

Land Disposal Restrictions Training
Lesson 1: Reviewing Facility Information
Exercise 3: Reviewing Facility Information

Instructions: This exercise asks you to review background information about a hypothetical TSDF, called Waste Disposal (WD) Inc. The WD facility is also a large quantity generator. After reviewing the background information, please answer questions about how to prepare for an inspection for LDR compliance. The background information is provided in three exhibits, followed by the questions. (Note that exercises in Lessons 2 and 3 of this training are based on the information in this exercise.)

I. Background Information

Exhibit 1 summarizes general facility information in WD's RCRA permit. Exhibit 2 summarizes portions of WD's waste analysis plan (WAP), which was approved as part of its permit. Exhibit 3 presents a simple diagram of WD's waste management operations.

Exhibit 1. General Facility Information in WD's Permit

Waste Disposal (WD) Inc. is a commercial hazardous waste management facility located in New Paltz, New York. Management activities include waste storage (e.g., for consolidation/offsite shipment or for temporary holding prior to onsite treatment), waste stabilization, and disposal of treated waste in a landfill. The facility receives untreated wastes that must undergo stabilization before placement in the landfill, as well as wastes that were treated and certified as meeting the LDR standards by the shipper. Incoming wastes certified as meeting the LDR standards are direct landfilled (i.e., no treatment).

WD does not accept, for treatment or disposal, any radioactive wastes, military or civilian ordnance, PCB wastes, or gaseous wastes in high-pressure cylinders.

The primary waste handling areas at the facility are described below.

- Waste Receipt/Unloading Area (WRUA). Upon arrival at the facility, operators verify that the waste matches its accompanying paperwork and perform fingerprint analyses as described in its waste analysis plan (WAP). After acceptance, all wastes are transferred to the DSHA.
- Drum Storage and Handling Area (DSHA). The DSHA is divided into six compartments, with a permitted storage capacity of 84,480 gallons (1,536 x 55-gallon containers). Within this area, waste is stored in containers or tanks before transport to an offsite TSD facility; unpackaged and repackaged for transport to an offsite TSD facility; or

unpackaged and consolidated for direct landfilling, treatment in the STU prior to landfilling, or offsite disposal.

- Stabilization/Treatment Unit (STU). The STU is designed to receive, store, and process RCRA and state-specific hazardous wastes that cannot be directly disposed into a landfill. The STU treatment processes modify chemical and physical characteristics of the wastes to meet applicable LDR standards. The STU area consists of a concrete-floored, roofed complex near the center of the facility. The STU treats hazardous wastes (which may contain varying amounts of free liquids, sludge, and solids), by converting the waste into a treated, non- reactive solid. The wastes must be introduced into the STU at a controlled rate through an auger shredder system. The wastes are mixed with various process additives, such as emulsion breakers to aid oil separation, acids or caustics for pH adjustment, and various mixtures of pozzolanic and cementitious materials (e.g., Portland cement, kiln dust, fly ash, lime, carbon polymers, etc.) for stabilization. The STU can process up to 100 tons of waste per hour. Treated waste from the STU is discharged to a hauling truck. When the hauling truck is full, the batch is transported to a temporary staging area within the STU. The treated waste remains in the temporary staging area until post-treatment verification analysis is performed. A sample is collected and sent to an offsite laboratory for analysis. If the post-treatment verification analysis shows that the waste meets land disposal criteria, it is transported from the STU's temporary staging area and landfilled in Cell #3. If the treated waste does not meet land disposal criteria, it is transported back to the STU's treatment area for re-treatment.
- Landfill. WD has an active hazardous waste landfill with several cells. Cell #1 is capped and closed. Cell #2 is filled (no longer accepting waste) but has not yet been closed. Cell #3 is the currently-active landfill cell and is permitted for the disposal of wastes meeting applicable treatment standards. F039 leachate is generated from the primary (top) leachate collection and removal system (LCRS) at all three cells and is discharged to three, 20,000-gallon frac tanks. In addition, leachate from the secondary (bottom) LCRS of Cell #3 is generated and discharged to an adjacent, 5,000-gallon plastic tank for storage.
- Laboratory. WD runs a small laboratory onsite that performs certain fingerprint and supplemental analyses of incoming shipments as needed. Lab packs are shipped offsite for incineration under the alternative lab treatment standards.

