

RCRA 101: Introduction to Land Disposal Restrictions (LDRs)

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Introduction into the LDR Generator Regulations

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What Triggers the LDR Requirements

LDRs are triggered if a generator's hazardous waste or residues from treating the generator's hazardous waste will ultimately be disposed in a **land disposal** unit.

- “Land disposal” means placement in or on the land, except in a corrective action management unit (CAMU) or staging pile, and includes, but is not limited to, placement in a landfill, surface impoundment, waste pile, injection well, salt dome formation, salt bed formation, underground mine or cave, or placement in a concrete vault, or bunker intended for disposal purposes.
 - “CAMU” means a land area within a facility regulated under RCRA Subtitle C (i.e., facilities with permitted or interim status) that is designated by the EPA Regional Administrator or the authorized State for the purpose of managing remediation wastes generated from corrective action activities.
- Even the temporary placement of waste on the land (e.g., put piles) is prohibited.
- Land disposal does not occur
 - For hazardous waste discharge into a sanitary sewer under the domestic sewage exclusion (DSE) or discharge under NPDES permit.
 - For remediation waste (i.e., contaminated environmental media) in which placement (treated in-situ, AOC policy) does not occur.

What Triggers the LDR Requirements

LDR requirements do not apply to all of the following:

- Hazardous waste that has been issued an exemption, variance, or extension.
- Hazardous waste that has been delisted prior to its point of generation (POG) (RO 14699, December 1, 2011; 76 FR 74714).
- Decharacterized hazardous waste imported into the U.S. (RO 14496)
- Hazardous waste wastewaters managed in pipes and tanks prior to being discharged under NPDES or to sewer line leading to a POTW.
- Decharacterized hazardous waste disposed in a class 1 injection well (regulated under Safe Drinking Water Act (SDWA) (See footnote 9 for table 1 in in s. 268.40).
- Decharacterized hazardous waste that are treated in a CWA system can be land disposed without having to comply with LDR treatment standards (See footnote 8 for table 1 in in s. 268.40 and s. 268.1(c)(4)).
 - unless the wastes are subject to a specified method of treatment other than DEACT

What Triggers the LDR Requirements

LDR requirements do not apply to all of the following:

- Hazardous waste is being disposed in a no-migration unit (RO 14843, s. 268.6).
 - A no-migration unit is a unit from which there will be no migration of hazardous constituents for as long as the waste placed in the unit remains hazardous. Examples: salt domes, monofill landfill located in an arid area that has no groundwater recharge, and underground injection wells.
- Hazardous waste moved within a land disposal unit (RO 11950).
- Hazardous waste remediation wastes that are managed in:
 - Corrective Action Management Units (CAMUs) (ss 264.551 & 264.552).
 - CAMU-eligible hazardous waste in off-site hazardous waste landfills (s. 264.555).
 - Temporary staging piles (264.554).
 - Area of Contamination (AOC) Policy (RO 11954, 11970, 13442, & 14112).
 - Soils contaminated with a listed hazardous waste must comply with the LDR treatment standard unless the soil was contaminated before the LDR standards applied to the listed waste and a no-longer-contains determination has been granted (s. 268.49(a)).

What Triggers the LDR Requirements

For remediation waste:

Placement **does not occur** when the hazardous waste is:

- Treated in-situ.
- Capped in place.
- Processed within an AOC to improve structural stability.

If placement does not occur, then the LDR standards are not triggered (RO 11954).

placement **does occur** when:

- Consolidated from different AOCs into a single AOC.
- Moved outside of an AOC (e.g., storage, treatment) and returned to the same or different AOC.
- Excavated from an AOC, placed in a separate unit (e.g., container, tank) that is within the AOC and redeposited into the same AOC.

If placement occurs, then the LDR standards are triggered.

Who Needs to Comply with the LDR Requirements

Generators and TSDs:

- Very small quantity generators (VSQGs): No, provided the VSQG meets their conditional exemptions in s. 262.14.
- Small quantity generators (SQGs): Yes
- Large quantity generators (LQGs): Yes
- Treatment, storage, and disposal (TSD) facilities: Yes

Transporters and Transfer Facilities:

- No, provided waste codes are not being changed from bulking operations (RO 11567, 12458, and 13272).

Universal Waste Entities:

- Universal waste handlers: No (s. 261.9)
- Universal waste transporters: No (s. 261.9)
- Universal waste destination facilities: Yes (268.1(f), 273.60, RO 14088)

Who Needs to Comply with the LDR Requirements

Under s. 268.1(e) the following hazardous waste are not subject to any provisions of part 268:

- Hazardous waste generated by VSQGs.
- Hazardous waste pesticides that a farmer disposes of pursuant to s. 262.70.
- Hazardous waste in which EPA has not promulgated land disposal prohibitions or treatment standards.
- De minimis losses of characteristic hazardous wastes to wastewaters are not considered to be prohibited wastes and are defined as losses from normal material handling operations (e.g., spills from the unloading or transfer of materials from bins or other containers, leaks from pipes, valves or other devices used to transfer materials).
- Universal waste handlers and universal waste transporters.

Who Needs to Comply with the LDR Requirements

There are circumstances where a **hazardous waste destined for combustion may not be subject to LDR requirements** because neither the hazardous waste nor the residue from treating the hazardous waste is subject to a treatment standard when land disposed (RO 11881).

This could occur where hazardous wastes are going to be burned for energy recovery in a **Bevill device, such as a boiler or cement kiln.**

The generator's LDR off-site notification requirements do not apply to the generator's hazardous waste if all of the following apply:

- Burned for energy recovery in a Bevill device (e.g., a cement or light-weight aggregate kiln)
- The Bevill device produces Bevill raw materials (e.g., cement or light-weight aggregate)
- The Bevill device' residues are not significantly affected by its hazardous waste burning activities.

Who Needs to Comply with the LDR Requirements

According to s. 268.7(a)(7) and using the cement kiln exclusion under s 261.4(b)(8), if such a generator can assure that the conditions discussed on the previous slide are all true regarding the disposition of its otherwise prohibited waste, then the generator is only **required to prepare a one-time on-site notice** for its facility records documenting this disposition and not to comply with other tracking/notification requirements.

If a generator is not in a position to know that this is the case, then the full notification/certification requirements under s. 268.7(a) would apply.

Who Needs to Comply with the LDR Requirements

Under s. 261.6(c) **recycling facilities** are exempt from certain RCRA regulation; however, the hazardous wastes received by the recycling facility and the resulting residues remain subject to the LDR requirements (RO 13181).

Section 268.1(b) states that the LDR requirements of Part 268 apply unless specifically provided otherwise in Parts 261 or 268.

Hazardous waste managed under the hazardous secondary materials (HSM) requirements are subject to a one-time on-site LDR form is required (s. 268.7(7)).

Restricted vs. Prohibited

Two terms frequently used in reference to wastes subject to the LDR are restricted and prohibited.

- **Restricted wastes** are hazardous wastes subject to the LDR program.

Until the effective date, restricted waste do not have to be treated to meet the LDR treatment standards, however, it can only be disposed in a landfill unit meeting the minimum technological requirements of 268.5(h)(2).

- **Prohibited wastes** have an EPA established treatment standard that is in effect.

Prohibited wastes are a subset of restricted wastes. Once the effective date has passed, LDR treatment standards must be met before the waste can be disposed on the land unless the waste is eligible for a variance, extension, or exemption.

All current hazardous wastes now have treatment standards that are in effect, therefore all hazardous waste are prohibited from land disposal.

LDRs and the Point of Generation

Section 262.11 requires a person who generates a solid waste to determine if that solid waste - at its POG - is also a hazardous waste.

- This determination includes identifying all applicable hazardous waste codes.
- **This determination must be accurate.**
- It is at this point the LDR treatment standard attach to the hazardous waste (November 7, 1986; 51 FR 40620, and July 8, 1987; 52 FR 25766).

Section 268.7(a)(1) requires a generator of a hazardous waste to determine if the hazardous waste needs to meet the LDR treatment standards prior to land disposal.

- For TSD facilities this requirement is in s. 264.13(a)(1).
- This determination should be done concurrently with s. 262.11.
- LDR treatment standards only apply to waste that are a hazardous waste at the POG.

When and Where a New LDR POG Occurs

The following situations identify when and where a new LDR POG occurs or does not occur:

1. A hazardous waste is generated or removed from a manufacturing process. Examples of when a new LDR POG **is occurring**:
 - A spent solvent is generated from cleaning of a paint gun (D001/F005).
 - A mercury containing lamp being removed from a light fixture (D009).
 - A commercial chemical product (CCP) is being discarded (D001/U002).
 - Wastewater being discharged from a vibratory deburrer (D007).
 - The solvent from a parts washer that is being taken out of service (D001).
2. A remediation waste in which placement occurs. Examples of when a new LDR POG **is occurring**:
 - Purge water removed from wells and placed into containers (D008).
 - Soil contaminated with perc from dry cleaning that is being treated on-site in a roll-off box (F002)
 - Soil contaminated with chrome being sent off-site for treatment and disposal (D007).
3. For any characteristic hazardous waste when the treatment residue exhibits a new characteristic that is not exhibited by the original waste. Examples of when a new LDR POG **is occurring**:
 - A D001 solvent is burned producing a D008 ash.
 - A D002 acid is neutralized in an elementary neutralization unit and the sediment is a D006.
 - A D008 soil is stabilize producing a baghouse dust that is a D008 and a D007.

When and Where a New LDR POG Occurs

Items 4, 5, and 6 deal with change-in-treatability-group principle. The change-in-treatability-group principle states that the LDR treatment standard remains attached to the initial waste as long as the waste remains within the same treatability group after treatment. Example of when a new LDR POG **is occurring**:

- If a characteristic hazardous waste wastewater is treated and generates a non-wastewater sludge that is a characteristic hazardous waste, the LDR treatment standard for the wastewater does not apply to the sludge, since the sludge is now in a different treatability group and therefore is now considered a newly generated hazardous waste for LDR purposes.

4. The change-in-treatability-group principle does not apply to characteristic hazardous waste and ICR-only listed hazardous waste when these hazardous waste are managed in **non-CWA/CWA-equivalent*** system or a non class 1 SDWA system (58 FR 29871). Examples of when a LDR POG **is not occurring**:

- A D002 wastewater is combust producing nonhazardous and nonwastewater ash. The ash is not a new POG and the ash is now subject to the D002 nonwastewater treatability group.
- A F003 spent solvent wastewater is combust producing a nonhazardous and non-wastewater waste ash. The ash is not a new POG and the ash is now subject to the F003 nonwastewater treatability group (66 FR 27269).
- ICR listed hazardous waste that do not exhibited a characteristic at their POG are not a hazardous waste and therefore are not subject to the LDR requirements.

* CWA equivalent treatment means biological treatment for organics, alkaline chlorination or ferrous sulfate precipitation for cyanide, precipitation/sedimentation for metals, reduction of hexavalent chromium, or other treatment technology that can be demonstrated to perform equally or better than these technologies.

When and Where a New LDR POG Occurs

5. For characteristic hazardous waste and ICR listed hazardous waste that are managed in a **CWA/CWA-equivalent system** or a class 1 SDWA system the treatment residue is in a different treatability group than the original waste. Example of when a new LDR POG **is occurring**:
 - A D002 wastewater is treated in a wastewater treatment system producing a nonwastewater D008 sludge.
 - A D001 (high TOC – nonwastewater) is treated in a wastewater treatment system generating a D008 nonwastewater sludge. In this case the sludge is a new POG because when the high TOC is mixed with the wastewater the high TOC becomes a wastewater (RO 14718).

6. For listed hazardous waste that are listed due to toxicity, the treatment residue is in a different treatability group than the original waste. Example of when a LDR POG **is occurring**:
 - A F001 wastewater is combusted generating a nonwastewater ash. The ash is a new POG and the ash – because it is derived from a listed hazardous waste - is now subject to the nonwastewater treatment standards for F001 (RO 14448).
 - Under the derived-from rule (s. 261.3 (a) to (d) & (g)) hazardous waste that are listed due to toxicity remains a listed hazardous waste after treatment.

