EPA e-Manifest

Version 1.0 | September 2013

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EPA e-Manifest

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Document Change History

Version	Publication Date	Description of Change
1.0	September 2013	Final Publication

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SECTION 1: INTRODUCTION

1.1 Overview

The current US EPA hazardous waste manifest system is a set of forms, reports, and procedures designed to effectively track hazardous waste from the time it leaves the generator facility where it was produced, until it reaches an off-site waste management facility that will store, treat, and/or dispose of the waste. The manifest system is a burdensome paper-based process requiring preparation of multiple copies of a single form, whereby a copy is given to each party involved in the shipment cycle. EPA primary goal in developing e-Manifest is to reduce industry cost and burden. EPA (the Agency) recognizes that the current paper process is limited and/or unable to meet all the information capture, analysis, communication and dissemination needs which EPA requires, in order to meet its goals of security, transparency, and support of both its internal and external stakeholders. EPA also recognizes that these needs are increasing, and electronic information management is key to its ability to perform now and in the future.

For more than a decade, EPA, in conjunction with the states, industries, and other stakeholders, has actively pursued adopting an Alternative tracking approach for hazardous waste. On October 5, 2012, President Obama signed the Hazardous Waste Electronic Manifest Establishment Act (Pub. L. No. 112-195), which authorizes EPA to implement a national electronic manifest (e-Manifest) system. Under the Act, the e-Manifest is estimated to result in annual cost savings to industry exceeding $75 million and annual burden reductions of between 370,000 and 700,000 burden hours. This is from an EPA study done in 2009.

e-Manifest is the national electronic manifest system that will facilitate the transmission of a unified form to track the management of hazardous material between EPA, States, industry, and other related stakeholders. The Concept of Operations (CONOPS) describes the e-Manifest system's architecture and design approach, and how the system will integrate with OSWER's functional segment architecture as well as with the Agency-wide enterprise architecture. The CONOPS, combined with the e-Manifest Requirements Spreadsheet provide a detailed analysis of the system and process. The e-Manifest CONOPS describes how data flows through the e-Manifest system and how the system uses common EPA data services, technologies and infrastructure. Business Process Flows (BPFs), Conceptual System Model, and Inventories are contained within this e-Manifest CONOPS.

1.2 How to Use This Analysis

This analysis documents the e-Manifest current baseline. The current baseline is comprised of several Mission Engineering® (ME) products to include data Inventories, the e-Manifest Conceptual Model (CM), Business Process Flows (BPFs), and the Information Transaction Inventory. The intent is to develop a CONOPS for the e-Manifest system and support the transition from a paper manifest process to electronic manifesting.

The colored tabs on the edges of the pages aid in navigating through the analysis. If viewing electronically in Adobe Portable Document Format (.pdf), one can quickly jump to the various sections by clicking on a tab; page references work the same way. ME-specific terms are italicized to make it easier for the reader to distinguish their use and meaning as objects throughout the text.

1.3 Methodology

The ME methodology is a rigorous, recursive, multiphase systems engineering approach that uses a top-down, bottom-up methodology to discover, catalog, and map people, operations, and resources into an object-oriented framework. This data is visualized in a graphically rich suite of models and viewpoints, which communicate the interrelationships among the data objects collected across the program decomposition. This systems engineering-based framework and suite of models provides a holistic, common view of the operational landscape of e-Manifest to both technical and non-technical Stakeholders, and provides a communications bridge from concept through design, to test and training.

1.4 Descriptions of the Analytical Products

The following sections describe each of the analytical product types included in this analysis.

1.4.1 Analytical Product Map

The Analytical Product Map *(see Figure 1-1 on Pg. 7)*, outlines the various ME products and their relationships to each other to assist the reader in understanding the traceability of the products. The diagram, when read in electronic format, also contains electronic references to bring the reader to the respective section of the book when clicking on the images.

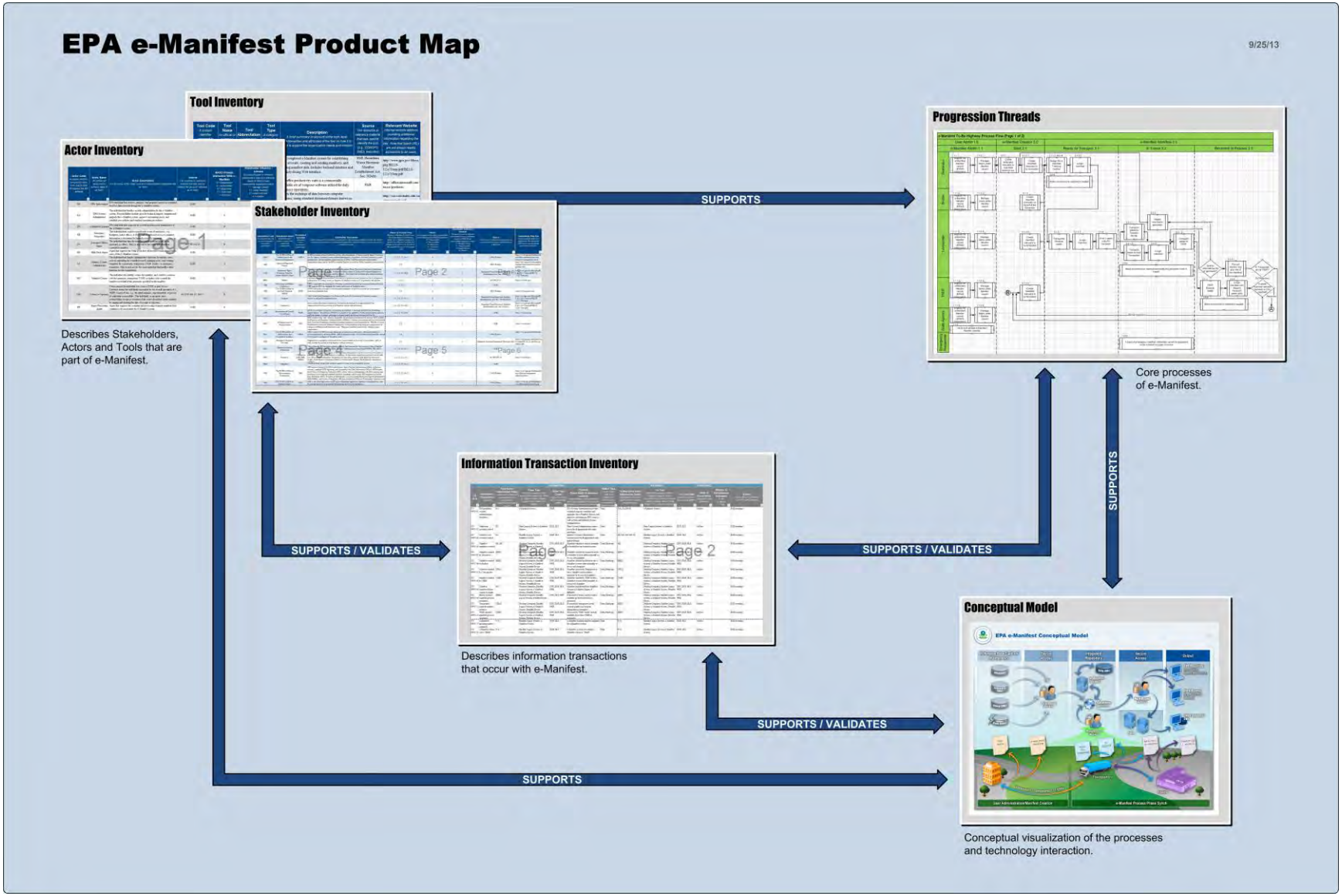

Figure 1-1: e-Manifest Product Map

1.4.2 Inventories

The Inventories catalog the people, offices, agencies, and tools, that perform, inform, or enable the BPFs. The following Inventories are provided in the Community section of this analysis:

- **Stakeholders** – describes the Stakeholders who interface with e-Manifest.
- **Actors** – describes the people, offices, and agencies, who play active roles in e-Manifest processes.
- **Tools** – identifies Tools used in support of process execution.

1.4.3 Information Transaction Inventory

The Information Transaction Inventory (ITI) catalog the information transactions that occur within e-Manifest BPFs. The purpose of the ITI is to clarify the different types of information transactions, denote the major interfaces that exist, and identify which Actors and Tools currently perform these transactions.

1.4.4 Business Process Flows (BPFs)

The BPFs provide a graphical view of e-Manifest operational processes in its current and future states. The BPFs are structured as sequences of work steps that read from left to right. Each thread is started by one or more triggers and proceeds sequentially through a set of work steps, branching off at decision points. The thread illuminates where reports or other products are used and how those objects are leveraged throughout the process. The purpose of the BPFs is to depict the relationship between each process step, Actors and supporting Tools. BPFs show the linkages between operational workflow, supporting technology, people, and observed areas of improvement. Most importantly, the BPFs recommend potential system and business solutions to alleviate operational deficiencies.

1.4.5 Conceptual Model (CM)

The e-Manifest CM is a graphical representation of e-Manifest's environment as it relates to the users, applications, services, databases, and data marts. The work product created in this section was developed utilizing the recommendations and analysis of each prior section to collectively represent the desired, or "to-be", state of e-Manifest.

SECTION 2: COMMUNITY

This section contains three Inventories cataloging e-Manifest Stakeholders, Actors, and Tools, discovered during subject matter expert interviews, workshops, and other research. These Inventories serve as complementary reference lists to help readers decipher the unique codes annotated throughout the other ME products. These codes are the same across the Business Process Flows (BPFs) and Information Transaction Inventory (ITI).

2.1 Stakeholder Inventory

The Stakeholder Inventory *(see Table 2-1 on Pg. 12)* identifies those who affect or are affected by e-Manifest. A Stakeholder is any entity (individual or organization) with a legitimate interest in the organization's missions, operations, and/or systems. Stakeholders maintain regular mission-focused communications and provide support in the form of manpower, materiel solutions, policy, guidance, tasking, collaboration, or information sharing. In this analysis, Stakeholders align themselves according to the type of relationship they have with e-Manifest.

2.1.1 Stakeholder Attribute Descriptions

The Stakeholder Inventory includes the following attributes:

- **The Stakeholder Code:** Unique identifier used to represent a specific organization.
- **The Stakeholder Name:** Official and/or common name of the Stakeholder organization.
- **The Recognized Acronym:** Commonly known acronym for the organization.
- **The Stakeholder Description:** A brief summary of the Stakeholders roles and responsibilities. Specifically, this field should outline activities of the stakeholder that directly affect the organization or enterprise.
- **The Phase of Process Flow:** Phase in e-Manifest process flows. [User Admin 1.0 (e-Manifest Admin 1.1), e-Manifest Creation 2.0 (Draft 2.1), e-Manifest Workflow 3.0 (Ready for Transport 3.1, In Transit 3.2, Received/In-Process 3.3, Complete 3.4)].
- **The RASCI Model:** The RASCI model describes the participation of various roles in completing tasks for the organization operations. The RASCI model is the expanded version of the standard RACI model:
  - **Responsible:** Owns the problem or project
  - **Accountable:** Who must sign off (approve) on work before it is effective
  - **Supportive:** Provides resources to the program
  - **Consulted:** Has information and / or capability necessary to complete organization operations
  - **Informed:** Must be notified of results, but does not need to be consulted.
- The Stakeholder Influence/ Interest: The level of power or influence Stakeholders have on e-Manifest based on RASCI linear responsibility assignment matrix:
  1. **Manage** Closely: High power, interested people - these are the people who must be fully engaged and kept satisfied.
  2. **Keep Satisfied:** High power, less interested people - keep them satisfied, but don't bore them with much message.
  3. **Keep Informed:** Low power, interested people - keep these people informed, but not with excessive communication.
  4. **Monitor:** Low power, less interested people - monitor these people, but do not bore them with excessive communication
- **The Source:** Resource or reference material that is used to identify the entity.
- **The Stakeholder Website:** Internet website address of Stakeholder. Note that listed URLs are not always readily accessible to all users.

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Stakeholder Code *A unique identifier that is used to represent the specific organization*	Stakeholder Name *An official and/or common name of the stakeholder organization*	Recognized Acronym *Commonly known acronym for organization*	Stakeholder Description *A brief summary of the stakeholder organization's roles and responsibilities. Specifically, this field should outline activities of the stakeholder organization that directly affect the organization or enterprise program*
ARM	The US EPA Office of Administration and Resources Management	OARM	OARM provides national leadership, policy, and management of many essential support functions for the Agency, including human resources management, acquisition activities (contracts), grants management, and management and protection of EPA's facilities and other critical assets nationwide.
ARP	Approved Registered Printer		Organization approved by the EPA Manifest Registry to print the RCRA hazardous waste manifest.
AVB	Hazardous Waste Electronic Manifest System Advisory Board		The Advisory Board was established by the Hazardous Waste Electronic Manifest Establishment Act to meet annually to discuss, evaluate the effectiveness of, and provide recommendations to EPA relating to the electronic manifest system. The Board will be formed and operated pursuant to the Federal Advisory Committee Act (FACA).
BKR	Broker		Personnel acting as an intermediary between A) A generator and a transporter, or B) A generator and a person who treats, stores, or disposes of hazardous waste, or C) A generator and another broker.
CBP	US Customs and Border Protection	CBP	CBP is responsible for securing the US border and facilitating lawful international trade and travel. CBP supports EPA in managing the import and export of hazardous waste.
CFO	The US EPA Office of the Chief Financial Officer	OCFO	OCFO will conduct the audit of the financial statements of activities carried out using amounts from the e-Manifest fund.
CGR	Congress		The United States Congress of the Executive Branch will oversee the e-Manifest program, activities, and policy implementation.
CON	Contractor		One or more information technology contractors determined to be appropriate by the Administrator for the provision of e-Manifest system-related services.
COS	Environmental Council of the States	ECOS	ECOS is a national non-profit, non-partisan association of state and territorial environmental agency leaders. The purpose of ECOS is to improve the capability of state environmental agencies and their leaders to protect and improve human health and the environment of the US.
DOT	US Department of Transportation	DOT	DOT ensures a fast, safe, efficient, accessible and convenient transportation system. DOT includes the Pipeline and Hazardous Materials Safety (PHMSA), which protects people and the environment from the risks of hazardous materials (including hazardous waste) transportation. PHMSA oversees the Hazardous Materials (Hazmat) Regulations, which include the shipping paper requirements for transport of Hazmat and hazardous waste. The paper manifest meets current shipping paper requirements.
ECA	The US EPA Office of Enforcement and Compliance Assurance	OECA	OECA works with EPA regional offices and, in partnership with states, enforces the nation's environmental laws, including RCRA. OECA manages receipt of notifications and manifests related to the import and export of hazardous waste.
ERP	Emergency Response Provider		Organization responding to the scene of the waste's hazard in the event of an accident, spill, or leak; include fire, police, and emergency medical personnel.
ESC	Executive Steering Committee	ESC	The e-Manifest ESC provides guidance, control, and direction for the creation of the e-Manifest system. The ESC is made up of EPA Assistant Administrators (Aas) from OSWER, OEI, OECA, OARM, OGC, and OCFO.
GEN	Generator	3 Categories: LQG, SQG, CESQG	Any company, by site, whose act or process produces hazardous waste or whose act first causes a hazardous waste to become subject to regulation. In the federal regulations, generators are divided into three categories based on the quantity of waste they produce: Large Quantity Generators (LQG), Small Quantity Generators (SQG), or Conditionally Exempt Small Quantity Generators (CESQG).
HED	Help Desk		The Help Desk will provide technical support to users of the e-Manifest system.

