key maintains the security of the private key. If one's private key is stolen, lost, or otherwise compromised, then the digital signature system may be compromised. An imposter could then use a stolen private key to sign documents that would appear to be signed by and bind the owner of the key, and unless recipients were made aware of the theft, the public key would appear to validate the imposter's signature. Second, there must be involved a ''trusted third party'' to ensure that the identity of the individual and his or her public key are securely bound together in the form of a digital certificate, and that all such certificates are properly issued and managed.

8. How Would Today's Proposal Deal With the Security of Private Keys?

Today's proposal would require that individuals protect their private signature keys from disclosure or other compromise. As discussed below, the discovery that a private key has been compromised creates obligations to notify appropriate authorities, who would then provide notice that the certificate associated with that key has been revoked. In addition, the electronic manifest system controls discussed above in section VII.F. of this preamble would require that organizations using electronic manifest systems have policies in place that hold individuals accountable for actions initiated under their electronic signatures. Since employees would be aware of this accountability and the sanctions that their employer may impose for intentional or careless conduct involving their private keys and digital signatures, EPA believes that such controls would provide a reasonable deterrent against signers compromising the security of their private keys. These requirements are no more demanding

than those generally accepted by the public in connection with lost credit cards. When EPA publishes its supplemental notice detailing the manifest PKI, we will provide more information on the proposed security requirements for digital signatures.

Today's proposal would not, however, require that digital signature systems used for signing manifests employ a tokenized digital signature. With tokenized digital signatures, the private key that creates the digital signature resides on a ''smart card'' or other hardware token, which is carried on the person of an individual signer and accessed with a password or PIN that only the individual would know. Such a hardware-based implementation of a digital signature system can enhance the security of the system beyond that attainable under a system where the private key resides on software stored on one's hard drive or network server. Hardware-based systems provide greater security because the hardware token ties the signature act more closely to the individual holder of the token. A hardware-based system also protects the private encryption key from attacks by hackers or saboteurs. EPA is not proposing the use of the hardware-based approach, because we believe that manifest digital signatures would be sufficiently secure when implemented with software, and because the use of hardware tokens adds additional cost and complexity (installation of card readers) which are not warranted in this application. Organizations desiring higher levels of signature security would of course have the option of implementing a ''smart card'' or other token-based approach. The Agency requests comment on this issue.

9. Why Is a ''Trusted Third Party'' Necessary for Digital Signatures?

Beyond the problems presented by loss or theft of private keys, there is a more fundamental issue associated with the creation and use of a digital signature. Validation of a signature with a public key only verifies the relationship between the keys in a given private key/public key pair. As an initial matter, therefore, one must have some objective means of validating that the person who subscribes to or ''owns'' a given key pair is who they say they are. This need goes to the issue of establishing the bond between the individual signer and the key pair that was generated arbitrarily by the digital signature system.

In digital signature systems, the role of the ''trusted third party'' that would vouch for the bond between a particular individual and a private key/public key pair is played by Certification Authorities. The Certification Authority (CA) must obtain from individual subscribers some type of proof (e.g., a driver's license or Social Security Number) to establish the identity of the subscriber. In this sense, the CA functions like an electronic notary that certifies that an individual is who they claim to be. When the CA is satisfied with the subscriber's identity proof, it issues a digital certificate that identifies the individual subscriber and their associated public key. The CA signs the subscriber's digital certificate with its private key, so that recipients can (with the CA's public key) validate that the certificate is authentic and in fact originated from the CA. Then, when the subscriber uses its private key to sign a document, he or she could also send a copy of the CA's certificate with the transmission to the recipient. The recipient's application could then verify that the document was signed with the subscriber's private key, and also verify that the certificate is a valid certificate. Enabling the validation of certificates is an essential function of the CA, which must track certificates that have been revoked (e.g., a key was compromised or an employee terminated) or that have expired. So, by checking the CA's on-line registry or data base of revoked certificates, or lists of revoked certificates published in other places, the recipient of a digitally signed document can determine whether it should rely on a given certificate and digital signature.

10. What Digital Certificates Would Be Required Under Today's Proposal?

An international, standardized format has been established for digital certificates, so that digital signature systems may efficiently automate the validation of certificates. To maintain consistency with the international standard, EPA would require in this proposal that digital certificates meeting the current X.509 standard be obtained by subscribers who would use digital signatures to sign electronic manifests. This standard is well established, and has been implemented in numerous signature products that are now available and in use. The current version of the standard is X.509v3, and this certificate standard specifies several data fields, including the name and signature algorithm of the Certificate Authority, the serial number of the certificate in the CA's domain of public key certificates, the name of the subscriber, the public key value and signature algorithm of the subscriber, and period of validity for the particular certificate. Other data fields for unique identifier information and optional extensions are also included in Version 3 of the X.509 certificate standard and are included in a standard Federal profile established by the Federal PKI Steering Committee Technical Working Group chaired by the National Institute Standards and Technology. Information about this standard Federal profile is available at http://gits-sec.treas.gov. EPA requests comment on the inclusion of these X.509 certificate standards in the digital signature approach proposed today for electronic manifests.

11. What Is a Public Key Infrastructure (PKI)?

The entities and services that support the issuance and use of digital certificates make up the so-called public key infrastructure, or PKI. To be fully functional, a PKI must be able to provide the following services to those that would subscribe to or rely on digital certificates:

- Certificate registration or enrollment,
- Certificate issuance and delivery,
- Maintenance of a directory of valid certificates,
- Maintenance of a list of revoked certificates, and
- Maintenance of long-term archives of certificate records.

At the heart of a PKI is a Certificate Authority (CA), which serves as the trusted third party to oversee the certificate enrollment, issuance, validation, and revocation processes. Typically, subscribers (those applying for certificates) would look to CAs to conduct a proper identify proofing inquiry and then issue them digital certificates that accurately convey the subscribers' identity information and public keys. Relying parties (those who would rely on the certificate as proof that they are dealing with the named subscriber) would look to CAs to maintain accurate and timely information to validate certificates, including the maintenance of on-line certificate repositories or data bases that may be queried by relying parties. These services can all be provided by a Certification Authority, but in some instances, a CA may delegate to others specific tasks such as certificate enrollment, collecting identity proofing information, certificate production, or processing validation requests. The CA's identify proofing procedures and the standards that it follows for issuing and managing certificates are typically spelled out in the CA's detailed Certification Practices Statement.

PKIs can be developed for ''closed'' and ''open'' user communities. For example, one might wish to authorize

the use of digital certificates in the context of a very narrow user community (e.g., those signing and transmitting health claims forms), or, one might wish to use certificates broadly to support all manner of on-line transactions or dealings with public and private entities. The more ''open'' models for establishing PKIs may involve multiple CAs issuing certificates and processing certificate validation requests. In such cases, issues may arise about the interoperability of the different CAs' certificates, as well as issues about the similarity of their proofing standards and procedures, and whether the different CAs can ''cross-certify'' and recognize each others'' certificates.

There is currently much discussion underway within federal and state governments on the standards and procedures that should govern the issuance and use of digital certificates in government information systems. Significantly, EPA is participating in the Federal Public Key Infrastructure Steering Committee, which includes representatives from more than two dozen federal agencies. This Federal PKI Steering Committee is now developing a Certificate Policy for a Federal Bridge Certification Authority (FBCA) that would establish a framework of minimum requirements for the issuance and management of interoperable digital certificates within the federal government. The FBCA Certificate Policy is currently being developed as a high level statement of the legal aspects of agency CA's operations, rather than the detailed technical aspects. The FBCA Certificate Policy could then be adopted by participating agencies to cover the use of digital certificate services, and fine-tuned to meet the security needs of specific programs. Other public and private sector groups are attempting to address the issue of certificate interoperability, by developing certificate content and processing standards that would facilitate the reliable exchange of digital certificates and their automated validation.

Recently, the General Services Administration (GSA) has established its ''Access Certificates for Electronic Services'' (ACES) program for issuing digital certificates to support the public's access to federal information systems. The ACES model was conceived as a government-wide PKI structure to be administered under GSA contracts, with certificate services being provided by multiple, commercial vendors awarded ACES contracts. The ACES approach offers these beneficial features:

- A unified, consistent approach to obtaining PKI services from the government, thus avoiding the creation of many, limited scope PKIs for numerous government programs;
- Increased efficiencies and reduced costs to certificate users, through the aggregation of the government's certificate needs across many participating agencies;
- On-line subscriber registration and certificate issuance, with identify proofing of subscribers drawing on several, independent-sourced databases;
- On-line and nearly real-time certificate validation for relying parties;
- A common Certificate Policy to govern all parties' responsibilities and the CAs' operations;
- Assured interoperability of certificate processing by the several ACES contractors (CAs), through the design and operation of the so-called ''Certificate Arbitrator Module'' that would be developed for the ACES program; and
- Several pricing options for certificate services, the cost of which would be borne by the participating government agencies relying on the certificates issued to the public.

While EPA believes that the ACES program offered by GSA has much to offer, it is not entirely suited to the hazardous waste manifest program. The current ACES model was designed primarily to support those Federal applications (e.g. websites) where members of the public would be reporting data directly to or requesting information from the federal agency. In this model, the federal agency would always be the ''relying party'' that would be validating the identity of those members of the public dealing with the agency's information system. However, EPA does not now collect manifests from the public, nor does it intend to create a centralized reporting system or national data base for tracking manifest data. Numerous states collect manifests, but ACES is not currently authorized to contract with State agencies for certificate services. In addition, most of the electronic manifest transmissions contemplated by today's proposal would be transmissions among the commercial firms handling hazardous waste shipments, rather than transactions with government agencies. So, the PKI for the manifest system would need to address the fact that the waste handlers would be the typical ''relying parties'' that would need to validate the certificates of other waste handlers involved in their waste transactions. The PKI would therefore need to provide for certificate services in the context of these routine manifest transmissions between waste handlers, and apportion the cost of certificate issuance and validation services equitably among these entities.

EPA believes that digital signatures and certificates will play a vital role in the near term in bolstering the level of trust accorded electronic transactions. The development of PKIs is at an early stage and very much in flux, and many of the details about how and when EPA would establish PKIs for RCRA and its other environmental programs will not become clear until later in the development of this rulemaking.

For example, EPA's Office of Environmental Information is addressing more generally EPA's efforts to implement the GPEA statute, and issues across EPA's programs for submitting electronic reports to EPA. EPA expects that digital signatures will play in important role in electronic reporting. Currently, EPA is testing a prototype approach for a Central Data Exchange, and is testing the use of ACES certificates in connection with the prototype system. As a part of a submitter registration process, EPA is considering whether to require that those applying for digital certificates execute a hand-signed electronic signature agreement that would contain terms and certifications addressing, among other things, the signer's responsibility to protect its private key from compromise, unauthorized use, or delegation to others. EPA is also considering whether registrants should be required to periodically re-certify that he or she has done nothing in violation of the signature agreement.

The details of EPA's PKI approach are evolving. However, the Agency is today providing notice that it is proposing a digital signature option for electronically signing manifests, and this would necessitate some form of PKI to be established as well. EPA is looking at several approaches for establishing a PKI for the manifest. Commenters are advised to look to future proposals for more detailed information on the PKI topic. Policies developed for PKI in other rules would likely be relevant to and perhaps incorporated into this rulemaking. For example, should EPA conclude that signature agreements with certifications addressing subscribers' responsibilities to protect their private keys are necessary to ensure accountability and enforceability in connection with digital signatures, EPA would likely include similar signature agreement terms for the manifest PKI. Once EPA has established a more comprehensive PKI policy, we will issue a supplemental notice in this rulemaking identifying a more specific

PKI proposal for the manifest. Additional public comments on this topic will be solicited at that time.

12. What PKI Options Are Being Considered for the Manifest?

EPA is evaluating several distinct options for establishing a manifest system PKI. These options differ primarily on the level of centralization of PKI services, and whether government agencies (EPA or authorized state agencies) or commercial waste firms would establish these PKIs to support their digital certificate activities

a. *Centralized PKI for Environmental Programs.* Under this option, EPA would establish a centralized PKI structure to service the manifest program and other environmental programs. This ''environmental community PKI'' could then deal centrally and efficiently with supplying certificate services to the various entities subject to the reporting and record keeping mandates of the environmental programs administered by EPA or by authorized state programs. This model would appear to be fit well with the ''Central Data Exchange'' role that the Agency's new Information Office has identified as one of its electronic reporting initiatives. The Central Data Exchange would act as a central hub for receiving, processing, and routing to recipients the many in-bound records and reports that external stakeholders would send electronically to EPA or participating state agencies. Under this option, the central receiving facility role would extend also to providing digital certificate services for the environmental community.

Under this option, EPA would likely leverage existing expertise, and contract with one or more commercial CA vendors to supply certificate issuance and processing services. A fairly generic Certificate Policy could be developed to define user roles, responsibilities, and required CA operations. Interoperability requirements could be included in the event that multiple CA vendors are awarded contracts, and links to the CAs' on-line sites for obtaining certificate enrollment and certificate validation services would be provided. A centralized on-line registry or data base of revoked certificates would be maintained by the CAs for the environmental community, so that the status of certificates could be readily determined. The commercial CAs could then bill users directly for the enrollment or validation services provided to subscribers and relying parties.

EPA believes that a centralized PKI approach offers the advantages of greater efficiencies and economies of scale, when compared to models under which each environmental program or commercial enterprise (e.g., a waste disposal company and its customers) would establish its own PKI. Also, a centralized approach appears to offer greater prospects for avoiding interoperability issues in connection with validating the certificates that would be issued to a great number of commercial entities engaging in interstate transactions. The ability to quickly and reliably validate certificates is critical to fostering trust in digitally signed communications.

However, there may be difficulties as well in establishing such a centralized PKI. State electronic signature laws may impose additional controls or licensing requirements on CAs, and an EPA-led PKI would need to yield to or comport with any additional or different standards required under state law. Also, this option is dependent on the participation by many commercial entities and state agencies in a centralized system, and some may prefer to establish their own systems, rather than defer to EPA. Also, the potential liability of contractors performing CA services could also be an issue, and provisions limiting the CAs' liability may need to be included in their contracts, or the vendors may not wish to participate.

b. *Decentralized Approach to PKI.* Under this option, each waste management or other environmental community would establish and operate its own PKI, or obtain the services of commercial vendors who would obtain the certificates and manage them. So, waste management firms might establish PKIs for their networks of facilities and customers. Alternatively, states could be the organizations that establish localized PKIs to deal with the submissions they receive from their regulated communities. EPA would not issue a generic Certificate Policy under this option. Rather, EPA's role in a decentralized approach would be limited to establishing in this rulemaking some minimal criteria which these PKIs should meet, such as minimally acceptable identity proofing by CAs, minimally acceptable key lengths and encryption algorithms, the definition of those events that would necessitate certificate revocation, the maintenance of certificate revocation lists, a determination of the frequency with which certificate status data must be updated, and minimal archiving and auditability criteria for CAs' records of certificates.

This option would appear to offer several benefits. Certificate policies and CA practices could be tailored closely to the needs of the PKI community at hand, as well as the local laws and procedures applicable in the states where the users operate. EPA would be minimally involved in creating ''national'' PKI policy, or in administering the PKI-related contracts and ''central receiving facility'' types of support network for PKI services. Also, this rulemaking would only need to address PKI issues minimally.

EPA believes that this option would also pose significant drawbacks. First, anecdotal evidence suggests that setting up a PKI can be an expensive proposition. Establishing a PKI can involve either contracting with vendors to provide these services, or the expenditure of considerable resources on-site to provide the skilled personnel, the technical hardware and software, and the certificate processing data bases needed to provide enrollment and validation services. Some entities would likely not proceed at all with PKIs if they were required to incur these costs alone, and it would appear to be extremely inefficient to have these expenditures duplicated many times over so that numerous PKIs could be established for more narrowly defined communities. Moreover, in the decentralized model, there would be greater likelihood that the certificates that would be issued by numerous CAs operating under disparate Certificate Policies would not be interoperable or recognized by the other CAs.

c. *Hybrid Option.* Under a hybrid approach, EPA would establish a standard Certificate Policy similar to the ACES Program Certificate Policy for the ''environmental reporting community'' and define the required structure of the X.509 v.3 certificates that would be issued in connection with EPA's environmental programs. EPA would contract with commercial CAs to provide the certificate services for the manifest and other EPA programs. For example, the Agency could contract with one or more of the CAs selected under the ACES procurement process, in order to foster the interoperability of the certificates that these vendors would issue. The Certificate Policy could, for example, allow the State environmental agencies to function as the local registration authorities (LRAs) that would gather certificate enrollment information from subscribers and confirm through local program data bases the content of certificates. Once adequate information is obtained and confirmed by the LRA, it then would direct the CA to issue or renew certificates. The contracts with EPA would provide that CAs would charge

the participating commercial entities directly for certificate subscription and validation services. This hybrid option offers many of the advantages of the centralized option, while permitting states to exercise their prerogatives in controlling access to certificates by their regulated community.

EPA requests comments on these three options for establishing a PKI. Comments addressing their relative advantages and disadvantages, as well as suggestions for implementing them effectively would be especially helpful. EPA will address these comments and identify a more specific PKI proposal in the supplemental notice that we will later publish for comment.

13. Proposed ''Secure Digitized Signature'' Method

EPA recognizes that the digital signature approach discussed above may not be suited to many manifest users. The digital signature technology is clearly a reliable and proven method for authenticating electronic documents, but managing encryption keys and working within a PKI may introduce a level of complexity that some users may find objectionable. In addition, some may find the digital signature method objectionable because it deviates too far from the more familiar signing ceremony that one associates with handwritten signatures. For these users, an electronic signature method that more closely mimics handwritten signatures may be more desirable, especially for use in the field where manifests are typically signed.

Therefore, EPA is proposing ''secure digitized signatures'' as another signature alternative for the manifest. This alternative would allow electronic manifesting systems to incorporate software, digitizer pads, and electronic pens that create a graphical representation of a signer's handwritten signature. The electronic manifest copies would be signed with the digitizer/pen device, and the manifest records would retain the graphical image of the hand-signed electronic signature. The software would be required to store the signature as a ''signature object'' that contains the graphical image of the signature, signature capture data, and document binding data. The document binding data required here would be data which show that the signature is cryptographically and inextricably bound to the signed document. In addition, the software would be required to display the graphical signature image in an industry-standard bitmap format (e.g., TIFF or BMP) for viewing or printing. Customers and business partners would therefore be able to recognize such an electronic signature image as the likeness of the signer's signature. In this respect, the digitized signature can be applied and ''verified'' in the field nearly as easily as a handwritten pen-and-ink type signature.

A key feature of the proposed ''secure digitized signature'' standard is the inclusion of additional security measures and signature object data beyond the basic signature bitmap image. These additional measures would be required because standard bitmap images alone present security risks that would mitigate their reliability as a means of authenticating electronic records. Standard bitmap files can be readily copied between documents, such that a non-original signature could be applied to a document using conventional ''cut-and-paste'' editing tools. Without additional safeguards, an imposter could conceivably obtain a bitmap image of another's signature, and apply it to a new document in such a way as to create the impression that the other person signed the document. This would create many opportunities for forging electronic signatures and present plausible scenarios for repudiation of electronic documents.

Therefore, EPA is proposing that electronic manifest systems using this signature method must adopt certain measures that would secure this signature method against the unbridled copying of signature bitmaps. Under today's proposal, ''secure digitized signatures'' must incorporate these additional features to enhance their authentication and data integrity capabilities:

- The signature software must block access to ''cut-and-paste'' editing functions;
- The signature software must only accept ''real time'' signature data input from the digitizer/pen device;
- The signature software shall record the signature data as a ''signature object'' that contains:
- The graphical image of the signature for display and print operations, in industry-standard bitmap format (e.g., TIFF or BMP),
- Signature capture information, particularly, the claimed identity of the signer (e.g., a user ID) and the date and time of signing, and
- Document binding data, particularly, an encrypted checksum or hash function of the data to which the signature relates.
- The signature software shall allow for verification of signature objects, to establish if data has been changed since the signature was captured.

These features are intended to address signature authenticity and data integrity. EPA has had some experience with the digitized signature method in its Manifest Automation Pilot tests, and based on early results from the 3rd phase of Internet tests, this method appears to be practical and reliable . There are several signature products that are now commercially available which appear to meet the standard proposed here.

14. Request for Comments on Proposed Signature Methods

Today's proposal would require electronic manifests to be electronically signed with either digital signatures meeting the § 262.25(c)–(f) standards or with secure digitized signatures meeting the standards of § 262.25(g). EPA believes that the proposed signature approaches would provide sufficient assurance that a signed manifest is authentic, and that it has not been altered since being signed by a waste handler. EPA believes that the proposed electronic signature methods represent effective ways to bind an individual to his or her unique electronic signature. We believe that these types of electronic signatures can establish a bond as reliable as the bond between an individual and their handwritten signature. Also, we believe that these signature technologies are more practical and proven than other authentication technologies that rely on biometrics (e.g., fingerprint readers or retina scans), as the biometric methods identified to date tend to have significant error rates which hamper their utility. Biometric methods also are not typically implemented in ways that link the biometric parameters being measured to the data being signed, so they are not as helpful in assuring data integrity as the methods proposed here.