Exhibit 2. Information in WD's Approved Waste Analysis Plan

Following are waste sampling and analysis activities performed by WD:

- Pre-Qualification. Upon receiving a call for waste disposal service, WD works with the customer to create waste profiles (e.g., reviewing the waste generating processes,

obtaining analytical data, etc.), or to select a pre-prepared, generic profile of a similar waste. Once waste profiles have been approved, the customer is contacted to arrange for the shipment of waste to the facility. Packing lists, manifests, and land disposal restriction (LDR) forms are generated to accompany the waste.

- Waste Receipt/Unloading Area. Ten percent of the containers on each incoming shipment, as well as all incoming bulk shipments, involving untreated wastes are selected for fingerprint analyses. Fingerprint analyses include a pH screen, a visual inspection (e.g., to verify physical description), a sulfide screen, a cyanide screen, and an oxidizer screen. Other, supplementary analyses may be performed as applicable. Fingerprinting is not performed for the following wastes only: constructions & demolition (C&D) debris, personal protective equipment (PPE), lab packs, and controlled substances regulated by government agencies including drugs and/or materials from clandestine lab.

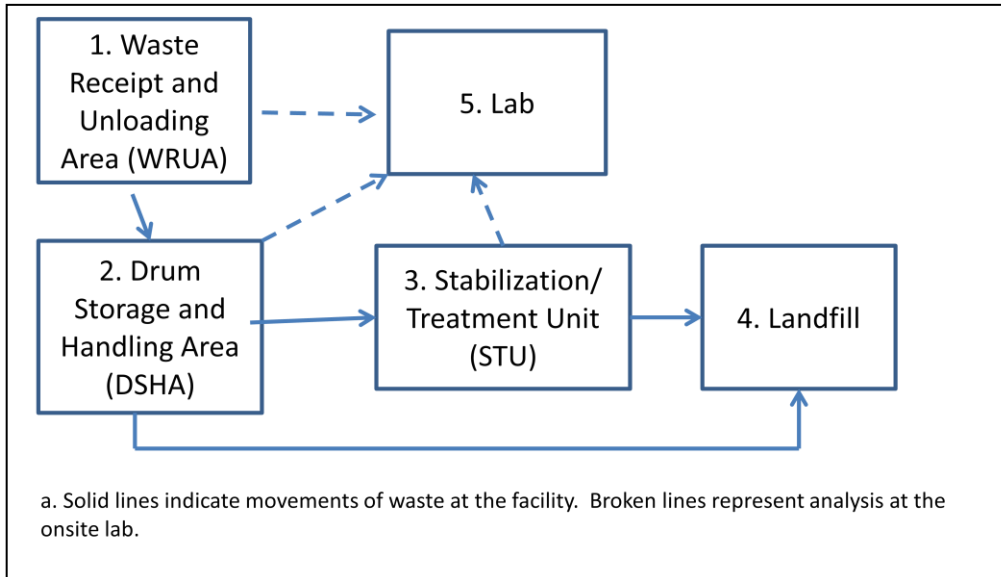
Ten percent of the containers on each incoming shipment, as well as all incoming bulk shipments, of treated waste (i.e., direct-landfilled waste) are selected for a visual inspection to verify physical description, and no further analyses are done.

If no discrepancies are noted during the visual inspection or fingerprint analysis, the waste is accepted and transported to the DSHA. If discrepancies are identified, further testing will be done. If the discrepancies cannot be resolved with additional testing, the generator will be contacted.

- DSHA. Prior to stabilization of untreated waste, pre-treatment in the DSHA may be performed using reagents such as oxidizing or reducing agents to chemically convert constituents into a form more suitable for stabilization. The pre-treatment analyses consist of the fingerprint and supplemental analyses, as well as a bench scale development of a recipe suitable for achievement of these standards. In lieu of bench scale recipe, development of a recipe previously developed and established by WD may be identified for use (e.g., recipe utilized on a similar waste). In addition, compression strength testing may be performed on direct landfill wastes to demonstrate its strength.
- STU. Wastes stabilized in the STU are temporarily staged in piles. The treated waste piles are placed on plastic and covered with plastic. The piles remain in the staging area until treatment verification sampling (i.e., a single grab sample from each batch) is performed. If the verification sampling shows the waste meets treatment standards, the waste is disposed in the landfill. If the verification sampling shows that one or more treatment standards are not met, the waste is re-treated.