Table 2-1: Stakeholder Inventory (1 of 2)

Phase of Process Flow *Phase in e-Manifest To-Be Process Flow [User Admin 1.0 (e-Manifest Admin 1.1), e-Manifest Creation 2.0 (Draft 2.1), e-Manifest Workflow 3.0 (Ready for Transport 3.1, In Transit 3.2, Received/In-Process 3.3, Complete 3.4)]*	RASCI *An assigned role by which a stakeholder is identified based on RASCI Assignment* *R - Responsible* *A - Accountable* *S -Supportive* *C - Consulted* *I - Informed*	Stakeholder Influence / Interest *The level of power or influence stakeholders have on e-Manifest based on RASCI linear responsibility assignment matrix.* *1 = Manage Closely* *2 = Keep Satisfied* *3 = Keep Informed* *4 = Monitor*	Source *The resource or reference material that was used to identify the group or individual as a stakeholder*	Stakeholder Web Site *Internet website address of stakeholder. Note that listed URLs are not always readily accessible to all users.*
1.0, 2.0, 3.0 (All)	S	2	EPA Website	http://www2.epa.gov/aboutepa/about-office-administration-and-resources-management-oarm
2.0	C	3	EPA Website	http://www.epa.gov/waste/hazard/transportation/manifest/registry/printers.htm
1.0, 2.0, 3.0 (All)	A	2	Hazardous Waste Electronic Manifest Establishment Act, Sec. 3024(f)	http://www.gpo.gov/fdsys/pkg/BILLS-112s710enr/pdf/BILLS-112s710enr.pdf
1.1, 2.1	C	3	49 CFR 371.2	http://www.ecfr.gov
3.2, 3.3	I	4	SME	
3.4	S	2	EPA Website	http://www.epa.gov/ocfo
1.0, 2.0, 3.0 (All)	A	3	Hazardous Waste Electronic Manifest Establishment Act, Sec. 3024(d)(3)(A)	http://www.gpo.gov/fdsys/pkg/BILLS-112s710enr/pdf/BILLS-112s710enr.pdf
1.0, 2.0, 3.0 (All)	S	2	Hazardous Waste Electronic Manifest Establishment Act, Sec. 3024(e)	http://www.gpo.gov/fdsys/pkg/BILLS-112s710enr/pdf/BILLS-112s710enr.pdf
1.0, 2.0, 3.0 (All)	S	2	SME	http://www.ecos.org/
3.2	C	3	SME	http://www.dot.gov/
3.4	S	1	EPA Website	http://www.epa.gov/enforcement
3.2	I	4	Hazardous Materials Emergency Planning Guide	http://www.epa.gov/oem/docs/chem/cleanNRT10_12_distiller_complete.pdf
1.0, 2.0, 3.0 (All)	A	2	SME	
1.1, 2.1, 3.1, 3.4	R	1	40 CFR 260.10	http://www.ecfr.gov
1.0, 2.0, 3.0 (All)	C	2	SME	

Table 2-1: Stakeholder Inventory (2 of 2)

Stakeholder Code *A unique identifier that is used to represent the specific organization*	Stakeholder Name *An official and/or common name of the stakeholder organization*	Recognized Acronym *Commonly known acronym for organization*	Stakeholder Description *A brief summary of the stakeholder organization's roles and responsibilities. Specifically, this field should outline activities of the stakeholder organization that directly affect the organization or enterprise program*
OEI	The US EPA Office of Environmental Information	OEI	OEI ensures the quality of EPA's information, data collection and exchange efforts, and access services,; manages CPIC reporting; and is headed by the Chief Information Officer. OEI includes the Office of Information Collection (OIC), which works in collaboration with EPA partners and customers to develop and implement policies, standards, and services. OIC manages the Central Data Exchange (CDX), Freedom of Information Act, Cross-Media Electronic Reporting Regulation (CROMERR), and System of Registries. OEI also includes the Office of Technology Operations and Planning (OTOP).
OGC	The US EPA Office of General Counsel	OGC	OGC is the chief legal adviser to EPA, providing legal support for Agency rules and policies, case-by-case decisions (such as permits and response actions), and legislation.
OIG	The US EPA Office of the Inspector General	OIG	OIG is an independent office within EPA that helps the Agency protect the environment in a more efficient and cost effective manner; OIG was assigned responsibility for an annual audit of the Hazardous Waste Electronic Manifest System Fund by the Hazardous Waste Electronic Manifest Establishment Act.
OMB	Office of Management and Budget	OMB	OMB is the largest component of the Executive Office of the President. It reports directly to the President and helps a wide range of executive departments and agencies across the Federal Government to implement the commitments and priorities of the President. OMB manages the Capital Planning and Investment Control (CPIC) program, a structured, integrated approach to managing Information Technology (IT) investments. As part of the CPIC program, OMB requires Federal Agencies to submit an annual budget justification and reporting document, the Exhibit 300, for major IT investments.
PUB	Public		Members of the general public or organizations that may be interested in accessing manifest data, such as individuals, community groups, or academia.
REG	USEPA regional offices		EPA has ten regional offices that retain enforcement authority and oversight responsibilities, and conduct compliance inspections of the regulated community in the authorized states.
SMO	Association of State and Territorial Solid Waste Management Officials	ASTSWMO	ASTSWMO provides services and information to members along program specific lines and works closely with EPA to ensure that members are aware of current developments related to their programs and coordinate the work of State regulators with their federal counterparts. The Association also represents the interests of members in Washington, DC.
STA	RCRA-authorized States	http://www.epa.gov/wastes/laws-regs/state/	In lieu of the agency holding responsibility, EPA has delegated primary responsibility of implementing RCRA hazardous waste programs to individual states, ensuring national consistency and minimum standards while providing flexibility in implementing rules.
SWE	The US EPA Office of Solid Waste and Emergency Response	OSWER	OSWER provides policy, guidance and direction for the Agency's emergency response and waste programs. OSWER includes the Office of Resource Conservation and Recovery (ORCR), which develops the RCRA regulations and provides guidance to the states and regulated community, ensuring responsible national management of hazardous and nonhazardous waste.
TDA	Trade Associations		Organizations founded by businesses that operate in a particular industry, such as the hazardous waste industry or a transportation sector. These organizations promote collaboration among members and represent their members' interests with EPA. Examples include the Environmental Technology Council (ETC), American Chemistry Council (ACC), Association of American Railroads (AAR), or American Trucking Associations (ATA).
TRA	Transporter		A company engaged in the off-site transportation of hazardous waste by air, rail, highway, or water. This process includes transporting hazardous waste from a generator's site to a facility that can recycle, treat, store, or dispose of the waste, but can also include transporting treated hazardous waste to a site for further treatment or disposal.
TSD	Treatment, Storage & Disposal Facility	TSDF	A facility engaged in the treatment, storage, or disposal of hazardous waste. This stakeholder follows the generator and transporter in the chain of waste management activities. General facility standards and unit-specific design and operating criteria make the regulations pertaining to TSDFs more stringent than generators or transporters.
VEN	Vendor		A vendor of the e-Manifest/legacy system for tracking waste shipments and transmitting waste shipment data.

Table 2-1: Stakeholder Inventory (1 of 2 - continued)

Phase of Process Flow *Phase in e-Manifest To-Be Process Flow [User Admin 1.0 (e-Manifest Admin 1.1), e-Manifest Creation 2.0 (Draft 2.1), e-Manifest Workflow 3.0 (Ready for Transport 3.1, In Transit 3.2, Received/In-Process 3.3, Complete 3.4)]*	RASCI *An assigned role by which a stakeholder is identified based on RASCI Assignment* *R - Responsible* *A - Accountable* *S -Supportive* *C - Consulted* *I - Informed*	Stakeholder Influence / Interest *The level of power or influence stakeholders have on e-Manifest based on RASCI linear responsibility assignment matrix.* *1 = Manage Closely* *2 = Keep Satisfied* *3 = Keep Informed* *4 = Monitor*	Source *The resource or reference material that was used to identify the group or individual as a stakeholder.*	Stakeholder Web Site *Internet website address of stakeholder. Note that listed URLs are not always readily accessible to all users.*
1.0, 2.0, 3.0 (All)	R	1	EPA Website	http://www2.epa.gov/aboutepa/about-office-environmental-information-oei
1.0, 2.0, 3.0 (All)	S	2	EPA Website	http://www2.epa.gov/aboutepa/about-office-general-counsel-ogc
1.0, 2.0, 3.0 (All)	A	2	Hazardous Waste Electronic Manifest Establishment Act, Sec. 3024(d)(3)(B)(iii)	http://www.gpo.gov/fdsys/pkg/BILLS-112s710enr/pdf/BILLS-112s710enr.pdf
1.0, 2.0, 3.0 (All)	A	2	SME	http://www.whitehouse.gov/omb/
3.4	I	4	SME	
1.1, 3.3, 3.4	S	3	EPA Website	http://www2.epa.gov/aboutepa/#pane-4
1.0, 2.0, 3.0 (All)	S	2	SME	http://www.astswmo.org
1.1, 3.3, 3.4	R	1	EPA Website	http://www.epa.gov/wastes/laws-regs/state/
1.0, 2.0, 3.0 (All)	R	1	EPA Website	http://www.epa.gov/waste/basicinfo.htm
1.0, 2.0, 3.0 (All)	S	2	SME	
1.1, 2.1, 3.1, 3.2	R	1	40 CFR 260.10 and EPA Website	http://www.ecfr.gov and http://www.epa.gov/osw/hazard/transportation/index.htm
1.1, 2.1, 3.3, 3.4	R	1	Introduction to Treatment, Storage and Disposal Facilities (40 CFR Parts 264/265, Subpart A-E)	http://www.epa.gov/wastes/inforesources/pubs/training/tsdf05.pdf
1.0, 2.0, 3.0 (All)	C	2	SME	

Table 2-1: Stakeholder Inventory (2 of 2 - continued)

2.2 Actor Inventory

The Actor Inventory *(see Table 2-2 on Pg. 17)* is a listing of the types of people, offices, and agencies (by code) who are integral to the execution of e-Manifest processes. In most cases they are human, but can also be autonomous systems. Actors (people, offices, and agencies) are both internal and external to the organization and execute the activities in the Business Process Flows. External Actors (people, offices, and agencies) are derived from the higher level Stakeholder community who lead their respective organizational missions. Actors (people, offices, and agencies) appear throughout the analysis.

2.2.1 Actor Attributes Descriptions

The Actor Inventory includes the following attributes:

- **The Actor Code:** Unique identifier assigned to each Actor that is used throughout the analysis.
- **The Actor Name:** Official and/or common name of the Actor.
- **The Actor Description:** A brief outline of the major roles and responsibilities associated with an Actor.
- **The Source:** Resource or reference material that is used to identify the entity.
- **The RASCI Model:** The RASCI model describes the participation of various roles in completing tasks for the organization operations. The RASCI model is the expanded version of the standard RACI model:
    - **Responsible:** Owns the problem or project
    - **Accountable:** Who must sign off (approve) on work before it is effective
    - **Supportive:** Provides resources to the program
    - **Consulted:** Has information and / or capability necessary to complete organization operations
    - **Informed:** Must be notified of results, but does not need to be consulted.
- **The Actor Influence/ Interest:** The level of power or influence actors have on e-Manifest based on RASCI linear responsibility assignment matrix:
    1. **Manage Closely:** High power, interested people - these are the people who must be fully engaged and kept satisfied.
    2. **Keep Satisfied:** High power, less interested people - keep them satisfied, but don't bore them with much message.
    3. **Keep Informed:** Low power, interested people - keep these people informed, but not with excessive communication.
    4. **Monitor:** Low power, less interested people - monitor these people, but do not bore them with excessive communication

Actor Code *A unique identifier assigned to each Actor that is used throughout the ME artifacts*	Actor Name *An official full name and/or common name of an Actor*	Actor Description *A brief outline of the major roles and responsibilities associated with an Actor*	Source *The resource or reference material that was used to identify the group or individual as an Actor*	RASCI Primary Interaction With e-Manifest *R = Responsible A = Accountable S = Supportive C = Consulted I = Informed*	Stakeholder Influence / Interest *The level of power or influence stakeholders have on e-Manifest based on RASCI linear responsibility assignment matrix 1 = Manage Closely 2 = Keep Satisfied 3 = Keep Informed 4 = Monitor*
DA	EPA Data Analyst	EPA individual that reviews, analyzes, and prepares reports at a national level for data received through the e-Manifest system.	SME	I	3
EA	EPA System Administrator	The individual that handles security administration for the e-Manifest system. Responsibilities include: provide technical support, maintain and upgrade the e-Manifest system, approve and manage users, and establish user policies and standard operating procedures.	SME	S	1
EO	e-Manifest Operator	EPA individual that supports the overall operation and maintenance of the e-Manifest system.	SME	R	1
ER	Emergency Responder	The individual that would respond in the event of emergency, e.g., firefighter, police officer, or EMS, and would need access to manifest information to determine the hazards posed by the waste.	SME	I	4
GS	Generator/Offeror Signer	The individual that signs the manifest certification on behalf of the generator or offeror. May or may not be the same individual that created the manifest.	40 CFR 262.23	R	1
HA	Help Desk Agent	Agent that supports the Help Desk that will provide technical support to users of the e-Manifest system.	SME	C	2
IA	Industry System Administrator	The individual that handles administrative functions for industry users, such as registering for a handler record, managing users, and creating templates for a generator, transporter, TSDF, broker, or emergency responder. May or may not be the same individual that handles other functions for the organization.	SME	S	1
MC	Manifest Creator	The individual who initially creates the manifest, and could be someone with the generator, transporter, TSDF, or broker who created the manifest on behalf of the generator specified on the manifest.	SME	R	1
OO	Owner or Operator	Owner means the individual who owns a TSDF or part of one. Operator means the individual responsible for the overall operation of a TSDF or part of one, e.g., the plant manager, superintendent, or person of equivalent responsibility. This individual, or an agent, must acknowledge receipt or rejection of the waste described on the manifest by signing and entering the date of receipt or rejection.	40 CFR 260.10; 264.71	R	1
PP	Paper Processing Agent	Agent that supports the scanning and processing of paper manifests that continue to be used under the e-Manifest system.	SME	S	2
PU	Public Data User	Member of the general public or organizations that may be interested in accessing manifest data, such as an individual, member of a community group, or academic professional.	SME	I	4
RG	Regulator	The individual with a RCRA-authorized state, EPA regional office, or EPA Headquarters who is responsible for regulatory implementation and reporting. Functions include compliance assistance, enforcement, and e-Manifest query and reporting, e.g., summary reporting, analysis or real time reporting of manifest status.	SME	R	1
RO	Railroad Official	An individual associated with a rail transporter and engaged in the off-site transportation of hazardous waste by rail, e.g., a railroad engineer or an associate. This individual acknowledges acceptance of the waste described on the manifest by signing and entering the date of receipt.	40 CFR 263.20	R	1
SS	State System Administrator	The individual that handles administrative functions for state users, such as registering handler records, managing users, and verifying and validating e-Manifest Handler records. May or may not be the same individual that handles other functions for the state.	SME	S	1
VD	Vehicle Driver	An individual associated with a highway transport and engaged in the off-site transportation of hazardous waste by highway, e.g., a vehicle driver. This individual acknowledges acceptance of the waste described on the manifest by signing and entering the date of receipt.	40 CFR 263.20	R	1

Table 2-2: Actor Inventory

2.3 Tools Inventory

The Tools Inventory *(see Table 2-3 on Pg. 19)* is a high-level listing of the systems, hardware, applications, and devices supporting e-Manifest, as identified through workshops and interviews.

2.3.1 Tools Attribute Descriptions

The Tools Inventory includes the following attributes:

- **The Tool Code:** Unique identifier assigned to each Tool (technology) that is used throughout the analysis.
- **The Tool Name:** Official or common name of the Tool (technology).
- **The Tool Abbreviation:** Commonly known abbreviation for the Tool (technology).
- **The Tool Type:** Categorization of the Tool (technology) by either: application, hardware, or system.
- **The Tool Description:** Brief summary or account of the high-level functionalities and attributes of the Tool (technology) on how it is used to support the organization needs and mission.
- **The Source:** The resource or reference material that was used to identify the tool.
- **The Relevant Website:** Internet website address providing additional information regarding the Tool. Note that listed URLs are not always readily accessible to all users.