The proposed methods do entail some additional cost to users. For example, the digital signature method requires the establishment of a PKI, and in addition, Certification Authorities typically would charge subscribers and relying parties fees to issue and validate digital certificates. Software integrating the signature method with the other manifest preparation and transmission functions would need to be acquired, and depending on the method selected, there may be additional costs associated with digitizers or other peripherals. The Agency is proposing these signature methods in spite of these incremental costs, because we believe that these methods would be instrumental in making electronically signed manifests trustworthy and legally enforceable. Thus, the additional security and

trustworthiness that should result under the proposed approaches balance the cost considerations. EPA requests comment on the electronic signature methods proposed here for the manifest. In particular, comments addressing the following issues would be very helpful to EPA.

- Do manifest signatures require the level of security offered by the digital signature technology?
- Is the proposed software-based implementation of the private signature key a reasonable accommodation of signature security, practical implementation considerations, and cost?
- Would the administrative complexity and cost of establishing or participating in PKIs deter waste handlers from implementing digital signature-based electronic manifest systems?
- Is it practical for waste handlers and their employees to sign manifests using digitizers or digital signature products? Are there human factors or other issues involved that would make such signature methods impractical for hazardous waste shipments?
- For digital signatures, would individuals and sponsoring firms be willing and able to maintain the confidentiality of their private keys, and accept accountability if private keys are compromised? Should EPA require registrants to enter into signature agreements that contain certifications that the private key would be protected from disclosure, unauthorized use, or delegation? Should registrants also be required to periodically re-certify that they have not violated their signature agreements, and if so, what would be the appropriate frequency of such re-certifications? Should the signature agreements and re-certifications be signed by hand?
- What types and quantity of proof of identity should be required to support the issuance of a digital certificate for use in the manifest program? Should applicants be required to present themselves in person to the Certificate or Registration Authority, or should less formal proof be acceptable?
- Is it practical to verify digital signatures on a document such as the manifest, which is signed sequentially by multiple waste handlers, and occasionally edited while it is being transmitted among handlers? Must multiple versions of each manifest document be maintained by the software so that the complete history of the document is preserved?
- How susceptible are digitally signed and electronically stored media to deterioration over time, such that a digital signature might become corrupted during storage and thus fail to validate? Are there practical solutions to this problem?
- Is it feasible to require validation of digital signatures and certificates over the long term? Are there practical ways to ensure long-term authentication and enforcement capability, without requiring indefinite signature validation mechanisms?
- With respect to the secure digitized signature method, does the proposed standard provide adequate security for manifest signatures? Does the similarity of digitized signature images to handwritten signatures offer advantages that manifest users would find attractive? Does software implementing this approach support open standards, rather than proprietary algorithms and standards?
- Is the secure digitized signature approach proposed here adequate to prevent ''replay attacks'' by which a digitized signature could be appended to another document and thus forged? Are there other practical measures that should be included to guard against copies being substituted for original digitized signatures? Are the algorithms that are used to bind these signatures to record data sufficiently strong to prevent attacks or misuse?
- Should the Agency require that there also be some visual feedback provided to signers during the digitized signature act, so that signers can clearly see how the system is capturing their signatures and thereby enter more accurate signature data? What additional cost would be incurred if digitizer pads were required to provide such feedback?
- Should the proposed secure digitized signature method also require that these systems capture dynamic signature parameters, e.g., speed of signature, pressure applied to the pad, and pen stroke measurements? Should the proposal also require that the captured dynamic signature information be used in real time to validate the digitized signature? Would such data significantly enhance the ability to establish the genuineness of a signature? Are the current products which provide this capability accurate and reliable? Would the forensic evidence produced by these products provide a sufficient and reliable basis for civil and criminal litigation? Which dynamic signature parameters are most relevant and reliable insofar as being helpful to verify an electronic signature as genuine?
- Should EPA be concerned that users of digitized signature systems might be more inclined to enter null or nonsense signatures on a digitizer pad than they would if they were signing a paper document?
- As an additional measure to enhance the security and authenticity of digitized signatures, should EPA require that digitized signatures also be digitally signed? EPA has not included this requirement in the proposed rule option, as it was the Agency's intent to establish the secure digitized signature method as a distinct alternative to the digital signature method. Specifically, we developed the proposed digitized signature method to allow hand signed electronic signatures to be verified without the administrative complexity of a public key infrastructure. While it is technically feasible to digitally sign a digitized signature, EPA is concerned that the additional security gains would be outweighed by the additional cost and complexity associated with implementing this approach.
- Is the proposed secure digitized method practical and cost-effective when compared to hand-signed forms or to the digital signature/PKI alternative?
- Is the Agency being too prescriptive in proposing only the ''digital signature'' and ''secure digitized signature'' methods, rather than authorizing the use of ''electronic signatures'' more broadly? If the Agency adopted a broader approach, what performance or technical criteria would be appropriate for authorizing the use of additional signature methods? What approval process would be followed to authorize any additional methods, and who would be responsible for reviewing and approving such methods? If numerous methods were to be authorized, how would EPA ensure that the manifest's multiple signatures could be readable and readily verifiable by all those who might encounter and wish to rely on the electronic manifests?
- Is it appropriate for the Agency to propose two alternative signature approaches? Would the two alternative methods conflict in practice, and if so, how can EPA minimize this problem? Does the interstate nature of waste transactions and the need for multiple signatures on the manifest provide justification for adopting one uniform method or standard for signatures? If only one signature approach makes sense for the manifest, should EPA adopt the digital signature or the secure digitized method?
- Is there merit to a Personal Identification Number (PIN) system, in which individuals would enter a unique sequence of alpha-numeric characters which they have adopted as their electronic signature. A PIN system may be less costly to implement than other electronic signature alternatives,

although such systems can require considerable company and agency oversight in order to issue, manage, and revoke PINs as appropriate. A PIN-based signature system may be appropriate for electronic transactions for which there is not as critical a need for security or strong authentication. However, in the context of developing electronic reporting standards for the Discharge Monitoring Report (a Clean Water Act requirement), EPA concluded that, in order to satisfy standards of proof for criminal prosecutions, it was preferable to require more than simply a PIN for authentication of a record. So, in the Discharge Monitoring Report rulemaking, EPA proposed the use of a PIN signature backed up with a follow-up certification that would be hand-signed and mailed to the Agency. This approach seems impractical for the manifest, and therefore, EPA has not included a PIN approach in today's proposal. However, we solicit comments on the practicality and security of PIN-based methods in the context of the manifest system, and how such an approach could be implemented securely and efficiently.

H. Preparer Signature Proposal

1. What is a ''Preparer Signature''?

The manifest is completed when the generator signs the Generator's Certification contained in Block 16 of the Uniform Hazardous Waste Manifest. The generator makes this certification before turning custody of the shipment over to the transporter, and the certification statement attests that the waste shipment is fully and accurately described on the manifest, and that the shipment is in all respects in proper condition for highway transportation according to applicable national and international laws. In addition, the certification includes statements regarding a generator's waste minimization program or, for SQGs, efforts to minimize waste. Currently, the generator's certification requires the hand signature of the generator or an authorized representative of the generator.

Today's proposal would allow an electronic manifest ''preparer'' to sign a generator's manifest. For purposes of the automated manifest, the proposal would enable such a preparer to sign the generator's certification on behalf of the generator with the preparer's electronic signature.

2. Why Is EPA Proposing To Allow Preparers To Sign Electronic Manifests for Generators?

EPA is aware that it is a common practice for an entity or individual other than the generator (e.g., employee or contractor) to perform the steps necessary to prepare a waste shipment for transportation, including the steps associated with preparing the manifest paperwork. Often, the transporter or the TSDF prepare the manifest paperwork as a part of the service it provides to its generator customers. EPA has already clarified, through an amendment to Item 16 of the manifest instructions, that the handwritten signature on paper manifests may be made by employees or other individuals on behalf of the generator. 51 FR 35190 at 35192 (October 1, 1986). Because the electronic manifest may also be prepared by entities or individuals other than the generator, it is appropriate to provide similar flexibility for the preparation and signing of the electronic manifest. Please note, however, that EPA is not reconsidering, reopening, or requesting comment on the existing rule allowing employees or other individuals to sign the paper manifest on behalf of a generator.

EPA believes that allowing preparers to sign an electronic manifest on behalf of a generator would be particularly important in ensuring that small generators may take advantage of the electronic manifest option. Hazardous waste transporters and TSDFs frequently prepare manifests as a service to smaller generators. While the small or infrequent generator would not be expected to obtain computer equipment or software to conduct automated manifesting, the transporters and TSDFs that deal in larger volumes of manifests would likely find automated manifesting more advantageous. Thus, allowing the preparer to sign the electronic manifest provides a way for small or infrequent generators to participate in the automated system. EPA estimates that small generator manifests may account for about 66% of the manifests circulated annually. So, providing a means to include these manifests would extend the burden reduction effects of manifest automation to these manifests as well, particularly, as they are received and processed by transporters, TSDFs, and State agencies.

3. How Would the Preparer Signature Feature Work?

Under today's proposal, a preparer may initiate electronic manifests for its generator customers only if the preparer has been authorized by the generator to prepare and sign the generator's manifests on behalf of the generator. EPA is further clarifying that the authorization need not be in any specific form, but there must be clear evidence of intent that the preparer is authorized to prepare and sign manifests on behalf of the generator. The generator can limit this authorization to a specific term, or to specific waste types, as appropriate. The generator can also revoke the authorization at any time.

Today's proposal would provide that electronic manifests may be signed electronically by preparers who have been authorized to prepare and sign electronic manifests on behalf of the generator. So, a transporter or TSDF under contract with the generator could arrive on-site for a waste shipment pick-up and have authorization from the generator to prepare the shipment and sign the manifest electronically on behalf of the generator. A person signing a manifest (paper or electronic) on behalf of a generator would not become liable as a RCRA ''generator'' simply by signing the manifest. The question of whether such a person might also be held responsible for complying with the generator requirements would depend on the facts and circumstances of individual cases. For example, a contractor can under other circumstances be a co-generator of a waste, and in such instances, may in fact assume generator responsibilities for completing the manifest. See 45 FR 72024 at 72026 (October 30, 1980).

Since an authorized preparer does not assume generator responsibilities simply by signing an electronic manifest on behalf of a generator, the generator would in all such cases still be identified on the manifest as the generator of the shipment. Today's proposal would only affect who might perform the physical act of signing the generator's certification in the course of initiating the electronic manifest. Once signed by the preparer, the electronic manifest would then be transmitted electronically to subsequent transporters and the TSDF, and any copies required by generation or destination states could also be supplied electronically, if the states involved allow electronic submission of manifest copies.

4. How Would a Preparer-Signed Electronic Manifest Be Closed Out?

Under today's proposal, the generator would remain responsible for overseeing that its off-site shipments are in fact received by the designated facility or TSDF. So, a preparer authorized to transmit manifests electronically must, at the time the

shipment is initiated, leave a manifest copy (hard copy) with the generator. The generator copy would include a notation that the manifest was initiated electronically by the preparer, and it would indicate the date that the manifest was initiated, and the date that the shipment was delivered to the first transporter. Upon receipt or rejection of the shipment by the designated TSDF, the TSDF would likewise communicate to the generator the fact of receipt, rejection, or any discrepancies. This communication could be provided in the form of a hard copy of the manifest, or a memorandum signed by the TSDF which references the manifest number for the shipment, which states that the waste shipment was received or rejected, and which describes any discrepancies. Thus, the generator would retain these records of receipt, rejection, or discrepancies among its records, just as it now retains a manifest copy signed by the TSDF. The generator would still be expected to reconcile or report any discrepancies or exceptions that might arise. So, under this proposal, the generator's role would not change with respect to close-out of the manifest and reconciling problems.

5. Request for Comments

EPA requests comments on the proposal to allow preparer signatures as a means of initiating generators' electronic manifests. Comments responding to these issues would be useful:

- Should the preparer approach for electronic manifests include additional safeguards to ensure accountability, particularly where preparers allied with transporters or TSDFs are allowed to perform these activities on the generator's behalf?
- Should the preparer signature approach be limited to digital signature systems only? With the secure digitized signature method, it should not be difficult for transporters to obtain digitized signatures from small or medium sized generators using remote, portable devices (with signature pads) that the transporter would bring to the generator's site. Should the rule require generator's signatures to be obtained when this is practical, or, should the preparer signature approach be more widely available regardless of the signature method used?
- Should preparers of electronic manifests be required to have written, hand-signed authorizations from generators authorizing the preparer to sign manifests electronically on behalf of the generator? While written authorization is not required to enable another person to sign one's paper manifest on their behalf, are there reasons unique to the activities of electronic preparers that warrant written authorization to sign an electronic manifest on the generator's behalf?
- Is there an effective alternative to the proposed approach for closing out preparer-initiated electronic manifests that would not require hard copies of manifests to be issued and retained by generators? Could the preparer receive verification of receipt or notice of rejections or discrepancies electronically on behalf of the generator? How would the generator's interests be preserved in such a case, particularly where the preparer is employed by the same entity that operates the receiving facility?

I. Third Party Storage of Manifest Records

1. What Does EPA Mean by Third-Party Storage?

Currently, RCRA facilities are required to maintain manifest records on-site for inspection by RCRA inspectors. Section 3007(a) of the RCRA statute requires that all hazardous waste facilities shall afford RCRA inspectors access at reasonable times to facilities that manage hazardous waste. This section also requires that RCRA inspectors shall be permitted reasonable access to facility records for examination or copying. Significantly, the Act only requires access to records such as manifests; it does not prescribe how that access must be provided.

As document storage methods undergo the transition from retention of paper files to storage or records on electronic media, it becomes less essential where the storage media resides. As long as there is reasonable access to electronic records at a RCRA facility, it should not matter whether the specific document actually resides on a disk at the facility, or whether it is downloaded from a network or server for which the storage media is physically located out of state. As long as the required reasonable access to the file is ensured, and electronic records can be called up, examined, printed, and copied at the facility, EPA does not believe that the Act or policy considerations preclude storage by such ''third-party'' storers (e.g., commercial network services or record archive services). Indeed, today's proposed rule would impose specific obligations on those storing records electronically to comply with computer security controls, and those that offer electronic storage services commercially may be in a better position than some RCRA waste handlers to bring their systems into compliance with these controls. So, it seems sensible to the Agency that our automated manifesting rules and policy allow flexibility on this issue.

Current facility standards for permitted TSDFs (40 CFR 264.71(a)(5)) and for interim status facilities (40 CFR 265.71(a)(5)) include the direction that manifest copies must be retained ''at the facility'' for 3 years. EPA believes that this requirement is met if an electronic copy can be produced and accessed at the facility, even though the physical device on which the record may be stored is in fact external to the facility.

2. What Are the Proposed Conditions on Third-Party Storage?

Today's proposal would permit facilities to engage commercial record storage services or networks to provide for electronic storage of manifest copies. This proposal would be conditioned on the records being readily retrievable during the full record retention period, on reasonable inspector access for examination and copying of manifest copies being ensured, and on compliance with this proposal's electronic record system controls. EPA emphasizes that RCRA facilities remain responsible for providing inspectors access to all electronic records; they cannot contract away their responsibility by engaging the services of a commercial storage service provider. Firms would be required to include terms in their contracts with third-party storers providing that records must remain readily accessible during the full record retention period, that reasonable inspector access for examination and copying of manifest records must be available, and that the third-party storage provider must comply with this rule's electronic record system controls.

3. Request for Comments

EPA requests comments on this proposal to permit third-party storage services to aid RCRA facilities in implementing electronic storage programs, by providing off-site storage and archiving media that would be accessible electronically from the RCRA facilities. Is this flexibility desirable to the regulated community, and would it provide an incentive for RCRA facilities to engage in automated manifesting? Would facilities object to sharing custody of their records with off-site vendors, or would they be more agreeable to allowing the off-site vendors to assume this proposal's computer and record security controls? If controversies arise with facilities over record access, would the Agency be frustrated in efforts to obtain records

from the third-party service provider? What, if any, RCRA liability should be assumed by the third-party vendor? What, if any, safeguards should EPA include to protect against the possibility that third-party storers may leave the business? EPA seeks comments on these issues related to third-party electronic storage.

VIII. Related Acts of Congress, Executive Orders, and Agency Initiatives

A. Regulatory Impact Analysis Pursuant to Executive Order 12866

Under Executive Order No. 12866 (58 FR 51735, October 4, 1993), the Agency must determine whether a regulatory action is ''significant'' and therefore subject to OMB review and the requirements of the Executive Order. The Order defines a ''significant regulatory action'' as one that is likely to result in a rule that may: (1) Have an annual effect on the economy of $100 million or more or adversely affect, in a material way, the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or State, local, or tribal governments or communities; (2) create serious inconsistency or otherwise interfere with an action taken or planned by another agency; (3) materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the rights and obligations of recipients; or (4) raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in the Executive Order.''

It has been determined that today's proposed rule is a ''significant regulatory action,'' because it may raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in the Executive Order. As such, this action was submitted to OMB for review. Changes made in response to OMB suggestions or recommendations will be documented in the public record. However, today's proposed rule is not ''economically significant'', because we expect that it would result in net reductions in compliance burdens and costs. The proposal would standardize the manifest form, streamlines certain manifest requirements, and would provide hazardous waste handlers with the option to prepare, transmit, sign, and store their manifests electronically. In those states that collect manifests and maintain databases to track manifest data, today's proposal would also enable the electronic submission of manifest copies to the states. These features are expected to reduce the paperwork burden and other hazardous waste manifesting costs on the regulated community (i.e. waste handlers and states).

In order to quantify and monetize the anticipated economic effects of today's proposed rule, the Agency conducted three separate evaluations of different levels of potential effects of this rule on hazardous waste handlers and on State government regulatory agencies. These three studies are briefly summarized below in this section of the Preamble. They have the following titles and analytic scope, and are available for public review and comment from the RCRA Docket:

—*''Supporting Statement for Information Collection Request Number 801.#'',* 19 July 2000: This study represents the narrowest scope of the three studies, focused primarily on estimating the annual burden hour reduction (and associated reduction in annual labor cost) for today's proposed rule, as it affects 1.76 million annual Federal RCRA manifests. This first study estimates burden hour reduction assuming that 50% of all annual manifests become electronic after promulgation of today's proposed rule.

—*''Economics Background Document: Economic Analysis of the USEPA's Proposed Modifications to the RCRA Hazardous Waste Manifest System'',* 12 May 2000: Building upon the burden hour reduction findings of the ICR, this second study expanded the scope of the economic impact analysis to include potential impacts of the rule on both Federal RCRA and state hazardous waste manifests (2.43 million annual manifests), as well as a cursory estimate of annualized electronic automation equipment costs (to states and to waste handlers) for implementing today's proposed rule. Consequently this study presents a relatively larger baseline estimate of annual manifest activity compared to the ICR study. This second study applies two alternative electronic manifest adoption rate scenarios: 25% and 50% of all annual manifests become electronic, applied to a future three-year time-span. No attempt was made in this study to project quantitatively the future trend in the number of manifests issued, or the effects of future technological changes in electronic data transmission or other costing factors, since this study was designed only to formulate a fairly simplistic analysis to support the proposed rule.

—*''Hazardous Waste Manifest Cost Benefit Analysis'',* October 2000: Building upon the second economic study, this third study is the broadest in scope, as it includes electronic manifest equipment costs associated with existing computerized systems in some companies, as well as includes a more extensive and detailed estimate of both initial and annually recurring costs (to states, to waste handlers, and to EPA) for implementing different, alternative versions (''models'') of the proposed electronic manifest automation system. This third study adopts the 2.43 million annual manifest baseline from the second study, but expands the estimated annual manifest activity to 3.01 million manifests, to include additional manifest transmissions for purpose of repeats and continuation sheets, applied to a future ten-year time-span. This study also expands the assumed number of manifests transmitted electronically, in relation to numbers of entities assumed adopting electronic manifests, which include 100% of large quantity waste generators, 25% of small quantity generators, 90% of transporters, and approximately 25% of the hazardous waste treatment, storage and disposal facilities involved in manifest activities. This study estimated costs and potential burden reduction benefits according to multiple alternative implementation scenarios (''models'').

Consequently, because each is unique in scope and units of analysis, EPA presents them in the RCRA Docket separately for public review and comment, rather than consolidating them into a single document in support of today's proposed rule. On the other hand, the basic approach of all three studies in estimating their respective different levels of economic effects is similar; to compare current (i.e. 1997–99) baseline manifesting burden hour and other cost requirements, against the burden and cost under today's proposed revisions to the manifest system. The calculations in each study were performed using a series of comparative spreadsheets, incorporating detailed unit labor and other cost estimates for carrying out numerous manifest-related tasks. It is important to indicate that all studies did not attempt to forecast the future trend in the number of manifests issued, or to forecast the effects of future technological changes in electronic data transmission equipment or other costing factors. Consequently, it is important that each study be interpreted as a relatively simple estimate of impacts,

subject to future annual variability, and to other potential sources of uncertainty.

Regulatory Burden Savings Estimates

Based on the findings of the first and second economic study listed above—which focused on estimating burden hours and cost reduction for today's proposed rule—under current Federal and State baseline regulations, the Agency estimates that about 92,350 individual hazardous waste generators and other handlers produce and manifest about 2.433 million hazardous waste shipments for off-site management annually, requiring about 4.416 million waste handler labor hours, costing about $187.0 million annually. State government waste management programs spend an additional 199,000 hours and $6.3 million annually to administer their current waste manifesting programs.