Exhibit 3. Diagram of WD Facility's Waste Management Operations^a



II. Questions

1. Which fingerprint analyses are always performed on incoming shipments of untreated waste?

Fingerprint Analyses	Is this analysis performed on each incoming shipment?		Answer
	Yes	No	
1. Oxidizer screen			(Yes is Correct). The WAP indicates that this analysis is performed on each incoming shipment of untreated waste.
2. Visual inspection			(Yes is Correct). The WAP indicates that this analysis is performed on each incoming shipment of untreated waste
3. Water mix screening			(No is Correct). The WAP does not mention this analysis.
4. Cyanide screen			(Yes is Correct). The WAP indicates that this analysis is

Fingerprint Analyses	Is this analysis performed on each incoming shipment?		Answer
	Yes	No	
			performed on each incoming shipment of untreated waste
5. Compressive strength			(No is Correct). The WAP does not mention this analysis as part of waste acceptance.
6. pH screen			(Yes is Correct). The WAP indicates that this analysis is performed on each incoming shipment of untreated waste
7. PCB screening			(No is Correct). The WAP does not mention this analysis.
8. None of the above			(No is Correct). The WAP specifies a number of analyses.

2. As described in its WAP, WD may determine its stabilization recipe based on which of the following information sources?

Information Sources	Is this information source used by WD?		Answer
	Yes	No	
1. Results of fingerprint analyses			(Yes is Correct). This method is described in the WAP.
2. Bench-scale development of recipe			(Yes is Correct). This method is described in the WAP.
3. Relevant industry studies			(No is Correct). This method is not described in the WAP.
4. Past experience			(Yes is Correct). This method is described in the WAP.

3. True or False: Ten percent of container shipments of treated waste (i.e., direct-landfilled waste) are visually inspected.

Check all that apply	Answer
1. True	Incorrect. <u>Each</u> shipment is visually inspected. Specifically, ten percent of the containers on each shipment are visually inspected.

2. False	Correct. <u>Each</u> shipment is visually inspected. Specifically, ten percent of the containers on each shipment are visually inspected.
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4. Suppose you and your supervisor have reviewed WD’s permit and brainstormed on some potential compliance issues to pursue as part of your inspection. These issues are laid out in the table below. Your supervisor has asked you to determine 1) if each issue is in fact relevant and valid for purposes of an inspection of the facility and 2) if it is, where at the facility the issue arises (e.g., if the issue pertains to waste storage, where at the facility does storage take place?). Possible areas include the WRUA, DSHA, STU, landfill and laboratory. Please complete the table below by first deciding if the issue is in fact relevant and valid for your inspection. If you decide that it is, then drag and drop the issue from the “Table of Compliance Issues” to the appropriate box on the facility diagram to indicate where the issue arises.

Potential Compliance Issues	Is this issue relevant and valid for WD?		If so, where does this issue arise at WD?	Answer
	Yes	No		
1. In regard to containers storing untreated wastes, does WD label them to identify their contents and storage start date?				(Yes is Correct), this is a relevant and valid question. Section 268.50(a)(2)(i) requires each container of untreated waste to be clearly marked to identify its contents and the date each period of storage begins. This issue could be included in your inspection checklist. Drum Storage and Handling Area.
2. Is WD’s inspection of incoming shipments of direct-landfill wastes, as spelled out in its WAP, sufficient for determining compliance with the treatment standards?				(Yes is Correct), this is a relevant and valid issue. Section 268.7(b) and (c) require treaters and land disposers to perform testing to assure that the wastes or treatment residues are in compliance with the applicable LDR treatment standards. Such testing must be performed according to the frequency specified in the WAP. WD’s WAP does not specify testing of incoming shipments of direct-landfill wastes. This is inconsistent with EPA guidance. In its guidance, EPA has clarified that, prior to