Tool Code *A unique identifier assigned to each tool that is used throughout the ME artifacts*	Tool Name *An official or common name that is used for the tool*	Tool Abbreviation *Commonly known tool abbreviation*	Tool Type *A category of tool (e.g., network, application, or system)*	Description *A brief summary or account of the high-level functionalities and attributes of the tool on how it is used to support the organization needs and mission*	Source *The resource or reference material that was used to identify the tool (e.g., CONOPS, SMEs, websites)*	Relevant Website *Internet website address providing additional information regarding the tool. Note that listed URLs are not always readily accessible to all users.*
EMF	e-Manifest System		Application	The completed e-Manifest system for establishing user account, creating and sending manifests, and storing manifest data. Includes backend database and publicly-facing Web interface.	SME, Hazardous Waste Electronic Manifest Establishment Act, Sec. 3024(b)	http://www.gpo.gov/fdsys/pkg/BILLS-112s710enr/pdf/BILLS-112s710enr.pdf
BPS	Office Productivity Suite		Software	An office productivity suite is a commercially available set of computer software utilized for daily business operations.	SME	http://office.microsoft.com/en-us/products/
EDI	Electronic Data Interchange	EDI	System	EDI is the exchange of data between computer systems, using standard document formats known as transaction sets. It is extremely useful for routinely transmitting large volumes of repetitive documents.	Website	http://csx.com/index.cfm/customers/tools/edi-electronic-data-interchange/
RCI	RCRAInfo	RCRA Info	Application	RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. RCRAInfo replaced the data recording and reporting abilities of the Resource Conservation and Recovery Information System (RCRIS) and the Biennial Reporting System (BRS).	Website	http://www.epa.gov/epawaste/inforesources/data/index.htm#rcra-info
COP	COMPASS	COMPASS	Application	The financial system used by EPA.	SME	n/a
CDX	Central Data Exchange	CDX	System	EPA's Central Data Exchange (CDX) is the point of entry on the Environmental Information Exchange Network (Exchange Network) for environmental data exchanges to the Agency. CDX also provides the capability for submitters to access their data through the use of web services. CDX enables EPA and participating program offices to work with stakeholders - including state, tribal and local governments and regulated industries - to enable streamlined, electronic submission of data via the Internet.	Website	http://www.epa.gov/cdx/about/index.htm
EIE	Environmental Information Exchange Network	n/a	System	The Exchange Network makes it easier to share environmental data. States, Tribes, Territories, and EPA exchange large quantities of data about the environment. This information helps policymakers, interest groups, and the public understand environmental problems, make informed decisions, and follow regulations.	Website	http://www.exchangenetwork.net/about/why-we-exist/
SLS	State Legacy System	n/a	System	A state run system used to track hazardous waste manifests data. These systems house data from completed manifests; they do not perform the manifest process electronically.	SME	n/a
XML	XML Schema	XML	Language	A schema is a document that provides a model of structure. XML Schema is a W3C standard for describing XML documents and differs from DTDs by using XML syntax. XML Schemas are always defined in separate files from XML data, and the data files are often referred to as XML Schemas instances. XML Schema validators should both confirm the validity of an XML Schema instance and provide a PSV1 to the application. The PSV1 provides all the information in the XML document and a basic summary of the schema. The EPA Exchange Network utilizes XML as standard format or approach for sharing data.	SME	n/a
HLS	Handler Legacy System	n/a	System	Legacy system used by industry to create or track manifests such as private systems or pilot programs.	SME	n/a
POD	Portable Device	n/a	Hardware	Portable computing devices such as mobile phones, stylus tablets, or PDAs that can store, send, and receive information.	SME	n/a
TEL	Plain Old Telephone System	POTS	Hardware	The POTS is used to communicate voice and data information to stakeholders and actors.	SME	n/a
MRS	Manifest Registry System	n/a	System	The Manifest Registry System is a review process and list of organizations approved by the EPA Manifest Registry to print the RCRA hazardous waste manifest.	Website	http://www.epa.gov/waste/hazard/transportation/manifest/registry
DTC	Desktop Computer	PC, MAC	Hardware	The desktop computer is a hardware device, or collection of hardware components, that host a variety of software applications in support of the manifest.	n/a	n/a
WEB	ORCR Website		Application	The ORCR Website is a publicly available Internet site that serves as the central gateway for communication, training and education, governance, and guidance for the hazardous waste manifest system.	Website	http://www.epa.gov/osw/hazard/transportation/manifest/e-man.htm

Table 2-3: Tool Inventory

Tool Code *A unique identifier assigned to each tool that is used throughout the ME artifacts*	**Tool Name** *An official or common name that is used for the tool*	**Tool Abbreviation** *Commonly known tool abbreviation*	**Tool Type** *A category of tool (e.g., network, application, or system)*	**Description** *A brief summary or account of the high-level functionalities and attributes of the tool on how it is used to support the organization needs and mission*	**Source** *The resource or reference material that was used to identify the tool (e.g., CONOPS, SMEs, websites)*	**Relevant Website** *Internet website address providing additional information regarding the tool. Note that listed URLs are not always readily accessible to all users.*
ROL	RCRA Online		Application	The RCRA Online database is designed to enable users to locate documents, including publications and other outreach materials, that cover a wide range of RCRA issues and topics.	Website	http://www.epa.gov/rcraonline
SIF	Site Identification Form	Site ID Form, 8700-12	System	The RCRA Subtitle C Site Identification Form (Site ID Form) [EPA Form 8700-12] is used for notifying the authorized state or EPA of regulated waste activities and for obtaining an EPA Identification Number. Some states have reporting requirements in addition to the federal requirements or use a state form.	Website	http://www.epa.gov/waste/inforesources/data/form8700/forms.htm
PRN	Printer		Hardware	Office or portable device used to print hard copies of the manifest, either as the primary version of the manifest for handlers that opt not to use e-Manifest or as a secondary copy for transportation purposes.	SME	
EML	Electronic Mail	e-Mail	System	Electronic means of communication used to facilitate use of the manifest and provide notification from the e-Manifest system.	SME	
MAL	Mail		System	Method for delivering notifications related to the manifest, such as USPS, UPS, or FedEx.	SME	
ESG	Third Party eSignature Device		Hardware	Device used to authenticate the electronic signature of users of the e-Manifest system.	SME	
PAY	Payment Mechanism		System	Software or system used to collect fees for use of the e-Manifest and processing of paper manifests.	SME	
PUB	Publishing Tool		Application	Tool used to publish the e-Manifest system to the internet with interaction with the web interface and use by the user community.	SME	
PFS	Paper Filing System		System	System used to scan and process paper manifests that continue to be used in lieu of the e-Manifest.	SME	
PMF	Paper Manifest Form		System	The current hazardous waste manifest system is a set of forms, reports, and procedures designed to seamlessly track hazardous waste from the time it leaves the generator facility where it was produced, until it reaches the off-site waste management facility that will store, treat, or dispose of the hazardous waste.	SME	http://www.epa.gov/waste/hazard/transportation/manifest/index.htm
SOR	EPA System of Registries	SoR	System	The SoR is a resource for environmental system developers and enterprise architects. It also provides environmental program managers and users of environmental information with automated services to enable better understanding of environmental terminology and data used by the Agency.	SME	http://ofmpub.epa.gov/sor_internet/registry/sysofreg/home/overview/home.do

Table 2-3: Tool Inventory (continued)

SECTION 3: BUSINESS

The Information Transaction Inventory catalogs the information transactions that occur within e-Manifest BPFs. The purpose of the ITI is to clarify the different types of information transactions, denote the major interfaces that exist, and identify which Actors and Tools currently perform these transactions.

3.1 Information Transaction Inventory

The following Information Transaction Inventory (ITI) *(see Table 3-1 on Pg. 24)* details the information transactions that occur within the BPFs found in *SECTION 4: Analysis*. The ITI includes all interactions between Stakeholders, Actors, and Tools that make up e-Manifest. The ITI includes all highway and railroad interactions between Stakeholders, Actors, and Tools that make up e-Manifest *(Note: The interactions in this book are spread over two pages.)*.

3.1.1 Information Transaction Inventory Attribute Descriptions

The ITI includes the following attributes:

- **The ITI ID # Information Transaction:** Unique identifier assigned to each ITI Transaction that is used throughout the analysis.
- **The From Actor/User Role:** Identification of the user responsible for the transmission. Stakeholders may be indicated - these codes are in parentheses.
- **The From Tool:** Name of the system used to transmit information (e.g., Wired or Wireless System, Desktop, Mobile Phone, Radio, CVT Camera).
- **The From Tool Code:** Unique tool code for the originating system.
- **The Content (Description of message content):** Documentation of the information exchanged between and among the from and to nodes of the transaction.
- **The Media Type:** Voice, Video, Data, Text, Images, OR hardcopy (e.g., nonmaterial) (no system involved).
- **The To Recipient Actor/User Role:** Identification of the user responsible for receiving the transmission. Stakeholders may be indicated - these codes are in parentheses.
- **The To Tool:** Name of the receiving system or application used to receive information (e.g., Wired or Wireless System, Desktop, Mobile Phone, Radio, CVT Camera), if applicable.
- **The To Tool Code:** Unique tool code for the receiving system.
- **The Rate of Occurrence:** Frequency of the transaction.
- **The Source:** Source of the ITI, including CONOPS, SME meetings.

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	ORIGINATOR				
ITI ID #	**Information Transaction** *(Unique)*	**From Actor/ Stakeholder Entity** *Identification of the user responsible for the transmission (stakeholders denoted as "( )")*	**From Tool** *Name of the system used to transmit information (e.g., Wired or Wireless System, Desktop, Mobile Phone, Radio, CVT Camera)*	**From Tool Code** *Unique tool code for the originating system*	**Content (Description of message content)** *Documentation of the information exchanged between and among the from and to nodes of the transaction*
ITI-HWY-01	EPA performs system administration functions	EA	e-Manifest System	EMF	EPA System Administrator provides technical support, maintains and upgrades the e-Manifest System, and approves and manages EPA users as well as State and Industry System Administrators
ITI-HWY-02	State user account created	SS	State Legacy System, e-Manifest System	EMF, SLS	State System Administrator creates users for all appropriate roles and privileges
ITI-HWY-03	Industry user account created	IA	Handler Legacy System, e-Manifest System	EMF, HLS	Industry System Administrator creates users for all appropriate roles and privileges
ITI-HWY-04	Manifest templates created	GS, MC	Desktop Computer, Handler Legacy System, e-Manifest System	DTC, EMF, HLS	Manifest templates created manually or loaded from an external system
ITI-HWY-05	Manifest created by Generator	(GEN)	Desktop Computer, Handler Legacy System, e-Manifest System, Portable Device	DTC, EMF, HLS, POD	Manifest created by Generator in the e-Manifest system either manually or by use of a template
ITI-HWY-06	Manifest created by Broker	(BKR)	Desktop Computer, Handler Legacy System, e-Manifest System, Portable Device	DTC, EMF, HLS, POD	Manifest created by Broker in the e-Manifest system either manually or by use of a template
ITI-HWY-07	Manifest created by Transporter	(TRA)	Desktop Computer, Handler Legacy System, e-Manifest System, Portable Device	DTC, EMF, HLS, POD	Manifest created by Transporter in the e-Manifest system either manually or by use of a template
ITI-HWY-08	Manifest created by TSDF	(TSD)	Desktop Computer, Handler Legacy System, e-Manifest System, Portable Device	DTC, EMF, HLS, POD	Manifest created by TSDF in the e-Manifest system either manually or by use of a template
ITI-HWY-09	Manifest transferred from creator to signer	MC	Desktop Computer, Handler Legacy System, e-Manifest System, Portable Device	DTC, EMF, HLS, POD	Manifest transferred from Manifest Creator to Manifest Signer, if different
ITI-HWY-10	Broker-created manifest given to generator	(BKR)	Desktop Computer, Handler Legacy System, Portable Device	DTC, HLS, POD	If created by broker, newly created manifest given from broker to generator
ITI-HWY-11	Transporter-created manifest given to generator	(TRA)	Desktop Computer, Handler Legacy System, e-Manifest System, Portable Device	DTC, EMF, HLS, POD	If created by transporter, newly created manifest given from transporter to generator

Table 3-1: Information Transaction Inventory (1 of 2)

	RECEIVER			FREQUENCY	
Media Type *Voice, Video, Data, Text, Images, OR hardcopy (e.g., non material) (no system involved)*	**To Recipient Actor/ Stakeholder Entity** *Identification of the user responsible for receiving the transmission*	**To Tool** *Name of the receiving system or application used to receive information (e.g., Wired or Wireless System, Desktop, Mobile Phone, Radio, CVT Camera), if applicable*	**To Tool Code** *Unique tool code for the receiving system*	**Rate of Occurrence** *Frequency of the transaction*	**Source** *Source of the ITI, including CONOPS, SME meetings*
Data	DA, IA, RG SS	e-Manifest System	EMF	Ad hoc	SME meetings
Data	RG	State Legacy System, e-Manifest System	EMF, SLS	Ad hoc	SME meetings
Data	GS, MC, OO, RO VD	Handler Legacy System, e-Manifest System	EMF, HLS	Ad hoc	SME meetings
Data, Hardcopy	MC	Desktop Computer, Handler Legacy System, e-Manifest System	DTC, EMF, HLS	Ad hoc	SME meetings
Data, Hardcopy	(GEN)	Desktop Computer, Handler Legacy System, e-Manifest System, Portable Device	DTC, EMF, HLS, POD	Ad hoc	SME meetings
Data, Hardcopy	(BKR)	Desktop Computer, Handler Legacy System, e-Manifest System, Portable Device	DTC, EMF, HLS, POD	Ad hoc	SME meetings
Data, Hardcopy	(TRA)	Desktop Computer, Handler Legacy System, e-Manifest System, Portable Device	DTC, EMF, HLS, POD	Ad hoc	SME meetings
Data, Hardcopy	(TSD)	Desktop Computer, Handler Legacy System, e-Manifest System, Portable Device	DTC, EMF, HLS, POD	Ad hoc	SME meetings
Data, Hardcopy	GS	Desktop Computer, Handler Legacy System, e-Manifest System, Portable Device	DTC, EMF, HLS, POD	Ad hoc	SME meetings
Data, Hardcopy	(GEN)	Desktop Computer, Handler Legacy System, e-Manifest System, Portable Device	DTC, EMF, HLS, POD	Ad hoc	SME meetings
Data, Hardcopy	(GEN)	Desktop Computer, Handler Legacy System, e-Manifest System, Portable Device	DTC, EMF, HLS, POD	Ad hoc	SME meetings

Table 3-1: Information Transaction Inventory (2 of 2)

	ORIGINATOR				
ITI ID #	**Information Transaction** *(Unique)*	**From Actor/ Stakeholder Entity** *Identification of the user responsible for the transmission (stakeholders denoted as "( )")*	**From Tool** *Name of the system used to transmit information (e.g., Wired or Wireless System, Desktop, Mobile Phone, Radio, CVT Camera)*	**From Tool Code** *Unique tool code for the originating system*	**Content (Description of message content)** *Documentation of the information exchanged between and among the from and to nodes of the transaction*
ITI-HWY-12	TSDF-created manifest given to generator	(TSD)	Desktop Computer, Handler Legacy System, e-Manifest System, Portable Device	DTC, EMF, HLS, POD	If created by TSDF, newly created manifest given from TSDF to generator
ITI-HWY-13	e-Manifest tracking number assigned	N/A	Handler Legacy System, e-Manifest System	EMF, HLS	e-Manifest tracking number assigned by e-Manifest system
ITI-HWY-14	e-Manifest status set to "Draft"	N/A	Handler Legacy System, e-Manifest System	EMF, HLS	e-Manifest system sets initial e-Manifest status to "Draft"
ITI-HWY-15	Generator/Offeror Manifest Signer e-signs manifest	GS	e-Manifest System, Desktop Computer, Portable Device, Handler Legacy System, Third Party eSignature Device	DTC, EMF, ESG, HLS, POD	Manifest is e-signed by generator/offeror signer
ITI-HWY-16	e-Manifest validates generator/offeror signature	N/A	e-Manifest System, Third Party eSignature Device	EMF, ESG	e-Manifest system validates generator/offeror electronic signature in online or off-line mode
ITI-HWY-17	e-Manifest status set to "Ready for Transport"	N/A	Handler Legacy System, e-Manifest System	EMF, HLS	e-Manifest system changes e-Manifest status from "Draft" to "Ready to Transport"
ITI-HWY-18	e-Manifest retains signed generator/offeror copy	N/A	e-Manifest System	EMF	e-Manifest system retains the signed generator copy in the system for user access (e.g., generator or state users)
ITI-HWY-19	Generator-to-transporter manifest transfer	GS	Desktop Computer, Handler Legacy System, e-Manifest System, Portable Device	DTC, EMF, HLS, POD	Signed manifest and waste given from generator to transporter
ITI-HWY-20	Transporter e-signs manifest	VD	Desktop Computer, e-Manifest System, Portable Device, Paper Manifest Form, Printer, Third Party eSignature Device	DTC, EMF, ESG, PMF, POD, PRN	Transporter e-signs manifest and prints paper copy
ITI-HWY-21	e-Manifest validates transporter signature	N/A	e-Manifest System, Third Party eSignature Device	EMF, ESG	e-Manifest system validates transporter electronic signature in online or off-line mode
ITI-HWY-22	e-Manifest status set to "In Transit"	N/A	Handler Legacy System, e-Manifest System	EMF, HLS	e-Manifest system changes e-Manifest status from "Ready to Transport" to "In Transit"

Table 3-1: Information Transaction Inventory (1 of 2 - continued)

	RECEIVER			FREQUENCY	
Media Type *Voice, Video, Data, Text, Images, OR hardcopy (e.g., non material) (no system involved)*	**To Recipient Actor/ Stakeholder Entity** *Identification of the user responsible for receiving the transmission*	**To Tool** *Name of the receiving system or application used to receive information (e.g., Wired or Wireless System, Desktop, Mobile Phone, Radio, CVT Camera), if applicable*	**To Tool Code** *Unique tool code for the receiving system*	**Rate of Occurrence** *Frequency of the transaction*	**Source** *Source of the ITI, including CONOPS, SME meetings*
Data, Hardcopy	(GEN)	Desktop Computer, Handler Legacy System, e-Manifest System, Portable Device	DTC, EMF, HLS, POD	Ad hoc	SME meetings
Data	N/A	Handler Legacy System, e-Manifest System	EMF, HLS	Ad hoc	SME meetings
Data	N/A	Handler Legacy System, e-Manifest System	EMF, HLS	Ad hoc	SME meetings
Data	GS	e-Manifest System, Desktop Computer, Portable Device, Handler Legacy System, Third Party eSignature Device	DTC, EMF, ESG, HLS, POD	Ad hoc	SME meetings
Data	N/A	e-Manifest System, Third Party eSignature Device	EMF, ESG	Ad hoc	SME meetings
Data	N/A	Handler Legacy System, e-Manifest System	EMF, HLS	Ad hoc	SME meetings
Data	N/A	e-Manifest System	EMF	Ad hoc	SME meetings
Data, Hardcopy	VD	Desktop Computer, Handler Legacy System, e-Manifest System, Portable Device	DTC, EMF, HLS, POD	Ad hoc	40 CFR 262.23
Data, Hardcopy	VD	Desktop Computer, e-Manifest System, Portable Device, Paper Manifest Form, Printer, Third Party eSignature Device	DTC, EMF, ESG, PMF, POD, PRN	Ad hoc	SME meetings
Data	N/A	e-Manifest System, Third Party eSignature Device	EMF, ESG	Ad hoc	SME meetings
Data	N/A	Handler Legacy System, e-Manifest System	EMF, HLS	Ad hoc	SME meetings