The manifest reform proposal projects an overall net regulatory burden reduction of between 765,000 (low adoption scenario) and 1.241 million (high adoption scenario) labor hours (a baseline savings of 17 to 27 percent), and a corresponding annual reduction in total nationwide manifesting costs of about $23.4 to $37.2 million (a 13 to 19 percent reduction in baseline cost). The major part (i.e. 96 to 99 percent) of these total nationwide savings would accrue to the private sector (waste handlers), but State regulatory agencies would also experience substantial reductions—on the order of 18 to 40 percent in annual burden hours, and 3 to 25 percent in cost—relative to State-level baseline administrative burdens for hazardous waste manifesting.

In terms of basic proposal elements, the manifest form change requirements alone appear to produce potentially a relatively small burden reduction of only about four to 13 percent cost savings from current practices. In addition, as described earlier in this Preamble, the requirement for a uniform nationwide form is an essential prerequisite for efficient electronic automation which is projected to result in quite substantial potential burden reductions for the private sector. The potential incremental benefits from electronic automation of the manifest system are estimated at 87 to 96 percent of current cost. Higher automation adoption rates than those assumed here are possible, given the national trends in internet communications, the potentials for commercial waste transporters and TSD companies to centralize the manifesting functions as an added service to generators, and the scale economies involved in doing so.

In contrast with electronic automation, the additional savings from the telefax option are in the one to two percent range. Labor and cost reductions from faxing would vary inversely with the degree of automation, i.e., the greater the use of electronic manifesting, the less is the need for the faxing of manifests.

In the present proposal, the actual savings resulting from both the automation and fax options depend on the adoption of these options by States as part of their authorized RCRA programs, including both States of origin and States of destination for interstate shipments, and, in some cases, intervening States as well. The Agency's benefit estimates assume that most if not all States would ultimately revise their regulations to allow for both electronic automation and the faxing of manifests within their borders. To the extent that this does not occur or does not take place reasonably quickly, the regulatory burden reductions projected here would either not transpire or would be postponed.

Based on the third economic study which was more expansive in scope by including electronic automation implementation costs, in addition to burden affects, the average annualized implementation cost for the proposed rule is estimated to range between $10.8 to $26.0 million. This range in implementation cost reflects two alternative implementation approaches considered in the study. EPA anticipates that today's proposed rule would offset this implementation cost, by reducing the national annual burden associated with the manifest system, resulting in a net, average annualized national burden cost savings of $82.2 to $86.8 million.

B. Regulatory Flexibility Analysis

Pursuant to the Regulatory Flexibility Act (5 U.S.C. 601 *et seq.*) as amended by the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA), whenever an agency is required to publish a notice of rulemaking for any proposed or final rule, it must prepare and make available for public comment a regulatory flexibility analysis that describes the effect of the rule on small entities (i.e., small businesses, small organizations, and small governmental jurisdictions). However, no regulatory flexibility analysis is required if the head of an agency certifies the rule will not have a significant adverse economic impact on a substantial number of small entities. SBREFA further requires Federal agencies to provide a statement of the factual basis for certifying that a rule will not have a significant economic impact on a substantial number of small entities. The Agency is certifying that there will not be an adverse impact on small business populations as a result of today's rule proposals, and therefore no regulatory flexibility analysis or other SBREFA requirements are necessitated. This certification is based on the following reasons.

With respect to the manifest form changes and automation options, today's proposals include both regulatory and deregulatory features. However, the net effect of these changes should reduce, and not increase, the paperwork and related burdens of the RCRA hazardous waste manifest system. For businesses in general, including all small businesses, the form changes, although required, are designed to reduce the labor time and other costs of acquiring, completing, and submitting hazardous waste manifests. The Agency's proposals regarding the optional use of telefaxed forms and the electronic automation of form preparation and tracking are also designed to facilitate and encourage increased efficiency and reduced costs through the use of modern communications technologies. These possibilities were not available under existing manifest regulations. Although most small businesses waste generators would not be expected to initiate or acquire the automation technology directly, many or most would be expected to share in the savings due to automation undertaken by the waste transportation, treatment and disposal sectors which service the many waste generating sectors. Since these proposals are offered as options to the regulated community, they are unlikely to be employed in situations that do not involve cost savings to waste handlers and generators.

For the reasons discussed above, I hereby certify that this rule will not have a significant adverse economic impact on a substantial number of small entities. This rule, therefore, does not require a regulatory flexibility analysis.

C. Environmental Justice—Applicability of Executive Order 12898

Pursuant to Executive Order 12898, the Agency's goals are to ensure that no segment of the population, regardless of race, color, national origin, or income bears disproportionately high and adverse human health and environmental impacts as a result of EPA's policies, programs, and activities. The Agency conducted an analysis to identify whether environmental justice concerns might result from today's proposed modifications to the hazardous waste manifest system. To

conduct the analysis, we used two criteria, both of which would have to be met in order to flag an environmental justice concern: (i) Are there any adverse impacts from the proposed action, and if so, (ii) would the adverse impacts on minority populations and low-income populations be disproportionately high? We applied both criteria to each rule component: Manifest form changes, automation, use of fax, annual waste minimization certification, and special procedures for problem shipments. We found no adverse impact, and thus no disproportionately high adverse impact, on minority populations and low-income populations, for each component of the proposed rule.

The basic reason for the above finding is that the current features of the manifest system that protect human health and the environment are preserved or enhanced under today's proposed rule. For example, neither the proposed form changes nor the automation proposals would detract from the manifests basic ''cradle-to-grave'' tracking features that protect human health and the environment. The information essential to identifying the materials involved in shipments and aiding emergency responders would be retained. Manifest automation and faxing may be more convenient for some waste handlers than using regular mail and may result in increased compliance, as well as enable closer real-time tracking of shipments, improved data quality for recipients and better enforcement opportunities. Regarding the change for the waste minimization certification from a per manifest basis to annual basis, this is not expected to alter hazardous waste generation, handling or disposal practices, nor pose an incremental risk to human health and the environment. Similarly, clarification on the manifest of the special procedures for problem loads are designed to improve tracking and therefore would not have adverse effects on human health and the environment.

D. Protection of Children—Applicability of Executive Order 13045

The Executive Order 13045, entitled ''Protection of Children from Environmental Health Risks and Safety Risks (62 FR 19885, April 23, 1997) applies to any rule that EPA determines (1) is determined to be ''economically significant'' as defined under Executive Order 12866, and (2) concerns an environmental health or safety risk that EPA has reason to believe may have a disproportionate effect on children. If the regulatory action meets both criteria, the Agency must evaluate the environmental health or safety effects of the planned rule on children; and explain why the planned regulation is preferable to other potentially effective and reasonably feasible alternatives considered.

This proposed rule is not subject to Executive Order 13045 because this is not an economically significant regulatory action as defined by Executive Order 12866. In addition, the Agency does not have reason to believe the environmental health or safety risks addressed by this action present a disproportionate risk to children, because the manifest system does not itself give rise to environmental media transfer issues. The manifest serves as a tracking device which creates clear lines of accountability among the participants in the hazardous waste system. It also serves to protect human health and the environment during the transportation of hazardous waste by providing information about the waste to persons handling the waste and to emergency response personnel.

E. National Technology Transfer and Advancement Act

Section 12(d) of the National Technology Transfer and Advancement Act of 1995 (''NTTAA''), Public Law No. 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.

The manifest automation component of this rulemaking involves information technology standards for electronic manifest formats and for electronic signatures. Today's proposal includes an electronic format for the manifest based upon the American National Standards Institute (ANSI) Accredited Standards Committee's (ASC) X12 standard format for Electronic Data Interchange or EDI. EPA is also proposing an Internet Forms document definition for the manifest based on the Extensible Mark-up Language (XML) Specifications developed by the World Wide Web Consortium. The World Wide Web Consortium, however, is not a voluntary consensus standards body within the meaning of the NTTAA, and EPA could not identify an applicable consensus standard for creating and transmitting Internet Forms. Therefore, EPA has decided to propose an XML document definition for Internet transmissions of the manifest, as an alternative to the ANSI ASC X12 formats that are customarily transmitted across Value Added Networks. It is possible that the ANSI ASC X12 standards body will develop standards for XML document definitions in the future, and EPA will monitor this situation as we develop a final rulemaking.

The rulemaking also proposes a digital signature method for signing electronic manifests, based on the Digital Signature Standard adopted by the National Institute of Standards and Technology and published in Federal Information Processing Standard (FIPS PUB) 186–1. The proposed digital signature method would require the use of the RSA digital signature algorithm discussed in ANSI X9.31. EPA has also proposed a ''secure digitized signature'' method for signing manifests electronically, since this method may be a cost-effective alternative to the digital signature method. The Agency could not identify an applicable consensus standard for digitized signatures.

EPA welcomes comments on this aspect of the proposed rulemaking and, specifically, invites the public to identify potentially applicable voluntary consensus standards and to explain why such standards should be used in this regulation.

F. Unfunded Mandates Reform Act

Title II of the Unfunded Mandates Reform Act of 1995 (UMRA), Public Law 104–4, establishes requirements for Federal Agencies to assess the effects of their regulatory actions on State, local, and tribal governments and the private sector. Under section 202 of the UMRA, EPA generally must prepare a written analysis, including a cost-benefit analysis, for proposed and final rules with ''Federal mandates'' that may result in expenditures to State, local, and tribal governments, in the aggregate, or to the private sector, of $100 million or more in any one year. Moreover, section 205 allows EPA to adopt an alternative other than the least costly, most cost-effective or least burdensome alternative if the Administrator publishes with the final rule an explanation why that alternative was not adopted. Before promulgating an EPA rule for which a written statement is needed, section 205 of the UMRA requires EPA to identify and consider a reasonable number of regulatory alternatives and adopt the least costly, most cost-effective, or least burdensome

alternative that achieves the objectives of the rule. The provisions of section 205 do not apply when they are inconsistent with applicable law. Before EPA establishes any regulatory requirements that may significantly or uniquely affect small governments, including tribal governments, it must have developed under section 203 of the UMRA a small government agency plan. The plan must provide for notifying potentially affected small governments, enabling officials to have meaningful and timely input in the development of regulatory proposals, and informing, educating, and advising small governments on compliance with the regulatory requirements.

This rule does not include a Federal mandate that may result in expenditures of $100 million or more to State, local, or tribal governments in the aggregate, because the UMRA generally excludes from the definition of ''Federal intergovernmental mandate'' duties that arise from participation in a voluntary federal program. States are not legally required to have or maintain a RCRA authorized program. Therefore, today's proposed rule is not subject to the requirements of sections 202 and 205 of UMRA. In addition, EPA has also determined that this rule contains no regulatory requirements that might significantly or uniquely affect small governments under section 203 of UMRA. Small governments would be affected only to the extent that they generate or otherwise handle hazardous wastes, and the net effect of today's proposal should be to reduce paperwork burdens and compliance costs for hazardous waste handlers. Therefore, EPA does not believe that this proposal would have a significant or unique effect on small governments.

G. Paperwork Reduction Act

The information collection requirements in this proposed rule have been submitted for approval to the Office of Management and Budget (OMB) under the Paperwork Reduction Act, 44 U.S.C. 3501 *et seq.* An information collection request (ICR) document has been prepared by EPA (ICR No. 801.#, 19 July 2000), copies of which are available to the public from Sandy Farmer, OP Regulatory Information Division; U.S. Environmental Protection Agency (MC 2137); Ariel Rios Building; 1200 Pennsylvania Ave., NW., DC 20460 or by calling (202) 260–2740.

According to the estimates provided in the ICR for this proposed rule, the average annual burden [5] to RCRA hazardous waste handlers as a result of the proposed revisions to the RCRA manifest system, represents a net reduction in burden of about 590,000 hours per year. These burden reductions represent 20% reduction in annual burden hours compared to the baseline burden of 2.920 million hours per year, as estimated in the RCRA manifest system baseline ICR No.801 (22 October 1999).

The public should send comments regarding the burden estimate, or any other aspect of this collection of information, including suggestions for reducing burden to EPA (at the address given above) and to the Office of Information and Regulatory Affairs, Office of Management and Budget, Washington, DC 20460, marked ''Attention: Desk Officer for EPA.''

H. Federalism—Applicability of Executive Order 13132

Executive Order 13132, entitled ''Federalism'' (64 FR 43255, August 10, 1999), requires EPA to develop an accountable process to ensure ''meaningful and timely input by State and local officials in the development of regulatory policies that have federalism implications.'' The Executive Order defines ''policies that have federalism implications'' to include regulations that 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.''

This proposed rule does not have federalism implications. It would 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.

The proposed rule would alter the information that a State may require a generator or transporter to submit on the Uniform Manifest, and it would also alter the States' current role in distributing manifests. However, these changes represent relatively minor adjustments to the current manifest system, and they do not alter substantially the relationship between the Federal government and the States, or the distribution of power and responsibilities among the various levels of government. The manifest would remain a tracking document and shipping paper that is primarily based on Federal requirements found in RCRA and in the hazardous materials transportation laws administered by DOT. As with existing hazardous waste manifest requirements, States would retain the authority to require generators and treatment, storage, and disposal facilities to provide information included in the remaining optional fields on the manifest and to require the submission of additional information related to the hazardous waste shipment under separate cover, so long as such requirements are not inconsistent with the Hazardous Materials Transportation Act (HMTA) or HMTA regulations.

In addition, the proposed rule would not impose substantial direct costs on States and localities. Although states with manifest data tracking programs may incur some start-up costs in converting their tracking systems to accept the revised paper manifest and/or electronic manifests, the proposal neither mandates that States collect manifests, nor mandates that States adopt the electronic manifest option as a part of their programs. Thus, Executive Order 13132 does not apply to this rule.

Although section 6 of Executive Order 13132 does not apply to this rule, EPA consulted substantially with representatives of State government in developing this proposal. The Agency invited State representatives to participate in two public meetings during which we presented our rulemaking objectives and strategies, and solicited comments and concerns. These public meetings were conducted on December 10–11, 1997, and on January 7–8, 1998. Representatives of 23 States and Territories participated in these meetings. In addition, State representatives were invited to participate in the meetings of the EPA work group which developed this proposed rule. Representatives from 4 States (Indiana, Pennsylvania, New Hampshire, and Rhode Island) were selected to participate in the work group meetings, and these States discussed proposed rule options and draft rule language extensively with EPA throughout the development of the proposal.

During our consultations with States on this proposal, the State

[5] Burden means the total time, effort, or financial resources expended by persons to generate, maintain, retain, or disclose or provide information to or for a Federal Agency. This includes the time needed to review instructions; develop, acquire, install, and utilize technology and systems for the purposes of collecting, validating, and verifying information, processing and maintaining information, and disclosing and providing information; adjust the existing ways to comply with any previously applicable instructions and requirements; train personnel to respond to a collection of information; search data sources; complete and review the collection of information; and transmit or otherwise disclose the information.

representatives identified several concerns about: (1) The reductions in the optional fields which States have used to require additional information from facilities; (2) the changes proposed for printing and acquiring manifests; (3) the costs to States of converting to an electronic system, and whether electronic manifesting would be mandatory for States to adopt in their programs; and (4) the lack of court precedents upholding electronic signatures as a means to sign records. A summary of the concerns raised during consultations with the States, and EPA's response to those concerns, is provided below.

In the spirit of Executive Order 13132, and consistent with EPA policy to promote communications between EPA and State and local governments, EPA specifically solicits comment on this proposal from State and local officials.

State Concerns and EPA's Responses

1. *Reductions in Optional Fields.* The proposed rule would eliminate several optional fields from the current manifest, particularly, those optional fields that require State ID Numbers (in addition to EPA ID numbers) for generators, transporters, and facilities. The proposal would also eliminate the optional fields for entering transporters' phone numbers and the facility's phone number on the manifest, and replace these with the requirement that there be one emergency response phone number entered on all manifests. The State Manifest Document Number optional field would be replaced with the requirement that all manifests have a unique manifest tracking number.

Several State participants identified the concern that the proposed manifest would hinder States that wish to collect this information. In particular, State representatives indicated to EPA that several States use the State Generator ID field to list a generator's site address, since this may be a distinct address from the mailing address which generators are required to supply on the current form. EPA considered the points raised by State participants with regard to the optional fields during work group meetings. The Agency concluded that the benefits of reducing manifest variability and paperwork burden outweighed the interests States identified in continuing to collect these data on the manifest.

2. *Changes in printing and acquiring manifests.* Currently, generators obtain most of their manifests from State agencies. There are currently 24 States that print and distribute their own manifests for shipments generated in or designated for facilities in these States. The manifests printed by the states reflect the optional fields required to be used in these states, as well as copy submission requirements, mailing addresses for submitting copies, and a pre-printed manifest number that would track the manifest uniquely in the States' data bases. The proposal would adopt a standard Federal printing specification for the manifest, and allow States, waste handlers, and business form printers to register to print manifests according to this specification. There would be less variability among manifests, but the form could be obtained from more sources.

During the work group meetings, State participants discussed their interests in printing and distributing manifests. For several States, selling blank manifests is a source of revenue. In all States that print manifests, there is a concern that manifest document numbers must be assured of being unique and accurate. We were advised that this can be best accomplished by having manifest numbers pre-printed on the forms by the printer. The proposed registry system and Federal printing specification were developed based on State representatives' advice and recommendations. There was substantial discussion of this issue by the States, and their representatives indicated that the proposal would meet most of their concerns. The revenue issue is more difficult to resolve. Some States charge manifest fees only to defray their printing costs, while others collect program revenue beyond that required to recoup costs of supplying manifests. In some instances, manifest fees charged by States are required by legislation.

3. *Costs to States of Converting to Electronic Systems.* During the public meetings on the manifest revisions, State participants voiced concerns that States would incur significant costs in converting to electronic systems for collecting manifests. This issue would be more of a concern if EPA mandated use of the electronic manifest by the States.

Our economic analysis for today's proposal reveals that States that adopt electronic systems for collecting manifests would in fact experience significant cost reductions compared to the current baseline. While each State may incur about $100,000 initially in start-up costs ($38,000 in annualized costs) for automating their systems, we expect that States would realize between $213,000 and $1.58 million in cost savings from the proposed revisions. The electronic manifest accounts for most of these savings, which would more than offset the start-up costs. In addition, EPA has proposed that States would not be required to adopt the electronic manifest option. So, no State would be required to incur these start-up costs, and those States that choose to convert would presumably do so as a matter of self-interest.

4. *Lack of court precedents supporting electronic signatures.* During the development of this proposal, several States commented that the inclusion of the electronic manifest in the proposal was premature, since there are no court precedents upholding the use of electronic signatures. EPA appreciates this concern, which is not unique to this proposed rulemaking on the manifest. However, the Congress has recently enacted legislation which establishes that electronic records and electronic signatures should generally be accorded the same treatment under the law as documents signed by hand. See the Government Paperwork Elimination Act (GPEA), Public Law 105–277, Title XVII (1998). The Agency believes that this statute supplies the authority lacking in prior court decisions supporting the use of electronic signatures. The proposal also includes security controls aimed at ensuring that electronic signatures cannot be repudiated or misused. For example, ''digital signatures'' would be supported by a Public Key Infrastructure (PKI), including digital certificates (from a trusted Certificate Authority) binding an individual to their signature keys, password protection and non-disclosure obligations for the private signature key, and policies holding individuals accountable for acts taken under their signature.

I. Consultation With Tribal Governments

On November 6, 2000, the President issued Executive Order 13175 (65 FR 67249) entitled, ''Consultation and Coordination with Indian Tribal Governments.'' Executive Order 13175 takes effect on January 6, 2001, and revokes Executive Order 13084 (Tribal Consultation) as of that date. EPA developed this proposed rule, however, during the period when Executive Order 13084 was in effect; thus, EPA addressed tribal considerations under Executive Order 13084. EPA will analyze and fully comply with the requirements of Executive Order 13175 before promulgating the final rule. Under Executive Order 13084, EPA may not issue a regulation that is not required by statute, that significantly or uniquely affects the communities of Indian Tribal governments, and that imposes substantial direct compliance

costs on those communities of Indian Tribal governments, unless the Federal government provides the funds necessary to pay the direct compliance costs incurred by the tribal governments, or EPA consults with those governments. If EPA complies by consulting, Executive Order 13084 requires EPA to provide to the Office of Management and Budget, in a separately identified section of the preamble to the rule, a description of the extent of EPA's prior consultation with representatives of affected tribal governments, a summary of the nature of their concerns, and a statement supporting the need to issue the regulation. In addition, Executive Order 13084 requires EPA to develop an effective process permitting elected officials and other representatives of Indian tribal governments ''to provide meaningful and timely input in the development of regulatory policies on matters that significantly or uniquely affect their communities.''

Today's proposal would not significantly or uniquely affect the communities of Indian tribal governments, nor would it impose substantial direct compliance costs on them. This proposal does not create a mandate for tribal governments, nor does it impose any enforceable duties on these entities. Therefore, EPA has determined that no communities of Indian tribal governments would be affected by this proposed rule. Accordingly, the requirements of section 3(b) of Executive Order 13084 do not apply.

IX. How Would Today's Proposed Regulatory Changes Be Administered and Enforced in the States?

A. Applicability of Federal Rules in Authorized States

Under section 3006 of RCRA, EPA may authorize qualified States to administer the RCRA hazardous waste program within the State. Following authorization, the State requirements authorized by EPA apply in lieu of equivalent Federal requirements and become Federally enforceable as requirements of RCRA. EPA maintains independent authority to bring enforcement actions under RCRA sections 3007, 3008, 3013, and 7003. Authorized States also have independent authority to bring enforcement actions under State law. A State may receive authorization by following the approval process described under 40 CFR part 271. See 40 CFR part 271 for the overall standards and requirements for authorization.