When and Where a New LDR POG Occurs

7. Residues generated from retorting of D009 hazardous wastes **result is a new LDR POG.**

- Even though the RMERC residues are in the same treatability group as the waste that was treated (nonwastewater) a different D009 subcategory applies to these RMERC residues.
- This unique change in LDR subcategories is due to the language in the table located s. 268.40 for the D009 subcategories and the definition of RMERC under s. 268.42, which states: *“All wastewater and nonwastewater residues derived from this process shall then comply with the corresponding treatment standards per waste code with consideration of any applicable subcategories (e.g., high or low mercury subcategories).”*

For example, a “High Mercury–Inorganic Subcategory” RMERC residue is generated from the retorting universal waste lamps that are subject to “Low Mercury Subcategory – not residues from RMERC”.

D009 ⁹	Nonwastewaters that exhibit, or are expected to exhibit, the characteristic of toxicity for mercury based on the toxicity characteristic leaching procedure (TCLP) in SW846 ¹³ ; and contain greater than or equal to 260 mg/kg total mercury that also contain organics and are not incinerator residues. (High Mercury–Organic Subcategory)	Mercury	7439–97–6	NA	IMERC; OR RMERC
	Nonwastewaters that exhibit, or are expected to exhibit, the characteristic of toxicity for mercury based on the toxicity characteristic leaching procedure (TCLP) in SW846 ¹³ ; and contain greater than or equal to 260 mg/kg total mercury that are inorganic, including incinerator residues and residues from RMERC. (High Mercury–Inorganic Subcategory)	Mercury	7439–97–6	NA	RMERC
	Nonwastewaters that exhibit, or are expected to exhibit, the characteristic of toxicity for mercury based on the toxicity characteristic leaching procedure (TCLP) in SW846 ¹³ ; and contain less than 260 mg/kg total mercury and that are residues from RMERC only. (Low Mercury Subcategory)	Mercury	7439–97–6	NA	0.20 mg/L TCLP and meet s. NR 668.48 standards ⁸
	All other nonwastewaters that exhibit, or are expected to exhibit, the characteristic of toxicity for mercury based on the toxicity characteristic leaching procedure (TCLP) in SW846 ¹³ ; and contain less than 260 mg/kg total mercury and that are not residues from RMERC. (Low Mercury Subcategory)	Mercury	7439–97–6	NA	0.025 mg/L TCLP and meet s. NR 668.48 standards ⁸

When and Where a New LDR POG Occurs

Activity Generating the Waste			POG for 268.7(a)(1) Purposes	POG for s. 262.11 Purposes	Reference
1. A hazardous waste is generated or removed from a manufacturing process.	Initial Generation		Yes	Yes	November 7, 1986; 51 FR 40620 July 8, 1987; 52 FR 25766 April 4, 2006; 71 FR 16872
2. A remediation waste in which placement occurs.			Yes	Yes	268.49(a) RO 11954 and RO 11948
3. For any characteristic hazardous waste when the treatment residue exhibits a new characteristic that is not exhibited by the original waste.	Treatment Residue		Yes	Yes	
4. For characteristic hazardous waste and ICR listed hazardous waste when managed in non-CWA/CWA-equivalent system or a non class 1 SDWA system and the treatment residue is in a different treatability group then the original waste.		Change-in-Treatability-Group	No	Yes	May 24, 1993; 58 FR 29871 May 16, 2001; 66 FR 27166 & 69
5. For listed hazardous waste that are listed due to toxicity and the treatment residue is in a different treatability group then the original waste.			Yes	Yes	RO 14448 Derived from rule applies s. 261.3 (a) to (d) & (g)
6. For characteristic hazardous waste and ICR listed hazardous waste that are managed in a CWA/CWA-equivalent system or a class 1 SDWA system and the treatment residue is in a different treatability group then the original waste.			Yes	Yes	June 28, 1996; 61 FR 33681 May 12, 1997; 62 FR 26007 May 11, 1999; 64 FR 25408 May 16, 2001; 66 FR 27269 RO 14207, RO 14216, and RO 14718
7. Residues generated from retorting of D009 hazardous wastes.			Yes	Yes	RMERC Table 1 s. 268.42 May 1990: Final Best Demonstrated Available Treatment Technology (BDAT) Background Document for Mercury-Containing Wastes D009, K106, P065, P092, and U151

When to Identified the Underlying Hazardous Constituents

If the hazardous waste is also a **characteristic hazardous waste** the generator shall comply with s. 268.9(a), which requires a generator to determine the **underlying hazardous constituents** (UHCs) of their characteristic hazardous waste.

- “Underlying hazardous constituent” means any constituent listed in s. 268.48, Table UTS—Universal Treatment Standards, which can reasonably be expected to be present at the point of generation of the hazardous waste at a concentration above the constituent-specific UTS treatment standards.
- Does not include fluoride, selenium, sulfides, vanadium, and zinc. These constituents are not UHC for characteristic wastes (s. 268.2(i)).
- Origin of UTS table: Every chemical that has a concentration-based treatment standard.

Identifying the UHC is not applicable to all characteristic hazardous waste.

When to Identified the Underlying Hazardous Constituents

The generator **does not need to identify/treat UHCs** for all of the following characteristic hazardous wastes:

1. D001 High-TOC waste treated by CMBST, RORGs, or POLYM (s. 268.9(a)).
2. Decharacterized wastewaters that are being managed in a CWA or CWA equivalent system or injected into a class 1 injection well regulated under the Safe Water Drinking Act (SWDA) (see 268.1(c)(3), April 8, 1996; 61 FR 15661).
3. Lab pack containing characteristic hazardous wastes D001 to D008, and D010 to D043 (s. 268.7(a)(9)(c)).
4. D003 reactive cyanides having a concentration-based standard do not require treatment of UHCs (April 8, 1996; 61 FR 15568).
5. Hazardous waste that has a specified treatment method that is not DEACT do not require treatment of UHCs (September 19, 1994; 59 FR 47988).

Items 4 and 5: Based on ss 268.7(a), 268.9(a), and 268.40(e) UHCs need to be identified on the LDR notification form even though the waste does not require treatment for UHCs.

When to Identified the Underlying Hazardous Constituents

Does the characteristic code also need to be identified as a UHC?

Yes - according to s. 268.48(a); however,

- The preamble language in the September 14, 1993, federal register (58 FR 48115) states: *“However, if treatment of characteristic wastes must cease at the point they are no longer hazardous wastes, any underlying hazardous constituents (**hazardous constituents other than those for which the waste exhibits the characteristic**) can go untreated. 55 FR at 22652 (June 1, 1990).”*
- RCRA Orientation Manual 2014 states: *“However, some characteristic waste treatment standards have additional requirements. The regulated community must examine these wastes for underlying hazardous constituents. **These constituents are not what causes the waste to exhibit a characteristic, but they can pose hazards nonetheless.**”*

When Characteristic Codes are Carried on Listed Waste for LDR Purposes

Section 268.9(a)&(b) specifies when characteristic codes are carried on listed waste for LDR purposes.

- If the treatment standard for a listed waste addresses the constituent causing the waste to exhibit the characteristic, only the listed waste (and treatment standard) applies.
- If the treatment standard for a listed waste does not address the constituent causing the waste to exhibit the characteristic, both the listed waste and characteristic waste codes (and treatment standard) applies.

A F005 is also a D018 (benzene)

- D018 does not need to appear on the LDR form as the treatment standard for F005 will address the benzene (RO 14545). D018 is listed as a ‘constituents of concern’ in the F listing.

A F005 is also a D001.

- D001 does need to appear on the LDR form as the treatment standard for F005 does not address ignitability (RO 11877).

When Characteristic Codes are Carried on Listed Waste for LDR Purposes

F005, D018, and D001

Waste code	Waste description and treatment/Regulatory subcategory ¹	Regulated hazardous constituent		Wastewaters	Nonwastewaters
		Common name	CAS ² number	Concentration in mg/L ³ ; or Technology Code ⁴	Concentration in mg/kg ⁵ unless noted as “mg/L TCLP”; or Technology Code ⁴
F001, F002, F003, F004, & F005	F001, F002, F003, F004 and/or F005 solvent wastes that contain any combination of one or more of the following spent solvents: acetone, benzene, n-butyl alcohol, carbon disulfide, carbon tetrachloride, chlorinated fluorocarbons, chlorobenzene, o-cresol, m-cresol, p-cresol, cyclohexanone, o-dichlorobenzene, 2-ethoxyethanol, ethyl acetate, ethyl benzene, ethyl ether, isobutyl alcohol, methanol, methylene chloride, methyl ethyl ketone, methyl isobutyl ketone, nitrobenzene, 2-nitropropane, pyridine, tetrachloroethylene, toluene, 1,1,1-trichloroethane, 1,1,2-trichloroethane, 1,1,2-trichloro-1,2,2-trifluoroethane, trichloroethylene, trichlorofluoromethane, and/or xylenes [except as specifically noted in other subcategories]. See further details of these listings in s. NR 661.31.	Acetone	67-64-1	0.28	160
		Benzene	71-43-2	0.14	10
		n-Butyl alcohol	71-36-3	5.6	2.6
		Carbon disulfide	75-15-0	3.8	NA
		Carbon tetrachloride	56-23-5	0.057	6.0
		Chlorobenzene	108-90-7	0.057	6.0
		o-Cresol	95-48-7	0.11	5.6
		m-Cresol(difficult to distinguish from p-cresol)	108-39-4	0.77	5.6
		p-Cresol(difficult to distinguish from	106-44-5	0.77	5.6

Initial One-Time Off-Site LDR Notification Form

Under s. 268.7(a)

If the waste or contaminated soil **does not meet** the applicable treatment standard, then, the generator shall send a **one-time written** notice to each treatment or storage facility receiving the waste with the **initial waste shipment and** shall place a copy in the generator's file.

- Review the initial LDR form for to determine compliance with the above.
- Discuss with generator that the initial LDR forms should be **placed with the waste determination** and not with the hazardous waste manifests.
- Discuss with the generator that **multiple LDR forms** for the same hazardous waste going to the same TSD facility should be avoided – leads to confusion.

Note that the **not required to meet** the LDR applicable treatment standard under s. 268.7(a)(4) has similar paperwork requirements to 268.7(a).

Initial One-Time Off-Site LDR Certification under s. 267.7(a)(3)

Waste Meets Treatment Standard

If the waste or contaminated soil does **meets** the applicable treatment standard, then, the generator shall send a **one-time written** notice to each treatment or storage facility receiving the waste with the **initial waste shipment and** shall place a copy in the generator's file and the following certification statement, signed by an authorized representative.

I certify under penalty of law that I personally have examined and am familiar with the waste through analysis and testing or through knowledge of the waste to support this certification that the waste complies with the treatment standards specified in 40 CFR 268 subpart D. I believe that the information I submitted is true, accurate, and complete. I am aware that there are significant penalties for submitting a false certification, including the possibility of a fine and imprisonment.

Initial One-Time Off-Site LDR Certification under s. 267.7(a)(9)

Alternative Treatment Standards for Lab Packs

If a generator is managing a lab pack containing hazardous wastes and wishes to use the alternative treatment standard for lab packs found at s. 268.42(c), then the generator shall send a **one-time written** notice to each treatment or storage facility receiving the waste with the **initial waste shipment and** shall place a copy in the generator's file and the following certification statement, signed by an authorized representative.

I certify under penalty of law that I personally have examined and am familiar with the waste and that the lab pack contains only wastes that have not been excluded under appendix IV to 40 CFR part 268 and that this lab pack will be sent to a combustion facility in compliance with the alternative treatment standards for lab packs at 40 CFR 268.42(c). I am aware that there are significant penalties for submitting a false certification, including the possibility of fine or imprisonment

Initial One Time On-Site LDR Notification Form Under s. 268.7(a)(7)

If a generator determines that he is managing a prohibited waste that is **excluded from the definition of hazardous or solid waste or is exempted from Subtitle C regulation under 40 CFR 261.2 through 261.6** subsequent to the point of generation (including deactivated characteristic hazardous wastes managed in wastewater treatment systems subject to the Clean Water Act (CWA) as specified at 40 CFR 261.4(a)(2) or that are CWA-equivalent, or are managed in an underground injection well regulated by the SDWA), he must place a **one-time notice describing such generation, subsequent exclusion from the definition of hazardous or solid waste or exemption from RCRA Subtitle C regulation, and the disposition of the waste, in the facility's on-site files.**

Developing an LDR Inspection Form

There are approximately 72 LDR questions for an LQG

- General. (8 questions)
- Waste or contaminated soil does not meet treatment standard or the generator chooses not to make a determination. (10 questions)
- Waste meets the treatment standard. (8 questions)
- Contaminated soil meets the treatment standard. (7 questions)
- Waste or contaminated soil not required to meet the treatment standard. (7 questions)
- Waste managed under the alternative treatment standards for lab packs. (4 questions)
- Hazardous debris. (8 questions)
- Generator received a no longer contains exclusion from the department for soils with a listed hazardous waste or that no longer exhibit the hazardous waste characteristic. (2 questions)
- Generator who treats or dispose of a hazardous waste. (17 questions)

Handout (excel spreadsheet) is provided identifying all these LDR questions.