Table 3-1: Information Transaction Inventory (2 of 2 - continued)

	ORIGINATOR				
ITI ID #	**Information Transaction** *(Unique)*	**From Actor/ Stakeholder Entity** *Identification of the user responsible for the transmission (stakeholders denoted as "( )")*	**From Tool** *Name of the system used to transmit information (e.g., Wired or Wireless System, Desktop, Mobile Phone, Radio, CVT Camera)*	**From Tool Code** *Unique tool code for the originating system*	**Content (Description of message content)** *Documentation of the information exchanged between and among the from and to nodes of the transaction*
ITI-HWY-23	e-Manifest retains signed transporter copy	N/A	e-Manifest System	EMF	e-Manifest system retains the signed transporter copy in the system for user access (e.g., generator, transporter, or state users)
ITI-HWY-24	Waste and manifest transported to transfer facility	VD	e-Manifest System, Portable Device, Desktop Computer, Handler Legacy System	DTC, EMF, HLS, POD	Waste and manifest transported to transfer facility; manifest information accessed through e-Manifest system; transfer facility information is not generally put on the manifest - if a new company is taking ownership, the new company's information is on the manifest, but the location or other information for the transfer facility isn't necessarily on the manifest
ITI-HWY-25	Transporter-to-transporter manifest transfer	VD	Desktop Computer, Handler Legacy System, e-Manifest System, Portable Device	DTC, EMF, HLS, POD	Signed manifest and waste given from first transporter to subsequent transporter, if applicable
ITI-HWY-26	Subsequent Transporter e-signs manifest	VD	Desktop Computer, e-Manifest System, Portable Device, Paper Manifest Form, Printer, Third Party eSignature Device	DTC, EMF, ESG, PMF, POD, PRN	Subsequent transporter e-signs manifest and prints paper copy
ITI-HWY-27	e-Manifest validates subsequent transporter signature	N/A	e-Manifest System, Third Party eSignature Device	EMF, ESG	e-Manifest system validates subsequent transporter electronic signature in online or off-line mode
ITI-HWY-28	e-Manifest retains signed subsequent transporter copy	N/A	e-Manifest System	EMF	e-Manifest system retains the signed subsequent transporter copy in the system for user access (e.g., generator, any transporters, or state users)
ITI-HWY-29	Corrections discussed and made by transporter	(TRA)	Plain Old Telephone System, e-Manifest System, Handler Legacy System, Portable Device	EMF, HLS, POD, TEL	If corrections are needed on a manifest, the transporter must obtain consent from the generator and amend the original manifest to show the correct information

Table 3-1: Information Transaction Inventory (1 of 2 - continued)

	RECEIVER			FREQUENCY	
Media Type *Voice, Video, Data, Text, Images, OR hardcopy (e.g., non material) (no system involved)*	**To Recipient Actor/ Stakeholder Entity** *Identification of the user responsible for receiving the transmission*	**To Tool** *Name of the receiving system or application used to receive information (e.g., Wired or Wireless System, Desktop, Mobile Phone, Radio, CVT Camera), if applicable*	**To Tool Code** *Unique tool code for the receiving system*	**Rate of Occurrence** *Frequency of the transaction*	**Source** *Source of the ITI, including CONOPS, SME meetings*
Data	N/A	e-Manifest System	EMF	Ad hoc	SME meetings
Data	(TRA)	e-Manifest System, Portable Device, Desktop Computer, Handler Legacy System	DTC, EMF, HLS, POD	Ad hoc	SME meetings
Data, Hardcopy	VD	Desktop Computer, Handler Legacy System, e-Manifest System, Portable Device	DTC, EMF, HLS, POD	Ad hoc	40 CFR 263.20
Data, Hardcopy	VD	Desktop Computer, e-Manifest System, Portable Device, Paper Manifest Form, Printer, Third Party eSignature Device	DTC, EMF, ESG, PMF, POD, PRN	Ad hoc	SME meetings
Data	N/A	e-Manifest System, Third Party eSignature Device	EMF, ESG	Ad hoc	SME meetings
Data	N/A	e-Manifest System	EMF	Ad hoc	SME meetings
Voice, Data	(GEN)	Plain Old Telephone System, e-Manifest System, Handler Legacy System, Portable Device	EMF, HLS, POD, TEL	Ad hoc	Memo, Cotsworth to Kotrosits; August 7, 1998 (RCRA Online 14279); http://www.epa.gov/rcraonline

Table 3-1: Information Transaction Inventory (2 of 2 - continued)

	ORIGINATOR				
ITI ID #	**Information Transaction** *(Unique)*	**From Actor/ Stakeholder Entity** *Identification of the user responsible for the transmission (stakeholders denoted as "( )")*	**From Tool** *Name of the system used to transmit information (e.g., Wired or Wireless System, Desktop, Mobile Phone, Radio, CVT Camera)*	**From Tool Code** *Unique tool code for the originating system*	**Content (Description of message content)** *Documentation of the information exchanged between and among the from and to nodes of the transaction*
ITI-HWY-30	Generator direction when transporter unable to deliver waste	(GEN)	Desktop Computer, Plain Old Telephone System	DTC, TEL	If the transporter is unable to deliver the hazardous waste to the designated TSDF or the alternate TSDF, the generator must either designate another facility or instruct the transporter to return the waste
ITI-HWY-31	Manifest information provided in emergency	GS, MC, VD	Handler Legacy System, Plain Old Telephone System, Paper Manifest Form	HLS, PMF, TEL	Manifest information provided to emergency responder via the paper copy of the manifest in the case of an incident
ITI-HWY-32	Transporter-to-TSDF manifest transfer	VD	Desktop Computer, Handler Legacy System, e-Manifest System, Portable Device	DTC, EMF, HLS, POD	Manifest and waste given from transporter to designated TSDF
ITI-HWY-33	TSDF e-signs manifest	OO	e-Manifest System, Portable Device, Handler Legacy System, Third Party eSignature Device	EMF, ESG, HLS, POD	Manifest is e-signed by TSDF
ITI-HWY-34	e-Manifest validates TSDF signature	N/A	e-Manifest System, Third Party eSignature Device	EMF, ESG	e-Manifest system validates TSDF electronic signature in online or off-line mode
ITI-HWY-35	e-Manifest status set to "Received/In Process"	N/A	Handler Legacy System, e-Manifest System	EMF, HLS	e-Manifest system changes e-Manifest status from "In Transit" to "Received/In Process"
ITI-HWY-36	e-Manifest retains signed TSDF copy	N/A	e-Manifest System	EMF	e-Manifest system retains the signed TSDF copy in the system for user access (e.g., generator, transporter, TSDF or state users)
ITI-HWY-37	Batch download of manifest data by States after TSDF receipt	N/A	Central Data Exchange, State Legacy System, Environmental Information Exchange Network, Paper Manifest Form	CDX, EIE, PMF, SLS	States can batch download manifest data after TSDF signs/receives the manifest and e-Manifest has retained copy
ITI-HWY-38	Manifest returned to delivering transporter	OO	Desktop Computer, Handler Legacy System, e-Manifest System, Portable Device	DTC, EMF, HLS, POD	Manifest returned to delivering transporter if waste is fully rejected and transporter is still at TSDF location
ITI-HWY-39	New manifest created by TSDF and given to transporter	OO	Desktop Computer, Handler Legacy System, e-Manifest System, Portable Device	DTC, EMF, HLS, POD	New manifest created and provided to transporter if waste is fully rejected and transporter is not at the TSDF or if the waste is partially rejected

Table 3-1: Information Transaction Inventory (1 of 2 - continued)

	RECEIVER			FREQUENCY	
Media Type *Voice, Video, Data, Text, Images, OR hardcopy (e.g., non material) (no system involved)*	**To Recipient Actor/ Stakeholder Entity** *Identification of the user responsible for receiving the transmission*	**To Tool** *Name of the receiving system or application used to receive information (e.g., Wired or Wireless System, Desktop, Mobile Phone, Radio, CVT Camera), if applicable*	**To Tool Code** *Unique tool code for the receiving system*	**Rate of Occurrence** *Frequency of the transaction*	**Source** *Source of the ITI, including CONOPS, SME meetings*
Text, Voice	(TRA)	Desktop Computer, Plain Old Telephone System	DTC, TEL	Ad hoc	40 CFR 262.20(d)
Voice, Data, Text, Images, Hardcopy	ER	Handler Legacy System, Plain Old Telephone System, Paper Manifest Form	HLS, PMF, TEL	Ad hoc	SME meetings
Data, Hardcopy	OO	Desktop Computer, Handler Legacy System, e-Manifest System, Portable Device	DTC, EMF, HLS, POD	Ad hoc	40 CFR 263.20
Data	OO	e-Manifest System, Portable Device, Handler Legacy System, Third Party eSignature Device	EMF, ESG, HLS, POD	Ad hoc	SME meetings
Data	N/A	e-Manifest System, Third Party eSignature Device	EMF, ESG	Ad hoc	SME meetings
Data	N/A	Handler Legacy System, e-Manifest System	EMF, HLS	Ad hoc	SME meetings
Data	N/A	e-Manifest System	EMF	Ad hoc	SME meetings
Data	STA	State Legacy System	SLS	Ad hoc	SME meetings
Data, Hardcopy	VD	Desktop Computer, Handler Legacy System, e-Manifest System, Portable Device	DTC, EMF, HLS, POD	Ad hoc	40 CFR 264.72
Data, Hardcopy	VD	Desktop Computer, Handler Legacy System, e-Manifest System, Portable Device	DTC, EMF, HLS, POD	Ad hoc	40 CFR 264.72

Table 3-1: Information Transaction Inventory (2 of 2 - continued)

	ORIGINATOR				
ITI ID #	**Information Transaction** *(Unique)*	**From Actor/ Stakeholder Entity** *Identification of the user responsible for the transmission (stakeholders denoted as "( )")*	**From Tool** *Name of the system used to transmit information (e.g., Wired or Wireless System, Desktop, Mobile Phone, Radio, CVT Camera)*	**From Tool Code** *Unique tool code for the originating system*	**Content (Description of message content)** *Documentation of the information exchanged between and among the from and to nodes of the transaction*
ITI-HWY-40	Manifest accompanying rejected load transferred from transporter to generator	VD	Desktop Computer, Handler Legacy System, e-Manifest System, Portable Device	DTC, EMF, HLS, POD	In the case of a rejected load returned to the original generator, the manifest accompanying the shipment is given from the transporter to the generator
ITI-HWY-41	Manifest accompanying rejected load transferred from transporter to alternate facility	VD	Desktop Computer, Handler Legacy System, e-Manifest System, Portable Device	DTC, EMF, HLS, POD	In the case of a rejected load sent to an alternate facility, the manifest accompanying the shipment is given from the transporter to the alternate TSDF
ITI-HWY-42	Waste analysis performed by TSDF	OO	Desktop Computer, Handler Legacy System	DTC, HLS	If waste is received by TSDF, waste analysis is performed
ITI-HWY-43	Reconciliation of manifest discrepancies	(TSD)	Plain Old Telephone System, Electronic Mail	EML, TEL	TSDF attempts to reconcile manifest discrepancies with generator
ITI-HWY-44	Notification of manifest discrepancies	(TSD)	Desktop Computer, Microsoft Office Suite, Mail, Printer, Electronic Mail	DTC, EML, MAL, MSS, PRN	If manifest discrepancies cannot be reconciled with generator, TSDF must notify the state or region
ITI-HWY-45	Manifest finalized by TSDF	OO	Desktop Computer, Handler Legacy System, e-Manifest System	DTC, EMF, HLS	If there are no discrepancies or if discrepancies are reconciled, TSDF finalizes (accepts) manifest
ITI-HWY-46	e-Manifest status set to "Accepted"	N/A	Handler Legacy System, e-Manifest System	EMF, HLS	After TSDF accepts manifest, or 90 days after receipt of waste if TSDF does not act, e-Manifest system changes e-Manifest status from "Received/In Process" to "Accepted"
ITI-HWY-47	TSDF-to-generator manifest transfer	OO	Desktop Computer, Handler Legacy System, e-Manifest System	DTC, EMF, HLS	After waste is accepted and manifest is finalized, system notifies and provides access to the generator
ITI-HWY-48	TSDF-to-state manifest transfer	OO	Desktop Computer, e-Manifest System, Handler Legacy System	DTC, EMF, HLS	After waste is accepted and manifest is finalized, system notifies/provides access to the state

Table 3-1: Information Transaction Inventory (1 of 2 - continued)

	RECEIVER			FREQUENCY	
Media Type *Voice, Video, Data, Text, Images, OR hardcopy (e.g., non material) (no system involved)*	**To Recipient Actor/ Stakeholder Entity** *Identification of the user responsible for receiving the transmission*	**To Tool** *Name of the receiving system or application used to receive information (e.g., Wired or Wireless System, Desktop, Mobile Phone, Radio, CVT Camera), if applicable*	**To Tool Code** *Unique tool code for the receiving system*	**Rate of Occurrence** *Frequency of the transaction*	**Source** *Source of the ITI, including CONOPS, SME meetings*
Data, Hardcopy	(GEN)	Desktop Computer, Handler Legacy System, e-Manifest System, Portable Device	DTC, EMF, HLS, POD	Ad hoc	40 CFR 264.72
Data, Hardcopy	OO	Desktop Computer, Handler Legacy System, e-Manifest System, Portable Device	DTC, EMF, HLS, POD	Ad hoc	40 CFR 264.72
Data, Hardcopy	OO	Desktop Computer, Handler Legacy System	DTC, HLS	Ad hoc	40 CFR 264.13
Voice, Data	(GEN)	Plain Old Telephone System, Electronic Mail	EML, TEL	Ad hoc	40 CFR 264.72(c)
Text, Hardcopy	(STA)	Desktop Computer, Microsoft Office Suite, Mail, Printer, Electronic Mail	DTC, EML, MAL, MSS, PRN	Ad hoc	40 CFR 264.72(c)
Data	OO	Desktop Computer, Handler Legacy System, e-Manifest System	DTC, EMF, HLS	Ad hoc	SME meetings
Data	N/A	Handler Legacy System, e-Manifest System	EMF, HLS	Ad hoc	SME meetings
Data, Hardcopy	(GEN)	Desktop Computer, Handler Legacy System, e-Manifest System	DTC, EMF, HLS	Ad hoc	40 CFR 264.71
Text, Hardcopy	(STA)	State Legacy System, e-Manifest System	EMF, SLS	Ad hoc	40 CFR 264.71

Table 3-1: Information Transaction Inventory (2 of 2 - continued)

	ORIGINATOR				
ITI ID #	**Information Transaction** *(Unique)*	**From Actor/ Stakeholder Entity** *Identification of the user responsible for the transmission (stakeholders denoted as "( )")*	**From Tool** *Name of the system used to transmit information (e.g., Wired or Wireless System, Desktop, Mobile Phone, Radio, CVT Camera)*	**From Tool Code** *Unique tool code for the originating system*	**Content (Description of message content)** *Documentation of the information exchanged between and among the from and to nodes of the transaction*
ITI-HWY-49	Batch download of manifest data by States after TSDF acceptance	N/A	Central Data Exchange, State Legacy System, Environmental Information Exchange Network	CDX, EIE, SLS	States can batch download manifest data after TSDF accepts the manifest and e-Manifest has retained copy
ITI-HWY-50	Manifest reviewed by State	(STA)	Desktop Computer, Handler Legacy System, e-Manifest System, State Legacy System	DTC, EMF, HLS, SLS	State can review manifests
ITI-HWY-51	TSDF-to-generator manifest update	OO	Desktop Computer, Handler Legacy System, e-Manifest System, Plain Old Telephone System, Email	DTC, EMF, EML, HLS, TEL	If manifest is updated after being finalized, TSDF notifies generator
ITI-HWY-52	Manifest updates reviewed by generator	(GEN)	Desktop Computer, Handler Legacy System, e-Manifest System, Plain Old Telephone System, Email	DTC, EMF, EML, HLS, TEL	Generator can review any updates to the manifest
ITI-HWY-53	Manifest updates reviewed by State	(STA)	Desktop Computer, e-Manifest System	DTC, EMF, HLS	State can review any updates to the manifest
ITI-HWY-54	Manifest correction notification	(GEN), (TRA), (TSD)	Desktop Computer, Mail, Handler Legacy System	DTC, HLS, MAL	Certain states require regulated entities to submit notification of manifest corrections
ITI-HWY-55	Determination of status of hazardous waste and manifest	(GEN)	Plain Old Telephone System, Desktop Computer, Email	DTC, EML, TEL	A large quantity generator who does not receive a copy of the manifest with the e-signature of the owner or operator of the designated facility within 35 days of the date the waste was accepted by the initial transporter must contact the transporter and/or the owner or operator of the designated facility to determine the status of the hazardous waste
ITI-HWY-56	e-Manifest system notifies generator if TSDF has not e-signed e-manifest within 35 days	N/A	e-Manifest System, Email	EMF, EML	e-Manifest system would notify generator if the TSDF e-signature has not occurred within 35 days