After a State receives initial authorization, new Federal requirements promulgated under RCRA authority existing prior to the 1984 Hazardous and Solid Waste Amendments (HSWA) do not apply in that State until the State adopts and receives authorization for equivalent State requirements. The State must adopt such requirements to maintain authorization.

In contrast, under RCRA section 3006(g) (42 U.S.C. 6926(g)), new Federal requirements and prohibitions imposed pursuant to HSWA provisions take effect in authorized States at the same time that they take effect in unauthorized States. Although authorized States are still required to update their hazardous waste programs to remain equivalent to the Federal program, EPA carries out HSWA requirements and prohibitions in authorized States, including the issuance of new permits implementing those requirements, until EPA authorizes the State to do so.

Authorized States are required to modify their programs only when EPA promulgates Federal requirements that are more stringent or broader in scope than existing Federal requirements. RCRA section 3009 allows the States to impose standards more stringent than those in the Federal program. See also 40 CFR 271.1(i). Therefore, authorized States are not required to adopt Federal regulations, both HSWA and non-HSWA, that are considered less stringent.

B. Authorization of States for Today's Proposal

Except for one provision, we would promulgate today's proposal mainly under non-HSWA statutory authority. The section of today's proposal that would be promulgated under HSWA authority (specifically, RCRA section 3002(b)) is proposed § 262.27, which would consist of the waste minimization certification statement. Therefore, when promulgated, the Agency would add this section of the rule to Table 1 in 40 CFR 271.1(j), which identifies the Federal program requirements that are promulgated pursuant to the statutory authority that was added by HSWA. States may apply for final authorization for the HSWA provisions in Table 1, as discussed in the following section of this preamble. The proposed regulatory provision would contain the language which is in the current manifest form, but would not be in the proposed revised form except by reference to proposed § 262.27. Generators would still be required to certify to waste minimization statements on the manifest each time a manifest is initiated. Therefore, proposed § 262.27 would be effective under Federal authority before States receive authorization only when the revised manifest form is used in these States.

All the other parts of today's proposal would become effective under RCRA authority in authorized States only when they revise their programs and receive authorization for the final rule.

1. Would Authorized States Be Required To Adopt the New Uniform Manifest Form?

Under today's proposal, authorized States would be required to adopt the new Uniform Manifest form. To obtain and maintain authorization, States and territories are required to be consistent with the federal program and other State programs. Although sections 3006 and 3009 of RCRA allow States to have regulations that are different than the Federal requirements, as long as they are equivalent to or more stringent than or broader in scope, section 3006(b) also requires States to have regulations that are consistent with the federal regulations. The requirements of this statutory provision are codified in 40 CFR 271.4, which specifically applies the consistency requirement to the manifest system under 40 CFR 271.4(c). When EPA originally promulgated the Uniform Manifest in 1984, we found that consistency was extremely important where requirements addressing transportation are concerned. We found during the early years of implementing the RCRA program that a proliferation of many State-specific manifest forms could hamper the movement of hazardous waste to waste management facilities, and that differing manifest use and information requirements between States caused added burdens and confusion among those trying to comply with the Subtitle C regulations. See 49 FR 10490 at 10491 (March 20, 1984). Therefore, in 1984, EPA announced that consistency in the use of the Uniform Manifest would be required from authorized States, and that, with the exception of the limited information allowed in the optional fields, authorized States could not require any other manifest or information to accompany a waste shipment. Id. Based on 16 years of experience with the Uniform Manifest, EPA concludes that variability in the current manifest system should be reduced further, since the current level of variability continues to produce excessive burden, confusion, and compliance problems. Moreover, EPA restates that program consistency

under RCRA section 3006 and 40 CFR 271.4(c) would demand that authorized States must require the use of the Uniform Manifest as revised by today's proposals.

Under 40 CFR 271.4(c) and 271.10(f) and (h), in order to be consistent with the federal program, and receive approval from EPA, States must have a manifest system that includes a manifest format that follows the Federal format required in 40 CFR 262.20(a) and 262.21. Today's proposal would amend § 271.10(h) to correspond with the proposed changes to the manifest format. These amendments are discussed in detail in section IV of today's proposal. Key among these amendments are form revisions that would eliminate most optional fields and establish a new procedure for obtaining a standard manifest form from registered printers. The new, standard manifest format would present authorized states with fewer areas of potential variability than arise under existing regulations. For example, existing § 271.10(h)(1) allows authorized states to supplement the Uniform Manifest format with several pre-printed items, such as a State manifest number, light organizational marks to indicate proper placement of characters, information and instructions in the margins or on the back of the form, and references to specific State laws or regulations following the generator's certification language. The proposed amendments to § 271.10(h) would eliminate provisions addressing States' ability to supplement the form. However, proposed § 271.10(h) would retain language clarifying that States could require information to be supplied to address the two proposed optional fields—Waste Codes (Block A) and Biennial Reporting system type codes (Block B)—and to provide additional waste descriptions in Block 14 of the proposed form.

Because the new uniform manifest would (except for proposed § 262.27 as explained above) be promulgated pursuant to non-HSWA authority, it would not become effective as a RCRA requirement in authorized States until those States revise their programs and receive authorization. However, federal hazardous material transportation law preempts any State, local or Indian tribe requirement on ''the preparation, execution, and use of shipping documents related to hazardous materials and requirements related to the number, contents, and placement of those documents'' that is not substantively the same as requirements in the hazardous materials regulations. 49 U.S.C. 5125(b)(1)(C). The Department of Transportation currently requires the use of the Uniform Hazardous Waste Manifest for shipments of hazardous waste (which is also a hazardous material). 49 CFR 172.205. Thus, waste handlers would be required, under 49 CFR 172.205, to use the revised Uniform Hazardous Waste Manifest upon the two-year delayed compliance date of the final rule (see Section III.E. for further discussion regarding the two-year delayed compliance date).

EPA has involved the authorized States, as co-implementers of the RCRA program, in the development of today's proposal. We believe that there is support among the States for the manifest revisions. EPA also believes that the States would generally be able to revise their RCRA programs to include this amended manifest form within the proposed transition period, although some States may need to enact legislative changes to effect this change.

2. Would Authorized States Be Required To Adopt Electronic Manifesting?

A significant issue presented by today's proposal is whether the final rule should require that authorized States adopt the electronic manifest option as a part of their approved programs, in order to be consistent. Under RCRA section 3006, authorized State programs must be consistent with the Federal program and other State programs, and EPA's authorization regulations state that State manifest systems that do not meet EPA's requirements or that unreasonably impede the free movement of waste shall be deemed inconsistent. See 40 CFR 271.4(a) and (e).

We are tentatively proposing not to require States to adopt the electronic manifest option. However, we are considering whether States should be required to adopt the electronic manifest option in order to ensure consistency with the Federal program and other State programs. For example, EPA could require States to adopt the electronic manifest option if we were to conclude that the free movement of waste in commerce may be burdened unreasonably if individual States choose not to allow electronic manifests. Similarly, we may require State adoption of the electronic manifest option if we determine that the cumulative effect of a patchwork of States—some recognizing and others not recognizing electronic manifests—may itself unduly burden the free movement of waste. This result may render the State program inconsistent with the federal program under the provisions of 40 CFR 271.4(a). Other reasons that could support EPA's determination under § 271.4(a) to deem State programs that do not provide for electronic manifests to be inconsistent include the concern that the development of electronic manifesting systems by waste handlers would be frustrated significantly if States elected not to adopt the option, and that market forces and consensus processes would not be sufficient to promote and implement the electronic manifest option.

At this time, EPA believes that there are strong practical and business influences that would promote the adoption of electronic manifesting. Many States are in the forefront of efforts to provide electronic access to government services and to encourage electronic commerce, so requiring State programs to adopt the electronic manifest standards may not be necessary to accomplish progress in this area. Moreover, during the public meetings which EPA conducted as we developed this proposal, we stressed the voluntary and optional nature of the manifest automation component of the proposed rule. States likely understood that manifest automation would be optional for state programs as well as for the waste handlers who use the manifest.

Thus, EPA is tentatively proposing that authorized States would not be required to adopt the electronic manifest system as part of their state programs. Under today's proposal, the electronic manifest system would not be effective under RCRA in authorized States unless an authorized State revises its program and receives authorization for the final electronic manifest system requirements. In addition, under today's proposal, an electronic manifest would not be considered a ''shipping document'' under 49 U.S.C. 5125(b) and thus, hazardous materials transportation law would not preempt state programs that do not allow the use of an electronic manifest.

Although States could choose not to adopt the electronic manifest system, those that do would have to adopt the standards for the electronic formats, electronic signature standards, and computer security controls that we would promulgate when we finalize this proposal. In addition, State programs electing to adopt the electronic manifest option would need to adopt State counterparts to the final regulations that address the use of the electronic manifest by generators, transporters, and TSDFs. As explained in section VII.E.1. of this preamble, the need for a uniform manifest to allow the free movement of waste applies to the electronic manifest as well as the paper manifest, if not more. The state authorization

regulations addressing generator requirements, 40 CFR 271.10(f) and (h), already refer to the manifest regulations, which would impose on states that adopt the electronic manifest option the requirement that their programs be revised to require waste handlers to use the electronic manifest formats, electronic signature standards, and computer security controls described in today's proposal. These areas require a consistent implementation if electronic manifests are to be freely exchanged between waste handlers and state agencies located in various jurisdictions.

However, States would retain the latitude to either adopt or not adopt the preparer signature or third-party storage features of today's proposal. Thus, a state that did not adopt one or both of these features could choose to operate a more stringent program in these areas. The Agency requests comment on how electronic manifesting should be implemented among the various authorized States, how today's proposed standards would impact states that may already have requirements in place or efforts underway to address electronic records and electronic signatures, and how any adverse impacts on State programs might be mitigated.

Appendix A to the Preamble—Extensible Markup Language (XML) Document Type Definition for the Hazardous Waste Manifest

```
<!—This document represents the Document
    Type Definition for the Uniform
    Hazardous Waste Manifest—>
<!—Signature blocks are represented as
    #PCDATA until final recommendations
    are adopted for representing electronic
    signatures in XML documents—>
<!—References for the W3C Digital Signature
    Working Group:
  XML Signature Syntax and Processing—
  http://www.w3.org/2000/02/xmldsig#
  DTD for Digital Signatures—http://www/
    w3.org/TR/xmldsig-core/xmldsig-core-
    schema.dtd—>
<!ELEMENT manifest (title,
    manifest_tracking_number,
    generator_info, transporter_info+,
    tsdf_info, waste_description+,
    special_handling_instructions,
    generator_certification,
    international_shipments,
    transporter_certification+,
    tsdf_discrepancy, tsdf_certification,
    tsdf_brs_codes*)>
<!ELEMENT title (#PCDATA)>
<!ATTLIST title fname CDATA #FIXED
    ''UNIFORM HAZARDOUS WASTE
    MANIFEST''>
<!ELEMENT manifest_tracking_number
    (#PCDATA)>
<!ATTLIST manifest_tracking_number tno
    NMTOKEN #REQUIRED>
<!ELEMENT generator_info (generator_name,
    generator_us_epa_id, generator_street,
    generator_city, generator_state,
    generator_zip_code,
    generator_telephone_number,
    generator_emergency_
    response_telephone)>
<!ELEMENT generator_name (#PCDATA)>
<!ATTLIST generator_name gname CDATA
    #REQUIRED>
<!ELEMENT generator_us_epa_id
    (#PCDATA)>
<!ATTLIST generator_us_epa_id genepaid
    NMTOKEN #REQUIRED>
<!ELEMENT generator_street (#PCDATA)>
<!ATTLIST generator_street gstreet CDATA
    #REQUIRED>
<!ELEMENT generator_city (#PCDATA)>
<!ATTLIST generator_city gcity CDATA
    #REQUIRED>
<!ELEMENT generator_state (#PCDATA)>
<!ATTLIST generator_state gstatecode
    NMTOKEN #REQUIRED>
<!ELEMENT generator_zip_code
    (#PCDATA)>
<!ATTLIST generator_zip_code gzip CDATA
    #REQUIRED>
<!ELEMENT generator_telephone_number
    (#PCDATA)>
<!ATTLIST generator_telephone_number gtel
    NMTOKEN #REQUIRED>
<!ELEMENT generator_emergency_response_
    telephone (#PCDATA)>
<!ATTLIST generator_emergency_response_
    telephone gemr NMTOKEN
    #REQUIRED>
<!ELEMENT transporter_info
    (transporter_name,
    transporter_us_epa_id)+>
<!ELEMENT transporter_name (#PCDATA)>
<!ATTLIST transporter_name tname CDATA
    #REQUIRED>
<!ELEMENT transporter_us_epa_id
    (#PCDATA)>
<!ATTLIST transporter_us_epa_id transepaid
    NMTOKEN #REQUIRED>
<!ELEMENT tsdf_info (tsdf_name,
    tsdf_us_epa_id, tsdf_street, tsdf_city,
    tsdf_state, tsdf_zip_code)>
<!ELEMENT tsdf_name (#PCDATA)>
<!ATTLIST tsdf_name tsname CDATA
    #REQUIRED>
<!ELEMENT tsdf_us_epa_id (#PCDATA)>
<!ATTLIST tsdf_us_epa_id tsdfepaid
    NMTOKEN #REQUIRED>
<!ELEMENT tsdf_street (#PCDATA)>
<!ATTLIST tsdf_street tstreet CDATA
    #REQUIRED>
<!ELEMENT tsdf_city (#PCDATA)>
<!ATTLIST tsdf_city tcity CDATA
    #REQUIRED
<!ELEMENT tsdf_state (#PCDATA)
<!ATTLIST tsdf_state tstatecode NMTOKEN
    #REQUIRED
<!ELEMENT tsdf_zip_code (#PCDATA)>
<!ATTLIST tsdf_zip_code tzip CDATA
    #REQUIRED>
<!ELEMENT waste_description
    (proper_shipping_name, hazard_class,
    dot_id_no, packing_group,
    no_of_containers, container_type,
    total_quantity, unit_wt_vol,
    waste_codes+)+>
<!ELEMENT proper_shipping_name
    (#PCDATA)>
<!ATTLIST proper_shipping_name pname
    CDATA #REQUIRED>
<!ELEMENT hazard_class (#PCDATA)>
<!ATTLIST hazard_class hclass NMTOKEN
    #REQUIRED>
<!ELEMENT dot_id_no (#PCDATA)>
<!ATTLIST dot_id_no dotid NMTOKEN
    #REQUIRED>
<!ELEMENT packing_group (#PCDATA)>
<!ATTLIST packing_group pgroup CDATA
    #REQUIRED>
<!ELEMENT no_of_containers (#PCDATA)>
<!ATTLIST no_of_containers nocon
    NMTOKEN #REQUIRED>
<!ELEMENT container_type (#PCDATA)>
<!ATTLIST container_type code CDATA
    #REQUIRED>
<!ELEMENT total_quantity (#PCDATA)>
<!ATTLIST total_quantity totquan CDATA
    #REQUIRED>
<!ELEMENT unit_wt_vol (#PCDATA)>
<!ATTLIST unit_wt_vol volcode CDATA
    #REQUIRED>
<!ELEMENT waste_codes (#PCDATA)
<!ATTLIST waste_codes wcode NMTOKEN
    #IMPLIED>
<!ELEMENT special_handling_instructions
    (#PCDATA)>
<!ATTLIST special_handling_instructions
    instr CDATA #IMPLIED>
<!ELEMENT generator_certification
    (generator_signature,
    generator_printed_name,
    generator_date)>
<!ELEMENT generator_signature
    (#PCDATA)>
<!ELEMENT generator_printed_name
    (#PCDATA)>
<!ATTLIST generator_printed_name gpname
    CDATA #REQUIRED>
<!ELEMENT generator_date (#PCDATA)>
<!ATTLIST generator_date gendate CDATA
    #REQUIRED>
<!ELEMENT international_shipments
    (intl_import, intl_export,
    port_of_entry_exit, intl_date,
intl_signature)>
<!ELEMENT intl_import (#PCDATA)>
<!ELEMENT intl_export (#PCDATA)>
<!ELEMENT port_of_entry_exit (#PCDATA)>
<!ELEMENT intl_date (#PCDATA)>
<!ATTLIST intl_date intldate CDATA
    #IMPLIED>
<!ELEMENT intl_signature (#PCDATA)>
<!ELEMENT transporter_certification
    (transporter_signature,
    transporter_printed_name,
    transporter_date)+>
<!ELEMENT transporter_signature
    (#PCDATA)>
<!ELEMENT transporter_printed_name
    (#PCDATA)>
<!ATTLIST transporter_printed_name
    tpname CDATA #REQUIRED>
<!ELEMENT transporter_date (#PCDATA)>
<!ATTLIST transporter_date transpdate
    CDATA #REQUIRED>
<!ELEMENT tsdf_discrepancy
    (discrepancy_quantity_type,
    container_residue, rejected_waste,
    manifest_reference_no, description)>
<!ELEMENT discrepancy_quantity_type
    (#PCDATA)>
<!ELEMENT container_residue (#PCDATA)>
<!ELEMENT rejected_waste (#PCDATA)>
<!ELEMENT manifest_reference_no
    (#PCDATA)>
<!ATTLIST manifest_reference_no mrno
    NMTOKEN #IMPLIED>
<!ELEMENT description (#PCDATA)>
<!ATTLIST description desc CDATA
    #IMPLIED>
```

```
<!ELEMENT tsdf_certification
    (tsdf_signature, tsdf_printed_name,
    tsdf_date)>
<!ELEMENT tsdf_signature (#PCDATA)>
<!ELEMENT tsdf_printed_name (#PCDATA)>
<!ATTLIST tsdf_printed_name tspname
    CDATA #REQUIRED>
<!ELEMENT tsdf_date (#PCDATA)>
<!ATTLIST tsdf_date tsdfdate CDATA
    #REQUIRED>
<!ELEMENT tsdf_brs_codes (tsdf_a, tsdf_b,
    tsdf_c, tsdf_d)>
<!ELEMENT tsdf_a (#PCDATA)>
<!ATTLIST tsdf_a codea NMTOKEN
    #IMPLIED>
<!ELEMENT tsdf_b (#PCDATA)>
<!ATTLIST tsdf_b codeb NMTOKEN
    #IMPLIED>
<!ELEMENT tsdf_c (#PCDATA)>
<!ATTLIST tsdf_c codec NMTOKEN
    #IMPLIED>
<!ELEMENT tsdf__d (#PCDATA)>
<!ATTLIST tsdf__d coded NMTOKEN
    #IMPLIED>
```

List of Subjects

40 CFR Part 260

Environmental protection, Administrative practices and procedure, Confidential business information, Hazardous waste.

40 CFR Part 261

Environmental protection, Hazardous waste, Recycling, Reporting and recordkeeping requirements.

40 CFR Part 262

Environmental protection, Exports, Hazardous materials transportation, Hazardous waste.

40 CFR Part 263

Environmental protection, Hazardous materials transportation, Hazardous waste.

40 CFR Part 264

Environmental protection, Air pollution control, Hazardous waste, Insurance, Packaging and containers, Reporting and recordkeeping requirements, Security measures, Surety bonds.

40 CFR Part 265

Environmental protection, Air pollution control, Hazardous waste, Insurance, Packaging and containers, Reporting and recordkeeping requirements, Security measures, Surety bonds, Water supply.

40 CFR Part 271

Environmental protection, Administrative practice and procedure, Confidential business information, Hazardous materials transportation, Hazardous waste, Indian lands, Intergovernmental relations, Penalties, Reporting and recordkeeping requirements, Water pollution control, Water supply.

Dated: January 4, 2001.

Carol M. Browner,

Administrator.

For the reasons set out in the preamble, title 40, chapter I of the Code of Federal Regulations is proposed to be 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), 6921–6927, 6930, 6934, 6935, 6937, 6938, 6939, and 6974.

Subpart B—Definitions

2. Section 260.10 is amended by removing the definition of ''Manifest Document Number'', revising the definition of ''manifest'' and adding in alphabetical order the definition of ''Manifest tracking number'' and ''Preparer'' to read as follows.

§ 260.10 Definitions.

* * * * *

Manifest means the shipping document EPA Form 8700–22 (including, if necessary, EPA Form 8700–22A), or an electronic format identified in § 262.20(a)(3), originated and signed in accordance with the applicable requirements of parts 262 through 265.

Manifest tracking number means the alphanumeric identification number (i.e., a unique three letter prefix followed by eight numerical digits), which is pre-printed in Item 3 of the Manifest by a registered source.

* * * * *

Preparer means someone authorized by the generator to prepare, complete, and/or sign the generator's Manifest on behalf of the generator.

* * * * *

PART 261—IDENTIFICATION AND LISTING OF HAZARDOUS WASTE

3. The authority citation for part 261 continues to read as follows:

Authority: 42 U.S.C. 6905, 6912(a), 6921, 6922, 6924(y) and 6938.

Subpart A—General

4. Section 261.7 is amended by revising paragraph (b)(1)(iii) to read as follows:

§ 261.7 Residues of hazardous waste in empty containers.

* * * * *

(b)(1) * * *

(iii)(A) No more than 3 percent by weight of the total capacity of the container remains in the container or inner liner if the container is less than or equal to 119 gallons in size; or

(B) No more than 0.3 percent by weight of the total capacity of the container remains in the container or inner liner if the container is greater than 119 gallons in size.