Treating to Meet the LDR Standards



Treating to Meet the LDR Standards

Generators may treat their hazardous wastes to meet one or more applicable LDR treatment standards without obtaining a hazardous waste permit.

- Generators may partially treat a waste to meet an LDR standard without treating the waste for all applicable LDR standards. Partially treated wastes must be sent to a permitted facility for additional treatment to meet the rest of the standards before disposal can occur.

The permit exemption for generator treatment only extends to treatment activities that share the same standards as storage (i.e., the treatment must occur in tanks, containers, or containment buildings).

- The standards for thermal treatment are different than generator storage requirements because of the inherent dangers of fire, explosion, or evolution of toxic gases; therefore, thermal treatment may not be performed without a hazardous waste permit.

A generator will need to develop a Waste Analysis Plan (WAP) if treating hazardous waste to meet the LDR standard.

Treating to Meet the LDR Standards

Section 268.40(a) requires that the hazardous waste that is subject to a LDR treatment standard in s. 268.7(a)(1) to **meet that treatment standard prior to being land disposed**. This is true even if a characteristic hazardous waste has been rendered nonhazardous.

- For example, a D008 lead-containing waste was treated after its POG to 3 mg/l, which is 2 mg/l below the value of 5 mg/L needed to make the lead-containing waste a hazardous waste. The LDR treatment standard for this D008 subcategory is .75 mg/L. Even though the lead-containing waste is no longer a hazardous waste is still cannot be land disposed because the LDR treatment value of .75 mg/L has not been met.

The LDR treatment standards in located in s. 268.40 and in s. 268.48 for the hazardous continuants. There are two types of treatment standards:

- Concentration based
- Specific technology

LDR Sampling vs. Waste Determination Sampling

Subpart C of part 261 requires a representative sample when analyzing for a characteristic hazardous waste.

However, representative sampling is not used to show if the LDR standard has been met. Section 268.40(b) states:

- Non D004 through D011 wastewaters, compliance with concentration level standards is based **composite sampling** on maximums for any one day.
- For all nonwastewaters and D004 through D011 wastewaters, compliance with concentration level standards is based on **grab sampling**.
- **In a well-designed and well-operated treatment system, the treatment standard should be achievable 99% of the time.**

Dilution Prohibition

An easy way to meet the concentration-based standards in s. 268.40 is to dilute the hazardous waste – usually not allowed.

Section s. 268.3 prohibits dilution as a substitute for adequate treatment to achieve compliance with the LDR requirements.

Some examples of when dilution is permitted:

- Land disposal is not occurring.
- Hazardous waste that does not have a treatment standard that is in effect.
- **Aggregation for centralized treatment:** In the combustion of different types of solvents inherent dilution is allowed when the treatment will remove or destroy the contaminant being destroyed. The mixing (i.e., aggregation) of hazardous wastes for treatment on an economic scale must only occur when the waste-constituents are legitimately amenable to the same type of treatment (June 1, 1990, federal register (55 FR 22666/22667)).
- **Dilution as a consequence of treatment:** In stabilization a large volume of treatment reagents are added to a waste. This is permissible as long as the reagents are effective in treating the waste.
- F003, K047, U002 or characteristic waste (except High TOC D001, D003 reactive cyanide, or D012–D017 wastewater) being sent to a Class I SDWA underground or to a CWA or CWA-equivalent system.

Alternative Treatment Standards

Hazardous waste soils may be treated by the alternative standards under s. 268.49.

- Ten times universal treatment standards (UTS) concentration.
- 90% reduction from initial concentration.

Hazardous waste debris may be treated by the alternative standards under s. 268.45.

- Physical Extraction: abrasive blasting, scarification, grinding and planning, high pressure steam and water sprays.
- Chemical Extraction or destruction: chemical or electrolytic oxidation, chemical reduction.
- Thermal Extraction: high temperature metals recovery.
- Biological Destruction: biodegradation of organic or nonmetallic inorganic compounds.
- Thermal destruction: Treatment in an incinerator or BIF.
- Immobilization: macroencapsulation, microencapsulation, sealing.
- Residue from the treatment of hazardous debris is subject to the waste-specific treatment standards provided in 268.40.

Lab packs may be treated by the alternative standards under s. 268.42(c) WAC.

- Small quantities of commercial chemical products (P and U listed hazardous waste)
- Lab packs must be incinerated.
- Lab packs cannot contain any of the following: D009, F019, K003, K004, K005, K006, K062, K071, K100, K106, P010, P011, P012, P076, P078, U134, U151.

Understanding the LDR Tables



Understanding Table 268.40

Treatment Standards for Hazardous Waste

Waste Code	Waste description and treatment / regulatory subcategory ¹	Regulated hazardous constituent		Wastewaters	Nonwastewaters
		Common name	CAS ² number	Concentration in mg/L ³ ; or Technology Code ⁴	Concentration in mg/kg ⁵ unless noted as “mg/L TCLP”; or Technology Code ⁴
D001 ⁹	Ignitable Characteristic Wastes, except for the s. NR 661.21 (1) (a) High TOC Subcategory.	NA	NA	DEACT and meet s. NR 668.48 standards ⁸ ; or RORGS; or CMBST	DEACT and meet s. NR 668.48 standards ⁸ ; or RORGS; or CMBST
	High TOC Ignitable Characteristic Liquids Subcategory based on s. NR 661.21 (1) (a) – Greater than or equal to 10% total organic carbon. (Note: This subcategory consists of nonwastewaters only.)	NA	NA	NA	RORGS; CMBST; or POLYM
D002 ⁹	Corrosive Characteristic Wastes.	NA	NA	DEACT and meet s. NR 668.48 standards ⁸	DEACT and meet s. NR 668.48 standards ⁸
D004 ⁹	Wastes that exhibit, or are expected to exhibit, the characteristic of toxicity for arsenic based on the toxicity characteristic leaching procedure (TCLP) in SW846 ¹³ .	Arsenic	7439–97–6	1.4 and meet s. NR 668.48 standards ⁸	5.0 mg/L TCLP and meet s. NR 668.48 standards ⁸
K123	Process wastewater (including supernates, filtrates and washwaters) from the production of ethylenebisdithiocarbamic acid and its salts.	NA	NA	CMBST; or CHOXD fb (BIODG or CARBN)	CMBST

Understanding Table 268.40

The table in s. 268.40 identifies the LDR treatment standards for all the hazardous waste codes and their **subcategories**.

Hazardous waste that have subcategories:

- D001 to D011
- F001 to F005, and F025
- K069, K071, and K106
- P047, P065, and P092
- U151 and U240

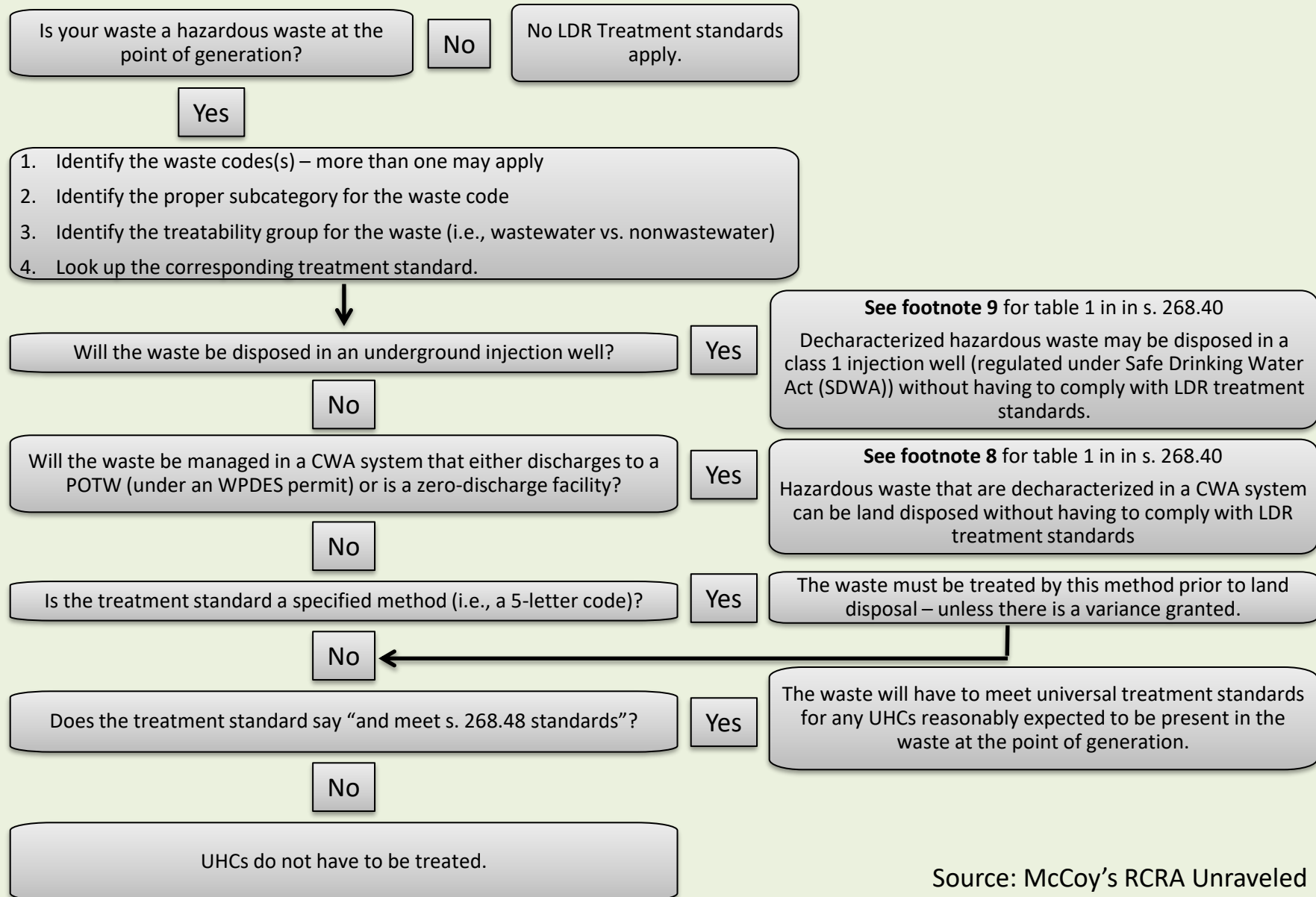
Understanding Table 268.40

The table also divides the hazardous waste into two **treatability groups** – wastewaters and non-wastewaters.

- “Wastewaters” means wastes that contain less than 1% by weight total organic carbon (TOC) and less than 1% by weight total suspended solids (TSS).
- Conversely “non-wastewaters” means all waste forms that are not wastewaters.

The LDR treatment standard for the waste is based on the current form (i.e., treatability group) the waste is in and not the waste’s form at the POG.