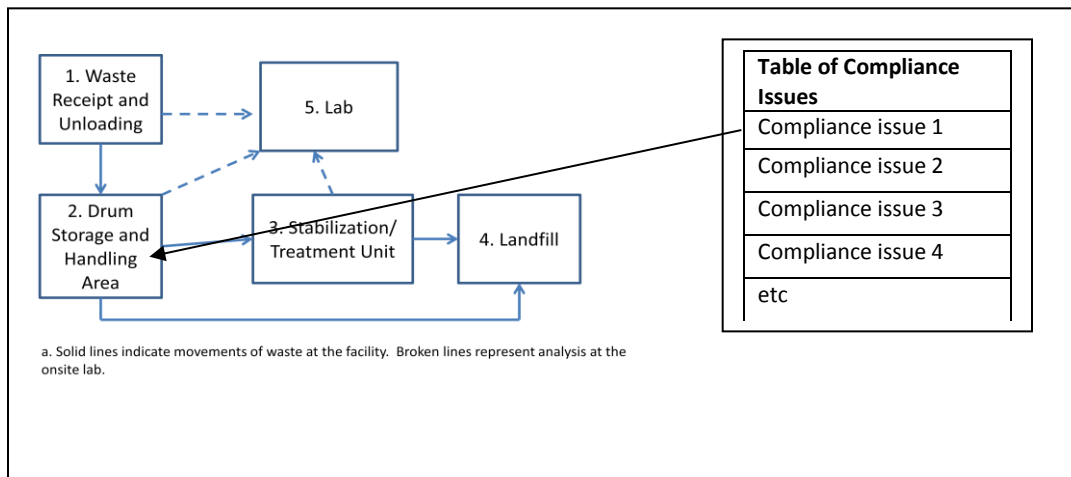
Potential Compliance Issues	Is this issue relevant and valid for WD?		If so, where does this issue arise at WD?	Answer
	Yes	No		
				<p>entering into an agreement to accept hazardous wastes from a generator or treatment facility, the owner/operator of an off-site disposal facility must obtain a detailed listing of waste constituents. While the frequency of comprehensive testing will depend upon the variability of the waste stream, the Agency recommends that a detailed analysis for the waste constituents regulated under the land disposal restrictions rule be completed at least annually by the generator or treater (see 51 FR 40598, November 7, 1986). If the owner/operator of the disposal facility does not receive such information in writing, he must perform the analysis to determine whether the wastes meet the treatment standards according to the waste analysis plan.</p> <p>The Agency points out that one strategy used by some disposal facilities to verify data supplied by generators is a random sampling program for incoming waste shipments. In this program, the disposal facility takes a representative sample from a small percentage of incoming waste shipments and performs a comprehensive chemical analysis. Such a program may encourage generators and treaters to properly test and treat restricted wastes. For additional information, see EPA guidance "Waste Analysis Requirements in Incoming Waste Shipments – LDR" (RCRA Online Number 12943).</p>

Potential Compliance Issues	Is this issue relevant and valid for WD?		If so, where does this issue arise at WD?	Answer
	Yes	No		
				You may want to discuss this issue with the permit writer before your inspection. Waste Receipt and Unloading Area.
3. How frequently do wastes treated by WD fail the TCLP for compliance with the treatment standards?				(Yes is Correct), this is a relevant and valid issue. Frequent failures may indicate a systemic problem (e.g., inadequate fingerprinting, ineffective stabilization recipe, etc.). During the inspection, you could ask the facility to discuss failure rates and provide supporting data (e.g., trend data) showing failures over the past year or more. Stabilization/Treatment Unit.
4. If a batch fails the TCLP post-treatment, how long is it normally stored before it is re-treated and passes (e.g., greater or less than 1 year)?				(Yes is Correct), this is a relevant and valid issue. Section 268.50(c) provides that an owner/operator of a facility may store untreated wastes beyond one year; however, the owner/operator bears the burden of proving that such storage was solely for the purpose of accumulation of such quantities of hazardous waste as are necessary to facilitate proper recovery, treatment, or disposal. If the owner/operator cannot make this demonstration, he is in violation of the LDR storage requirement. During your inspection, you could verify compliance with this requirement (e.g., by reviewing records covering the past few years). Stabilization/Treatment Unit
5. In regard to wastes that WD has treated, does it collect composite samples in accordance with its WAP to determine if the treatment standards are met?				(No is Correct), this is not a valid issue. The WAP indicates that a grab sample is taken of treated waste. Rather, you could determine if WD is taking a grab sample as required.

Potential Compliance Issues	Is this issue relevant and valid for WD?		If so, where does this issue arise at WD?	Answer
	Yes	No		
6. When WD consolidates/re-packages wastes from different shippers for re-shipment offsite, how does it ensure compliance with the LDR notice and certification requirements?				(Yes is Correct), this is a relevant and valid issue. For example, when WD consolidates shipments from different shippers for re-shipment, are the original shippers aware of the final destination and how does WD ensure that the original LDR notice/certification remains valid and accurate? Drum Storage and Handling Area.
7. Does WD keep track of the quantity and accumulation start date of wastes meeting the treatment standards that are stored in tanks?				(No is Correct), this is not a valid issue. Section 268.50(a)(2)(ii) requires this information only for <u>wastes that do not meet the treatment standards</u> . During the inspection, you could inspect the tanks (or operating record) to verify this information is being tracked for untreated wastes. Drum Storage and Handling Area.
8. What method does WD use to track each waste stream during fingerprinting to determine if the waste matches the shipping papers and acceptance criteria?				(Yes is Correct), this is a relevant and valid question. Tracking parameters can be effective ways for a TSDf to determine if the waste shipment matches the shipping papers and acceptance criteria. Tracking parameters are not mentioned in the facility information above, but may be spelled out elsewhere in the WAP. If the facility does not use tracking parameters (or uses them ineffectively), the facility might fail to identify new or changed waste streams. This could jeopardize the facility's understanding of the waste and formulation of an effective stabilization recipe. During the inspection, you may want to observe and interview personnel to determine if they are using the parameters effectively (e.g., are the acceptance criteria reasonably narrow and are wastes falling outside of these criteria set aside