* * * * *

PART 262—STANDARDS APPLICABLE TO GENERATORS OF HAZARDOUS WASTE

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

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

6. In § 262.20 the heading and paragraph (a) are revised to read as follows:

§ 262.20 Manifest Formats and General Requirements

(a)(1) *Manifest Requirement.* A generator who transports, or offers for transportation, hazardous waste for offsite treatment, storage, or disposal must prepare a manifest to describe the hazardous waste being shipped offsite and its routing to a designated facility.

(2) *Paper format.* Generators using a paper manifest form must prepare their manifest on EPA Form 8700–22 and, if necessary, Form 8700–22A, and must prepare their manifest according to the instructions in the appendix to this part 262.

(3) *Electronic formats.* Generators using an electronic format must use either the Electronic Data Interchange (EDI) format described in paragraph (a)(3)(i) of this section, or the Internet Forms format described in paragraph (a)(3)(ii) of this section. All electronic manifests must be used in accordance with the electronic manifest use requirements of § 262.24, signed in accordance with the electronic signature requirements of § 262.25, and generated and maintained on electronic systems which meet the security requirements of § 262.26. Generators using the electronic manifest must prepare the manifest according to the instructions included in the appendix to part 262.

(i) *EDI format.* The EDI format for the manifest must conform to the American National Standards Institute (ANSI) Accredited Standards Committee (ASC) X12 standards for Electronic Data Interchange and the requirements and mapping conventions promulgated by the Federal Electronic Data Interchange Standards Management Coordinating Committee (FESMCC) for the ANSI X12 Transaction Sets 856 (Ship Notice/

Manifest) and 861 (Receipt and Advice). When EPA decides to adopt a new version and release of the ANSI X12 standard or to modify the conventional mapping, EPA will publish a **Federal Register** notice announcing this change to the implementation convention and establishing a conversion date. Those persons using the EDI format would have a minimum of 60 days to conform to the new version or mapping. EPA would discontinue support for the previous implementation convention no sooner than 90 calendar days after the conversion date.

(ii) *Internet forms format.* The Internet Forms format for the manifest must conform to the EPA Approved Document Type Definition, which defines the data elements, tag identifiers, data element relationships, contents, and structure of the Hazardous Waste Manifest, in accordance with the Extensible Markup Language (XML) specifications maintained by the World Wide Web Consortium.

* * * * *

7. Section 262.21 is revised to read as follows:

§ 262.21 Manifest tracking numbers, manifest printing, and obtaining manifests.

(a) *Manifest tracking numbers.* (1) Paper and electronic manifests may not be transmitted without a manifest tracking number assigned in accordance with a numbering system approved by EPA.

(2) A person may not assign manifest tracking numbers without submitting an application to EPA and receiving approval of their manifest tracking number system. The application to EPA must contain the following information:

(i) Name of applicant's organization (e.g., name of state and department or name of company);

(ii) Name of contact person and telephone number;

(iii) Mailing address;

(iv) EPA identification number, if applicable;

(v) Brief description of applicant's government or business activity;

(vi) Applicant's proposed, unique three-letter prefix for its manifest tracking numbers, including an explanation of any limitations to the use of such a prefix, if any (e.g., historic numbers to avoid); and

(vii) Signed certification that the applicant will ensure that no tracking number will be intentionally duplicated and, if applicable, that all manifest printing specifications in paragraph (b) will be followed.

(b) *Manifest printing.* (1) Paper manifest forms must be printed according to the following specifications:

(i) The form must be printed in the same format as EPA Form 8700–22a and b;

(ii) A Manifest Tracking Number assigned in accordance with a numbering system approved by EPA under paragraph (a) of this section must be preprinted in Item Three of the form;

(iii) Boxes cannot be added to the form;

(iv) Boxes cannot be deleted from the form;

(v) The form must be printed in the dimensions of 8½ x 11 inches;

(vi) The form must be printed in black ink that can be photocopied or faxed;

(vii) The instructions in 40 CFR part 262, appendix 1 must be printed on the back of the form;

(viii) Follow the same copy naming structure as outlined below in § 262.21(c)(3);

(ix) The form must be printed as a 6 copy form and it must be indicated on the form that copies of the form must be distributed as follows:

(A) Page 1 (top copy): ''Designated facility to destination State'' (if required);

(B) Page 2: ''Designated facility to generator State'' (if required);

(C) Page 3: ''Designated facility to generator'';

(D) Page 4: ''Designated facility copy''

(E) Page 5: ''Transporter copy''; and

(F) Page 6 (bottom copy): ''Generator to generator State'' (if required).

(2) Information required to complete the manifest may be preprinted on the manifest form. In addition, the following may also be printed on the manifest form:

(i) In items 10 and 28 (DOT description), a hazardous materials (HM) column for use in distinguishing between federally regulated wastes and other materials according to 49 CFR 172.201(a)(1);

(ii) Anywhere on the form, light organizational marks to indicate proper placement of characters or to facilitate data entry; and/or

(iii) The State optional boxes may be lightly shaded in the optional boxes;

(iv) In the Generator's Certification box, reference to State laws or regulations following the Federal certification;

(3) Electronic manifests must meet the electronic format requirements described in § 262.20.

(c) *Obtaining manifests.* (1) A generator using a paper manifest may use manifest forms printed by any of the following sources so long as the source of the printed form has registered and received approval from EPA to assign manifest tracking numbers under paragraph (a) of this section, and the form is printed in accordance with the specifications in paragraph (b) of this section:

(i) Any state agency that prints the manifest;

(ii) Commercial Form Printers;

(iii) Any hazardous waste generator, transporter, or TSDF; and

(iv) Brokers or other preparers who prepare or arrange shipments of hazardous waste for transportation.

(2) A generator must contact the consignment state to determine whether that state requires generators to enter optional state information on the manifest. Generators must also contact the consignment state to determine whether they are required to submit a copy of the manifest to the state.

8. Section 262.23 is amended by revising the heading to read as follows:

§ 262.23 Use of the paper manifest.

* * * * *

9. Subpart B is amended by adding new § 262.24;

§ 262.24 Use of the electronic manifest.

(a) *Optional use.* In lieu of using the paper manifest, generators may use an electronic manifest format identified in § 262.20(a)(3). A generator may only use an electronic manifest if:

(1) At least the generator and the designated facility for the shipment are both able to send and receive electronic manifest transmissions using electronic systems that meet the security requirements of § 262.26, or the generator is able to access such an electronic system operated by the transporter who receives the waste shipment from the generator for off-site transportation,

(2) Both the generator (or authorized preparer) and designated facility for the shipment are able to electronically sign their electronic manifests with an electronic signature that meets the requirements of § 262.25, and

(3) If manifest copies are collected by any authorized state(s), the state(s) is able to accept electronic manifest copies in lieu of paper copies, or, the state(s) is provided with suitable paper copies of the manifest.

(b) *Manifest preparation and signature by authorized preparer.* A person who in fact prepares a generator's hazardous waste shipment for off-site transportation may sign the generator's certification on behalf of the generator. Such a preparer may sign the generator's certification on the manifest if:

(1) The generator has authorized the preparer to prepare shipments and

initiate manifests on behalf of the generator; and

(2) The preparer provides the generator with a copy of the manifest for the generator's records. In those cases where the preparer signs the generator's certification electronically but the generator is not able to retain an electronic copy of the manifest, the preparer must provide the generator with a paper copy of the manifest, with a notation in the generator's certification block indicating that the manifest was signed electronically by the preparer on behalf of the generator.

(c) *Manifest origination procedures.* A generator originating an electronic manifest must:

(1) Electronically sign the manifest certification in accordance with § 262.25;

(2) Transmit the manifest to the initial transporter and obtain back from this transporter a copy of the manifest bearing the signature of the initial transporter and the date of acceptance of the shipment. If the transporter is not able to accept and sign an electronic manifest, the generator must instead obtain from the transporter a handwritten signature and date of acceptance on a paper copy of the manifest or other shipping paper under 49 CFR part 272, subpart C. If a shipping paper is used to meet this requirement, it must bear the manifest tracking number assigned to the electronic manifest used for tracking the waste shipment.

(3) Retain one electronic copy in accordance with the retention period described in § 262.40(a). If the initial transporter is not able to accept and sign an electronic manifest, or if the generator signs an electronic manifest using the initial transporter's electronic system but is not able to take back an electronic copy, then the generator must retain a hard copy of the manifest or shipping paper signed by the initial transporter. The hard copy retained by the generator must display the manifest tracking number assigned to the shipment.

(4) Provide the initial transporter with one hard copy of the manifest or other hazardous materials shipping paper as defined in 49 CFR 171.8. This hard copy of the manifest or other shipping paper must be carried on the vehicle in accordance with 40 CFR 263.20(c) and the accessibility requirements of 49 CFR 177.817(e), and it must display the manifest tracking number assigned to the shipment.

(d) If any transporter listed on the manifest is not able to accept, sign, and transmit electronic manifest copies, then the generator must also send an electronic manifest copy to the designated facility. The copy transmitted to the designated facility must bear the generator's electronically signed certification, and either the initial transporter's electronic signature and date of acceptance, or a notation indicating that the transporter signed a manifest copy or other shipping paper by hand and the date that the shipment was received by the initial transporter.

(e) For shipments of hazardous waste within the United States solely by water (bulk shipments only), the generator must send an electronic copy of the manifest, dated and signed in accordance with this section, to the owner or operator of the designated facility or the last water (bulk shipment) transporter to handle the waste in the United States if exported by water. Copies of the electronic manifest are not required for each transporter.

(f) For rail shipments of hazardous waste within the United States which originate at the site of generation, the generator must send an electronic copy of the manifest, dated and signed in accordance with this section, to:

(1) The next non-rail transporter, if any; or

(2) The designated facility, if transported solely by rail; or

(3) The last rail transporter to handle the waste in the United States if exported by rail.

(g) For shipments of hazardous waste to a designated facility in an authorized State which has not yet obtained authorization to regulate that particular waste as hazardous, the generator must assure that the designated facility agrees to sign and return the manifest to the generator, and that any out-of-state transporter signs and forwards the manifest to the designated facility.

10. Subpart B is amended by adding new § 262.25;

§ 262.25 Electronic manifest signatures.

(a) An ''electronic signature'' means a method of signing an electronic document with a computer generated symbol or series of symbols in a way that indicates a particular person as the source of the document, and indicates such person's approval of the content of the document, or an intent to be bound by the document.

(b) All electronic manifests must be signed with electronic signatures which meet either the digital signature standard described in paragraphs (c) through (f) of this section, or the secure digitized signature standard described in paragraph (g) of this section.

(c) *Digital signatures.* A ''digital signature'' means an electronic signature that is based on private key/public key cryptography, and which allows both the identity of the signer and the integrity of the data to be verified.

(d) *Digital signature generation.* (1) The generation of digital signatures must conform to the Digital Signature Standard adopted by the National Institute of Standards and Technology (NIST) in Federal Information Processing Standard (FIPS PUB) 186–1, December 15, 1998. In accordance with FIPS PUB 186–1, the Secure Hash Algorithm (SHA) described in FIPS PUB 180–1 (NIST, April, 1995) and the RSA digital signature algorithm described in ANSI X9.31 must be used to generate and verify digital signatures for the hazardous waste manifest.

(2) Key lengths for encryption keys must be not less than 1024 bits.

(e) *Private key security.* (1) The private encryption key used to generate a manifest digital signature may reside on either software or hardware, e.g., a ''smart'' card or other hardware token. Access to the private key must be protected by at least one authority challenge, such as a PIN or password. The subscriber must keep the PIN or password confidential at all times.

(2) Individuals are responsible at all times for maintaining the confidentiality of their private keys. The private key must be protected at all times by the subscriber against disclosure, misuse, or compromise. An individual who uses a private key to sign electronic manifests must not delegate the use of their private key to another person.

(f) *Digital Certificate Requirements.* [Reserved]

(g) *Secure digitized signatures.* A ''secure digitized signature'' means an electronic signature that is created with a system which includes a digitizer device that collects signature data from a stylus that the signer moves across the surface of the device, and which includes software which can process signature input in the following manner:

(1) The signature software must block access to any editing or copying features that might otherwise allow a non-original signature image to be inserted in or copied to a document.

(2) The signature software must be designed to accept only original signature input created dynamically with the digitizer device.

(3) The signature software must record the signature input data as a signature object that contains:

(i) The graphical image of the signer's handwritten signature,

(ii) Signature capture information, including the claimed identity of the signer, and the date and time of the signature.

(iii) Document binding data, particularly, an encrypted checksum or hash function of the data to which the signature relates.

(4) The signature software must allow interrogation and verification of signature objects, to establish whether any data has been changed since a signature was captured. The software must alert the user if an invalid signature is detected.

(5) The signature software must be capable of presenting the graphical image of the captured signature in an industry standard bitmap format (e.g., TIFF or BMP), for display or print operations.

(h) Proof that an individual's electronic signature was affixed to an electronic manifest is evidence, and may suffice to establish, that the individual identified as the signor affixed the signature and did so with the intent to sign the electronic document to give it effect.

11. Subpart B is amended by adding new § 262.26;

§ 262.26 Electronic manifest systems and security.

(a) Electronic manifests must be generated and maintained by electronic systems that comply with paragraph (c) of this section. Electronic copies of manifests, which are electronically signed in accordance with § 262.25, and which are generated or maintained by electronic systems that meet the security requirements of paragraph (c) of this section, will be considered the legal equivalent to paper manifest copies bearing handwritten signatures, for purposes of satisfying any requirement in these regulations to initiate, use, or transmit a manifest, or to retain a record of a manifest copy or produce it for inspection.

(b) Electronic manifest copies as well as any computer systems (hardware and software), controls, and related documentation maintained under this section, must be readily available for, and subject to inspection by any EPA or authorized State inspector.

(c) Electronic systems used to satisfy the requirements in these regulations to initiate, use, transmit, or retain records of manifests, must employ controls and procedures to ensure the authenticity and integrity of their electronic records, and to ensure that the signer of these records cannot readily repudiate the signature and associated records as genuine. Such procedures and controls must include:

(1) Validation of computer systems by an independent, qualified information systems security professional who has prepared a written assessment of the system and has certified that the system generates and processes data accurately and reliably, that the system performs consistently and as intended, that the system is fully interoperable with any other electronic manifest system with which the system exchanges electronic manifests, that the system is designed and can be operated to meet the computer security standards of this section and good security practices common to trusted electronic commerce systems, and that appropriate precautions have been taken to ensure that these security measures cannot be avoided or defeated.

(2) The ability to generate accurate and complete records in both electronic (i.e, EDI and XML) formats and human readable formats, which can be made readily available for inspection, printing, or copying by EPA or State inspectors during the required record retention period.

(3) The ability to protect electronic records from all reasonably foreseeable causes of damage or corruption (including accidental or intentional erasures and alterations, and physical causes such as fire, heat, magnetism or water damage), to ensure their accurate and ready retrieval during the entire record retention period, including the retention of prior versions of hardware and software needed to access electronic records, and to create secure back-up copies of records or otherwise provide for data recovery in the event of damage or errors.

(4) The ability to limit system access to only authorized individuals, and to use authority checks (i.e., user IDs and passwords that uniquely identify each user to the system) to ensure that only authorized individuals can use the system, sign records, access input or output devices, alter a record, or perform discrete system operations,

(5) The ability to provide and maintain a secure computer-generated and time-stamped audit trail for independently recording the date and time of any operator entries and actions that create, modify, or delete records, and for establishing 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 prompting waste handlers to sign manifests electronically in the proper sequence and on the appropriate signature blocks, for ensuring that data entered by previous waste handlers cannot be altered once they have electronically signed the manifest, and for ensuring that electronic copies bearing the appropriate electronic signatures are distributed to all waste handlers involved with the waste shipment.

(7) Software-based features which ensure that manifest data appear on computer displays in a human readable format (including field labels) which waste handlers can readily verify before they apply their electronic signatures, and that at the time the system prompts a user to sign a manifest electronically, the signature prompt is accompanied by the following warning notice, which must be displayed clearly and conspicuously on the system display:

WARNING: Your electronic signature, when applied to this document, will constitute a signature for all legal purposes. The unauthorized use of an electronic signature, or the making of false statements in connection with an electronic signature, may be subject to civil penalties under State and Federal law, and to Federal criminal penalties under RCRA 3008(d)(3). Where a digital signature is used, only the person named as the subscriber on the digital certificate may apply the digital signature, and the right to use the digital signature cannot be delegated to another person. By using a digital signature, you are certifying that you have not compromised your private key or any password associated with your private key or signature device.

(8) Full interoperability of electronic manifest system features throughout the period that a manifest record resides on a system or is exchanged among waste handlers participating in an electronic system. Full interoperability of system features includes the ability to consistently process and present the required electronic manifest formats, the ability to consistently and reliably route manifests according to the software-based work flow and process controls, the ability to consistently generate and preserve audit trail data for each manifest record created by or received by the system, the ability to detect records that appear to have been altered, and the ability to consistently process and validate electronic signatures. You may exchange electronic manifests with another person's electronic system only if the other system has been assessed under paragraph (c)(1) of this section, and validated as fully interoperable with your system.

(9) Establishment of controls on distribution of, access to, and use of systems documentation that describes how the system operates, how the system components must be installed and configured, how system security features are implemented, or how the system is maintained. These controls extend as well to changes or revisions

to system documentation or operating procedures.

(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.

(d) *Third-party storage of manifest records.* (1) A generator's electronic manifest records may be stored by a networking service, record archiving service, or other commercial vendor of electronic record storage services provided that such records are maintained in a system that complies with the requirements of this section, including the requirement for reasonable inspector access to records during the entire record retention period, and the requirement for validation of the third-party system's operation by a qualified, independent information systems security professional.

(2) A generator who uses a third-party vendor of electronic record storage services to meet their record retention requirements remains responsible for the proper performance of their record retention requirements, including the requirement to provide reasonable inspector access to the records during the entire record retention period.

(e) *Receipt.* An electronic manifest is deemed to have been received by the recipient when it is accessible to the recipient in a format that can be read by the recipient. If a recipient receives a manifest record for which there is evidence that the data has been corrupted (e.g., garbled text, or hash functions or checksums that do not calculate correctly), the recipient must request that the sender re-transmit a corrected version of the record.

(f) *Acknowledgment of receipt.* When an electronic manifest transmission is received, the recipient must promptly generate and transmit to the sender an acknowledgment that confirms the receipt of data that can be translated by the recipient's system.

(g) *Date of receipt.* The acknowledgment generated by the recipient to confirm the receipt of translatable data will constitute conclusive evidence of receipt of the electronic manifest and will establish the date of receipt. An electronic transmission will not be considered complete until the sender receives the acknowledgment of receipt.

(h) *Retransmission.* If a positive acknowledgment is not received within 12 hours of a transmission, then the person who initiated the transmission must promptly re-transmit the electronic manifest.

(i) *Inability to transmit.* No person will be excused from the requirement to initiate or use a manifest because of a foreseeable or unforeseeable system failure that prevents the transmission of a valid electronic manifest. If a person is unable to initiate or transmit a valid manifest electronically, it must use the paper manifest required to be used in accordance with § 262.20(a)(2) and § 263.20 of this chapter.

(j) *Transmission log.* Each generator who operates an electronic manifest system to transmit or receive electronic manifests must maintain a transmission log covering all electronic manifests sent or received. This log must include for each manifest transmission sent or received, the date, time, and destination/source. The transmission log must also document who had access to the generator's sending or receiving system during the creation, transmission, or receipt of data. The transmission log must be maintained without modification and retained for three years among the generator's manifest records, in accordance with § 262.40(a).

12. Subpart B is amended by adding new § 262.27;

§ 262.27 Waste minimization certification.

A generator who initiates a shipment of hazardous waste must certify to one of the following statements in Item 16 of the uniform hazardous waste manifest:

(a) ''I am a large quantity generator. I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment;'' or

(b) ''I am a small quantity generator. I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.''

13. Section 262.32 is amended by revising paragraph (b) to read as follows:

§ 262.32 Marking.

* * * * *

(b) Before transporting hazardous waste or offering hazardous waste for transportation off-site, a generator must mark each container of 119 gallons or less used in such transportation with the following words and information in accordance with the requirements of 49 CFR 172.304:

HAZARDOUS WASTE—Federal Law Prohibits Improper Disposal. If found, contact the nearest police or public safety authority or the U.S. Environmental Protection Agency.
Generator's Name and Address _____
Generator's EPA Identification Number ____
Manifest Tracking Number _____

14. Section 262.33 is revised to read as follows:

§ 262.33 Placarding.

Before transporting hazardous waste or offering hazardous waste for transportation off-site, a generator must placard or offer the initial transporter the appropriate placards according to Department of Transportation regulations for hazardous materials under 49 CFR part 172, subpart F. If placards are not required, a generator must mark each motor vehicle according to 49 CFR 171.3(b)(1).

15. Section 262.34 is amended by adding new paragraph (j) to read as follows.

§ 262.34 Accumulation time.

* * * * *

(j) A generator who sends a shipment of hazardous waste to a designated facility with the understanding that the designated facility can accept and manage the waste and then receives that shipment back as a rejected load or residue in accordance with the manifest discrepancy provisions of § 264.72 or § 265.72 of this chapter may accumulate the returned waste on-site in accordance with paragraphs (a) and (b) or (d), (e) and (f) of this section, depending on the amount of hazardous waste on-site in that calendar month, except that a small quantity generator can never accumulate more than 6,000 kg on site at any given time.