Understanding Table 268.40



Understanding the Generator Paperwork Requirement Table

Required Information	268.7(a)(2) Does not Meet Treatment Standards	268.7(a)(3) Meets Treatment Standards	268.7(a)(4) Not Required to Meet Treatment Standards	268.7(a)(9) Lab Pack
1. EPA hazardous waste numbers and manifest number of first shipment.	X	X	X	X
2. Statement: this waste is not prohibited from land disposal			X	
3. The waste is subject to the LDRs. The constituents of concern for EPA hazardous waste numbers F001 through F005 and F039 waste, and underlying hazardous constituents in characteristic waste, unless the waste will be treated and monitored for all constituents. If all constituents will be treated and monitored, there is no need to put them all on the LDR notice	X	X		
4. The notice must include the applicable wastewater/ nonwastewater category (see ss. NR 668.02(4) and (6)) and subdivisions made within a waste code based on waste-specific criteria (such as D003 reactive cyanide)	X	X		
5. Waste analysis data (when available)	X	X	X	
6. Date the waste is subject to the prohibition			X	
7. For hazardous debris, when treating with the alternative treatment technologies provided by s. NR 668.45: the contaminants subject to treatment, as described in s. NR 668.45(2); and an indication that these contaminants are being treated to comply with s. NR 668.45	X		X	
8. For contaminated soil subject to LDRs as provided in s. 668.49(1), the constituents subject to treatment as described in s. 668.49(4), and the following statement: This contaminated soil (does/does not) contain listed hazardous waste and (does/does not) exhibit a characteristic of hazardous waste and (is subject to/complies with) the soil treatment standards as provided by s. 668.49(3) or the universal treatment standards	X	X		
9. A certification is needed (see applicable subsection for exact wording)		X		X

Understanding the Generator Paperwork Requirement Table

Required Information	268.7(a)(2) Does not Meet Treatment Standards	268.7(a)(3) Meets Treatment Standards	268.7(a)(4) Not Required to Meet Treatment Standards	268.7(a)(9) Lab Pack
1. EPA hazardous waste numbers and manifest number of first shipment.	X	X	X	X
2. Statement: this waste is not prohibited from land disposal			X	
3. The waste is subject to the LDRs. The constituents of concern for EPA hazardous waste numbers F001 through F005 and F039 waste, and underlying hazardous constituents in characteristic waste, unless the waste will be treated and monitored for all constituents. If all constituents will be treated and monitored, there is no need to put them all on the LDR notice	X	X		
4. The notice must include the applicable wastewater/ nonwastewater category (see ss. NR 668.02(4) and (6)) and subdivisions made within a waste code based on waste-specific criteria (such as D003 reactive cyanide)	X	X		
5. Waste analysis data (when available)	X	X	X	
6. Date the waste is subject to the prohibition			X	
7. For hazardous debris, when treating with the alternative treatment technologies provided by s. NR 668.45: the contaminants subject to treatment, as described in s. NR 668.45(2); and an indication that these contaminants are being treated to comply with s. NR 668.45	X		X	
8. For contaminated soil subject to LDRs as provided in s. 668.49(1), the constituents subject to treatment as described in s. 668.49(4), and the following statement: This contaminated soil (does/does not) contain listed hazardous waste and (does/does not) exhibit a characteristic of hazardous waste and (is subject to/complies with) the soil treatment standards as provided by s. 668.49(3) or the universal treatment standards	X	X		
9. A certification is needed (see applicable subsection for exact wording)		X		X

Understanding the Generator Paperwork Requirement Table

1. EPA hazardous waste numbers and manifest number of first shipment.

SECTION I								
GENERATOR'S NAME								
EPA I.D. NUMBER								
MANIFEST NUMBER								
TREATABILITY GROUP	(Check one) <input checked="" type="checkbox"/> Wastewater <input type="checkbox"/> Non-Wastewater							
HAZARDOUS DEBRIS	<input type="checkbox"/> Yes <input type="checkbox"/> No							
EPA HAZARDOUS WASTE CODE(S) –								
<input type="checkbox"/> There are no underlying hazardous constituents of concern, or								
<input type="checkbox"/> There are underlying hazardous constituents of concern which do not meet the treatment standards of 40 CFR 268.48, Table UTS – Universal Treatment Standards (see Section II).								
I have used the following to make the above determination:								
<input type="checkbox"/> Knowledge of the waste producing process, raw materials used and reaction products, or								
<input type="checkbox"/> Results of analysis for the constituents in Table UTS.								
Waste analysis data attached? <input type="checkbox"/> Yes <input type="checkbox"/> No								

Understanding the Generator Paperwork Requirement Table

Required Information	268.7(a)(2) Does not Meet Treatment Standards	268.7(a)(3) Meets Treatment Standards	268.7(a)(4) Not Required to Meet Treatment Standards	268.7(a)(9) Lab Pack
1. EPA hazardous waste numbers and manifest number of first shipment.	X	X	X	X
2. Statement: this waste is not prohibited from land disposal			X	
3. The waste is subject to the LDRs. The constituents of concern for EPA hazardous waste numbers F001 through F005 and F039 waste, and underlying hazardous constituents in characteristic waste, unless the waste will be treated and monitored for all constituents. If all constituents will be treated and monitored, there is no need to put them all on the LDR notice	X	X		
4. The notice must include the applicable wastewater/ nonwastewater category (see ss. NR 668.02(4) and (6)) and subdivisions made within a waste code based on waste-specific criteria (such as D003 reactive cyanide)	X	X		
5. Waste analysis data (when available)	X	X	X	
6. Date the waste is subject to the prohibition			X	
7. For hazardous debris, when treating with the alternative treatment technologies provided by s. NR 668.45: the contaminants subject to treatment, as described in s. NR 668.45(2); and an indication that these contaminants are being treated to comply with s. NR 668.45	X		X	
8. For contaminated soil subject to LDRs as provided in s. 668.49(1), the constituents subject to treatment as described in s. 668.49(4), and the following statement: This contaminated soil (does/does not) contain listed hazardous waste and (does/does not) exhibit a characteristic of hazardous waste and (is subject to/complies with) the soil treatment standards as provided by s. 668.49(3) or the universal treatment standards	X	X		
9. A certification is needed (see applicable subsection for exact wording)		X		X

Understanding the Generator Paperwork Requirement Table

2. Statement: this waste is not prohibited from land disposal

The following exemptions, variances, and extensions established in part 268 allow wastes for which treatment standards have been promulgated to be land disposed without meeting treatment standards, or to be treated to a less stringent level or by a different technology:

- **Case-by-Case Extension (s. 268.5):** Regional or local conditions may create a lack of adequate treatment capacity in a particular area. In this situation, EPA may extend the effective date of a treatment standard on a case-by-case basis. EPA grants case-by-case extensions for one year.
- **Disposal in a no-migration unit (s. 268.6):** If hazardous waste has no chance to migrate from a disposal unit it does not matter if the hazardous waste has been treated to meet the LDR standard. Underground injection wells or mines.
- **National Capacity Variance (subpart C of part 268):** If there is inadequate capacity for certain waste codes, EPA may grant a nationwide extension of the prohibition deadline for up to two years. A waste that is subject to a national capacity variance, does not need to comply with the BDAT treatment standards, but is “restricted” and if it is going to be disposed in a landfill or surface impoundment, it can only be disposed of in a unit that meets the minimum technology requirements (MTRs).

Understanding the Generator Paperwork Requirement Table

2. Continued

- **Variance from the Treatment Standard (s. 268.44):** Under certain circumstances, generators or TSDFs may petition the Agency for a variance from using a required technology or from meeting a concentration-based treatment standard. EPA established this variance from a treatment standard to account for those wastes for which applicable treatment standards are unachievable or inappropriate.
- **Variance for an Equivalent Treatment Method (s. 268.42(b)):** Generally, waste handlers must treat waste to which EPA has assigned a technology-based treatment standard using that method of treatment prior to disposal. A person may, however, submit an application to the implementing agency demonstrating that an alternative treatment method can achieve a performance equivalent to that of the specified treatment standard and can protect human health and the environment.
- **Treatment in a Surface Impoundment (s. 268.4):** Since management of wastes in surface impoundments is considered land disposal, even though the waste is not permanently disposed in the unit, such generation and placement of hazardous sludges on the land without prior treatment would normally be inconsistent with LDR's disposal prohibition. Waste handlers may treat hazardous waste in surface impoundments without first meeting treatment standards provided that
 - the surface impoundment meets certain technological requirements,
 - the treatment residues that do not meet applicable standards are removed from the impoundment annually, and
 - the removed residues are not managed in another surface impoundment.

While wastes subject to any of these provisions continue to be restricted under LDR, they are not prohibited from land disposal under these limited conditions.

Understanding the Generator Paperwork Requirement Table

Required Information	268.7(a)(2) Does not Meet Treatment Standards	268.7(a)(3) Meets Treatment Standards	268.7(a)(4) Not Required to Meet Treatment Standards	268.7(a)(9) Lab Pack
1. EPA hazardous waste numbers and manifest number of first shipment.	X	X	X	X
2. Statement: this waste is not prohibited from land disposal			X	
3. The waste is subject to the LDRs. The constituents of concern for EPA hazardous waste numbers F001 through F005 and F039 waste, and underlying hazardous constituents in characteristic waste, unless the waste will be treated and monitored for all constituents. If all constituents will be treated and monitored, there is no need to put them all on the LDR notice	X	X		
4. The notice must include the applicable wastewater/ nonwastewater category (see ss. NR 668.02(4) and (6)) and subdivisions made within a waste code based on waste-specific criteria (such as D003 reactive cyanide)	X	X		
5. Waste analysis data (when available)	X	X	X	
6. Date the waste is subject to the prohibition			X	
7. For hazardous debris, when treating with the alternative treatment technologies provided by s. NR 668.45: the contaminants subject to treatment, as described in s. NR 668.45(2); and an indication that these contaminants are being treated to comply with s. NR 668.45	X		X	
8. For contaminated soil subject to LDRs as provided in s. 668.49(1), the constituents subject to treatment as described in s. 668.49(4), and the following statement: This contaminated soil (does/does not) contain listed hazardous waste and (does/does not) exhibit a characteristic of hazardous waste and (is subject to/complies with) the soil treatment standards as provided by s. 668.49(3) or the universal treatment standards	X	X		
9. A certification is needed (see applicable subsection for exact wording)		X		X

Understanding the Generator Paperwork Requirement Table

3. The waste is subject to the LDRs. The constituents of concern for EPA hazardous waste numbers F001 through F005 and F039 waste, and underlying hazardous constituents in characteristic waste, unless the waste will be treated and monitored for all constituents. If all constituents will be treated and monitored, there is no need to put them all on the LDR notice.

- Constituents of concern refers to all constituents for which the waste is regulated and may comprise both the regulated hazardous constituents for that subcategory and the underlying hazardous constituents of s. 268.48.
- For F001 to F005 there are 36 regulated hazardous constituents and 4 subcategories
- Each subcategory has more than one solvent and those solvents in that subcategory usually have a different LDR treatment standard than the other solvents in that same subcategory. When wastes with differing treatment standards are combined for the purposes of treatment, the treatment residue must meet the lowest treatment standard for the “constituent of concern” in that subcategory.

Understanding the Generator Paperwork Requirement Table

3. Continued

FOR F001-F005 SPENT SOLVENTS, LIST THE NUMBER NEXT TO THE CONSTITUENT THAT IS PRESENT.