Table 3-1: Information Transaction Inventory (1 of 2 - continued)

	RECEIVER			FREQUENCY	
Media Type *Voice, Video, Data, Text, Images, OR hardcopy (e.g., non material) (no system involved)*	**To Recipient Actor/ Stakeholder Entity** *Identification of the user responsible for receiving the transmission*	**To Tool** *Name of the receiving system or application used to receive information (e.g., Wired or Wireless System, Desktop, Mobile Phone, Radio, CVT Camera), if applicable*	**To Tool Code** *Unique tool code for the receiving system*	**Rate of Occurrence** *Frequency of the transaction*	**Source** *Source of the ITI, including CONOPS, SME meetings*
Data	STA	State Legacy System	SLS	Ad hoc	SME meetings
Data, Hardcopy	(STA)	Desktop Computer, Handler Legacy System, e-Manifest System, State Legacy System	DTC, EMF, HLS, SLS	Ad hoc	SME meetings
Data, Hardcopy	(GEN)	Desktop Computer, Handler Legacy System, e-Manifest System, Plain Old Telephone System, Email	DTC, EMF, EML, HLS, TEL	Ad hoc	SME meetings
Data, Hardcopy	(GEN)	Desktop Computer, Handler Legacy System, e-Manifest System, Plain Old Telephone System, Email	DTC, EMF, EML, HLS, TEL	Ad hoc	SME meetings
Data, Hardcopy	(STA)	Desktop Computer, e-Manifest System	DTC, EMF	Ad hoc	SME meetings
Text, Hardcopy	(STA)	Desktop Computer, Handler Legacy System, Mail	DTC, HLS, MAL	Ad hoc	http://www.dtsc.ca.gov/IDManifest/Manifests.cfm
Voice	(TRA), (TSD)	Plain Old Telephone System, Desktop Computer, Email	DTC, EML, TEL	Ad hoc	40 CFR 262.42(a)(1)
Text	(GEN)	e-Manifest System, Email	EMF, EML	Ad hoc	SME meetings

Table 3-1: Information Transaction Inventory (2 of 2 - continued)

	ORIGINATOR				
ITI ID #	**Information Transaction** *(Unique)*	**From Actor/ Stakeholder Entity** *Identification of the user responsible for the transmission (stakeholders denoted as "( )")*	**From Tool** *Name of the system used to transmit information (e.g., Wired or Wireless System, Desktop, Mobile Phone, Radio, CVT Camera)*	**From Tool Code** *Unique tool code for the originating system*	**Content (Description of message content)** *Documentation of the information exchanged between and among the from and to nodes of the transaction*
ITI-HWY-57	Exception report	(GEN)	Desktop Computer, Mail, Handler Legacy System	DTC, MAL, HLS	A generator must submit an Exception Report to the state or EPA Regional Administrator if the generator has not received a copy of the manifest with the handwritten signature of the owner or operator of the designated facility within the specified timeframe
ITI-HWY-58	e-Manifest status set to "Unknown"	N/A	Handler Legacy System, e-Manifest System	EMF, HLS	In certain circumstances, a handler or state regulator may set the e-Manifest status to "Unknown" in the e-Manifest system
ITI-HWY-59	Paper manifest processing	(TSD)	Mail, Paper Filing System	MAL, PFS	For handlers that elect to continue to use the paper manifest, TSDFs submit the paper manifest to EPA for chain of custody, processing, and entry into the e-Manifest system
ITI-HWY-60	Payment of EPA-imposed e-Manifest fees	(GEN), (TRA), (TSD)	e-Manifest System, Payment Mechanism	EMF, PAY	TSDF or other industry user pays EPA-imposed e-Manifest fees
ITI-HWY-61	Registration of manifest printers	(ARP)	Desktop Computer, Manifest Registry System	DTC	Organizations that wish to print hardcopies of the manifest must register with and get approved by ORCR
ITI-HWY-62	Approval of registered printers	(SWE)	Manifest Registry System, ORCR Website	MRS, WEB	ORCR approves organizations to print hardcopies of the manifest and publishes information in the Table of Approved Registrants on ORCR's Website
ITI-HWY-63	Provision of hardcopy manifests	(ARP)	Manifest Registry System	MRS	Approved registered printers of manifests provide hardcopies to internal company users or external public users.
ITI-HWY-64	Guidance for the RCRA-regulated community	(SWE)	ORCR Website, RCRA Online	WEB, ROL	ORCR provides guidance to the regulated community on the RCRA regulations, including use of the manifest in the paper and electronic manifest processes

Table 3-1: Information Transaction Inventory (1 of 2 - continued)

	RECEIVER			FREQUENCY	
Media Type *Voice, Video, Data, Text, Images, OR hardcopy (e.g., non material) (no system involved)*	**To Recipient Actor/ Stakeholder Entity** *Identification of the user responsible for receiving the transmission*	**To Tool** *Name of the receiving system or application used to receive information (e.g., Wired or Wireless System, Desktop, Mobile Phone, Radio, CVT Camera), if applicable*	**To Tool Code** *Unique tool code for the receiving system*	**Rate of Occurrence** *Frequency of the transaction*	**Source** *Source of the ITI, including CONOPS, SME meetings*
Text	(STA), (REG)	Desktop Computer, Mail, State Legacy System	DTC, MAL, SLS	Ad hoc	40 CFR 262.42(a)(2) or 262.42(b)
Data	N/A	Handler Legacy System, e-Manifest System	EMF, HLS	Ad hoc	SME meetings
Hardcopy	PP	Mail, Paper Filing System, e-Manifest System	EMF, MAL, PFS	Ad hoc	SME meetings
Data, Hardcopy	EO	e-Manifest System, Payment Mechanism	EMF, PAY	Ad hoc	SME meetings
Hardcopy	(SWE)	Manifest Registry System	MRS	Ad hoc	262.21; http://www.epa.gov/waste/hazard/transportation/manifest/registry
Text	(ARP)	Manifest Registry System, ORCR Website	MRS, WEB	Ad hoc	262.21; http://www.epa.gov/waste/hazard/transportation/manifest/registry
Hardcopy	(GEN), (BKR), (TRA), (TSD)	Paper Manifest Form, Handler Legacy System	PMF, HLS	Ad hoc	262.21; http://www.epa.gov/waste/hazard/transportation/manifest/registry
Text	(GEN), (TRA), (TSD)	ORCR Website, RCRA Online	WEB, ROL	Ad hoc	http://www.epa.gov/waste; http://www.epa.gov/rcraonline

Table 3-1: Information Transaction Inventory (2 of 2 - continued)

	ORIGINATOR				
ITI ID #	**Information Transaction** *(Unique)*	**From Actor/ Stakeholder Entity** *Identification of the user responsible for the transmission (stakeholders denoted as "( )")*	**From Tool** *Name of the system used to transmit information (e.g., Wired or Wireless System, Desktop, Mobile Phone, Radio, CVT Camera)*	**From Tool Code** *Unique tool code for the originating system*	**Content (Description of message content)** *Documentation of the information exchanged between and among the from and to nodes of the transaction*
ITI-HWY-65	Submission of Site ID Form	(GEN), (TRA), (TSD)	Site Identification Form	SIF	Certain members of the RCRA-regulated community must obtain an EPA identification number by submitting the Site ID Form to the EPA regional office or RCRA-authorized state
ITI-HWY-66	Issuance of EPA Identification Numbers	(REG), (STA)	RCRAInfo, State Legacy systems	RCI, SLS	EPA regional offices or RCRA-authorized states process Site ID Forms, enter information into RCRAInfo, and issue EPA identification numbers
ITI-HWY-67	Manifest reports provided to public	(STA)	State Legacy System	SLS	States that collect manifest data may provide this information to the public in a variety of reports
ITI-HWY-68	e-Manifest system provides data to public	N/A	Publishing Tool, e-Manifest System	EMF, PUB	e-Manifest provides manifest data to the public after specified amount of time
ITI-HWY-69	Report to Congress on e-Manifest	(SWE)	e-Manifest, Payment Mechanism	EMF, PAY	For each 2-fiscal-year period, EPA shall prepare and submit to the Senate and House of Representatives a report that includes an accounting of the fees paid to EPA under the Hazardous Waste Electronic Manifest System Fund and disbursed from the Fund for the period covered by the report
ITI-HWY-70	Advisory Board set up and consultation	(CON), (COS), (GEN), (TDA), (TRA), (TSD), (SMO), (STA), (SWE), (VEN)	N/A	N/A	The Hazardous Waste Electronic Manifest System Advisory Board is set up and provides consultation regarding the e-Manifest system

Table 3-1: Information Transaction Inventory (1 of 2 - continued)

	RECEIVER			FREQUENCY	
Media Type *Voice, Video, Data, Text, Images, OR hardcopy (e.g., non material) (no system involved)*	**To Recipient Actor/ Stakeholder Entity** *Identification of the user responsible for receiving the transmission*	**To Tool** *Name of the receiving system or application used to receive information (e.g., Wired or Wireless System, Desktop, Mobile Phone, Radio, CVT Camera), if applicable*	**To Tool Code** *Unique tool code for the receiving system*	**Rate of Occurrence** *Frequency of the transaction*	**Source** *Source of the ITI, including CONOPS, SME meetings*
Text, Hardcopy	(REG), (STA)	RCRAInfo	RCI	Ad hoc	http://www.epa.gov/waste/inforesources/data/form8700/forms.htm
Text, Hardcopy	(GEN), (TRA), (TSD)	Desktop Computer, Handler Legacy Systems	DTC, HLS	Ad hoc	http://www.epa.gov/waste/inforesources/data/form8700/forms.htm
Data, Text	PU	N/A	N/A	Ad hoc	http://hwts.dtsc.ca.gov/report_list.cfm; http://datamine2.state.nj.us/DEP_OPRA/OpraMain/categories?category=Hazardous%20Waste%20Manifest
Data	PU	N/A	N/A	Ad hoc	SME meetings
Text	(CGR)	N/A	N/A	Biennially	Hazardous Waste Electronic Manifest Establishment Act, Sec. 3024(d)(3)(A); http://www.gpo.gov/fdsys/pkg/BILLS-112s710enr/pdf/BILLS-112s710enr.pdf
N/A	(AVB)	e-Manifest	EMF	Formed within 3 years, meets annually	Hazardous Waste Electronic Manifest Establishment Act, Sec. 3024f); http://www.gpo.gov/fdsys/pkg/BILLS-112s710enr/pdf/BILLS-112s710enr.pdf

Table 3-1: Information Transaction Inventory (2 of 2 - continued)

	ORIGINATOR				
ITI ID #	**Information Transaction** *(Unique)*	**From Actor/ Stakeholder Entity** *Identification of the user responsible for the transmission (stakeholders denoted as "( )")*	**From Tool** *Name of the system used to transmit information (e.g., Wired or Wireless System, Desktop, Mobile Phone, Radio, CVT Camera)*	**From Tool Code** *Unique tool code for the originating system*	**Content (Description of message content)** *Documentation of the information exchanged between and among the from and to nodes of the transaction*
ITI-RRD-01	Manifest created	MC	Desktop Computer, Handler Legacy System, e-Manifest System	DTC, EMF, HLS	Manifest created by generator in the e-Manifest system either manually or by use of a template
ITI-RRD-02	e-Manifest tracking number assigned	MC	Handler Legacy System, e-Manifest System	EMF, HLS	e-Manifest tracking number assigned by e-Manifest system
ITI-RRD-03	Generator/Offeror Manifest Signer e-signs manifest	GS	e-Manifest System, Desktop Computer, Portable Device, Handler Legacy System, Third Party eSignature Device	DTC, EMF, ESG, HLS, POD	Manifest is e-signed by generator/offeror signer
ITI-RRD-04	e-Manifest data translated into EDI	N/A	e-Manifest System	EMF	XML (or other format) data that e-Manifest provides is translated into EDI
ITI-RRD-05	Bill of Lading Created	MC	Electronic Data Interchange	EDI	Manifest Creator creates Bill of Lading
ITI-RRD-06	Generator-to-Railroad Official Bill of Lading transfer	MC	Electronic Data Interchange	EDI	Bill of Lading and waste given from generator to railroad official
ITI-RRD-07	e-Manifest retains signed generator/offeror copy	MC	Desktop Computer, Handler Legacy System, e-Manifest System	DTC, EMF, HLS	e-Manifest system retains the signed generator copy in the system for user access (e.g., generator or state users)
ITI-RRD-08	Railroad Official-to-generator acknowledgement of receipt	RO	Electronic Data Interchange	EDI	Railroad official acknowledges receipt of Bill of Lading and waste to the generator through EDI
ITI-RRD-9	Waybill data schedules railcar to destination	N/A	e-Manifest System, Electronic Data Interchange	EMF, EDI	Using the waybill data, the railcar is scheduled to its destination at the TSDF
ITI-RRD-10	e-Manifest retains signed rail transporter copy	(TRA)	Desktop Computer, Handler Legacy System, e-Manifest System	DTC, HLS, EMF	e-Manifest system retains the signed rail transporter copy in the system for user access (e.g., generator or transporter)
ITI-RRD-11	Rail transporter-to-e-Manifest System receipt and acknowledgement	(TRA)	Electronic Data Interchange	EDI	Rail transporter receives rail equipment and sends EDI acknowledgement of receipt of equipment to e-Manifest system (railroads want this acknowledgement to be a CROMERR-compliant web service exchange)

Table 3-1: Information Transaction Inventory (1 of 2 - continued)

	RECEIVER			FREQUENCY	
Media Type *Voice, Video, Data, Text, Images, OR hardcopy (e.g., non material) (no system involved)*	**To Recipient Actor/ Stakeholder Entity** *Identification of the user responsible for receiving the transmission*	**To Tool** *Name of the receiving system or application used to receive information (e.g., Wired or Wireless System, Desktop, Mobile Phone, Radio, CVT Camera), if applicable*	**To Tool Code** *Unique tool code for the receiving system*	**Rate of Occurrence** *Frequency of the transaction*	**Source** *Source of the ITI, including CONOPS, SME meetings*
Data, Hardcopy	MC	Desktop Computer, Handler Legacy System, e-Manifest System	DTC, EMF, HLS	Ad hoc	SME meetings
Data	MC	Handler Legacy System, e-Manifest System	EMF, HLS	Ad hoc	SME meetings
Data	GS	e-Manifest System, Desktop Computer, Portable Device, Handler Legacy System, Third Party eSignature Device	DTC, EMF, ESG, HLS, POD	Ad hoc	SME meetings
Data	RO	Electronic Data Interchange	EDI	Ad hoc	SME meetings
Data	MC	Electronic Data Interchange	EDI	Ad hoc	SME meetings
Data	RO	Electronic Data Interchange	EDI	Ad hoc	SME meetings
Data	OO	Desktop Computer, Handler Legacy System, e-Manifest System	DTC, EMF, HLS	Ad hoc	40 CFR 262.23
Data	MC	Electronic Data Interchange	EDI	Ad hoc	SME meetings
Data	(TSD)	e-Manifest System, Electronic Data Interchange	EMF, EDI	Ad hoc	SME meetings
Data	MC	Desktop Computer, Handler Legacy System, e-Manifest System	DTC, HLS, EMF	Ad hoc	40 CFR 263.20
Data	(TRA)	Electronic Data Interchange, e-Manifest System	EDI, EMF	Ad hoc	SME meetings

Table 3-1: Information Transaction Inventory (2 of 2 - continued)