Subpart E—Exports of Hazardous Waste

16. Section 262.54 is amended by revising paragraphs (c) and (e) to read as follows:

§ 262.54 Special manifest requirements.

* * * * *

(c) In the International Shipments block, the primary exporter must check the export box and enter the point of exit (city and State) from the United States.

* * * * *

(e) The primary exporter may obtain the manifest from any source that is registered with the U.S. EPA as a supplier of manifests (e.g., states, waste handlers, and/or commercial forms printers).

* * * * *

Subpart F—Imports of Hazardous Waste

17. Section 262.60 is amended by revising paragraph (c) and by adding paragraphs (d) and (e) to read as follows:

§ 262.60 Imports of hazardous waste.

* * * * *

(c) A person who imports hazardous waste may obtain the manifest form from any source that is registered with the U.S. EPA as a supplier of manifests (e.g., states, waste handlers, and/or commercial forms printers).

(d) In the International Shipments block, the importer must check the import box and enter the point of entry (city and State) into the United States.

(e) The importer must provide the transporter with an additional copy of the manifest for delivery to the U.S. Customs official at the point the hazardous waste enters the United States in accordance with § 263.20(g)(4) of this chapter.

18. The Appendix to Part 262 is redesignated as appendix 1 to part 262 and revised to read as follows:

Appendix 1 to Part 262—Uniform Hazardous Waste Manifest and Instructions (EPA Forms 8700–22 and 8700–22A and Their Instructions) U.S. EPA Form 8700–22

Read all instructions before completing this form.

This form has been designed for use on a 12-pitch (elite) typewriter which is also compatible with standard computer printers; a firm point pen may also be used—press down hard.

Federal regulations require generators and transporters of hazardous waste and owners or operators of hazardous waste treatment, storage, and disposal facilities to complete this form (8700–22) and, if necessary, the continuation sheet (8700–22A) for both inter- and intrastate transportation of hazardous waste.

The following statement must be included with each Uniform Hazardous Waste Manifest, either on the form, in the instructions to the form, or accompanying the form:

Public reporting burden for this collection of information is estimated to average: 17 minutes for generators, 10 minutes for transporters, and 16 minutes for owners or operators of treatment, storage, and disposal facilities. This includes time for reviewing instructions, gathering data, completing and reviewing the form, and transmitting the form. Send comments regarding the burden estimate, including suggestions for reducing this burden, to: Chief, Information Policy Branch (2136), U.S. Environmental Protection Agency, Ariel Rios Building; 1200 Pennsylvania Ave., NW, Washington, D.C. 20460; and to the Office of Information and Regulatory Affairs, Office of Management and Budget, Washington, D.C. 20503.

Copies and Copy Distribution

Original forms, carbon copies, carbonless copies, and photocopies of the manifest may be used. All copies must be legible. The top copy of the manifest must accompany the waste in transportation.

Paper manifest must be printed according to the following specifications:

- use the federal manifest format;
- register with EPA as a forms printer to ensure that you adhere to federal printing specifications and procedures subsequent to the registration process;
- preprint an eleven digit alphanumeric number (i.e., the three letter prefix followed by eight digits) under Item Three of the manifest as the Manifest Tracking Number.
- not add additional boxes to the form;
- not delete boxes from the form;
- print the form so that the manifest dimensions are 8½ × 11 inches;
- print the form in black ink so that it can be photocopied or faxed;
- print the standardized instructions outlined in 40 CFR part 262, appendix 1;
- follow the same copy naming structure as outlined below in § 262.21(c)(3);
- print the state optional boxes so that information in them is readable when the form is photocopied or faxed; and
- printer must print a 6 copy form.

Copies of the manifest shall be distributed as follows:

Page 1 (top copy): Designated facility to consignment State (if required);

Page 2: Designated facility to generator State (if required);

Page 3: Designated facility to generator;

Page 4: Designated facility retains

Page 5: Transporter retains; and

Page 6 (bottom copy): Generator to generator State (if required).

BILLING CODE 6560–50–P

UNIFORM HAZARDOUS WASTE MANIFEST

Please print or type.

GENERATOR

1. Generator's US EPA ID No.
2. Page 1 of
3. Manifest Tracking No.

Information in the shaded areas is not required by Federal law.

4. Generator's Name and Mailing Address

Generator's Phone:

5. Emergency Response Phone Number

6. Transporter 1 Company Name — US EPA ID Number

7. Transporter 2 Company Name — US EPA ID Number

8. Transporter 3 Company Name — US EPA ID Number

9. Designated Facility Name and Site Address — US EPA ID Number

10. US DOT Description *(Including Proper Shipping Name, Hazard Class, ID Number, and Packing Group)*	11. Containers No.	11. Containers Type	12. Total Quantity	13. Unit Wt/Vol	A. Waste Codes
a.					
b.					
c.					
d.					

14. Special Handling Instructions and Additional Information

15. **GENERATOR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national government regulations.

I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) or authorized equivalent state regulations is true with respect to this shipment.

Generator's Printed/Typed Name — Signature — *Month* *Day* *Year*

IMPORTS/EXPORTS

16. International Shipments

☐ Import into the U.S. ☐ Export from the U.S. Port of entry/exit _____

Transporter signature (for exports only) _____ Date leaving U.S. _____

TRANSPORTER

Transporter Acknowledgement of Receipt of Materials

17. Transporter 1 Printed/Typed Name — Signature — *Month* *Day* *Year*

18. Transporter 2 Printed/Typed Name — Signature — *Month* *Day* *Year*

19. Transporter 3 Printed/Typed Name — Signature — *Month* *Day* *Year*

FACILITY

20. Discrepancies/Other

☐ Discrepancy in quantity ☐ Discrepancy in type ☐ Container residue ☐ Rejected waste

Description _____ Manifest reference no. _____

21. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 20.

Printed/Typed Name — Signature — *Month* *Day* *Year*

B. Biennial Report System Type Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

a. c.

b. d.

BILLING CODE 6560–50–C

I. INSTRUCTIONS FOR GENERATORS

Item 1. Generator's U.S. EPA Identification Number

Enter the generator's U.S. EPA twelve digit identification number.

Item 2. Page 1 of ____

Enter the total number of pages used to complete this Manifest (i.e., the first page (EPA Form 8700–22) plus the number of Continuation Sheets (EPA Form 8700–22A), if any).

Item 3. Manifest Tracking Number

For paper manifests, this number must be pre-printed on the manifest by the forms printer.

Item 4. Generator's Mailing Address and Phone Number

Enter the name of the generator, the address to which the manifest signed by the designated facility should be mailed, and the generator's telephone number. Note, the telephone number (including area code) should be the number where the generator or his authorized agent may be reached to provide instructions in the event of an emergency or if the designated and/or alternate (if any) facility rejects some or all of the shipment. The emergency response phone number must:

1. be the number of the generator or the number of an agency or organization who is capable of and accepts responsibility for providing detailed information about the shipment;
2. reach a phone that is monitored 24 hours a day at all times the waste is in transportation (including transportation related storage); and
3. must reach someone who is either knowledgeable of the hazardous waste being shipped and has comprehensive emergency response and spill cleanup/incident mitigation information for the material being shipped or has immediate access to a person who has that knowledge and information about the shipment.

Item 5. Emergency Response Phone Number

Enter the number of the generator or the number of a party responsible for providing information about the shipment 24 hours a day.

Item 6. Transporter 1 Company Name, and U.S. EPA ID Number

Enter the company name and U.S. EPA ID number of the first transporter who will transport the waste.

Item 7. Transporter 2 Company Name, U.S. EPA ID Number

If applicable, enter the company name and U.S. EPA ID number of the second transporter who will transport the waste.

Item 8. Transporter 3 Company Name, U.S. EPA ID Number

If applicable, enter the company name and U.S. EPA ID number of the third transporter who will transport the waste.

If more than three transporters are needed, use a Continuation Sheet(s) (EPA Form 8700—22A).

Item 9. Designated Facility Name, Site Address, and U.S. EPA ID Number

Enter the company name and site address of the facility designated to receive the waste listed on this manifest and enter the U.S. EPA twelve digit identification number of the facility.

Item 10. U.S. DOT Description (Including Proper Shipping Name, Hazard Class or Division, Identification Number, and Packing Group)

Enter the U.S. DOT Proper Shipping Name, Hazard Class or Division, Identification Number (UN/NA) and Packing Group for each waste as identified in 49 CFR part 172. Include technical name(s) and reportable quantity references, if applicable. Any additional waste codes may be entered in Item 14 (special handling and additional information block), or if necessary, in Item 32 on the Continuation Sheet (EPA Form 8700–22A).

Note: If additional space is needed for waste descriptions, enter these additional descriptions in Item 28 on the Continuation Sheet (EPA Form 8700–22A).

Item 11. Containers (Number and Type)

Enter the number of containers for each waste and the appropriate abbreviation from Table I (below) for the type of container.

Table I. Types of Containers

BA = Burlap, cloth, paper, or plastic bags
CF = Fiber or plastic boxes, cartons, cases
CM = Metal boxes, cartons, cases (including roll-offs)
CW = Wooden boxes, cartons, cases
CY = Cylinders
DF = Fiberboard or plastic drums, barrels, kegs
DM = Metal drums, barrels, kegs
DT = Dump truck
DW = Wooden drums, barrels, kegs
HG = Hopper or gondola cars
TC = Tank cars
TP = Portable tanks
TT = Cargo tanks (tank trucks)

Item 12. Total Quantity

Enter, in designated boxes, the total quantity of waste. Round partial units to the nearest whole unit; do not enter decimals or fractions (unless appropriate for bulk shipments).

Item 13. Units of Measure (Weight/Volume)

Enter, in designated boxes, the appropriate abbreviation from Table II (below) for the unit of measure.

Table II. Units of Measure

G = Gallons (liquids only)
K = Kilograms
L = Liters (liquids only)
M = Metric Tons (1000 kilograms)
N = Cubic Meters
P = Pounds
T = Tons (2000 pounds)
Y = Cubic Yards

Item 14. Special Handling Instructions and Additional Information.

Note: This space may be used to record other information relevant to the waste shipment for which there is no specific space on the Manifest. These items are: universal waste shipments; additional waste codes; alternate facility designation; name, address, and phone number of any person other than the person identified in Item 4 (Generator's Name, Mailing Address, and Phone Number) preparing the manifest; and name, address, phone number, and EPA identification number of any person who shares generator responsibilities (i.e., co-generators) with the person identified in Item 4 (Generator's Name, Mailing Address, and Phone Number). This space may be also used to indicate special transportation; treatment, storage, or disposal information; bill of lading information, and/or the manifest tracking number of the original manifest for rejected loads and residues. If space is available, then generators can use this space for information relevant to their tracks. States may also require additional waste description associated with particular hazardous wastes listed on the Manifest. States cannot require information in this box other than information such as chemical names, constituent percentages, and physical state.

Item 15. Generator's Statement and Preparer's Certification

The generator must read, sign, and date the waste minimization certification statement. In signing the waste minimization certification statement, those generators who have not been exempted by statute or regulation from the duty to make a waste minimization certification under section 3002(b) of RCRA are also certifying that they have complied with the waste minimization requirements.

Generators may preprint the words, ''On behalf of'' in the signature block or may hand write this statement in the signature block prior to signing the generator certifications.

Note: For paper manifests, all of the above information except the handwritten signature required in item 15 may be pre-printed.

II. Instructions for International Shipment Block

Item 16. International Shipments

For export shipments, the primary exporter must check the export box, and enter the point of exit (city and state) from the United States. For import shipments, the importer must check the import box and enter the point of entry (city and state) into the United States. For exports, the transporter must sign and date the manifest to indicate the day the shipment left the United States. Transporters of hazardous waste shipments must deliver a copy of the manifest to the U.S. Customs when importing or exporting the waste across U.S. borders.

III. Instructions for Transporters

Item 17. Transporter 1 Acknowledgment of Receipt

Enter the name of the person accepting the waste on behalf of the first transporter. That person must acknowledge acceptance of the waste described on the Manifest by signing and entering the date of receipt. Only one signature per transportation company is required.

Item 18. Transporter 2 Acknowledgment of Receipt

If applicable, enter the name of the person accepting the waste on behalf of the second transporter. That person must acknowledge acceptance of the waste described on the Manifest by signing and entering the date of receipt.

Item 19. Transporter 3 Acknowledgment of Receipt

If applicable, enter the name of the person accepting the waste on behalf of the third transporter. That person must acknowledge acceptance of the waste described on the Manifest by signing and entering the date of receipt.

Note: Transporters carrying imports or exports of hazardous waste may also have responsibilities to enter information in the International Shipments Block. See above instructions for Item 16.

IV. Instructions for Owners and Operators of Treatment, Storage, and Disposal Facilities

Item 20. Discrepancy Indication Space

The authorized representative of the designated (or alternate) facility's owner or operator must note in this space any discrepancies between the waste described on the Manifest and the waste actually received at the facility. Manifest discrepancies are: significant differences (as defined by § § 264.72(b) and 265.72(b)) between the quantity or type of hazardous waste designated on the manifest or shipping paper, and the quantity and type of hazardous waste a facility actually receives; rejected wastes, which may be a full or partial shipment of hazardous waste that the TSDF cannot accept; or container residues, which are residues that exceed the quantity limits for ''empty'' containers set forth in 40 CFR 261.7(b).

For rejected loads and residues (40 CFR 264.72(d), (e), and (f), or 40 CFR 265.72(d), (e), or (f)), check the appropriate box if the shipment is a rejected load (i.e., rejected by the designated and/or alternate facility and is sent to an alternate facility or returned to the generator) or a regulated residue that cannot be removed from a container. Enter the reason for the rejection or the inability to remove the residue and a description of the waste. Also, reference the manifest tracking number for the new manifest being used to track the rejected waste or residue shipment on the original manifest. Indicate the original manifest tracking number in Item 14, the Special Handling Block of the new manifest.

Owners or operators of facilities located in unauthorized States (i.e., states in which the U.S. EPA administers the hazardous waste management program) who cannot resolve significant differences in quantity or type within 15 days of receiving the waste must submit to their Regional Administrator (see list below) a letter with a copy of the Manifest at issue describing the discrepancy and attempts to reconcile it (40 CFR 264.72(c) and 265.72(c)).

Owners or operators of facilities located in authorized States (i.e., those States that have received authorization from the U.S. EPA to administer the hazardous waste management program) should contact their State agency for information on State Discrepancy Report requirements.

EPA Regional Administrators

Regional Administrator, U.S. EPA Region I, John F. Kennedy Federal Building, One Congress St., Boston, MA 02203
Regional Administrator, U.S. EPA Region II, Jacob K. Javits Federal Building, 26 Federal Pl., New York, NY 10278
Regional Administrator, U.S. EPA Region III, 841 Chestnut Building, Philadelphia, PA 19107
Regional Administrator, U.S. EPA Region IV, 345 Courtland St, NE, Atlanta, GA 30365
Regional Administrator, U.S. EPA Region V, 77 W. Jackson Blvd., Chicago, IL 60604–3507
Regional Administrator, U.S. EPA Region VI, First Interstate Bank Tower at Fountain Place, 1445 Ross Ave, 12th Floor, Suite 1200, Dallas, TX 75202–2733
Regional Administrator, U.S. EPA Region VII, 726 Minnesota Ave., Kansas City, KS 66101
Regional Administrator, U.S. EPA Region VIII, 999 18th St., Suite 500, Denver, CO 80202–2405
Regional Administrator, U.S. EPA Region IX, 75 Hawthorne St., San Francisco, CA 94105
Regional Administrator, U.S. EPA Region X, 1200 Sixth Ave., Seattle, WA 98101

Item 21. Facility Owner or Operator Certification of Receipt (Except As Noted in Item 20)

Enter the name of the person accepting the waste on behalf of the owner or operator of the facility. That person must acknowledge receipt or rejection of the waste described on the Manifest by signing and entering the date of receipt or rejection where indicated. Since the Facility Certification acknowledges receipt of the waste except as noted in the Discrepancy Space in Item 20, the certification should be signed for both waste receipt and waste rejection, with the rejection being explained in the space in Item 20.

Optional State Information

Blocks A and B are not required by Federal regulations for intra- or interstate transportation. However, States may require generators and owners or operators of treatment, storage, or disposal facilities to complete some or all of Blocks A or B as part of State manifest reporting requirements. Generators and owners and operators of treatment, storage, or disposal facilities should contact State officials to determine whether they must enter information in blocks A and B.

Block A—Waste Codes

Enter up to 3 Federal waste codes in the top part of Block A for wastes described in Item 10. Enter the federal waste codes in accordance with the following hierarchy: all acutely hazardous wastes, including all P listed wastes and all acutely hazardous F listed wastes; all U listed wastes (toxic); all K listed wastes (specific sources); all non-acute F listed wastes (non-specific sources); and all D wastes (characteristic). The use of this hierarchy is required except for ignitable or reactive wastes, which may be better described (for safety reasons) if the waste codes for these characteristics are listed first.

The bottom half of Block A is reserved for entering up to three state-specific waste codes. In general, the first state waste code listed should be the generator state waste code (if applicable) and the second state waste code listed should be the destination state waste code (if applicable).

If additional federal or state waste codes need to be reported, the generator should use Item 14 ''Special Handling Instructions and Additional Information.''

Block B—Biennial Report System Type Codes

Enter the most appropriate Biennial Report system type code for each waste listed in Item 10. The system type code is to be entered by the first treatment, storage, or disposal facility (TSDF) that receives the waste and is the code that best describes the way in which the waste is managed when shipped to the TSDF. The full list of the Biennial Report system type codes can be found in the electronic and hard copy versions of 40 CFR Part 262 Appendix 2-Biennial Report system type codes (full list of the system type codes) and in the instructions for completing the Biennial Report.

19. Add a new appendix 2 to part 262 to read as follows:

Appendix 2 to Part 262—Biennial Report System Type Codes for Block B of the Uniform Hazardous Waste Manifest

Shown below is the full list of Biennial Report system type codes found in the 1999 Hazardous Waste Report Instructions and Forms. These codes are to be used by the designated facility in completing Block B of the hazardous waste manifest where an authorized state required it. Any changes made to those codes during subsequent Biennial Report periods will be automatically adopted.

List of System Type Codes

Metals Recovery (for Reuse)

M011 High temperature metals recovery
M012 Retorting
M013 Secondary smelting
M014 Other metals recovery for reuse: e.g., ion exchange, reverse osmosis, acid leaching
M019 Metals recovery—type unknown

Solvents Recovery

M021 Fractionation/distillation
M022 Thin film evaporation
M023 Solvent extraction
M024 Other solvent recovery
M029 Solvents recovery—type unknown

Other Recovery

M031 Acid regeneration
M032 Other recovery: e.g., waste oil recovery, nonsolvent organics recovery
M039 Other recovery—type unknown

Incineration Treatment

M041 Incineration—liquids
M042 Incineration—sludges
M043 Incineration—solids

M044 Incineration—gases
M049 Incineration—type unknown

Energy Recovery (Reuse as Fuel)

M051 Energy recovery—liquids
M052 Energy recovery—sludges
M053 Energy recovery—solids
M059 Energy recovery—type unknown

Fuel Blending

M061 Fuel blending

Aqueous Inorganic Treatment

M071 Chrome reduction followed by chemical precipitation
M072 Cyanide destruction followed by chemical precipitation
M073 Cyanide destruction only
M074 Chemical oxidation followed by chemical precipitation
M075 Chemical oxidation only
M076 Wet air oxidation
M077 Chemical precipitation
M078 Other aqueous inorganic treatment: e.g., ion exchange, reverse osmosis
M079 Aqueous inorganic treatment—type unknown

Aqueous Organic Treatment

M081 Biological treatment
M082 Carbon adsorption
M083 Air/steam stripping
M084 Wet air oxidation
M085 Other aqueous organic treatment
M089 Aqueous organic treatment—type unknown

Aqueous Organic and Inorganic Treatment

M091 Chemical precipitation in combination with biological treatment
M092 Chemical precipitation in combination with carbon adsorption
M093 Wet air oxidation
M094 Other organic/inorganic treatment
M099 Aqueous organic and inorganic treatment—type unknown

Sludge Treatment

M101 Sludge dewatering
M102 Addition of excess lime
M103 Absorption/adsorption
M104 Solvent extraction
M109 Sludge treatment—type unknown

Stabilization

M111 Stabilization/chemical fixation using cementitious and/or pozzolanic materials
M112 Other stabilization
M119 Stabilization—type unknown

Other Treatment

M121 Neutralization only
M122 Evaporation only
M123 Settling/clarification only
M124 Phase separation (e.g., emulsion breaking, filtration) only
M125 Other treatment
M129 Other treatment—type unknown

Disposal

M131 Land treatment/application/farming
M132 Landfill
M133 Surface impoundment (to be closed as a landfill)
M134 Deepwell/underground injection
M135 Direct discharge to sewer/POTW
M136 Direct discharge to surface water under NPDES
M137 Other disposal

Transfer Facility Storage

M141 Transfer facility storage—waste was shipped off site without any on-site treatment, disposal, or recycling activity

PART 263—STANDARDS APPLICABLE TO TRANSPORTERS OF HAZARDOUS WASTE

20. The authority citation for part 263 is revised to read as follows:

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

21–23. Section 263.20 is amended by revising paragraphs (a) through (g) and adding paragraph (i) 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 signed in accordance with the requirements of § 262.23, or, for electronic manifests, the requirements of 40 CFR 262.24 and 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 as provided in 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 shipments using an electronic manifest or 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.