LINE NO.(S)	F001-F005 SOLVENT	LINE NO.(S)	F001-F005 SOLVENT	LINE NO.(S)	F001-F005 SOLVENT
	ACETONE		CYCLOHEXANONE		NITROBENZENE
	BENZENE		O-DICHLOROBENZENE		PYRIDINE
	N-BUTANOL		ETHYL ACETATE		TETRACHLOROETHYLENE
	CARBON DISULFIDE		ETHYL BENZENE		TOLUENE
	CARBON TETRACHLORIDE		ETHYL ETHER		1,1,1-TRICHLOROETHANE
	CHLOROBENZENE		ISOBUTANOL		1,1,2-TRICHLOROETHANE
	O-CRESOL		METHANOL		1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE
	M-CRESOL		METHYLENE CHLORIDE		TRICHLOROETHYLENE
	P-CRESOL		METHYL ETHYL KETONE		TRICHLOROMONOFUOROMETHANE
	CRESOLS/CRESYLIC ACID		METHYL ISOBUTYL KETONE		XYLENES (MIXED)

Shipment EPA Waste Codes (from 40 CFR 268.40) _____

UHC's (Underlying Hazardous Constituents 40 CFR 268.48)? ☐ Yes ☐ No

If yes, list: _____

Does a subcategory apply per 40 CFR 268.40? ☐ Yes ☐ No

If yes, list: _____

Understanding the Generator Paperwork Requirement Table

Required Information	268.7(a)(2) Does not Meet Treatment Standards	268.7(a)(3) Meets Treatment Standards	268.7(a)(4) Not Required to Meet Treatment Standards	268.7(a)(9) Lab Pack
1. EPA hazardous waste numbers and manifest number of first shipment.	X	X	X	X
2. Statement: this waste is not prohibited from land disposal			X	
3. The waste is subject to the LDRs. The constituents of concern for EPA hazardous waste numbers F001 through F005 and F039 waste, and underlying hazardous constituents in characteristic waste, unless the waste will be treated and monitored for all constituents. If all constituents will be treated and monitored, there is no need to put them all on the LDR notice	X	X		
4. The notice must include the applicable wastewater/ nonwastewater category (see ss. NR 668.02(4) and (6)) and subdivisions made within a waste code based on waste-specific criteria (such as D003 reactive cyanide)	X	X		
5. Waste analysis data (when available)	X	X	X	
6. Date the waste is subject to the prohibition			X	
7. For hazardous debris, when treating with the alternative treatment technologies provided by s. NR 668.45: the contaminants subject to treatment, as described in s. NR 668.45(2); and an indication that these contaminants are being treated to comply with s. NR 668.45	X		X	
8. For contaminated soil subject to LDRs as provided in s. 668.49(1), the constituents subject to treatment as described in s. 668.49(4), and the following statement: This contaminated soil (does/does not) contain listed hazardous waste and (does/does not) exhibit a characteristic of hazardous waste and (is subject to/complies with) the soil treatment standards as provided by s. 668.49(3) or the universal treatment standards	X	X		
9. A certification is needed (see applicable subsection for exact wording)		X		X

Understanding the Generator Paperwork Requirement Table

4. The notice must include the applicable wastewater/ nonwastewater category (see ss. 268.2(d) and (f) and subdivisions made within a waste code based on waste-specific criteria (such as D003 reactive cyanide)

Waste is a: ☐ Wastewater (<1% TSS and TOC) ☐ Non-wastewater ☐ Debris

PLEASE REFER TO INSTRUCTIONS FOR IMPORTANT INFORMATION AND CODES FOR UHC'S AND CERTIFICATION

COMPLETE ALL APPLICABLE ITEMS

[illegible]

Understanding the Generator Paperwork Requirement Table

Required Information	268.7(a)(2) Does not Meet Treatment Standards	268.7(a)(3) Meets Treatment Standards	268.7(a)(4) Not Required to Meet Treatment Standards	268.7(a)(9) Lab Pack
1. EPA hazardous waste numbers and manifest number of first shipment.	X	X	X	X
2. Statement: this waste is not prohibited from land disposal			X	
3. The waste is subject to the LDRs. The constituents of concern for EPA hazardous waste numbers F001 through F005 and F039 waste, and underlying hazardous constituents in characteristic waste, unless the waste will be treated and monitored for all constituents. If all constituents will be treated and monitored, there is no need to put them all on the LDR notice	X	X		
4. The notice must include the applicable wastewater/ nonwastewater category (see ss. NR 668.02(4) and (6)) and subdivisions made within a waste code based on waste-specific criteria (such as D003 reactive cyanide)	X	X		
5. Waste analysis data (when available)	X	X	X	
6. Date the waste is subject to the prohibition			X	
7. For hazardous debris, when treating with the alternative treatment technologies provided by s. NR 668.45: the contaminants subject to treatment, as described in s. NR 668.45(2); and an indication that these contaminants are being treated to comply with s. NR 668.45	X		X	
8. For contaminated soil subject to LDRs as provided in s. 668.49(1), the constituents subject to treatment as described in s. 668.49(4), and the following statement: This contaminated soil (does/does not) contain listed hazardous waste and (does/does not) exhibit a characteristic of hazardous waste and (is subject to/complies with) the soil treatment standards as provided by s. 668.49(3) or the universal treatment standards	X	X		
9. A certification is needed (see applicable subsection for exact wording)		X		X

Understanding the Generator Paperwork Requirement Table

5. Waste analysis data (when available)

- Section 262.11 requires a generator to make a waste determination.
- Section 262.40(d) for LQGs and s. 262.193(a)(2) for SQGs requires a generator to keep records of any test results, waste analyses or other determinations made in accordance with s. 262.11 for at least 3 years from the date that the waste was last sent to on-site or off-site treatment, storage or disposal.
- Section 268.7(a)(1) requires a generator of a hazardous waste to determine if the hazardous waste needs to meet the LDR treatment standards prior to land disposal
- Therefore the initial LDR form should always have the waste analysis data attached.

☐

See Profile for analysis (if any).

2. Is waste analysis information attached?

☐ Yes

☐ Not available

Waste analysis data attached?

☐

Yes

☐

No

Understanding the Generator Paperwork Requirement Table

Required Information	268.7(a)(2) Does not Meet Treatment Standards	268.7(a)(3) Meets Treatment Standards	268.7(a)(4) Not Required to Meet Treatment Standards	268.7(a)(9) Lab Pack
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2. Statement: this waste is not prohibited from land disposal			X	
3. The waste is subject to the LDRs. The constituents of concern for EPA hazardous waste numbers F001 through F005 and F039 waste, and underlying hazardous constituents in characteristic waste, unless the waste will be treated and monitored for all constituents. If all constituents will be treated and monitored, there is no need to put them all on the LDR notice	X	X		
4. The notice must include the applicable wastewater/ nonwastewater category (see ss. NR 668.02(4) and (6)) and subdivisions made within a waste code based on waste-specific criteria (such as D003 reactive cyanide)	X	X		
5. Waste analysis data (when available)	X	X	X	
6. Date the waste is subject to the prohibition			X	
7. For hazardous debris, when treating with the alternative treatment technologies provided by s. NR 668.45: the contaminants subject to treatment, as described in s. NR 668.45(2); and an indication that these contaminants are being treated to comply with s. NR 668.45	X		X	
8. For contaminated soil subject to LDRs as provided in s. 668.49(1), the constituents subject to treatment as described in s. 668.49(4), and the following statement: This contaminated soil (does/does not) contain listed hazardous waste and (does/does not) exhibit a characteristic of hazardous waste and (is subject to/complies with) the soil treatment standards as provided by s. 668.49(3) or the universal treatment standards	X	X		
9. A certification is needed (see applicable subsection for exact wording)		X		X

Understanding the Generator Paperwork Requirement Table

6. Date the waste is subject to the prohibition

- Relates to “**2. Statement: *this waste is not prohibited from land disposal***”
- The date the waste became subject to the standard, variance, extension, or treatment standard.

C.	Waste is newly listed or newly identified.
D.	Restricted waste is exempt from the Land Disposal Restrictions. Check the reason below and write in the date the waste is subject to prohibitions [40 CFR 268.7(a)(4)]. <div><input type="checkbox"/> The waste has been granted a Site-Specific Variance. _____ <input type="checkbox"/> The waste has been given a Case-by-Case Extension. _____ <input type="checkbox"/> The waste is subject to a National Capacity Variance. _____</div>
E.	Restricted waste has been pretreated to remove the hazardous characteristic and requires treatment of underlying hazardous constituents.

Understanding the Generator Paperwork Requirement Table

Required Information	268.7(a)(2) Does not Meet Treatment Standards	268.7(a)(3) Meets Treatment Standards	268.7(a)(4) Not Required to Meet Treatment Standards	268.7(a)(9) Lab Pack
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2. Statement: this waste is not prohibited from land disposal			X	
3. The waste is subject to the LDRs. The constituents of concern for EPA hazardous waste numbers F001 through F005 and F039 waste, and underlying hazardous constituents in characteristic waste, unless the waste will be treated and monitored for all constituents. If all constituents will be treated and monitored, there is no need to put them all on the LDR notice	X	X		
4. The notice must include the applicable wastewater/ nonwastewater category (see ss. NR 668.02(4) and (6)) and subdivisions made within a waste code based on waste-specific criteria (such as D003 reactive cyanide)	X	X		
5. Waste analysis data (when available)	X	X	X	
6. Date the waste is subject to the prohibition			X	
7. For hazardous debris, when treating with the alternative treatment technologies provided by s. NR 668.45: the contaminants subject to treatment, as described in s. NR 668.45(2); and an indication that these contaminants are being treated to comply with s. NR 668.45	X		X	
8. For contaminated soil subject to LDRs as provided in s. 668.49(1), the constituents subject to treatment as described in s. 668.49(4), and the following statement: This contaminated soil (does/does not) contain listed hazardous waste and (does/does not) exhibit a characteristic of hazardous waste and (is subject to/complies with) the soil treatment standards as provided by s. 668.49(3) or the universal treatment standards	X	X		
9. A certification is needed (see applicable subsection for exact wording)		X		X

Understanding the Generator Paperwork Requirement Table

7. For hazardous debris, when treating with the alternative treatment technologies provided by s. 268.45: the contaminants subject to treatment, as described in s. 268.45(2); and an indication that these contaminants are being treated to comply with s. 268.45

- Hazardous debris is defined as: a solid material exceeding a 60 mm particle size that is intended for disposal and that is a manufactured object; or plant or animal matter; or natural geologic material.
- Hazardous debris shall be treated for each “contaminant subject to treatment.” (i.e., exhibits the toxicity characteristic, contains listed waste, and reactive cyanide)
- Use table 1 in s. 268.45

B. THIS HAZARDOUS DEBRIS IS SUBJECT TO THE ALTERNATIVE TREATMENT STANDARDS OF 40 CFR 268.45.

F. ☐ **Hazardous Debris Subject To Treatment (40 CFR 268.45)**
This hazardous debris identified above must be treated to the alternative treatment standards in 40 CFR 268.45.

Understanding the Generator Paperwork Requirement Table

Required Information	268.7(a)(2) Does not Meet Treatment Standards	268.7(a)(3) Meets Treatment Standards	268.7(a)(4) Not Required to Meet Treatment Standards	268.7(a)(9) Lab Pack
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2. Statement: this waste is not prohibited from land disposal			X	
3. The waste is subject to the LDRs. The constituents of concern for EPA hazardous waste numbers F001 through F005 and F039 waste, and underlying hazardous constituents in characteristic waste, unless the waste will be treated and monitored for all constituents. If all constituents will be treated and monitored, there is no need to put them all on the LDR notice	X	X		
4. The notice must include the applicable wastewater/ nonwastewater category (see ss. NR 668.02(4) and (6)) and subdivisions made within a waste code based on waste-specific criteria (such as D003 reactive cyanide)	X	X		
5. Waste analysis data (when available)	X	X	X	
6. Date the waste is subject to the prohibition			X	
7. For hazardous debris, when treating with the alternative treatment technologies provided by s. NR 668.45: the contaminants subject to treatment, as described in s. NR 668.45(2); and an indication that these contaminants are being treated to comply with s. NR 668.45	X		X	
8. For contaminated soil subject to LDRs as provided in s. 668.49(1), the constituents subject to treatment as described in s. 668.49(4), and the following statement: This contaminated soil (does/does not) contain listed hazardous waste and (does/does not) exhibit a characteristic of hazardous waste and (is subject to/complies with) the soil treatment standards as provided by s. 668.49(3) or the universal treatment standards	X	X		
9. A certification is needed (see applicable subsection for exact wording)		X		X

Understanding the Generator Paperwork Requirement Table

8. For contaminated soil subject to LDRs as provided in s. 268.49(a), the constituents subject to treatment as described in s. 268.49(d), and the following statement: This contaminated soil (does/does not) contain listed hazardous waste and (does/does not) exhibit a characteristic of hazardous waste and (is subject to/complies with) the soil treatment standards as provided by s. 268.49(c) or the universal treatment standards.

- Section 268.49(a): Explains that soil contaminated with listed hazardous waste must comply with the LDR treatment standard unless the soil was contaminated before the LDR standards applied to the listed waste and a no-longer-contains determination has been obtained from the agency at the POG (excavation) of the soil.
- Section 268.49(c): Ten times the universal treatment standard (s. 268.48) or 90% reduction on initial concentration.
- Section 268.49(d): UTS that are reasonably expected to be present.

S. THIS CONTAMINATED SOIL DOES / DOES NOT CONTAIN LISTED HAZARDOUS WASTE AND DOES / DOES NOT EXHIBIT A
(CIRCLE ONE) (CIRCLE ONE)
CHARACTERISTIC OF HAZARDOUS WASTE AND IS SUBJECT TO / COMPLIES WITH THE SOIL TREATMENT STANDARDS
(CIRCLE ONE)
AS PROVIDED BY 268.49(c) OR THE UNIVERSAL TREATMENT STANDARDS. I certify under penalty of law that I have personally examined and am familiar with the treatment technology and operation of the treatment process used to support this certification and believe that it has been maintained and operated properly so as to comply with treatment standards specified in 40 CFR 268.49 without impermissible dilution of the prohibited wastes. I am aware that there are significant penalties for submitting a false certification, including the possibility of fine and imprisonment.