Potential Compliance Issues	Is this issue relevant and valid for WD?		If so, where does this issue arise at WD?	Answer
	Yes	No		
				until the discrepancy is resolved?). Waste Receipt and Unloading Area.
9. If a batch treated by WD has failed to meet the treatment standards since the last inspection, what corrective actions were taken to remedy the problem?				(Yes is Correct), this is a relevant and valid issue. You could ask the facility to discuss the causes of past failures and actions taken to prevent a recurrence. Stabilization/Treatment Unit

Proposed Computer-Based Design of Question 4 (Drag and Drop)



5. Exhibit 4 presents data from WD’s GM Forms that were submitted in its most recent Biennial Report. A site must submit a GM Form if it qualified as a LQG or TSDF during the reporting year. The site must submit a GM Form for each generated RCRA hazardous waste as specified. The GM Form provides such information as the waste’s quantity, source, waste form, and onsite or offsite management method. Each row of the exhibit corresponds to a GM Form. Review the exhibit and answer the questions that follow by indicating if the form raises a potential issue for further investigation during the inspection.

Exhibit 4. Summary of Biennial Report (GM Form) Data of WD Facility

GM Form No.	Waste Form	Offsite Management Method	Generated Tons	Waste Codes
1	Lab pack waste	Incineration	0.025	D001, D002, D003
2	Lab pack waste	Incineration	0.04	D001, D003, D034
3	Contaminated soil	Incineration	5.2	D001, D002, D008, F001, F005
4	Lab pack waste	Incineration	0.02	D001, D003, D035
5	Inorganic solids	Storage	2.3	D001, D008
6	Lab pack waste	Incineration	0.0034	D002, D035, P010
7	Lab pack waste	Incineration	0.05	D001, D002, D036
8	Lab pack waste	Incineration	0.002	D001, D018
9	Organic liquids	Incineration	0.7	F001, F005
10	Inorganic sludge	Storage	8.9	D004, D006, D008

GM Form No.	Does this GM Form raise a potential issue for further investigation? (Yes/No)		Answer
	Yes	No	
1			(No is Correct.) Based on the information in this exercise, this waste does not raise a potential issue for further investigation.
2			(No is Correct.) Based on the information in this exercise, this waste does not raise a potential issue for further investigation.
3			(Yes is Correct.) Section 268.3(c) provides that the combustion of the hazardous waste codes listed in Appendix XI of Part 268 is prohibited, unless the waste, at the point of generation, or after any bona fide treatment such as cyanide destruction prior to combustion, can be demonstrated to comply with one or more of the criteria specified in section 268.3(c) (unless otherwise specifically prohibited from combustion). The GM Form indicates that the soil is contaminated with D008 (lead), which is listed in Appendix XI. Although this does not necessarily indicate a violation of the dilution prohibition (e.g., the soil may qualify under a criterion of 268.3(c) or it may be a clerical error), you may want to investigate this further.
4			(No is Correct.) Based on the information in this exercise, this waste does not raise a potential issue for further investigation.
5			(No is Correct.) Based on the information in this exercise, this waste does not raise a potential issue for further investigation.
6			(Yes is Correct.) WD manages its lab packs under the alternative treatment standards of 268.42(c). Section 268.42(c)(2) provides that the lab pack must not contain any of

			the wastes listed in Appendix IV of Part 268. The GM Form indicates the lab packs contain P010 (arsenic acid), which is listed in Appendix IV. Although this does not necessarily indicate a violation of the alternative standard (e.g., it may be a clerical error), you may want to investigate this further.
7			(No is Correct.) Based on the information in this exercise, this waste does not raise a potential issue for further investigation.
8			(No is Correct.) Based on the information in this exercise, this waste does not raise a potential issue for further investigation.
9			(No is Correct.) Based on the information in this exercise, this waste does not raise a potential issue for further investigation.
10			(No is Correct.) Based on the information in this exercise, this waste does not raise a potential issue for further investigation.