(b)(1) *Transporter signature requirement when paper manifest supplied.* Before transporting the hazardous waste, the transporter must sign by hand and date the manifest acknowledging acceptance of the hazardous waste from the generator. Before leaving the generator's property, the transporter must return a signed paper copy of the manifest to the generator.

(2) *Transporter signature requirement when electronic manifest supplied.*—(i) *Transporters participating in electronic manifest systems.* Before transporting the hazardous waste, a transporter participating with the generator in an electronic manifest system must sign electronically and date the manifest acknowledging acceptance of the hazardous waste from the generator, using an electronic signature in accordance with the provisions of § 262.25 of this chapter. Before leaving the generator's property, the transporter must return a signed electronic copy of the manifest to the generator.

(ii) *Transporters unable to participate in electronic systems.* If the generator participates in an electronic manifest system, but the transporter is not able to accept or sign electronic manifests, then the transporter must acknowledge acceptance of the hazardous waste from the generator by signing by-hand and dating a paper copy of the manifest or other shipping paper under 49 CFR part 172, subpart C. Before leaving the generator's property, the transporter must return a copy of this signed manifest or other shipping paper to the generator.

(iii) *Transporter signing electronic manifest on behalf of generator.* If a transporter acts as an authorized preparer of a generator's manifest and signs the generator's certification on behalf of the generator as provided under § 262.24(b) of this chapter, the transporter must, before transporting the hazardous waste, sign electronically and date the manifest acknowledging acceptance of the hazardous waste from the generator. The transporter must return a signed electronic copy to the generator before leaving the generator's property. If the generator is not able to accept an electronic copy from the transporter, the transporter must provide the generator with a signed paper copy of the manifest or other shipping paper, with a notation in the generator's certification block indicating that the manifest was signed electronically on behalf of the generator.

(c)(1) For shipments tracked with a paper manifest, the transporter must ensure that the manifest accompanies the hazardous waste shipment and is readily available to, and recognized by, authorities in the event of accident or inspection.

(2) For shipments tracked with an electronic manifest, the transporter must ensure that the electronic manifest is transmitted to the next transporter or to the designated facility prior to or at the time of the delivery of the shipment. In addition, the transporter must ensure that a paper copy of the manifest or other shipping paper as defined under 49 CFR part 172, subpart C accompanies the shipment, and is readily available to, and recognized by, authorities in the event of inspection or accident.

(3) In the case of exports, the transporter must ensure that a copy of the EPA Acknowledgment of Consent also accompanies the waste.

(d)(1) *Transporter delivery of waste for shipments covered by paper manifest.* A transporter who delivers a hazardous waste covered by a paper manifest to another transporter or to the designated facility must:

(i) Obtain the date of delivery and the handwritten signature of that transporter or of the owner or operator of the designated facility on the manifest;

(ii) Retain one copy of the manifest in accordance with § 263.22; and

(iii) Give the remaining paper copies of the manifest to the accepting transporter or designated facility.

(2) *Transporter delivery of waste for shipments covered by electronic manifest.* A transporter who delivers a hazardous waste covered by an electronic manifest to another transporter or to the designated facility must:

(i) If the delivering transporter participates in the electronic manifest system:

(A) Obtain the date of delivery and the electronic signature of that transporter or of the owner or operator of the designated facility on the manifest;

(B) Retain an electronic copy of the manifest in accordance with § 263.22; and

(C) Transmit the electronic manifest to the accepting transporter or designated facility.

(ii) If the delivering transporter does not participate in the electronic system on which the manifest has been transmitted to the accepting transporter or designated facility:

(A) Obtain the date of delivery and the handwritten signature of the accepting transporter or the owner or operator of the designated facility, on a paper copy of the manifest or other shipping paper under 49 CFR part 272, subpart C, and which bears the manifest tracking number assigned to the shipment by the electronic system; and

(B) Retain this signed copy of the manifest or other shipping paper in accordance with § 263.22.

(e) For shipments involving water (bulk shipment) transportation, the requirements of paragraphs (c), (d), and (f) of this section do not apply if:

(1) The hazardous waste is delivered by water (bulk shipment) to the designated facility;

(2) A shipping paper containing all the information required on the manifest (excluding the EPA Identification numbers, generator certification, and signatures) and, for exports, and EPA Acknowledgment of Consent accompanies the hazardous waste;

(3) The person delivering the hazardous waste to the initial water (bulk shipment) transporter obtains the date of delivery and signature of the water (bulk shipment) transporter on a paper or electronic manifest and forwards it to the designated facility;

(4) The delivering water transporter obtains the date of delivery and handwritten signature of the owner or operator of the designated facility on either a paper copy of the manifest or on the shipping paper; and

(5) A copy of the shipping paper or manifest is retained by each water (bulk shipment) transporter in accordance with § 263.22.

(f) For shipments involving rail transportation, the requirements of paragraphs (c), (d), and (e) of this section do not apply, and the following requirements do apply:

(1) When accepting hazardous waste from a non-rail transporter, the initial rail transporter must:

(i) Sign (by-hand or with an electronic signature) and date the manifest acknowledging acceptance of the hazardous waste;

(ii) Return or transmit a signed copy of the manifest to the non-rail transporter;

(iii) Forward at least three paper copies or an electronic copy of the manifest to:

(A) The next non-rail transporter, if any; or

(B) The designated facility, if the shipment is delivered to that facility by rail; or

(C) The last rail transporter designated to handle the waste in the United States; and

(iv) Retain one copy of the manifest and rail shipping paper in accordance with § 263.22.

(2) Rail transporters must ensure that a shipping paper containing all the information required on the manifest (excluding the EPA identification numbers, generator certification, and signatures) and, for exports, an EPA acknowledgment of Consent accompanies the hazardous waste at all times.

(3)(i) When delivering hazardous waste covered by a paper manifest to the designated facility, a rail transporter must:

(A) Obtain the date of delivery and the handwritten signature of the owner or operator of the designated facility on the manifest, or a handwritten signature on the shipping paper (if the manifest has not been received by the facility); and

(B) Retain a copy of the manifest or signed shipping paper in accordance with § 263.22.

(ii) When delivering hazardous waste covered by an electronic manifest to the designated facility, a rail transporter participating in the electronic manifest system must:

(A) Obtain the date of delivery and the electronic signature of the owner or operator of the designated facility on the manifest; and

(B) Retain an electronic copy of the signed manifest in accordance with § 263.22.

(iii) When delivering hazardous waste covered by an electronic manifest to the designated facility, a rail transporter not participating in the electronic manifest system must:

(A) Obtain the date of delivery and handwritten signature of the owner or operator of the designated facility on a paper copy of the manifest or shipping paper, which must bear the manifest tracking number assigned to the shipment by the electronic system; and

(B) Retain a copy of the signed manifest or shipping paper in accordance with § 263.22.

(4)(i) When delivering hazardous waste covered by a paper manifest to a non-rail transporter, a rail transporter must:

(A) Obtain the date of delivery and the handwritten signature of the next non-rail transporter on the manifest; and

(B) Retain a paper copy of the manifest in accordance with § 263.22.

(ii) When delivering hazardous waste covered by an electronic manifest to a non-rail transporter, a rail transporter participating in the electronic manifest system must:

(A) Obtain the date of delivery and the electronic signature of the next non-rail transporter on the electronic manifest; and

(B) Retain an electronic copy of the signed manifest in accordance with § 263.22.

(iii) When delivering hazardous waste covered by an electronic manifest to a non-rail transporter, a rail transporter not participating in the electronic manifest system must:

(A) Obtain the date of delivery and handwritten signature of the next non-rail transporter on a paper copy of the manifest or shipping paper, which must bear the manifest tracking number assigned to the shipment by the electronic system; and

(B) Retain a copy of the signed manifest or shipping paper in accordance with § 263.22.

(5) Before accepting hazardous waste from a rail transporter, a non-rail transporter must sign (by hand or with an electronic signature) and date the manifest and provide a copy to the rail transporter.

(g) Transporters who transport hazardous waste out of the United States must:

(1) Sign and date the manifest in the International Shipments block to indicate the date that the shipment left the United States;

(2) Retain one copy in accordance with § 263.22(d);

(3) Return a signed copy of the manifest to the generator; and

(4) Give a copy of the manifest to a U.S. Customs official at the point of departure from the United States.

* * * * *

(i) Transporters who transport hazardous waste into the United States must give a copy of the manifest to a U.S. Customs official at the point of entry into the United States.

24. Section 263.21 is amended by revising paragraph (b) to read as follows:

§ 263.21 Compliance with the manifest.

* * * * *

(b)(1) If the hazardous waste cannot be delivered in accordance with paragraph (a) of this section because of an emergency condition other than rejection of the waste by the designated facility, then the transporter must contact the generator for further directions and must revise the manifest according to the generator's instructions.

(2) If hazardous waste is rejected by the designated facility listed on the manifest while the transporter is there, then the transporter must obtain the date of rejection and signature of the owner or operator of the designated facility on the manifest, retain one copy of the manifest in accordance with § 263.22, and give the remaining copies of the manifest to the rejecting designated facility. When the transporter is taking back a full or partial shipment, that load must be accompanied by a new manifest.

25. Section 263.22 is amended by revising paragraph (a), and by adding new paragraphs (f) and (g) to read as follows:

§ 263.22 Recordkeeping.

(a)(1) A transporter of hazardous waste must keep a copy of each paper or electronic manifest signed by the generator, himself, and the next designated transporter or the owner or operator of the designated facility for a period of three years from the date the hazardous waste was accepted by the initial transporter.

(2) For shipments covered by an electronic manifest, if a provision of this subpart authorizes a transporter to obtain, in lieu of a signed electronic copy of the manifest, a hand-signed paper copy of the manifest or other shipping paper under 49 CFR part 172, subpart C, the transporter must keep a copy of each such manifest or shipping paper for a period of three years from the date the hazardous waste was accepted by the initial transporter.

* * * * *

(f) *Transmission log.* Each transporter who operates an electronic manifest system and transmits or receives electronic manifests must maintain a transmission log covering all electronic manifests sent or received. This log must include for each manifest transmission sent or received, the date, time, and destination/source. The transmission log must also document who had access to the transporter's sending or receiving system during the creation, transmission, or receipt of data. The transmission log covering each calendar year's transmissions must be maintained without modification and retained with the transporter's manifest records for a period of three years from their creation.

(g) *Third-party storage of electronic manifest records.* (1) Electronic manifest records may be stored by a networking service, record archiving service, or other commercial vendor of electronic record storage services provided that such records are maintained in a system that complies with the requirements of § 262.26 of this chapter, including the requirement for reasonable inspector access to records during their retention period, and the requirement for validation of the third-party system's operation by a qualified, independent information systems security professional.

(2) A transporter who uses a third-party vendor of electronic record storage services to meet their record retention requirements remains responsible for the proper performance of their record retention requirements, including the requirement to provide reasonable inspector access during the entire record retention period.

26. Subpart B is amended by adding new § 263.23 to read as follows:

§ 263.23 Electronic manifest systems.

(a) If a transporter of hazardous waste participates in an electronic manifest system, the electronic system used by the transporter to originate, use, sign, transmit, or store electronic manifests shall be designed and operated in accordance with the electronic format standards described in 40 CFR 262.20(a)(3), the electronic signature standards in 40 CFR 262.25, and the system controls and computer security requirements described in 40 CFR 262.26.

(b) Except where a provision of this part specifically requires a paper copy of a manifest or a handwritten signature, manifest copies which are electronically signed in accordance with 40 CFR 262.25 and which are originated, transmitted, or maintained by electronic systems that comply with paragraph (a) of this section, will be considered the legal equivalent to paper manifest copies bearing handwritten signatures.

(c) All computer systems (hardware and software), controls, and related documentation maintained under this section, shall be readily available for, and subject to inspection by any EPA or authorized state inspector.

(d) *Receipt.* An electronic manifest is deemed to have been properly received by the recipient when it is accessible to the recipient in a format that can be read by the recipient. If a recipient receives a manifest record for which there is evidence that the data has been corrupted (e.g., garbled text, or hash functions or checksums that do not calculate correctly), the recipient must request that the sender re-transmit a corrected version of the record.

(e) *Acknowledgment of receipt.* When an electronic manifest transmission is received, the recipient must promptly generate and transmit to the sender an acknowledgment that confirms the receipt of data that can be translated by the recipient's system.

(f) *Date of receipt.* The acknowledgment generated by the recipient to confirm the receipt of translatable data will constitute conclusive evidence of receipt of the electronic manifest and will establish the date of receipt. An electronic transmission will not be considered complete until the sender receives the acknowledgment of receipt.

(g) *Retransmission.* If a positive acknowledgment is not received within 12 hours of a transmission, then the person who initiated the transmission must promptly re-transmit the electronic manifest.

(h) *Inability to transmit.* No person will be excused from the requirement to initiate or use a manifest because of a foreseeable or unforeseeable system failure that prevents the transmission of a valid electronic manifest. If a person is unable to initiate or transmit a valid manifest electronically, it must use the paper manifest required to be used in accordance with 40 CFR 262.20(a)(2) and 40 CFR 263.20.

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

27. 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

28–29. Section 264.71 is amended by revising paragraphs (a) and (b)(4) and adding paragraph (e) to read as follows:

§ 264.71 Use of manifest system.

(a)(1) If a facility receives hazardous waste with a manifest, the owner or operator, or his agent, must sign and date the manifest, as indicated in paragraphs (a)(2), (3), or (4) of this section to certify that the hazardous waste covered by the manifest was received, that the hazardous waste was received except as noted in the discrepancy space of the manifest, or that the hazardous waste was fully rejected as noted in the manifest discrepancy space.

(2) If a facility receives a hazardous waste shipment accompanied by a paper manifest, the owner or 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 paper copy of the manifest;

(iv) Within 30 days of delivery, send a copy of the paper manifest to the generator; and

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

(3) If a facility receives a hazardous waste shipment covered by an electronic manifest, and the generator, transporter, and facility all participate in the electronic manifest system, the owner or operator, or his agent, must:

(i) Electronically sign and date the manifest, using an electronic signature in accordance with the provisions of 40 CFR 262.25, to certify that the hazardous waste covered by the manifest was received;

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

(iii) Immediately provide the transporter with one electronic copy of the signed manifest;

(iv) Immediately send an electronic copy of the signed manifest to the generator; and

(v) Retain at the facility an electronic copy of each manifest for at least three years from the date of delivery.

(4) If an owner or operator participates with a generator in an electronic manifest system, but receives a hazardous waste shipment from a transporter that does not participate in the electronic system, the owner or operator must:

(i) Hand-sign and date a paper copy of the manifest (or other shipping paper under 49 CFR part 172, subpart C) provided by the delivering transporter, and immediately give the transporter the copy of the hand-signed manifest or shipping paper;

(ii) Electronically sign (using an electronic signature in accordance with § 262.25) and date the electronic manifest covering the shipment that was forwarded to the facility by the generator, to certify that the hazardous waste covered by the manifest was received;

(iii) Note any significant discrepancies in the manifest (as defined in § 264.72(a)) on the electronic manifest;

(iv) Immediately return the electronically signed electronic copy of the manifest to the generator; and

(v) Retain at the facility an electronic copy the manifest for at least three years from the date of delivery.

(b) * * *

(4) Within 30 days after the delivery, send a copy of the signed and dated manifest or shipping paper (if the manifest has not been received within 30 days after delivery) to the generator. However, if the generator and the facility participate in an electronic manifest system, the owner or operator, or his agent, shall electronically sign and date (and note any discrepancies) the electronic manifest provided by the generator, and immediately send the signed electronic copy to the generator in lieu of a paper copy.

* * * * *

(e) A facility must contact the consignment state to determine whether that state requires facilities to enter optional state information on the manifest. Facilities must also contact the consignment state to determine whether they are required to submit a copy of the manifest to the state.

30. Section 264.72 is revised to read as follows:

§ 264.72 Manifest discrepancies.

(a) Manifest discrepancies are: Significant differences (as defined by paragraph (b) of this section) between the quantity or type of hazardous waste designated on the manifest or shipping paper, and the quantity and type of hazardous waste a facility actually receives; Rejected wastes, which may be a full or partial shipment of hazardous waste that the TSDF cannot accept; or Container residues, which are residues that exceed the quantity limits for ''empty'' containers set forth in 40 CFR 261.7(b).

(b) Significant differences in quantity are: For bulk waste, variations greater than 10 percent in weight; and for batch waste, any variation in piece count, such as a discrepancy of one drum in a truckload. Significant differences in type are obvious differences which can be discovered by inspection or waste analysis, such as waste solvent substituted for waste acid, or toxic constituents not reported on the manifest or shipping paper.

(c) Upon discovering a significant difference in quantity or type, the owner or operator must attempt to reconcile the discrepancy with the waste generator or transporter (e.g., with telephone conversations). If the discrepancy is not resolved within 15 days after receiving the waste, the owner or operator must immediately submit to the Regional Administrator a letter describing the discrepancy and attempts to reconcile it, and a copy of the manifest or shipping paper at issue.

(d)(1) Upon rejecting waste or identifying a container residue that exceeds the quantity limits for ''empty'' containers set forth in 40 CFR 261.7(b), the facility must contact the generator to obtain the generator's instructions for forwarding the waste to another facility that can manage the waste. The facility must send the waste according to the generator's instructions. If it is impossible to locate in a timely manner an alternative facility that can promptly receive the waste, the facility may, with permission of the generator, return the rejected waste or residue to the generator.

(2) While the facility is making arrangements for forwarding rejected wastes or residues to another facility under this section, it must ensure that either the delivering transporter retains custody of the waste, or, the facility must provide for secure, temporary custody of the waste pending delivery of the waste to the first transporter designated on the new manifest prepared under paragraph (e) or (f) of this section.

(e) For rejected loads and residues that are to be sent off-site to an alternate facility, the facility is required to prepare a new manifest in accordance with § 262.20(a) of this chapter and the following instructions:

(1) Write the generator's name, address and U.S. EPA ID number in the

generator's name and mailing address box (Items 1 and 4) of a new manifest.

(2) Write the name of the alternate designated facility and the facility's U.S. EPA ID number in the designated facility block (Item 9) of a new manifest.

(3) Copy the manifest tracking number found in Block A or Item 3 of the old manifest to the Special Handling and Additional Information Block of the new manifest, and indicate that the shipment is a residue or rejected waste from the previous shipment,

(4) Copy the manifest tracking number found in Item 3 of the new manifest to the manifest reference number line in the Discrepancy Block of the old manifest (Item 20) of this chapter.

(5) Write the DOT description for the rejected load or the residue in the Item 10 (U.S. DOT Description) of the new manifest and write the container types, quantity, and volume(s) of waste.

(6) Sign the Generator's Certification to certify, as the offeror of the shipment, that the waste has been properly packaged, marked and labeled and is in proper condition for transportation.

(f) For rejected wastes and residues that must be sent back to the generator, the facility is required to prepare a new manifest in accordance with § 262.20(a) of this chapter and the following instructions:

(1) Write the facility's name, address and U.S. EPA ID number in the generator's name and mailing address box (Items 1 and 4) of a new manifest.

(2) Write the name of the initial generator and the generator's U.S. EPA ID number in the designated facility block (Item 9) of the new manifest.

(3) Copy the manifest tracking number found in Block A or Item 3 of the old manifest to the Special Handling and Additional Information Block of the new manifest, and indicate that the shipment is a residue or rejected waste from the previous shipment,

(4) Copy the manifest tracking number found in Item 3 of the new manifest to the manifest reference number line in the Discrepancy Block of the old manifest (Item 20),

(5) Write the DOT description for the rejected load or the residue in the Item 10 (U.S. DOT Description) of the new manifest and write the container types, quantity, and volume(s) of waste.

(6) Sign the Generator's Certification to certify, as offeror of the shipment, that the waste has been properly packaged, marked and labeled and is in proper condition for transportation,

(g) If a facility rejects a waste or identifies a container residue that exceeds the quantity limits for ''empty'' containers set forth in 40 CFR 261.7(b) after it has already signed a manifest or shipping paper to certify to the receipt of the materials under 40 CFR 264.71(a) or (b), the facility must amend its copy of the manifest to indicate the rejected wastes or residues in the discrepancy space of the amended manifest. The facility must also copy the manifest tracking number from Item 3 of the new manifest to the discrepancy space of the amended manifest, and must re-sign and date the manifest to certify to the information as amended. The facility must retain the amended manifest for at least three years from the date of amendment, and must within 30 days, send a copy of the amended manifest to the delivering transporter and to the generator.

31. Section 264.76 is revised to read as follows:

§ 264.76 Unmanifested waste report.

(a) If a facility accepts for treatment, storage, or disposal any hazardous waste from an off-site source without an accompanying manifest, or without an accompanying shipping paper as described by § 263.20(e) of this chapter, and if the waste is not excluded from the manifest requirement by this chapter, then the owner or operator must prepare and submit a letter to the Regional Administrator within fifteen days after receiving the waste. The unmanifested waste report must contain the following information:

(1) The EPA identification number, name and address of the facility;

(2) The date the facility received the waste;

(3) The EPA identification number, name and address of the generator and the transporter, if available;

(4) A description and the quantity of each unmanifested hazardous waste the facility received;

(5) The method of treatment, storage, or disposal for each hazardous waste;

(6) The certification signed by the owner or operator of the facility or his authorized representative; and

(7) A brief explanation of why the waste was unmanifested, if known.