Understanding the Generator Paperwork Requirement Table

Required Information	268.7(a)(2) Does not Meet Treatment Standards	268.7(a)(3) Meets Treatment Standards	268.7(a)(4) Not Required to Meet Treatment Standards	268.7(a)(9) Lab Pack
1. EPA hazardous waste numbers and manifest number of first shipment.	X	X	X	X
2. Statement: this waste is not prohibited from land disposal			X	
3. The waste is subject to the LDRs. The constituents of concern for EPA hazardous waste numbers F001 through F005 and F039 waste, and underlying hazardous constituents in characteristic waste, unless the waste will be treated and monitored for all constituents. If all constituents will be treated and monitored, there is no need to put them all on the LDR notice	X	X		
4. The notice must include the applicable wastewater/ nonwastewater category (see ss. NR 668.02(4) and (6)) and subdivisions made within a waste code based on waste-specific criteria (such as D003 reactive cyanide)	X	X		
5. Waste analysis data (when available)	X	X	X	
6. Date the waste is subject to the prohibition			X	
7. For hazardous debris, when treating with the alternative treatment technologies provided by s. NR 668.45: the contaminants subject to treatment, as described in s. NR 668.45(2); and an indication that these contaminants are being treated to comply with s. NR 668.45	X		X	
8. For contaminated soil subject to LDRs as provided in s. 668.49(1), the constituents subject to treatment as described in s. 668.49(4), and the following statement: This contaminated soil (does/does not) contain listed hazardous waste and (does/does not) exhibit a characteristic of hazardous waste and (is subject to/complies with) the soil treatment standards as provided by s. 668.49(3) or the universal treatment standards	X	X		
9. A certification is needed (see applicable subsection for exact wording)		X		X

Understanding the Generator Paperwork Requirement Table

9. A certification is needed (see applicable subsection for exact wording)

- Certification needed for when waste or contaminated soil meets the treatment standards at the original POG.
- Certification needed for lab packs when using the alternative treatment standard.

<input type="checkbox"/>	Alternative Treatment Standard Lab Pack					
Manifest Line No.	<table border="1"><tr><td></td><td></td><td></td><td></td><td></td></tr></table>					
<input type="checkbox"/>	I certify under penalty of law that I personally have examined and am familiar with the waste and that the lab pack contains only wastes that have not been excluded under Appendix IV to 40 CFR Part 268 and that this lab pack will be sent to a combustion facility in compliance with the alternative treatment standards for lab packs at 40 CFR 268.42(c). I am aware that there are significant penalties for submitting a false certification, including the possibility of fine or imprisonment.					

Exercise: Reconciling LDR Documents with Waste Determinations and Waste Profiles

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Generator Paperwork Requirement Table

Required Information	268.7(a)(2) Does not Meet Treatment Standards	268.7(a)(3) Meets Treatment Standards	268.7(a)(4) Not Required to Meet Treatment Standards	268.7(a)(9) Lab Pack
1. EPA hazardous waste numbers and manifest number of first shipment.	X	X	X	X
2. Statement: this waste is not prohibited from land disposal			X	
3. The waste is subject to the LDRs. The constituents of concern for EPA hazardous waste numbers F001 through F005 and F039 waste, and underlying hazardous constituents in characteristic waste, unless the waste will be treated and monitored for all constituents. If all constituents will be treated and monitored, there is no need to put them all on the LDR notice	X	X		
4. The notice must include the applicable wastewater/ nonwastewater category (see ss. NR 668.02(4) and (6)) and subdivisions made within a waste code based on waste-specific criteria (such as D003 reactive cyanide)	X	X		
5. Waste analysis data (when available)	X	X	X	
6. Date the waste is subject to the prohibition			X	
7. For hazardous debris, when treating with the alternative treatment technologies provided by s. NR 668.45: the contaminants subject to treatment, as described in s. NR 668.45(2); and an indication that these contaminants are being treated to comply with s. NR 668.45	X		X	
8. For contaminated soil subject to LDRs as provided in s. 668.49(1), the constituents subject to treatment as described in s. 668.49(4), and the following statement: This contaminated soil (does/does not) contain listed hazardous waste and (does/does not) exhibit a characteristic of hazardous waste and (is subject to/complies with) the soil treatment standards as provided by s. 668.49(3) or the universal treatment standards	X	X		
9. A certification is needed (see applicable subsection for exact wording)		X		X

Identify all Applicable EPA Hazardous Waste Numbers

Land Disposal Restriction Notification Form

Generator: [REDACTED]

Location: [REDACTED]

EPA ID: [REDACTED]

Manifest: [REDACTED]

Waste Analysis Available? ☐ Yes ☒ No

LN	Profile #	Is Waste RCRA Regulated	RCRA waste Codes list all applicable RCRA waste codes	Sub category	Treatability Group		Regulated Constituents F001-F005	Underlying Hazardous Constituents (D001-D043)
					Waste Water	non-wastewater (>1% TOC & >1% TSS)		
001	EC1423	Yes	D001, D002, D005, D018, D035, F002, F003, F005					

Identify all Applicable EPA Hazardous Waste Numbers

F. RCRA CHARACTERIZATION:

Is this a USEPA "Hazardous Waste" per 40CFR 261.3? ☒ Yes ☐ No

Is this a "Universal Waste" per 40CFR part 273? ☐ Yes ☒ No

Please list any characteristic codes (D001 - D043): D001, D002, D004, D005, D006, D007, D008, D009, D010, D011, D012, D013, D014, D015, D016, D017, D018, D019, D020, D021, D022, D023, D024, D025, D026, D027, D028, D029, D030, D031, D032, D033, D034, D035, D036, D037, D038, D039, D040, D041, D042, D043

Does the waste contain organic UHCs above treatment standards levels? (40 CFR 268.48, 268.7) ☐ Yes ☒ No

If yes, identify those chemicals in Appendix I - Underlying Hazardous Constituents:

Please list any applicable 'F' or 'K' code: F001, F002, F003, F004, F005, F019, F034, F037, K001, K027, K048, K051, K083, K086, K104

U001, U002, U003, U004, U005, U006, U007, U008, U009, U010, U011, U012, U014, U015, U016, U017, U018, U019, U020, U021, U022, U023, U024, U025, U026, U027, U028, U029, U030, U031, U032, U033, U034, U035, U036, U037, U038, U039, U041, U042, U043, U044, U045, U046, U047, U048, U049, U050, U051, U052, U053, U055, U056, U057, U058, U059, U060, U061, U062, U063, U064, U066, U067, U068, U069, U070, U071, U072, U073, U074, U075, U076, U077, U078, U079, U080, U081, U082, U083, U084, U085, U086, U087, U088, U089, U090, U091, U092, U093, U094, U096, U098, U099, U101, U102, U103, U105, U106, U107, U108, U109, U110, U111, U112, U113, U114, U115, U116, U117, U118, U119, U120, U121, U122, U123, U124, U125, U126, U127, U128, U129, U130, U131, U132, U133, U134, U135, U136, U137, U138, U139, U140, U141, U142, U143, U144, U145, U146, U147, U148, U149, U150, U151, U152, U153, U154, U155, U156, U157, U158, U159, U160, U161, U162, U163, U164, U165, U166, U167, U168, U169, U170, U171, U172, U173, U174, U175, U176, U177, U178, U179, U180, U181, U182, U183, U184, U185, U186, U187, U188, U189, U190, U191, U192, U193, U194, U195, U196, U197, U198, U199, U200, U201, U202, U203, U204, U205, U206, U207, U208, U209, U210, U211, U212, U213, U214, U215, U216, U217, U218, U219, U220, U221, U222, U223, U224, U225, U226, U227, U228, U229, U230, U231, U232, U233, U234, U235, U236, U237, U238, U239, U240, U241, U242, U243, U244, U245, U246, U247, U248, U249, U250, U251, U252, U253, U254, U255, U256, U257, U258, U259, U260, U261, U262, U263, U264, U265, U266, U267, U268, U269, U270, U271, U272, U273, U274, U275, U276, U277, U278, U279, U280, U281, U282, U283, U284, U285, U286, U287, U288, U289, U290, U291, U292, U293, U294, U295, U296, U297, U298, U299, U300, U301, U302, U303, U304, U305, U306, U307, U308, U309, U310, U311, U312, U313, U314, U315, U316, U317, U318, U319, U320, U321, U322, U323, U324, U325, U326, U327, U328, U329, U330, U331, U332, U333, U334, U335, U336, U337, U338, U339, U340, U341, U342, U343, U344, U345, U346, U347, U348, U349, U350, U351, U352, U353, U354, U355, U356, U357, U358, U359, U360, U361, U362, U363, U364, U365, U366, U367, U368, U369, U370, U371, U372, U373, U374, U375, U376, U377, U378, U379, U380, U381, U382, U383, U384, U385, U386, U387, U388, U389, U390, U391, U392, U393, U394, U395, U396, U397, U398, U399, U400, U401, U402, U403, U404, U405, U406, U407, U408, U409, U410, U411, U412, U413, U414, U415, U416, U417, U418, U419, U420, U421, U422, U423, U424, U425, U426, U427, U428, U429, U430, U431, U432, U433, U434, U435, U436, U437, U438, U439, U440, U441, U442, U443, U444, U445, U446, U447, U448, U449, U450, U451, U452, U453, U454, U455, U456, U457, U458, U459, U460, U461, U462, U463, U464, U465, U466, U467, U468, U469, U470, U471, U472, U473, U474, U475, U476, U477, U478, U479, U480, U481, U482, U483, U484, U485, U486, U487, U488, U489, U490, U491, U492, U493, U494, U495, U496, U497, U498, U499, U500, U501, U502, U503, U504, U505, U506, U507, U508, U509, U510, U511, U512, U513, U514, U515, U516, U517, U518, U519, U520, U521, U522, U523, U524, U525, U526, U527, U528, U529, U530, U531, U532, U533, U534, U535, U536, U537, U538, U539, U540, U541, U542, U543, U544, U545, U546, U547, U548, U549, U550, U551, U552, U553, U554, U555, U556, U557, U558, U559, U560, U561, U562, U563, U564, U565, U566, U567, U568, U569, U570, U571, U572, U573, U574, U575, U576, U577, U578, U579, U580, U581, U582, U583, U584, U585, U586, U587, U588, U589, U590, U591, U592, U593, U594, U595, U596, U597, U598, U599, U600, U601, U602, U603, U604, U605, U606, U607, U608, U609, U610, U611, U612, U613, U614, U615, U616, U617, U618, U619, U620, U621, U622, U623, U624, U625, U626, U627, U628, U629, U630, U631, U632, U633, U634, U635, U636, U637, U638, U639, U640, U641, U642, U643, U644, U645, U646, U647, U648, U649, U650, U651, U652, U653, U654, U655, U656, U657, U658, U659, U660, U661, U662, U663, U664, U665, U666, U667, U668, U669, U670, U671, U672, U673, U674, U675, U676, U677, U678, U679, U680, U681, U682, U683, U684, U685, U686, U687, U688, U689, U690, U691, U692, U693, U694, U695, U696, U697, U698, U699, U700, U701, U702, U703, U704, U705, U706, U707, U708, U709, U710, U711, U712, U713, U714, U715, U716, U717, U718, U719, U720, U721, U722, U723, U724, U725, U

Identify all Applicable EPA Hazardous Waste Numbers

Failure to identify all applicable EPA hazardous waste numbers on the generator's land disposal restriction (LDR) form as required by ss. 268.7(a)(2), and 268.9. Review of the out bound uniform hazardous waste manifests and LDR records showed the following:

Line 1 of Manifest 018123174: Review of the waste profile (INHOUSE-LF) for line 1 of manifest 018123174 showed it contained all the characteristic waste codes except D003. Additionally, there were numerous F, K, and U hazardous waste codes listed on the waste profile. Review of the LDR document for line 1 of manifest 018123174 showed only D001, D002, D005, D018, D035, F002, F003, and F005 listed on the LDR document.