	ORIGINATOR				
ITI ID #	**Information Transaction** *(Unique)*	**From Actor/ Stakeholder Entity** *Identification of the user responsible for the transmission (stakeholders denoted as "( )")*	**From Tool** *Name of the system used to transmit information (e.g., Wired or Wireless System, Desktop, Mobile Phone, Radio, CVT Camera)*	**From Tool Code** *Unique tool code for the originating system*	**Content (Description of message content)** *Documentation of the information exchanged between and among the from and to nodes of the transaction*
ITI-RRD-12	Rail transporter acknowledgement translated from EDI to e-Manifest	N/A	Electronic Data Interchange	EDI	Rail transporter EDI acknowledgement will be translated into XML (or other format) as required by e-Manifest (railroads want this acknowledgement to be a CROMERR-compliant web service exchange)
ITI-RRD-13	Acknowledgement of transporter receipt updated	(TRA)	e-Manifest System	EMF	e-Manifest system is updated with Rail Transporter's name and date of receipt (railroads want this acknowledgement to be a CROMERR-compliant web service exchange)
ITI-RRD-14	e-Manifest-to-rail transporter acknowledgement of receipt	(TRA)	e-Manifest System	EMF	e-Manifest system transmits acknowledgement of receipt of EDI to rail transporter
ITI-RRD-15	TSDF- to - e-Manifest system acknowledgement of receipt	OO	Electronic Data Interchange	EDI	TSDF receives rail equipment and sends acknowledgement of receipt to e-Manifest system
ITI-RRD-16	Acknowledgement of TSDF receipt updated	OO	e-Manifest System	EMF	e-Manifest system is updated with TSDF's name and date of receipt
ITI-RRD-17	e-Manifest retains signed TSDF copy	OO	Desktop Computer, Handler Legacy System, e-Manifest System	DTC, EMF, HLS	e-Manifest system retains the signed TSDF copy in the system for user access (e.g., generator, transporter, TSDF or state users)

Table 3-1: Information Transaction Inventory (1 of 2 - continued)

	RECEIVER			FREQUENCY	
Media Type *Voice, Video, Data, Text, Images, OR hardcopy (e.g., non material) (no system involved)*	**To Recipient Actor/ Stakeholder Entity** *Identification of the user responsible for receiving the transmission*	**To Tool** *Name of the receiving system or application used to receive information (e.g., Wired or Wireless System, Desktop, Mobile Phone, Radio, CVT Camera), if applicable*	**To Tool Code** *Unique tool code for the receiving system*	**Rate of Occurrence** *Frequency of the transaction*	**Source** *Source of the ITI, including CONOPS, SME meetings*
Data	N/A	e-Manifest System	EMF	Ad hoc	SME meetings
Data	(TRA)	e-Manifest System	EMF	Ad hoc	SME meetings
Data	(TRA)	Electronic Data Interchange	EDI	Ad hoc	SME meetings
Data	OO	e-Manifest System	EMF	Ad hoc	SME meetings
Data	OO	e-Manifest System	EMF	Ad hoc	SME meetings
Data	MC	Desktop Computer, Handler Legacy System, e-Manifest System	DTC, EMF, HLS	Ad hoc	SME meetings

Table 3-1: Information Transaction Inventory (2 of 2 - continued)

NOTES

SECTION 4: ANALYSIS

This section includes an analysis of the highway and railroad e-Manifest processes. Each Business Process Flow (BPF) is preceded by a textual scenario describing how the process operates. The As-Is highway and railroad processes depict the manifest process in their current state while the To-Be processes represent the manifest process with the use of e-Manifest.

4.1 e-Manifest Narrative: As-Is Highway Process

4.1.1 Introduction

The As-Is Highway Manifest Process Flow *(see Figure 4-1 on Pg. 48)* illustrates the current paper-based process for sending a hazardous waste manifest to accompany shipments of hazardous waste transported by highway. The process facilitates the safe shipment of hazardous waste from hazardous waste Generators to Highway Transporters to treatment, storage, and disposal facilities (TSDFs) in order to meet one of the goals of the Resource Conservation and Recovery Act (RCRA) – protecting everyone from the hazards of waste disposal. Manifest process Actors (people, offices, and agencies) integrate tasks across the chain of management and transportation from the Generator to its final destination, often referred to as "cradle-to-grave." The process can be initiated by several events at the Generator facility, including the need to meet the RCRA regulatory time limits on hazardous waste storage, regular shipments in accordance with business processes, or a one-time generation of hazardous waste. While hazardous waste Generators primarily initiate the manifest process, other parties such as Transporters, TSDFs, or intermediary Brokers may prepare or assist in preparation of the hazardous waste manifest. The manifest process is essentially complete once the hazardous waste and the accompanying manifest reach their destination at the designated TSDF. At this point, the waste may be received, partially rejected, or fully rejected. Follow-up actions may need to be taken if the waste is either partially rejected or fully rejected by the TSDF. In addition, if the Generator does not receive a signed copy of the manifest, the Generator will need to submit an exception report to the State or the EPA Regional Office.

4.1.2 Scenario

The hazardous waste Generator first establishes a business partnership with a Transporter, TSDF, or Broker to arrange for the pick-up, transportation, and disposal of the Generator's hazardous waste. The highway transportation process for hazardous waste begins with the Manifest Creator preparing the 6 paper copies of the hazardous waste manifest (EPA Form 8700-22), either manually or from an external system. The Manifest Creator may be an employee of the Generator, or as is typically the case for smaller companies, an individual with the Transporter, TSDF, or Broker. If the Manifest Creator is not the same person as the Generator/Offeror Signer, the Manifest Creator transfers the manifest to the Generator/Offeror Signer. The Generator/Offeror Signer signs and dates the manifest and makes additional copies if necessary to comply with State requirements. This individual may be the Generator or a representative that signs the manifest on behalf of the Generator.

Next, the Vehicle Driver associated with the Highway Transporter receives the waste and signs and dates the paper manifest. The Vehicle Driver provides the signed copy 6 of the manifest to the Generator and takes the remaining manifest copies for future distribution. While in transit, the Vehicle Driver may need to make corrections to the manifest and notify the Generator. If applicable, the Vehicle Driver may transport the hazardous waste to a Transfer Facility for temporary storage or consolidation within the normal course of transportation. However, Transfer Facilities do not need to be identified on the manifest unless the owner of the Transfer Facility takes custody of the waste as a new Transporter. If the Generator has arranged for additional Transporters with different companies, the Generator identifies the subsequent Transporters on the manifest and the subsequent Vehicle Drivers sign and date the manifest as they take custody of the waste.

Upon completion of transportation, the TSDF receives the waste and the Owner or Operator, or an agent, signs and dates the manifest. The Owner or Operator gives signed copy 5 to the Vehicle Driver and retains copy 4 of the manifest. At this point, the waste may be received, partially rejected, or fully rejected. If the waste is fully rejected and the Transporter is still at the TSDF, the Owner or Operator completes sections 18a and 18b of the manifest to document the rejection and

identify the Alternate Facility that the rejecting TSDF has designated, after consulting with the Generator, to receive the fully rejected waste shipment. In the event that a fully rejected shipment is being returned to the Generator, the rejecting TSDF may enter the Generator's site information in this space. The Transporter then transports the waste to the Alternate Facility or to the Generator. If the waste is partially rejected or fully rejected and the Transporter is no longer at the TSDF, the Owner or Operator must complete a new manifest and forward the waste to an Alternate Facility that can manage the waste, or if it is impossible to locate an Alternate Facility that can receive the waste, the TSDF may return the rejected waste to the Generator. On the new manifest, the Owner or Operator must copy the manifest tracking number on the old manifest to the Special Handling and Additional Information Block of the new manifest, and copy the manifest tracking number found on the new manifest to the manifest reference number line in the Discrepancy Block of the old manifest. In the case of a regulated residue that cannot be removed from a container, the TSDF follows the same procedures for a rejected load.

If the waste is received by the TSDF, the TSDF performs the required waste analysis. The TSDF attempts to reconcile any discrepancies with the waste Generator or Transporter and notes any discrepancies in section 18a of the manifest. If the discrepancies are not resolved within 15 days after receiving the waste, the Owner or Operator must immediately submit to the State or EPA Regional Office a letter describing the discrepancy and attempts to reconcile it, and a copy of the manifest or shipping paper at issue. If the discrepancies result in the TSDF rejecting the waste, the TSDF must follow the procedures for a rejected load.

If there are no discrepancies or the TSDF reconciles the discrepancies, the TSDF finalizes the manifest. The TSDF sends copy 3 of the manifest to Generator, and if required by the States, sends copy 1 to the destination State and copy 2 to the generator State. A Generator must submit an exception report to the State or EPA Regional Office if the Generator has not received a copy of the manifest with the handwritten signature of the owner or operator of the designated facility within the specified timeframe.

If the TSDF must update the manifest after it has been finalized, the TSDF notifies the Generator and, if necessary, the State that an update has occurred. The Generator updates their copy of the manifest with the revised information.

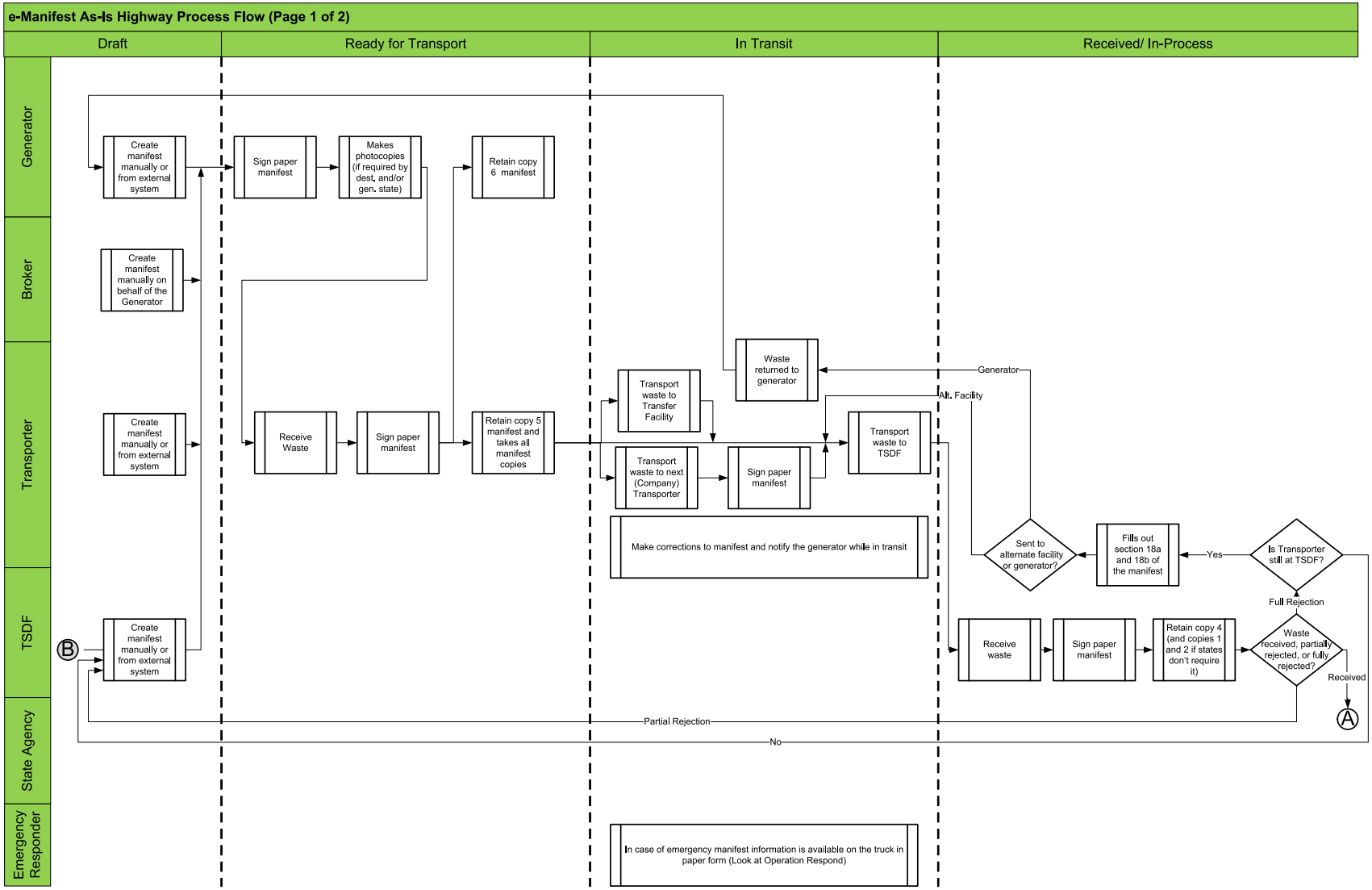

Figure 4-1: As-Is Highway (1 of 2)

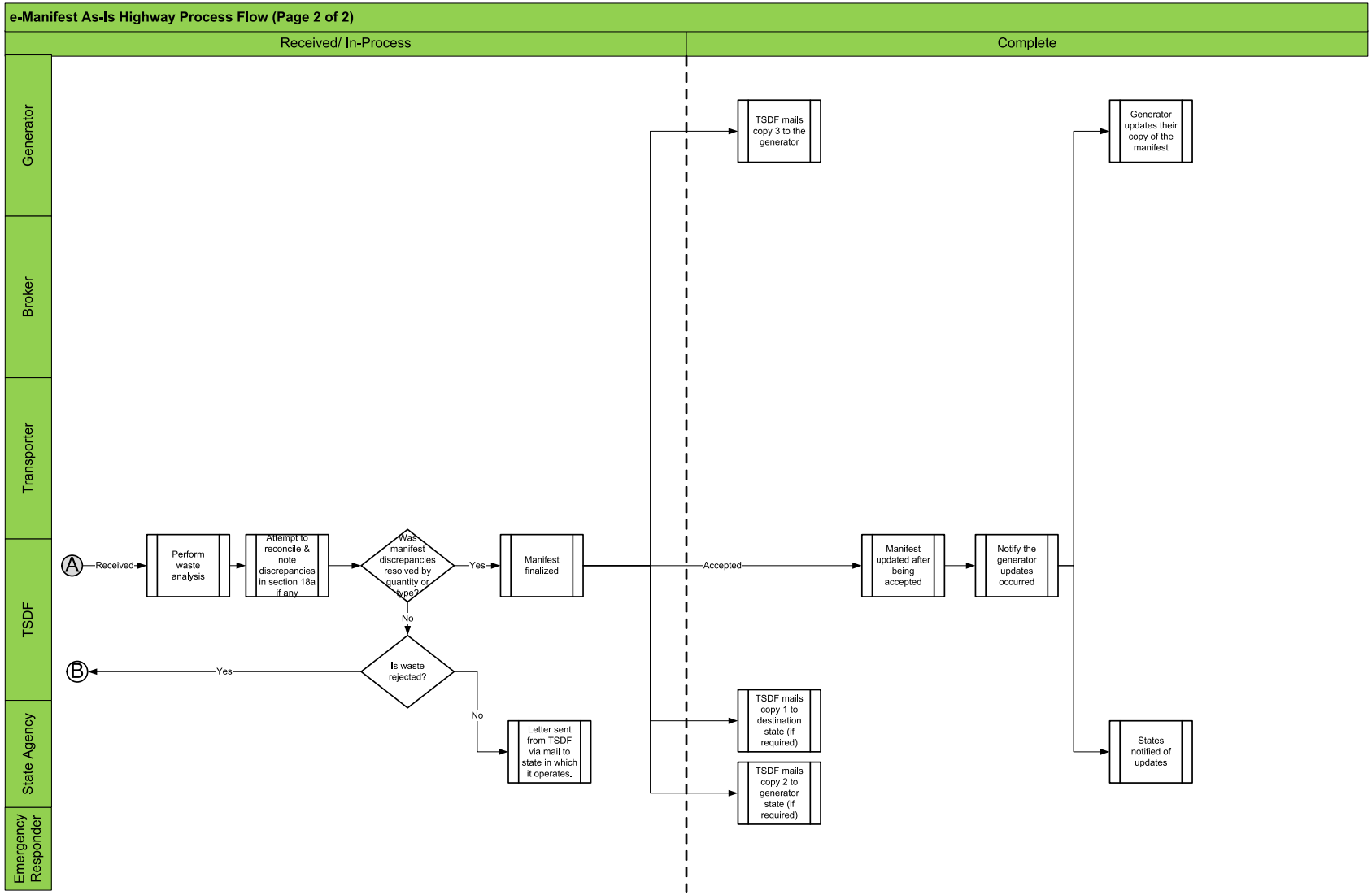

Figure 4-1: As-Is Highway (2 of 2)

4.2 e-Manifest Narrative: To-Be Highway Process

4.2.1 Introduction

The To-Be Highway Manifest Process Flow *(see Figure 4-2 on Pg. 52)* illustrates the future process for transmitting a hazardous waste manifest electronically through the e-Manifest system for shipments of hazardous waste transported by highway. The process facilitates the safe shipment of hazardous waste from hazardous waste Generators to Highway Transporters to treatment, storage, and disposal facilities (TSDFs) in order to meet one of the goals of the Resource Conservation and Recovery Act (RCRA) – protecting everyone from the hazards of waste disposal. Manifest process Actors (people, offices, and agencies) integrate tasks across the chain of management and transportation from the Generator to its final destination, often referred to as "cradle-to-grave." The electronic process associated with the e-Manifest system provides several efficiencies to the process that are not currently available in the paper-based As-Is manifest process. As with the paper-based process, the manifest creation process can be initiated by several events at the Generator facility, including the need to meet the RCRA regulatory time limits on hazardous waste storage, regular shipments in accordance with business processes, or a one-time generation of hazardous waste. While hazardous waste Generators primarily initiate the manifest process, other parties such as Transporters, TSDFs, or intermediary Brokers may prepare or assist in preparation of the hazardous waste manifest. The manifest process is essentially complete once the hazardous waste reaches its destination at the designated TSDF and the manifest data is transmitted through the e-Manifest system to all relevant Stakeholders. At this point, the waste may be received, partially rejected, or fully rejected. Follow-up actions may need to be taken if the waste is waste is either partially rejected or fully rejected by the TSDF. In addition, if the Generator does not receive a signed copy of the manifest, the Generator will need to submit an exception report to the State or the EPA Regional Office.