(b) [Reserved]

32. Subpart E is amended by adding new § 264.78 to read as follows:

§ 264.78 Electronic manifest systems.

(a) If an owner or operator of a facility that treats, stores, or disposes of hazardous waste participates in an electronic manifest system, the electronic system used by the owner or operator to originate, use, sign, transmit, or store electronic manifests must be designed and operated in accordance with the electronic format standards described in 40 CFR 262.20(a)(3), the electronic signature standards in 40 CFR 262.25, and the system controls and computer security requirements described in 40 CFR 262.26.

(b) Except where a provision of this part specifically requires a paper copy of a manifest or a handwritten signature, manifest copies which are electronically signed in accordance with the provisions on electronic manifest signatures in 40 CFR 262.25, and which are originated, transmitted, or maintained by electronic systems that comply with paragraph (a) of this section, will be considered the legal equivalent to paper manifest copies bearing handwritten signatures.

(c) Electronic manifest copies as well as any computer systems (hardware and software), controls, and related documentation maintained under this section, must be readily available for, and subject to inspection by any EPA or authorized state inspector.

(d) *Transmission log.* An owner or operator of a facility which transmits or receives electronic manifests must maintain a transmission log covering all electronic manifests sent or received. This log must include for each manifest transmission sent or received, the date, time, and destination/source identity. The transmission log must also identify who had access to the facility's system during the creation, transmission, or receipt of data. This transmission log must be maintained without modification and retained for 3 years among the facility's manifest records.

(e) *Third-party storage of electronic manifest records.* (1) Electronic manifest records may be stored by a networking service, record archiving service, or other commercial vendor of electronic record storage services provided that such records are maintained in a system that complies with the requirements of 40 CFR 262.26, including the requirement for reasonable inspector access to records during their retention period, and the requirement for validation of the third-party system's operation by a qualified, independent information systems security professional.

(2) A facility owner or operator who uses a third-party vendor of electronic record storage services to meet their record retention requirements remains responsible for the proper performance of their record retention requirements, including the requirement to provide reasonable inspector access during the entire record retention period.

(f) *Receipt.* An electronic manifest is deemed to have been received by the recipient when it is accessible to the recipient in a format that can be read by the recipient. If a recipient receives a manifest record for which there is

evidence that the data has been corrupted (e.g., garbled text, or hash functions or checksums that do not calculate correctly), the recipient must request that the sender re-transmit a corrected version of the record.

(g) *Acknowledgment of receipt.* When an electronic manifest transmission is received, the recipient must promptly generate and transmit to the sender an acknowledgment that confirms the receipt of data that can be translated by the recipient's system.

(h) *Date of receipt.* The acknowledgment generated by the recipient to confirm the receipt of translatable data will constitute conclusive evidence of receipt of the electronic manifest and will establish the date of receipt. An electronic transmission will not be considered complete until the sender receives the acknowledgment of receipt.

(i) *Retransmission.* If a positive acknowledgment is not received within 12 hours of a transmission, then the person who initiated the transmission must promptly re-transmit the electronic manifest.

(j) *Inability to transmit.* No person will be excused from the requirement to initiate or use a manifest because of a foreseeable or unforeseeable system failure that prevents the transmission of a valid electronic manifest. If a person is unable to initiate or transmit a valid manifest electronically, it must use the paper manifest required to be used in accordance with § 262.20(a)(2) and § 263.20 of this chapter.

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

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

Authority: 42 U.S.C. 6905, 6906, 6912(a), 6922, 6923, 6924, 6925, 6935, 6936, and 6937, unless otherwise noted.

Subpart E—MANIFEST SYSTEM, RECORDKEEPING, AND REPORTING

34–35. Section 265.71 is amended by revising paragraphs (a) and (b)(4) and adding paragraph (e) to read as follows:

§ 265.71 Use of manifest system.

(a)(1) If a facility receives hazardous waste with a manifest, the owner or operator, or his agent, must sign and date the manifest, as indicated in paragraphs (a)(2), (3), or (4) of this section to certify that the hazardous waste covered by the manifest was received, that the hazardous waste was received except as noted in the discrepancy space of the manifest, or that the hazardous waste was fully rejected as noted in the manifest discrepancy space.

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

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

(ii) Note any discrepancies (as defined in § 265.72(a)) on each copy of the manifest;

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

(iv) Within 30 days of delivery, send a copy of the paper manifest to the generator; and

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

(3) If a facility receives a hazardous waste shipment covered by an electronic manifest, and the generator, transporter, and facility all participate in the electronic manifest system, the owner or operator, or his agent, must:

(i) Electronically sign and date the manifest, using an electronic signature in accordance with the provisions of 40 CFR 262.25, to certify that the hazardous waste covered by the manifest was received;

(ii) Note any discrepancies (as defined in § 265.72(a)) on the electronic manifest;

(iii) Immediately provide the transporter with one electronic copy of the signed manifest;

(iv) Immediately send an electronic copy of the signed manifest to the generator; and

(v) Retain at the facility an electronic copy of each manifest for at least three years from the date of delivery.

(4) If an owner or operator participates with a generator in an electronic manifest system, but receives a hazardous waste shipment from a transporter that does not participate in the electronic system, the owner or operator must:

(i) Hand-sign and date a paper copy of the manifest (or other shipping paper under 49 CFR part 172, subpart C) provided by the delivering transporter, and immediately give the transporter the copy of the hand-signed manifest or shipping paper;

(ii) Electronically sign (using an electronic signature in accordance with § 262.25) and date the electronic manifest covering the shipment that was forwarded to the facility by the generator, to certify that the hazardous waste covered by the manifest was received;

(iii) Note any significant discrepancies in the manifest (as defined in § 265.72(a)) on the electronic manifest;

(iv) Immediately return the electronically signed electronic copy of the manifest to the generator; and

(v) Retain at the facility an electronic copy the manifest for at least three years from the date of delivery.

(b) * * *

(4) Within 30 days after the delivery, send a copy of the signed and dated manifest or shipping paper (if the manifest has not been received within 30 days after delivery) to the generator. However, if the generator and the facility participate in an electronic manifest system, the owner or operator, or his agent, shall electronically sign and date (and note any discrepancies) the electronic manifest provided by the generator, and immediately send the signed electronic copy to the generator in lieu of a paper copy.

* * * * *

(e) A facility must contact the consignment state to determine whether that state requires facilities to enter optional state information on the manifest. Facilities must also contact the consignment state to determine whether they are required to submit a copy of the manifest to the state.

36. Section 265.72 is revised to read as follows:

§ 265.72 Manifest discrepancies.

(a) Manifest discrepancies are: Significant differences (as defined by paragraph (b) of this section) between the quantity or type of hazardous waste designated on the manifest or shipping paper, and the quantity and type of hazardous waste a facility actually receives; Rejected wastes, which may be a full or partial shipment of hazardous waste that the TSDF cannot accept; or Container residues, which are residues that exceed the quantity limits for ''empty'' containers set forth in 40 CFR 261.7(b).

(b) Significant differences in quantity are: For bulk waste, variations greater than 10 percent in weight; and for batch waste, any variation in piece count, such as a discrepancy of one drum in a truckload. Significant differences in type are obvious differences which can be discovered by inspection or waste analysis, such as waste solvent substituted for waste acid, or toxic constituents not reported on the manifest or shipping paper.

(c) Upon discovering a significant difference in quantity or type, the owner or operator must attempt to reconcile the discrepancy with the waste generator or transporter (e.g., with telephone conversations). If the discrepancy is not resolved within 15

days after receiving the waste, the owner or operator must immediately submit to the Regional Administrator a letter describing the discrepancy and attempts to reconcile it, and a copy of the manifest or shipping paper at issue.

(d)(1) Upon rejecting waste or identifying a container residue that exceeds the quantity limits for ''empty'' containers set forth in 40 CFR 261.7(b), the facility must contact the generator to obtain the generator's instructions for forwarding the waste to another facility that can manage the waste. The facility must send the waste according to the generator's instructions. If it is impossible to locate in a timely manner an alternative facility that can promptly receive the waste, the facility may, with permission of the generator, return the rejected waste or residue to the generator.

(2) While the facility is making arrangements for forwarding rejected wastes or residues to another facility under this section, it must ensure that either the delivering transporter retains custody of the waste, or, the facility must provide for secure, temporary custody of the waste pending delivery of the waste to the first transporter designated on the new manifest prepared under paragraph (e) or (f) of this section.

(e) For rejected loads and residues that are to be sent off-site to an alternate facility, the facility is required to prepare a new manifest in accordance with § 262.20(a) of this chapter and the following instructions:

(1) Write the generator's name, address and U.S. EPA ID number in the generator's name and mailing address box (Items 1 and 4) of a new manifest.

(2) Write the name of the alternate designated facility and the facility's U.S. EPA ID number in the designated facility block (Item 9) of a new manifest.

(3) Copy the manifest tracking number found in Block A or Item 3 of the old manifest to the Special Handling and Additional Information Block of the new manifest, and indicate that the shipment is a residue or rejected waste from the previous shipment,

(4) Copy the manifest tracking number found in Item 3 of the new manifest to the manifest reference number line in the Discrepancy Block of the old manifest (Item 20) of this chapter.

(5) Write the DOT description for the rejected load or the residue in the Item 10 (U.S. DOT Description) of the new manifest and write the container types, quantity, and volume(s) of waste.

(6) Sign the Generator's Certification to certify, as the offeror of the shipment, that the waste has been properly packaged, marked and labeled and is in proper condition for transportation.

(f) For rejected wastes and residues that must be sent back to the generator, the facility is required to prepare a new manifest in accordance with § 262.20(a) of this chapter and the following instructions:

(1) Write the facility's name, address and U.S. EPA ID number in the generator's name and mailing address box (Items 1 and 4) of a new manifest.

(2) Write the name of the initial generator and the generator's U.S. EPA ID number in the designated facility block (Item 9) of the new manifest.

(3) Copy the manifest tracking number found in Block A or Item 3 of the old manifest to the Special Handling and Additional Information Block of the new manifest, and indicate that the shipment is a residue or rejected waste from the previous shipment,

(4) Copy the manifest tracking number found in Item 3 of the new manifest to the manifest reference number line in the Discrepancy Block of the old manifest (Item 20),

(5) Write the DOT description for the rejected load or the residue in the Item 10 (U.S. DOT Description) of the new manifest and write the container types, quantity, and volume(s) of waste.

(6) Sign the Generator's Certification to certify, as offeror of the shipment, that the waste has been properly packaged, marked and labeled and is in proper condition for transportation,

(g) If a facility rejects a waste or identifies a container residue that exceeds the quantity limits for ''empty'' containers set forth in 40 CFR 261.7(b) after it has already signed a manifest or shipping paper to certify to the receipt of the materials under 40 CFR 265.71(a) or (b), the facility must amend its copy of the manifest to indicate the rejected wastes or residues in the discrepancy space of the amended manifest. The facility must also copy the manifest tracking number from Item 3 of the new manifest to the discrepancy space of the amended manifest, and must re-sign and date the manifest to certify to the information as amended. The facility must retain the amended manifest for at least three years from the date of amendment, and must within 30 days, send a copy of the amended manifest to the delivering transporter and to the generator.

37. Section 265.76 is revised to read as follows:

§ 265.76 Unmanifested waste report.

(a) If a facility accepts for treatment, storage, or disposal any hazardous waste from an off-site source without an accompanying manifest, or without an accompanying shipping paper as described by § 263.20(e) of this chapter, and if the waste is not excluded from the manifest requirement by this chapter, then the owner or operator must prepare and submit a letter to the Regional Administrator within fifteen days after receiving the waste. The unmanifested waste report must contain the following information:

(1) The EPA identification number, name and address of the facility;

(2) The date the facility received the waste;

(3) The EPA identification number, name and address of the generator and the transporter, if available;

(4) A description and the quantity of each unmanifested hazardous waste the facility received;

(5) The method of treatment, storage, or disposal for each hazardous waste;

(6) The certification signed by the owner or operator of the facility or his authorized representative; and

(7) A brief explanation of why the waste was unmanifested, if known.

(b) [Reserved]

38. Subpart E is amended by adding new § 265.78;

§ 265.78 Electronic manifest systems.

(a) If an owner or operator of a facility that treats, stores, or disposes of hazardous waste participates in an electronic manifest system, the electronic system used by the owner or operator to originate, use, sign, transmit, or store electronic manifests must be designed and operated in accordance with the electronic format standards described in 40 CFR 262.20(a)(3), the electronic signature standards in 40 CFR 262.25, and the system controls and computer security requirements described in 40 CFR 262.26.

(b) Except where a provision of this Part specifically requires a paper copy of a manifest or a handwritten signature, manifest copies which are electronically signed in accordance with the provisions on electronic manifest signatures in 40 CFR 262.25, and which are originated, transmitted, or maintained by electronic systems that comply with paragraph (a) of this section, will be considered the legal equivalent to paper manifest copies bearing handwritten signatures.

(c) Electronic manifest copies as well as any computer systems (hardware and software), controls, and related documentation maintained under this section, must be readily available for, and subject to inspection by any EPA or authorized state inspector.

(d) *Transmission log.* An owner or operator of a facility which transmits or receives electronic manifests must

maintain a transmission log covering all electronic manifests sent or received. This log must include for each manifest transmission sent or received, the date, time, and destination/source identity. The transmission log must also identify who had access to the facility's system during the creation, transmission, or receipt of data. This transmission log must be maintained without modification and retained for 3 years among the facility's manifest records.

(e) *Third-party storage of electronic manifest records.* (1) Electronic manifest records may be stored by a networking service, record archiving service, or other commercial vendor of electronic record storage services provided that such records are maintained in a system that complies with the requirements of 40 CFR 262.26, including the requirement for reasonable inspector access to records during their retention period, and the requirement for validation of the third-party system's operation by a qualified, independent information systems security professional.

(2) A facility owner or operator who uses a third-party vendor of electronic record storage services to meet their record retention requirements remains responsible for the proper performance of their record retention requirements, including the requirement to provide reasonable inspector access during the entire record retention period.

(f) *Receipt.* An electronic manifest is deemed to have been received by the recipient when it is accessible to the recipient in a format that can be read by the recipient. If a recipient receives a manifest record for which there is evidence that the data has been corrupted (e.g., garbled text, or hash functions or checksums that do not calculate correctly), the recipient must request that the sender re-transmit a corrected version of the record.

(g) *Acknowledgment of receipt.* When an electronic manifest transmission is received, the recipient must promptly generate and transmit to the sender an acknowledgment that confirms the receipt of data that can be translated by the recipient's system.

(h) *Date of receipt.* The acknowledgment generated by the recipient to confirm the receipt of translatable data will constitute conclusive evidence of receipt of the electronic manifest and will establish the date of receipt. An electronic transmission will not be considered complete until the sender receives the acknowledgment of receipt.

(i) *Retransmission.* If a positive acknowledgment is not received within 12 hours of a transmission, then the person who initiated the transmission must promptly re-transmit the electronic manifest.

(j) *Inability to transmit.* No person will be excused from the requirement to initiate or use a manifest because of a foreseeable or unforeseeable system failure that prevents the transmission of a valid electronic manifest. If a person is unable to initiate or transmit a valid manifest electronically, it must use the paper manifest required to be used in accordance with § 262.20(a)(2) and § 263.20 of this chapter.

PART 271—REQUIREMENTS FOR AUTHORIZATION OF STATE HAZARDOUS WASTE PROGRAMS

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

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

40. Section 271.1(j) is amended by adding the following entries to Table 1 in chronological order by date of publication in the **Federal Register**, to read as follows:

§ 271.1 Purpose and scope.

* * * * *

(j) * * *

TABLE 1.—REGULATIONS IMPLEMENTING THE HAZARDOUS AND SOLID WASTE AMENDMENTS OF 1984

Promulgation date	Title of regulation	Federal Register reference	Effective date
* * *	* * *	* * *	* * *
[*Insert date of publication of final rule in the Federal Register (FR)*].	Waste Minimization Certification in the Revised Manifest Rule.	[*Insert FR page numbers*]	[*Insert date of X months from date of publication of final rule*].

* * * * *

41. Section 271.10 is amended by revising paragraphs (f) and (h) to read as follows:

§ 271.10 Requirements for generators of hazardous wastes.

* * * * *

(f) The State must require that all generators of hazardous waste who transport (or offer for transport) such hazardous waste off-site:

(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.

(i) The manifest system must include, in the case of shipments covered by a paper manifest, the use of the paper manifest format as required by § 262.20(a)(2), § 262.21 and § 262.23. No other manifest form, shipping document, or information, other than that required by federal law, may be required by the State to travel with the shipment.

(ii) If the state chooses to allow electronic manifesting, then the manifest system must include, in the case of shipments covered by an electronic manifest, the use of the electronic manifest formats as required by § 262.20(a)(3), § 262.21 and § 262.24. No other electronic manifest format or information, other than that required by federal law, may be required by the state as a means to identify electronically the quantity, composition, origin, routing, and destination of a hazardous waste shipment during its transportation from the point of generation to the point of storage, treatment, or disposal.

(iii) If the state chooses to allow electronic manifesting, then the manifest system must also include the electronic signature requirements in § 262.25 and the electronic manifest systems and security provisions in § 262.26.

(2) Initiate the manifest and designate on the manifest the storage, treatment, or disposal facility to which the waste is to be shipped.

(3) Ensure that all wastes offered for transportation are accompanied by a paper manifest, except:

(i) Shipments subject to § 262.20(e) or (f),

(ii) Shipments by rail or water that are covered by a paper manifest, as specified in 40 CFR 262.23(c) and (d),

(iii) Shipments by rail or water that are covered by an electronic manifest, as specified in 40 CFR 262.24(e) and (f), or

(iv) Shipments covered by an electronic manifest, as specified in 40 CFR 262.24(c).

* * * * *

(h) The State must follow the Federal manifest format for the form and instructions (40 CFR 262.20 and Appendix 1) and may implement certain optional fields to the limited extent described below.

(1) In addition to the federally required information, either the State in which the generator is located or the State in which the designated facility is located may require completion of the following items:

(i) Waste codes (either federal or state codes associated with particular wastes) (Block A), and/or

(ii) Biennial Report system type codes (codes associated with particular waste treatment, or disposal methods) (Block B).

(iii) The additional waste code or Biennial Report system type code information required by the State must fit within the space of Blocks A and B on the form (and, if a continuation sheet is used, Blocks C and D) using normal 12-point pitch. The additional information must be required by state statute or regulation. The State may not require any information that duplicates information required elsewhere on the form.

(2) A state may require additional waste descriptions associated with the particular hazardous wastes listed on the Manifest to be entered in Item 14. This information is limited to information such as chemical names, constituent percentages, physical state, and waste management method. A state may not require information other than information as described in paragraphs (h)(1) and (2) of this section.

(3) No State may impose enforcement sanctions on a transporter during transportation of the shipment for failure of the form to include optional State information items.

(4) Either the State to which a shipment is manifested (consignment State) or the State in which the generator is located (generator State), or both, may require that copies of the manifest form be submitted to the State.

(i) Unless otherwise provided in part 271, the state program shall have standards for generators which are at least as stringent as any amendment to 40 CFR Part 262 which is promulgated after July 1, 1984.

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

§ 271.11 Requirements for transporters of hazardous waste.

* * * * *

(c)(1) The State must require transporters to carry the manifest during transport, except:

(i) In the case of shipments by rail or water, transporters may carry a shipping paper, as specified in 40 CFR 263.20(e) and (f);

(ii) If the State chooses to allow electronic manifesting, transporters must carry either a paper copy of the manifest, or other shipping paper as specified in 40 CFR 263.20(b), (c), (d), and (f).

(2) The State must require the transporter to deliver waste only to the facility designated on the manifest.

(3) The State program must provide requirements for shipments by rail or water equivalent to those under 40 CFR 263.20(e) and (f).

(4) If the State chooses to allow electronic manifesting, the State program must include requirements equivalent to those provisions contained in 40 CFR 263.20(b), (c), (d), and

(f) which address transporters' use of the electronic manifest, requirements equivalent to the provisions in 40 CFR 263.22(a), (f), and (g) which address recordkeeping of electronic manifest records, and requirements equivalent to those under 40 CFR 263.23 which address electronic manifest systems.

(5) For exports of hazardous waste, the state must require the transporter to refuse to accept hazardous waste for export if he knows the shipment does not conform to the EPA Acknowledgment of Consent, to carry an EPA Acknowledgment of Consent to the shipment, and to provide a copy of the manifest to the U.S. Customs official at the point the waste leaves the United States.

(6) For imports of hazardous waste, the State must require the transporter to provide a copy of the manifest to the U.S. customs official at the point the waste enters the United States.

* * * * *

43. Section 271.12 is amended by revising paragraph (i) to read as follows:

§ 271.12 Requirements for hazardous waste management facilities.

* * * * *

(i) Compliance with the manifest system, including:

(1) The requirement that facility owners or operators return a signed copy of the manifest to the generator to certify delivery of the hazardous waste shipment or to identify discrepancies;

(2) If the State chooses to allow electronic manifesting, requirements equivalent to those provisions in 40 CFR 264.71 addressing the use of the electronic manifest, and requirements equivalent to those in 40 CFR 264.78 addressing electronic manifest systems; and

* * * * *

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