Identify the Subcategory

Land Disposal Restriction Notification Form

Generator: [REDACTED] [REDACTED]

Location: [REDACTED]

EPA ID: [REDACTED] Manifest: [REDACTED] [REDACTED]

Waste Analysis Available? ☐ Yes ☒ No

LN	Profile #	Is Waste RCRA Regulated	RCRA waste Codes list all applicable RCRA waste codes	Sub category	Treatability Group		Regulated Constituents F001-F005	Underlying Hazardous Constituents (D001-D043)
					Waste Water	non-wastewater (>1% TOC & >1% TSS)		
001	EC1423	Yes	D001, D002, D005, D018, D035, F002, F003, F005	[REDACTED]				

Identify the Subcategory

Failure to identify the subcategory on the generator's land disposal restriction (LDR) form as required by s. 268.7(a)(2). Review of the out bound uniform hazardous waste manifests and LDR records showed the following:

Line 1 of Manifest 018123174: Review of the LDR document for line 1 of manifest 018123174 showed that the subcategory was not identified on the LDR document.

Identify the Constituents of Concern for F001 to F005

 
Land Disposal Restriction Notification Form


Generator:  

Location: 

EPA ID: 

Manifest: 

Waste Analysis Available? ☐ Yes ☒ No

LN	Profile #	Is Waste RCRA Regulated	RCRA waste Codes list all applicable RCRA waste codes	Sub category	Treatability Group		Regulated Constituents F001-F005	Underlying Hazardous Constituents (D001-D043)
					Waste Water	non-wastewater (>1% TOC & >1% TSS)		
001	EC1423	Yes	D001, D002, D005, D018, D035, F002, F003, F005					

Identify the Constituents of Concern for F001 to F005

Failure to identify the constituents of concern for F001 to F005 listed hazardous waste on the generator's LDR form as required by s. 268.7(a)(2). Review of the out bound uniform hazardous waste manifests and LDR records showed the following:

Line 1 of Manifest 018123174: Review of the LDR document for line 1 of manifest 018123174 showed that the constituents of concern for F001 to F005 listed hazardous waste were not identified on the LDR document.

Identify the Underlying Hazardous Constituents

Page 1 of 2

Land Disposal Restriction Notification Form

Generator: [REDACTED]

Location: [REDACTED]

EPA ID: [REDACTED]

Manifest: [REDACTED]

Waste Analysis Available? ☐ Yes ☒ No

LN	Profile #	Is Waste RCRA Regulated	RCRA waste Codes list all applicable RCRA waste codes	Sub category	Treatability Group		Regulated Constituents F001-F005	Underlying Hazardous Constituents (D001-D043)
					Waste Water	non-wastewater (>1% TOC & >1% TSS)		
001	EC1423	Yes	D001, D002, D005, D018, D035, F002, F003, F005					[REDACTED]

Identify the Underlying Hazardous Constituents

Failure to identify the underlying hazardous constituents (UHCs) for characteristic hazardous waste and placing the UHCs on the generator's land disposal restriction (LDR) form as required by s. 268.9(a) and 268.7(a)(2). Given the numerous waste codes and the number of generators making up this hazardous waste profile it is very likely that the following hazardous waste profile contains UHCs that need to be identified. Review of the out bound uniform hazardous waste manifests and LDR records showed the following:

Line 1 of Manifest 018123174: Review of the LDR document for line 1 of manifest 018123174 showed that the UHCs were not identified on the LDR document. The waste profile states that there are no organic UHCs; however, the waste profile list numerous hazardous waste codes which are not reflected on the LDR document (see alleged violation 1).

Supply the Waste Analysis

Failure to supply the waste analysis with the generator's LDR form as required by s 268.07(a)(2). Review of the out bound uniform hazardous waste manifests and LDR records showed the following:

Line 1 of Manifest 018123174: Review of the LDR document for line 1 of manifest 018123174 showed that the "Waste Analysis Available?" was checked as "No"; however, the waste analysis is available as the department was provided copies of the waste profile during the inspection.

LDR Documents

Areas of Concern

Review of Manifest 018799174

Is the hazardous waste really a D002 given that line 1 on the manifest identifies the hazardous waste as: “UN1993 Waste Flammable Liquids N.O.S. (Toluene, Acetone,) 3 II RQ(D001)”?

9a. HM		9b. U.S. DOT Description (Including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (If any))		10. Containers		11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes		
				No.	Type					
GENERATOR	1.	UN1993 FLAMMABLE LIQUIDS, N.O.S. (TOLUENE, ACETONE) 3 II RQ(D001)		1	TT	4900	G	D001	D002	D005
	2.							D018	D035	F003
	3.									
	4.									
14. Special Handling Instructions and Additional Information										

Issues Noted in the Review of Waste Profile INHOUSE-LF

Section C

- Percent liquid is marked as a X and not as a number to show percent.
- How is flashpoint, BTU, total halogens, specific gravity determined – give that there are numbers attached to these items?
- Is pH applicable to a solvent?
- pH is listed as 4.1 to 10; however, the waste is identified on the waste profile and manifest as a D002.

PROFILE#		INHOUSE-LF		Status: Prior Approved	
C. GENERAL CHARACTERISTICS:					
Color:	Physical State @70F	Phases	BTU/lb	pH	
Odor:	<input checked="" type="checkbox"/> % Liquid	<input checked="" type="checkbox"/> Single Layer	<input type="checkbox"/> <3000(Ex. Water)	<input type="checkbox"/> NA	
<input checked="" type="checkbox"/> None	<input type="checkbox"/> % Solid	<input type="checkbox"/> Double Layer	<input type="checkbox"/> 3,000 - 5,000	<input type="checkbox"/> <=2(Acid)	
<input type="checkbox"/> Mild	<input type="checkbox"/> % Sludge	<input type="checkbox"/> multi*	<input type="checkbox"/> 5,000-10,000	<input type="checkbox"/> 2.1 - 4.0	
<input type="checkbox"/> Strong*	<input type="checkbox"/> % Debris		<input checked="" type="checkbox"/> >10,000(Ex. Oil)	<input checked="" type="checkbox"/> 4.1 - 10.0	
*Describe Strong Odor: _____			BTU Actual	<input type="checkbox"/> 10.1 -12.4	
*Describe Physical State Other: _____				<input type="checkbox"/> >=12.5 (Base)	
*Describe Multi Phase: _____				<input type="checkbox"/> pH Actual	
Liquid Flash Point	<input checked="" type="checkbox"/> < 73F	<input type="checkbox"/> 73 to 99F	<input type="checkbox"/> 100 to 139F	<input type="checkbox"/> 140 to 200F	<input type="checkbox"/> > 200F
	<input type="checkbox"/> None	FP Actual			
Boiling Point:	<input type="checkbox"/> 0	Specific gravity:	<input type="checkbox"/> 8.00	Total Halogens:	<input type="checkbox"/> 1 %
Viscosity:	<input type="checkbox"/> 0.00	Total Acidity:	<input type="checkbox"/> 0.00 %	Total Organic Carbon(TOC):	<input type="checkbox"/> %
		Total Oxidizer:	<input type="checkbox"/> %		

Issues Noted in the Review of Waste Profile INHOUSE-LF

Section D

- Title bar. How can maximum concentrations exceed 100%?
- Does 'BRL' stand for Below Regulatory Limit?
- Chemical composition metals listed as 0%; however, numerous metals are listed in section F.

D. CHEMICAL COMPOSITION: Total of Maximum concentration must be > or = to 100%							
Metals:	BRL	Total	TCLP		BRL	Total	TCLP
Cadmium (Cd)	—	0.00 PPM	0.00 PPM	Arsenic (Ar)	—	0.00 PPM	0.00 PPM
Chromium (Cr)	—	0.00 PPM	0.00 PPM	Mercury (Hg)	—	0.00 PPM	0.00 PPM
Chromium (Hex)	—	0.00 PPM		Silver (Ag)	—	0.00 PPM	0.00 PPM
Lead (Pb)	—	0.00 PPM	0.00 PPM	Selenium (Se)	—	0.00 PPM	0.00 PPM
Barium (Ba)	—	0.00 PPM	0.00 PPM				

Constituents:	Ozone Depleting	EPCRA 313	Chemical of Interest (DHS)	UHC's above Treatment Standards	Min	Max	Unit of measure
Lab Solvents					1	100	%
Paint Sludge					1	100	%

Please indicate if your waste has any Special Requirements:

Does the Waste Contain any of the following?

Nitrocellulose	___ Yes	<u>X</u> No	Metal Powder or Flake	___ Yes	<u>X</u> No	Sharps:	___ Yes	<u>X</u> No
Isocyanates:	___ Yes	<u>X</u> No	Asbestos(If yes,must be double bagged and wetted)				___ Yes	<u>X</u> No
Metal pieces:	___ Yes	<u>X</u> No	If yes, describe metal pieces:					
Reactive cyanide:	___ Yes	<u>X</u> No	If yes,indicate cyanide level in ppm	0.00				
Reactive sulfide:	___ Yes	<u>X</u> No	If yes,indicate sulphide level in ppm					
Hydrofluoric acid:	___ Yes	<u>X</u> No	If yes, list % of hydrofluoric acid	0.00				
Nitric acid:	___ Yes	<u>X</u> No	If yes, list % of nitric acid	0.00				
PCBs:	___ Yes	<u>X</u> No	(If waste contains PCBs, certification form is required)					
If yes, indicate PCB level	___ 0 - 49 ppm ___ 50 - 499 ppm ___ 500+ ppm							PCB Actual ppm
Does the waste contain Benzene?								___ Yes ___ No
If yes,check all NAICS codes that cover operations at your facility								

If waste contains benzene and falls under one of the above NAICS codes,Tradebe's benzene NESHAP form is required for each shipment

Issues Noted in the Review of Waste Profile INHOUSE-LF

Section F

- D001 to D043 listed (not D003). Does the waste actually exhibit these characteristics?
- Organic UHC above limit is checked no. How was this determined?
- Why is there no question asking if non-organic UHCs are above the limit?
- U-listed code cut off at end of page.
- Are there p-listed waste codes?
- F001 to F005. If halogenated (F001, F002) why does it not show up in section C.

F. RCRA CHARACTERIZATION:	
Is this a USEPA "Hazardous Waste" per 40CFR 261.3?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Is this a "Universal Waste" per 40CFR part 273?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Please list any characteristic codes (D001 - D043):	D001, D002, D004, D005, D006, D007, D008, D009, D010, D011, D012, D013, D014, D015, D016, D017, D018, D019, D020, D021, D022, D023, D024, D025, D026, D027, D028, D029, D030, D031, D032, D033, D034, D035, D036, D037, D038, D039, D040, D041, D042, D043
Does the waste contain organic UHCs above treatment standards levels? (40 CFR 268.48, 268.7)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
If yes, identify those chemicals in Appendix I - Underlying Hazardous Constituents:	
Please list any applicable 'F' or 'K' code:	F001, F002, F003, F004, F005, F019, F034, F037, K001, K027, K048, K051, K083, K086, K104
U001, U002, U003, U004, U005, U006, U007, U008, U009, U010, U011, U012, U014, U015, U016, U017, U018, U019, U020, U021, U022, U023, U024, U025, U026, U027, U028, U029, U030, U031, U032, U033, U034, U035, U036, U037, U038, U039, U041, U042, U043, U044, U045, U046, U047, U048, U049, U050, U051, U052, U053, U055, U056, U057, U058, U059, U060, U061, U062, U063, U064, U066, U067, U068, U069, U070, U071, U072, U073, U074, U075, U076, U077, U078, U079, U080, U081, U082, U083, U084, U085, U086, U087, U088, U089, U090, U091, U092, U093, U094, U095, U096, U097, U098, U099, U101, U102, U103, U105, U106, U107, U108, U109, U110, U111, U112, U113, U114, U115, U116, U117, U118, U119, U120, U121, U122, U123, U124, U125, U126, U127, U128, U129, U130, U131, U132, U133, U134, U135, U136, U137, U138, U139, U140, U141, U142, U143, U144, U145, U146, U147, U148, U149, U150, U151, U152, U153, U154, U155, U156, U157, U158, U159, U160, U161, U162, U163, U164, U165, U166, U167, U168, U169, U170, U171, U172, 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Issues Noted in the Review of Waste Profile INHOUSE-LF

Section I

- What RCRA regulatory training does the person signing the generator certification have?
- Does the original contain the hand-written signature?
- This is not a RCRA certification statement.