4.2.2 Scenario

The hazardous waste Generator first establishes a business partnership with a Transporter, TSDF, or Broker to arrange for the pick-up, transportation, and disposal of the Generator's hazardous waste. The process for transmitting a manifest through the e-Manifest system to accompany highway transportation of hazardous waste begins with a series of User Administration activities. A facility that wishes to use the system registers for an e-Manifest Handler record, which is associated with the facility's EPA ID number. The Industry System Administrator for the facility then manages all of the users under that facility's Handler record.

To actually begin the process of transmitting the manifest, the Manifest Creator prepares the manifest in the e-Manifest system manually or by use of a template, which itself is created manually or loaded from an external system. The Manifest Creator may be an employee of the Generator, or as is typically the case for smaller companies, an individual with the Transporter, TSDF, or Broker. If the Manifest Creator is not the same person as the Generator/Offeror Signer, the Generator/Offeror Creator transfers the manifest to the Manifest Signer. The Generator/Offeror Signer assigns the e-Manifest tracking number and e-signs the manifest. This individual may be the Generator or a representative that signs the manifest on behalf of the Generator.

Next, the Vehicle Driver associated with the Highway Transporter receives the waste, e-signs and dates the manifest, and prints a paper copy to satisfy DOT shipping paper requirements. While in transit, the Vehicle Driver may need to make corrections to the manifest and notify the Generator. If applicable, the Vehicle Driver may transport the hazardous waste to a Transfer Facility for temporary storage or consolidation with the normal course of transportation. However, Transfer Facilities do not need to be identified on the manifest unless the owner of the Transfer Facility takes custody of the waste as a new Transporter. If the Generator has arranged for additional Transporters with different companies, the Generator identifies the subsequent

Transporters on the manifest and the subsequent Vehicle Drivers e-sign and date the manifest as they take custody of the waste.

Upon completion of the transportation chain, the TSDF receives the waste and the Owner or Operator, or an agent, e-signs and dates the manifest and discards the paper copy. At this point, the waste may be received, partially rejected, or fully rejected. If the waste is fully rejected and the Transporter is still at the TSDF, the Owner or Operator completes sections 18a and 18b of the manifest to document the rejection and identify the Alternate Facility that the rejecting TSDF has designated, after consulting with the Generator, to receive the fully rejected waste shipment. In the event that a fully rejected shipment is being returned to the Generator, the rejecting TSDF may enter the Generator's site information in this space. The Transporter then transports the waste to the Alternate Facility or the Generator. If the waste is partially rejected or fully rejected and the Transporter is no longer at the TSDF, the Owner or Operator must complete a new manifest and forward the waste to an Alternate Facility that can manage the waste, or if it is impossible to locate an Alternate Facility that can receive the waste, the TSDF may return the rejected waste to the Generator. In the case of a regulated residue that cannot be removed from a container, the TSDF follows the same procedures for rejected loads as described above.

If the waste is received by the TSDF, the TSDF performs the required waste analysis. The TSDF attempts to reconcile any discrepancies with the waste Generator or Transporter and notes any discrepancies in section 18a of the manifest. If the discrepancies are not resolved within 15 days after receiving the waste, the Owner or Operator immediately notifies the State or EPA Regional Office regarding the discrepancy and attempts to reconcile it, and the State or Region accesses the manifest at issue in the e-Manifest system (Note: Discrepancy and exception reporting will be completed in the original paper process for the initial e-Manifest release.). If the discrepancies result in the TSDF rejecting the waste, the TSDF must follow the procedures for a rejected load.

If there are no discrepancies or the TSDF reconciles the discrepancies, the TSDF finalizes the manifest. The finalized manifest is then stored in the e-Manifest system for the Generator and State to review, if necessary. A Generator must submit an exception report to the State or EPA Regional Office if the Generator is not able to view a copy of the manifest in the e-Manifest system with the signature of the owner or operator of the designated facility within the specified timeframe.

If the TSDF must update the manifest after it has been finalized, the TSDF notifies the Generator and, if necessary, the State that an update has occurred. The Generator and State can then log into the e-Manifest system if they choose to review the updates.

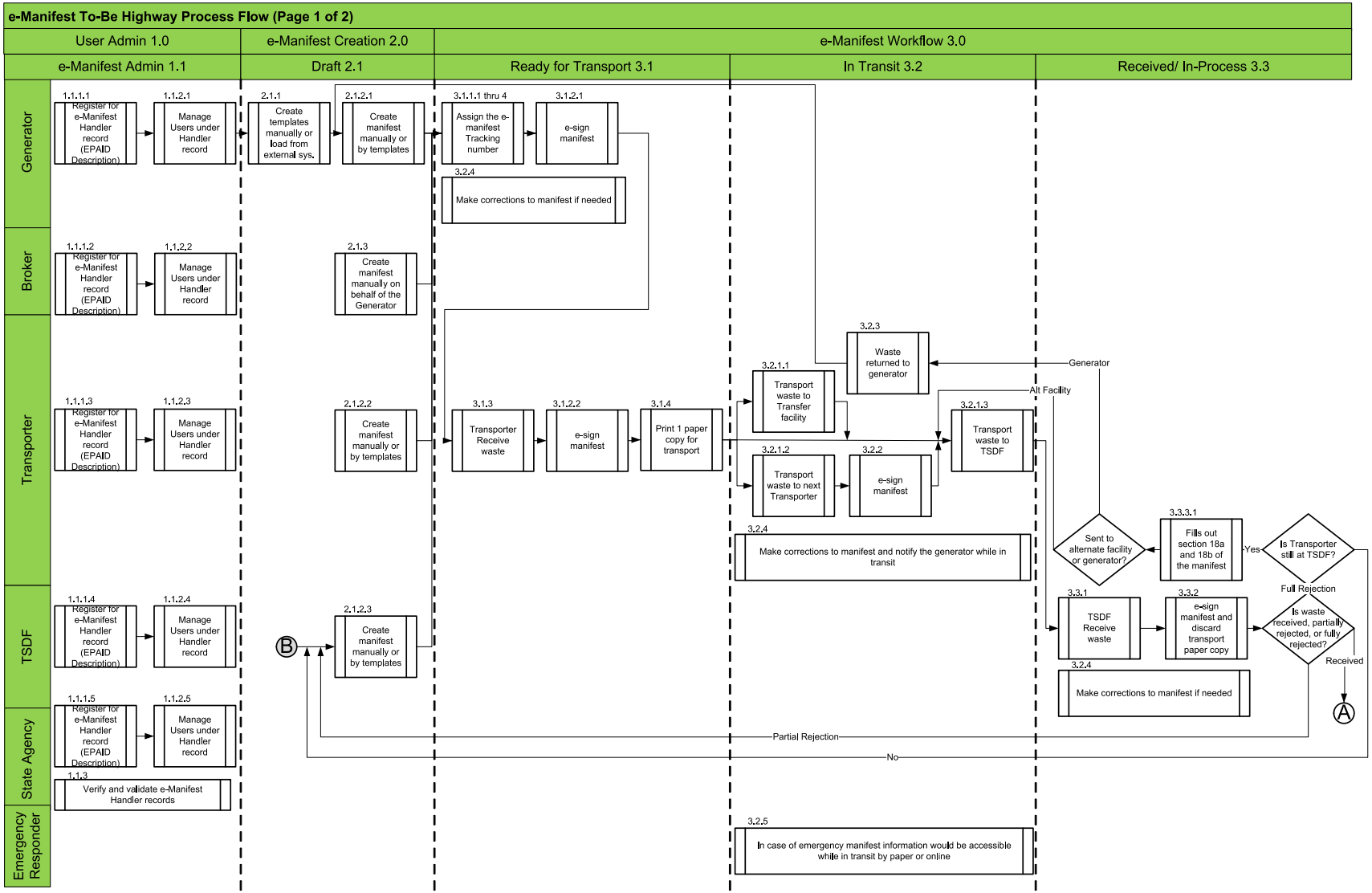

Figure 4-2: To-Be Highway (1 of 2)

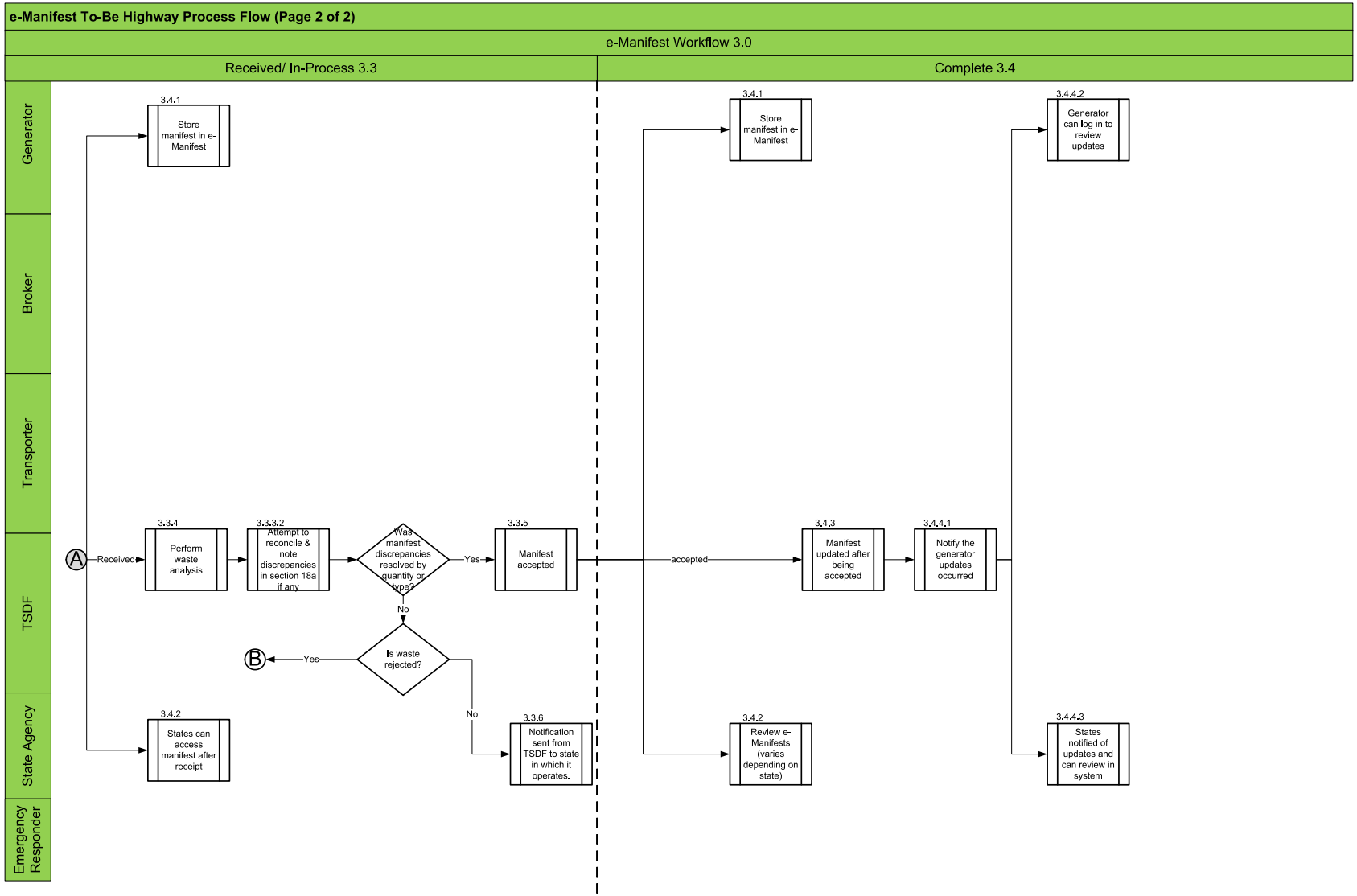

Figure 4-2: To-Be Highway (2 of 2)

4.3 e-Manifest Narrative: As-Is Railroad Process

4.3.1 Introduction

The As-Is Railroad Process Flow *(see Figure 4-3 on Pg. 55)* illustrates the current process for developing a hazardous waste manifest and transmitting accompanying information via the Electronic Data Interchange (EDI) for shipments of hazardous waste transported by railroad. The process facilitates the safe shipment of hazardous waste from hazardous waste Generators to Railroad Transporters to treatment, storage, and disposal facilities (TSDFs) in order to meet one of the goals of the Resource Conservation and Recovery Act (RCRA) – protecting everyone from the hazards of waste disposal. Manifest process Actors (people, offices, and agencies) integrate tasks across the chain of management and transportation from the Generator to its final destination, often referred to as "cradle-to-grave." The process can be initiated by several events at the Generator facility, including the need to meet the RCRA regulatory time limits on hazardous waste storage, regular shipments in accordance with business processes, or a one-time generation of hazardous waste. While hazardous waste generators primarily initiate the manifest process, other parties such as Transporters, TSDFs, or intermediary Brokers may prepare or assist in preparation of the hazardous waste manifest. The manifest process is complete once the hazardous waste, the accompanying EDI information, and the hardcopy manifest forms are received by the designated TSDF.

4.3.2 Scenario

The hazardous waste Generator first establishes a business partnership with a Rail Transporter to arrange for the pick-up and transportation of the Generator's hazardous waste. The Manifest Creator at the Generator facility creates the hazardous waste manifest and the Customer Rail Bill of Lading. The Generator signs and then sends at least three copies of the manifest to the designated TSDF and provides a copy of the manifest and the Customer Rail Bill of Lading to the Railroad Official.

After receiving the Customer Rail Bill of Lading and hazardous waste from the Generator, the Railroad Official creates a movement document (i.e., waybill) and acknowledges receipt of the waybill and hazardous waste to the Generator through the EDI system. After the Rail Transporter at the corporate office verifies in the EDI system that the waybill has been created and that the shipment was acknowledged, the Rail Transporter signs and dates the manifest and returns a signed copy to the Generator. The Railroad Transporter uses the information contained in the waybill to schedule a railcar to transport the hazardous waste to the designated TSDF. The Rail Transporter then receives the rail equipment (or railcars), picks up the hazardous waste with the equipment, and delivers the equipment to the designated TSDF.

The designated TSDF receives the rail equipment and sends an acknowledgement of receipt to the Generator, along with the EDI freight bill. The TSDF also signs and dates each copy of the manifest or shipping paper to certify that the hazardous waste was received, retains one copy, and gives at least one copy of the signed manifest or shipping paper to the Rail Transporter, the Generator, and the State.