I. GENERATOR CERTIFICATION:	
I agree by affixing my authorized signature that I hereby certify that the above and attached description is complete and accurate and that no omissions of characteristics, composition or properties exist and that all known or suspected hazards have been disclosed and that all shipments referencing the profile number assigned to the material stream described herein shall in all respects be consistent with the description. I further certify that each sample provided to [REDACTED] is representative of the material described above and give [REDACTED] permission and consent to make amendments and corrections and that I am an authorized agent of the Customer.	
Name (print): [REDACTED]	Title: LEAD APPROVALS CHEMIST
Signature: [REDACTED]	Date: 11/19/2013
INTERNAL USE ONLY: Please indicate which [REDACTED] Facility(s) are being utilized for this profile	
[REDACTED]	
[REDACTED]	
[REDACTED]	

Exercise: Regulatory issues associated with the solidification of a D001 high TOC hazardous waste.

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Solidification of a D001 High TOC Hazardous Waste

The Umbrella Corporation of Raccoon City is a leading pharmaceutical manufacturer. One of the waste streams produced by the Umbrella Corporation is a D001 high TOC waste* stream that contains a viral agent. To deactivate the viral agent the Umbrella Corporation adds a solidification agent to the D001 high TOC waste which results in the waste passing the paint filter test.

The Umbrella Corporation disposes of the solidified waste into their regular trash since the solidification of the D001 results in the D001 no longer exhibiting the ignitability characteristic.

* A D001 high TOC waste is greater than or equal to 10% total organic carbon. This subcategory consists of nonwastewaters only.

Solidification of a D001 High TOC Hazardous Waste

1. Do any exclusions apply?
2. Do the LDR treatment standards apply?
3. Can we get a variance from the LDR treatment standard?
4. Do the UHCs need to be determine?
5. Is a RCRA permit needed for treatment?
6. Is treatment occurring on-site to meet the LDR treatment standards?
7. What LDR treatment standard is being selected?
8. Is an LDR notification and/or certification form needed?
9. Other RCRA regulatory issues?

Exercise: Regulatory issues associated with the polymerization of a D001 high TOC hazardous waste

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Polymerization of a D001 High TOC Hazardous Waste



The Cyberdyne Systems of Los Angeles is a defense contractor. Cyberdyne Systems manufactures a poly composite material that is bullet proof against ammunition that is less than 50 caliber. The manufacturing of this poly composite material generates a D001 high TOC waste stream.

Cyberdyne Systems places 55-gallon drums of the D001 waste into a hot box that accelerates the polymerization* of the D001 waste. Once the waste has been polymerized it is disposed into their regular trash since the polymerization of the D001 waste results in the D001 waste no longer exhibiting the ignitability characteristic.

*Polymerization is Formation of complex high-molecular weight solids through polymerization of monomers in high-TOC D001 non-wastewaters which are chemical components in the manufacture of plastics. Polymerization reduces the mobility of hazardous constituents in a hazardous waste and eliminates free liquids. Polymerization is waste stabilization.

Polymerization of a D001 High TOC Hazardous Waste

1. Do any exclusions apply?
2. Do the LDR treatment standards apply?
3. Can we get a variance from the LDR treatment standard?
4. Do the UHCs need to be determine?
5. Is a RCRA permit needed for treatment?
6. Is treatment occurring on-site to meet the LDR treatment standards?
7. What LDR treatment standard is being selected?
8. Is an LDR notification and/or certification form needed?
9. Other RCRA regulatory issues?

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- The generator must comply with the subpart I of part 265 when treating waste in containers. This requires that the container must be kept closed during treatment. Placing a pressure relief device or a safety device on the container would meet the definition of a closed container under s. 262.17(a)(1)(iv)(A), because a container holding hazardous waste must always be closed during storage, except when it is necessary to add or remove waste (i.e. the venting of the organics is removing waste from a container); however, the pressure relief device or a safety device will not meet the CC container requirements if the container is heated.
- Under s. 261.3(g)(3). If at the point of generation or prior to polymerization the resin contains a listed hazardous waste solely due to ignitability, reactivity, or corrosivity and the resin is also a characteristic hazardous waste, the polymerized resin – even though it no longer exhibit any characteristic of a hazardous waste – would still carry the listed hazardous waste code(s) for the purpose of meeting the LDR standard.
- Under s. 265.1080(b)(2). A container smaller than 26.4 gallons (0.1 m³) in which waste stabilization is occurring is not subject to subpart CC standards of part 265. Because of this exemption, the generator could place the resin in a container smaller than 26.4-gallon – even if the container is equipped with a pressure relief or safety device – and not be subject to CC issues.

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- Under s. 265.1087(b)(2), a container greater than or equal to 26.4-gallon in which waste stabilization is occurring and the container is vented is subject to level 3 container standards. Section 265.1087(e) **requires a level 3 container needs to be vented to a control device when the container is open/vented.** The level 3 standards apply regardless if elevated temperatures are used to cure the resin. Facilities not willing to invest in a control device will therefore need to conduct their waste stabilization in a container smaller than 26.4-gallons.
- The facility is unable to use s. 265.1087(c)(3)(iv) to comply with the closed container requirements under subpart CC standards of part 265, because placing a container in a hotbox with a pressure relief device would not constitute a normal operation. Section 265.1087(c)(3)(iv) provides an example of normal operating conditions that may require these devices to open are during those times when the internal pressure of the container exceeds the internal pressure operating range for the container as a result of loading operations or diurnal ambient temperature fluctuations.
- The facility is unable to use s. 265.1087(c)(3)(v) to comply with the closed container requirements under subpart CC standards of part 265, because a safety device under s. 265.1081 is designed to remain closed under normal operating conditions.

Exercise: Hazardous Waste Generated from a Gasoline Spill



Hazardous Waste Generated from a Gasoline Spill



The Weyland-Yutani Corporation (i.e., The Company) is a manufacturer of advance aircrafts. Earlier aircraft manufacturing were piston driven engines, which required testing of the engines with gasoline containing tetraethyllead. Weyland-Yutani Corporation is expanding is building and needs to remediate an area where there were historic gasoline spills.

- Excavated soil from historic surface spills of aviation gasoline at an airport exhibit the D008 and D018 characteristic.
- Review of the SDS for gasoline showed the following constituents that also appear in the UTS table s. 268.48.

Hazardous Waste Generated from a Gasoline Spill

1. Is contaminated environmental media being generated under RCRA?
2. Is the spill a listed or characteristic hazardous waste?
3. Was representative sampling done for a characteristic waste determination?
4. Do any exclusions apply – like the petroleum exclusion?
5. How is the soil to be disposed of after treatment?
6. Can we get a variance from the LDR treatment standard?
7. Do the LDR treatment standards apply since land disposal is occurring?
8. Do the UHCs need to be determine?
9. Is treatment occurring on-site to meet the LDR treatment standards?
10. Is a RCRA permit needed?
11. What LDR treatment standard is being selected?
12. Is an LDR notification and/or certification form needed?

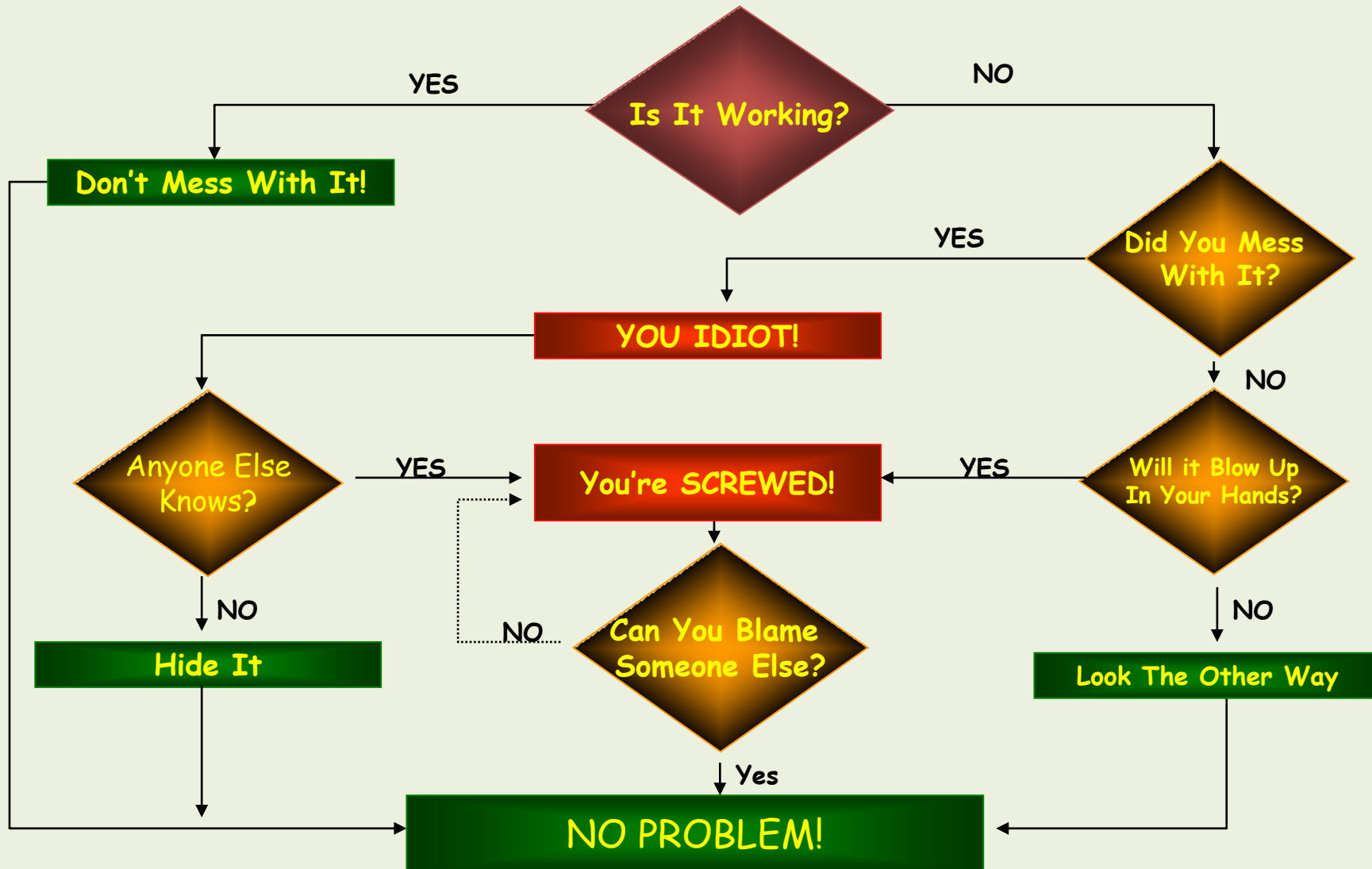
Hazardous Waste Generated from a Gasoline Spill

14. The table below shows a potential issue with benzene as its minimum treatment standard could cause it to fail TCLP.
15. The table below also shows an issue with lead as its minimum treatment standard fails TCLP.

Since the goal is use the soils to build a screening berm, the minimum LDR treatment standard for lead cannot be used as it would still cause the soils to be a D008 hazardous waste. Additionally, a TCLP testing needs to be conducted for benzene in order to determine if 200 mg/kg will fail TCLP (RO 14409).

Constituent	Waste Codes	TCLP Value	Initial Concentration	UTS Concentration s.268.48	10 X UTS	90% Removal	Minimum Treatment Standard
Benzene (71-43-2)	D018	.5 mg/l	2,000 mg/kg	10 mg/kg	100 mg/kg	200 mg/kg	200 mg/kg
Ethylbenzene (100-41-4)			1,500 mg/kg	10 mg/kg	100 mg/kg	150 mg/kg	150 mg/kg
Toluene (108-88-3)			30,000 mg/kg	10 mg/kg	100 mg/kg	3,000 mg/kg	3,000 mg/kg
Xylene, mixed isomers (1330-20-7)			600 mg/kg	30 mg/kg	300 mg/kg	60 mg/kg	300 mg/kg
Lead (439-92-1)	D008	5.0 mg/l	40.0 mg/l	.75 mg/l	7.5 mg/l	4 mg/l	7.5 mg/l

Flowchart For Problem Resolution



**We do not inherit the earth from our parents;
we borrow it from our children.**



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