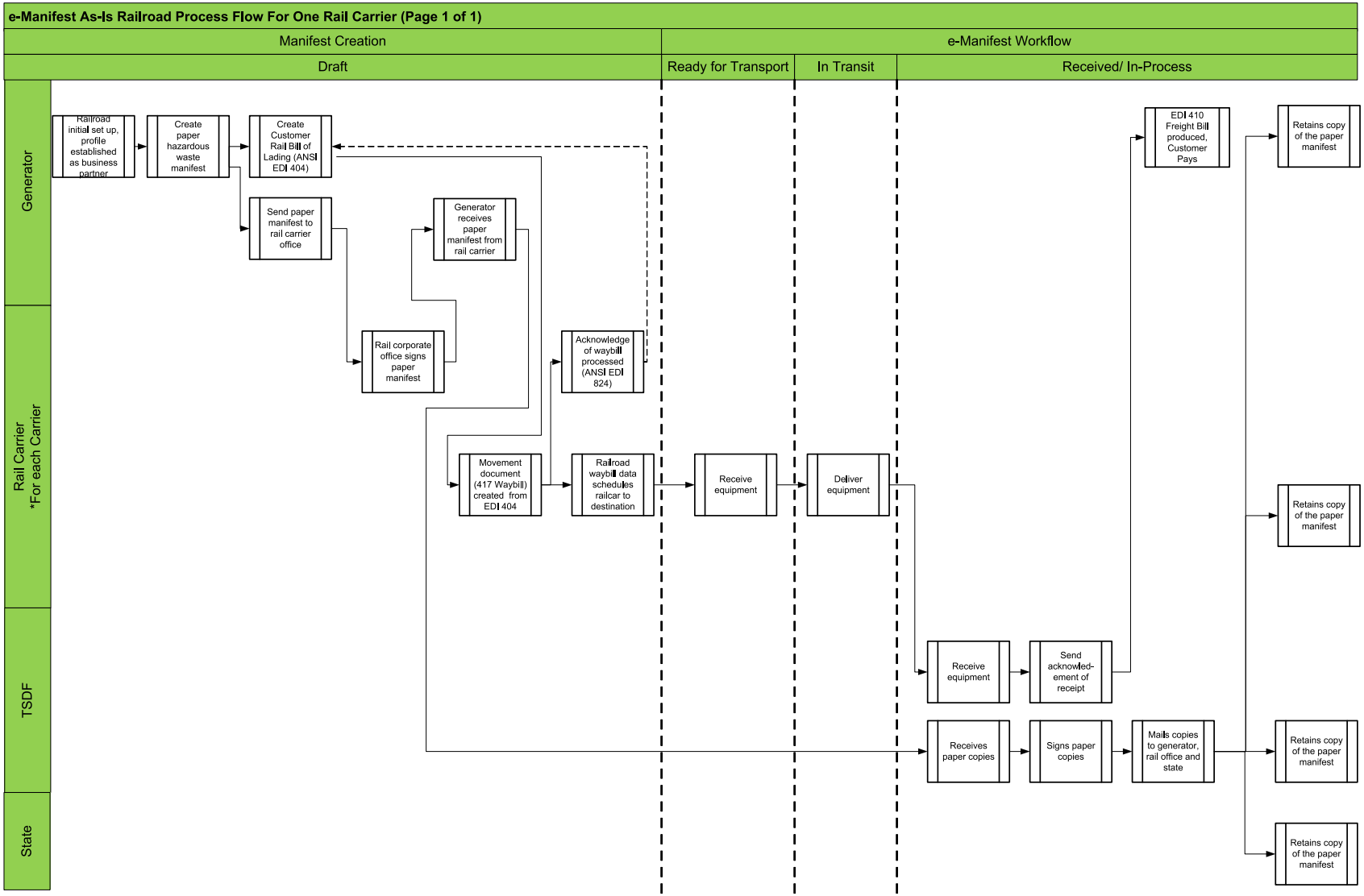

Figure 4-3: As-Is Railroad

4.4 e-Manifest Narrative: To-Be Railroad Process

4.4.1 Introduction

The To-Be Railroad Process Flow *(see Figure 4-4 on Pg. 52)* illustrates the future process for integrating the railroad electronic data interchange (EDI) with the e-Manifest system for transportation of hazardous waste by railroad. The process facilitates the safe shipment of hazardous waste from hazardous waste Generators to Railroad Transporters to treatment, storage, and disposal facilities (TSDFs) in order to meet one of the goals of the Resource Conservation and Recovery Act (RCRA) – protecting everyone from the hazards of waste disposal. Manifest process Actors (people, offices, and agencies) integrate tasks across the chain of management and transportation from the Generator to its final destination, often referred to as "cradle-to-grave." The process can be initiated by several events at the Generator facility, including the need to meet the RCRA regulatory time limits on hazardous waste storage, regular shipments in accordance with business processes, or a one-time generation of hazardous waste. While hazardous waste Generators primarily initiate the manifest process, other parties such as Transporters, TSDFs, or intermediary Brokers may prepare or assist in preparation of the hazardous waste manifest. The manifest process is complete once the hazardous waste reaches its destination at the designated TSDF and the manifest data is transmitted through the EDI and e-Manifest systems to all relevant Stakeholders.

4.4.2 Scenario

The Manifest Creator at the Generator facility creates the hazardous waste manifest in the e-Manifest system. The e-Manifest system assigns a manifest tracking number and stores it in the database, and the Generator or Offeror electronically signs the manifest. The data in the manifest will be translated into the appropriate format, such as XML, to allow for the creation of a Rail Bill of Lading, which is then transferred to the Railroad Official.

After receiving the Rail Bill of Lading and hazardous waste from the Generator, the Railroad Official acknowledges receipt to the Generator through EDI, (Note: the use of a web service for electronic signature is pending CROMERR evaluation). The Rail Transporter then sends EDI acknowledgement of receipt of equipment, which is translated into the appropriate data format, such as XML, to be captured in the e-Manifest system. The e-Manifest system is then updated with the Rail Transporter's name and date of receipt and transmits acknowledgement of receipt.

Next, the Rail Transporter picks up the hazardous waste with the equipment and delivers the rail equipment to the designated TSDF. Upon receiving the rail equipment, the TSDF sends an acknowledgement of receipt to the e-Manifest system and electronically signs the manifest. The e-Manifest system is then updated with the designated TSDF's name and date of receipt.

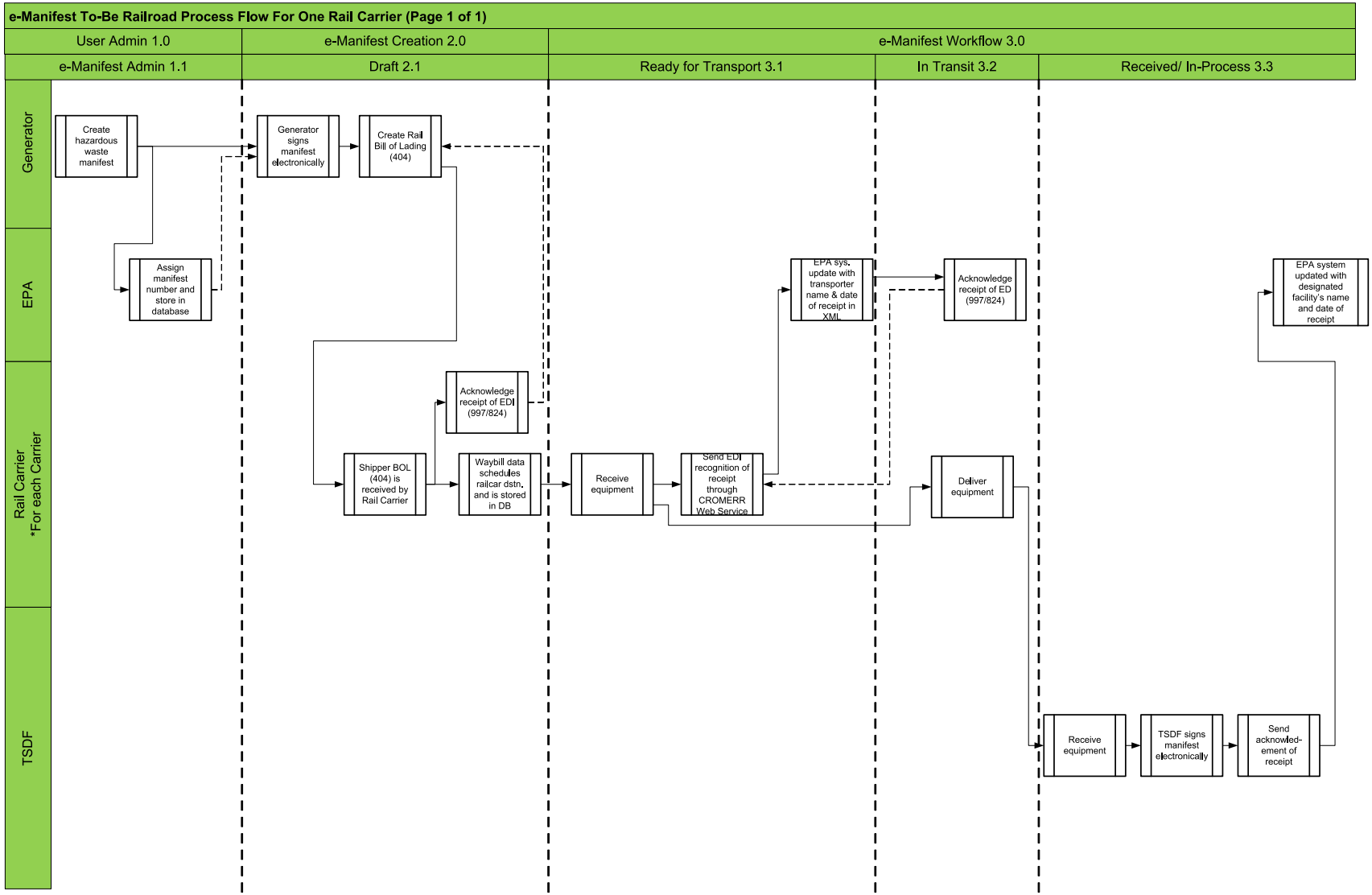

Figure 4-4: To-Be Railroad

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SECTION 5: MODEL

5.1 Conceptual Model

The e-Manifest Conceptual Model (CM) *(see Figure 5-1 on Pg. 61)* is a graphical representation of the e-Manifest environment as it relates to the users, applications, services, databases, and data marts.

Intertwined within the model are the enterprise tools and services offered by EPA. By extending these tools and services, EPA has enabled an environment where data and information can be standardized and is more accessible. This model illustrates how the various enterprise tools and services available to the Agency are utilized to support e-Manifest.

This model is structured around how data is entered into e-Manifest and how Stakeholders would then gain access to this information. The CM for e-Manifest supports EPA push to move towards a more dynamic, reporting environment. That is, the back-end e-Manifest system will

function as a data storage mechanism, and it's envisioned that agency-wide tools and data marts will be leveraged in a data warehousing environment to report out. This CM represents the concept of e-Manifest as an electronic hazardous waste manifest processing system.

5.1.1 e-Manifest Reference Data Capture/ Maintenance

The e-Manifest system will have an interface for users to interact with and a database to organize and store the data. These databases are where e-Manifest will extract data records initially to setup the systems handler records and maintain reference data lookups (e.g. DOT waste descriptions, etc.). This information will be controlled through a role based access configuration to maintain data integrity and quality.

5.1.2 e-Manifest Integrated Repository

The e-Manifest integrated repository will house the systems servers, databases and services. It will be managed and controlled by EPA. The services will be accessed through a role based access configuration and will allow Stakeholders to create, edit and manage manifests for hazardous waste. As stated in the e-Manifest AoA, initially the e-Manifest integrated repository will be hosted in a cloud environment; EPA anticipates reevaluating cloud hosting to determine whether on-premise hosting should be considered.

5.1.3 Output

The output area represents the reporting and external data access capabilities e-Manifest will need to integrate with. e-Manifest data will be used to generate EPA reports internally, and for public access services or applications. State systems and databases will connect via the agency's Central Data Exchange (CDX) to access e-Manifest data.

5.1.4 e-Manifest Workflow

This section represents the various times the users will access the e-Manifest system. Generators, Transporters, TSDFs, and all other Offerors will be able to create electronic manifests for hazardous waste. Once an electronic manifest has been created, the system will connect and update the status during the ready for transport, in transit, received/ in-process, completion and archive phases. In addition, the system will be accessed by users when there are corrections to the electronic manifest.

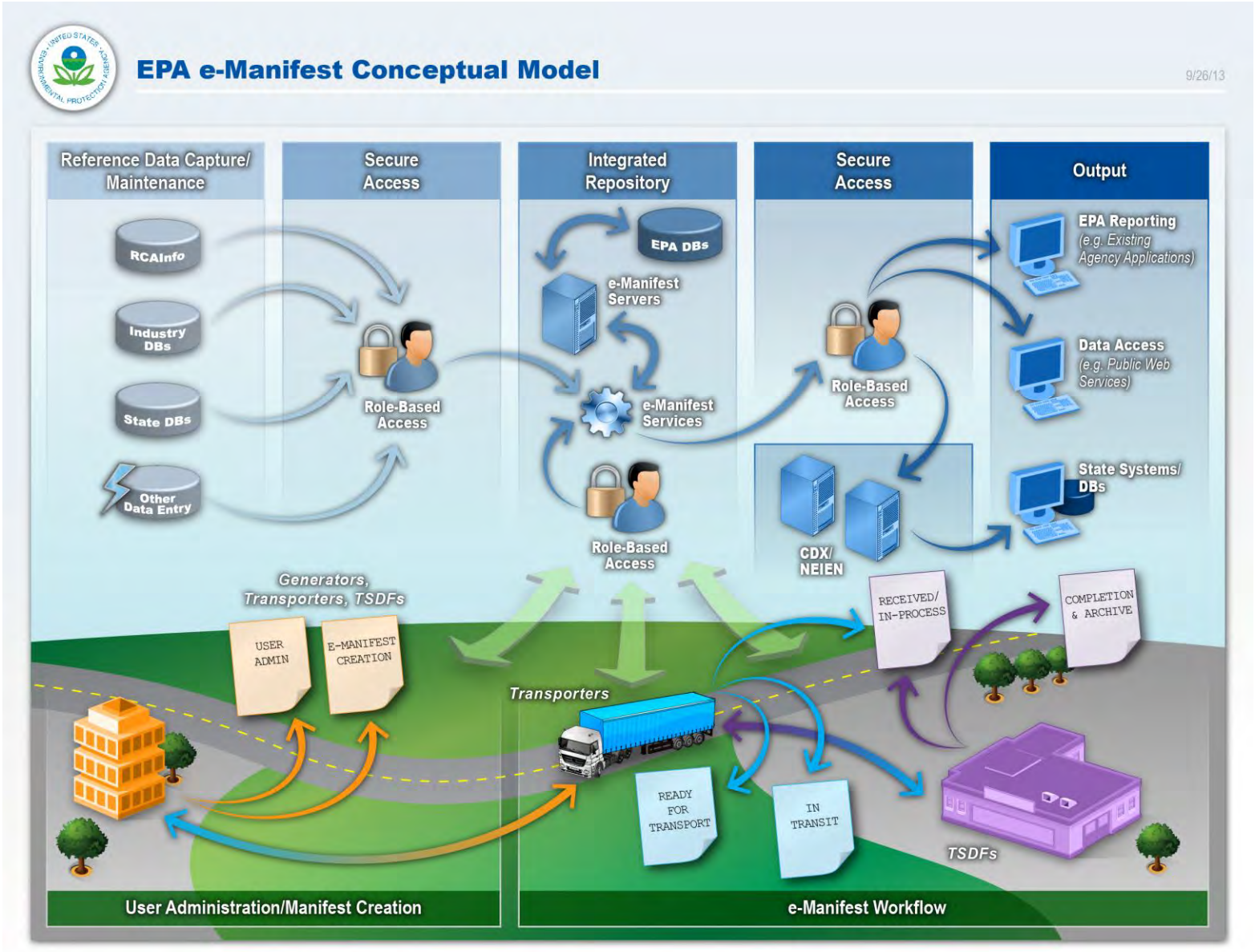

Figure 5-1: e-Manifest Conceptual Model

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SECTION 6: APPENDIX

This section contains the *Terminology*, *Acronyms* and *Works Cited* Appendices used to establish the e-Manifest CONOPS.

6.1 Terminology

Term	Definition
Activity	A task or series of tasks performed to complete an objective.
Actor	A person or group that is integral to the execution of e-Manifest. Actors help communicate the "who" within a Mission Engineering analysis.
Information Transaction Inventory (ITI)	A Mission Engineering product describing information exchanges discovered during the analysis that facilitates communication and understanding of what is being sent to whom, from whom, and in what context for the process workflows.
Mission Engineering (ME)	A rigorous, multi-phase analytical approach for the communication of complex problem sets that employs a recursive, top-down, bottom-up methodology to discover, catalog, and map people, operations, and technology together into an object-oriented framework.
Business Process Flow (BPF)	A Mission Engineering product that provides a hybrid viewpoint by combining an illustration of specific core processes with their relevant issues and recommendations projected upon them.
Conceptual Model (CM)	The Conceptual Model is a graphical representation of an environment as it relates to the users, applications, services, databases, and data marts.
Tool	(i.e., applications, hardware, software, systems)

6.2 Acronyms

Acronym	Description
EPA	Environmental Protection Agency
RCRA	Resource Conservation and Recovery Act
AoA	Analysis of Alternatives
CPIC	Capital Planning and Investment Control
TSDF	Treatment, Storage, and Disposal Facilities
DOT	Department of Transportation
OMB	Office of Management and Budget
CROMERR	Cross-Media Electronic Reporting Regulation
QA	Quality Assurance
ORCR	Office of Resource Conservation and Recovery
COTS	Commercial Off-the-Shelf
OECA	Office of Enforcement and Compliance Assurance
OCFO	Office of the Chief Financial Officer
CONOPS	Concept of Operations
OEI	Office of Environmental Information
OIC	Office of Information Collection
OIG	Office of Inspector General
LQG	Large Quantity Generators
SQG	Small Quantity Generators
CESQG	Conditionally Exempt Small Generators
ROI	Return on Investment
NVP	Net Present Value
CCA	Clinger-Cohen Act
API	Application Programming Interfaces
SDP	Software Development Packages
OCR	Optical Character Recognition
BRD	Business Requirements Document

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