



Treatability Study Sample Exemption - Update

Background:

In 1981, the Environmental Protection Agency (EPA) issued an interim final rule that conditionally exempted "waste samples collected solely for the purpose of monitoring or testing to determine their characteristics or composition" from Subtitle C regulations under the Resource Conservation and Recovery Act (RCRA) (Reference 1). In 1988, EPA promulgated a final rule that expanded the scope of the exemption to include waste samples used in small-scale treatability studies (Reference 2). The Office of Environmental Policy and Assistance (OEPA), RCRA/CERCLA Division (EH-413) [formerly the Office of Environmental Guidance, RCRA/CERCLA Division (EH-231)] prepared an Information Brief describing the small-scale treatability study sample exemption in 1991 (Reference 3).

In 1994, EPA amended the treatability study sample exemption to increase the quantity of contaminated media covered by the exemption (Reference 4). OEPA prepared a Regulatory Bulletin describing the amended rule (Reference 5). The purpose of this Information Brief is to update the information in the 1991 Small-Scale Treatability Study Information Brief, and to address questions about the waste and treatability study sample exemptions that have arisen since References 3 and 5 were published.

Statute:

Resource Conservation and Recovery Act (RCRA), as amended.

Regulations:

40 CFR 260.10
40 CFR 261.4(d), (e), and (f)

References:

1. "Hazardous Waste Management System: Identification and Listing of Hazardous Waste" (46 FR 47426 et seq.; September 25, 1981).
2. "Identification and Listing of Hazardous Waste Treatability Studies Sample Exemption" (53 FR 27290 et seq.; July 19, 1988).
3. "The Small-Scale Treatability Study Sample Exemption," U.S. DOE Office of Environmental Guidance, RCRA/CERCLA Division, EH-231 RCRA Information Brief, EH-231-002/0191, January 1991.
4. "Hazardous Waste Management System: Identification and Listing of Hazardous Waste; Treatability Studies Sample Exclusion" (59 FR 8362 et seq.; February 18, 1994).
5. "Hazardous Waste Treatability Studies Sample Exclusion," U.S. DOE Office of Environmental Guidance, RCRA/CERCLA Division, EH-231 Environmental Guidance Regulatory Bulletin, October 20, 1994.
6. "Commercial Treatability Study Capabilities for Application to the U.S. Department of Energy's Anticipated Mixed Waste Streams," U.S. DOE Idaho Operations Office, Document Number INEL-96/0249, Revision 1, September 1996.

What is the hazardous waste treatability study sample exemption?

The hazardous waste treatability study sample exemption provides generators, sample collectors, and laboratories/testing facilities with relief from various RCRA Subtitle C requirements in the course of collecting, accumulating, transporting, and testing hazardous waste samples as long as the conditions associated with the exemption are met (see 40 CFR 261.4(e) and (f) and the discussion below). The purpose of the exemption is to encourage the development of improved hazardous waste treatment technologies.

What are the conditions of the treatability study sample exemption?

Generators and sample collectors are exempt from the requirements of 40 CFR 261 (Identification and Listing of Hazardous Waste), 262 (Standards Applicable to Generators of Hazardous Waste), and the notification requirements of Section 3010 of RCRA as long as:

- the sample is being collected, accumulated or transported to a qualifying laboratory or testing facility for the purpose

of performing a treatability study (see 40 CFR 261.4(e)(1) and 261.4(e)(2)(iv));

- applicable quantity limitations for each waste stream and sample shipment are adhered to (see 40 CFR 261.4(e)(2)(I) and (ii));
- the sample is packaged so that it will not leak, spill, or vaporize and applicable shipping requirements are followed (see 40 CFR 261.4(e)(2)(iii)); and
- reporting and recordkeeping requirements are met (see 40 CFR 261.4(e)(5)).

Refer to references 3 and 5 for additional information on these requirements.

Laboratories and testing facilities (including mobile treatment units) are exempt from 40 CFR 124 (Procedures for Decisionmaking), 261 (Identification and Listing of Hazardous Waste), 262-266 (Standards Applicable to Generators, Transporters, and Owners/Operators of Hazardous Waste Management Facilities), 268 (Land Disposal Restrictions), 270 (The Hazardous Waste Permit Program), and the notification requirements of Section 3010 of RCRA as long as:

- the facility notifies the regulator in writing that it intends to conduct treatability studies at least 45 days before these studies begin (see 40 CFR 261.4(f)(1));
- the facility has an EPA identification number (see 40 CFR 261.4(f)(2));
- applicable quantity limitations for "as received" hazardous waste are adhered to (see 40 CFR 261.4(f)(3) and (4));
- time limits for conducting studies and returning samples to the generator/sample collector are met (see 40 261.4(f)(5));
- the treatability study does not involve the placement of hazardous waste on the land or the open burning of hazardous waste (see 40 CFR 261.4(f)(6));
- reporting and recordkeeping requirements are met (see 40 CFR 261.4(f)(7), (8), and (9));
- the facility characterizes unused sample or residues from the treatability study in accordance with 40 CFR 261.3 requirements, unless unused sample and residues are returned to the sample collector under 40 CFR 261.4(e)(see 40 CFR 261.4(f)(10)); and
- the facility notifies the regulator when it is no longer planning to conduct any treatability studies at the site (see 40 CFR 261.4(f)(11)).

Refer to references 3 and 5 for additional information on these requirements.

Why did EPA amend the treatability study sample exemption in 1994?

The treatability sample exemption was amended to increase the quantity limits for major classes of contaminated media (specifically soil and debris) which could be used in treatability studies without triggering RCRA Subtitle C requirements. EPA recognized that larger quantities of contaminated media were typically needed for treatability testing of contaminated media and that larger-scale testing could increase the confidence with which remedial action decision-makers make remedy selection decisions.

How do the 1994 quantity limits compare to the 1988 limits?

Tables 1 and 2 compare the quantity limits applicable in the 1988 treatability study sample exemption and in the 1994 amended exemption. Table 1 compares these limits for generators and sample collectors while Table 2 compares the same information for laboratories and testing facilities. As shown in these tables, quantity limits for process waste (i.e., acute and non-acute hazardous waste) were not changed.

Table 1.		
Quantity Limitations for Generators and Sample Collectors in the Treatability Study Sample Exemption (40 CFR 261.4(e)) ¹		
Type of Sample	1988 Quantity Limits ^{3,4}	1994 Quantity Limits ^{3,4}
Acute Hazardous Waste ²	1 kg (1 kg)	1 kg (1 kg)
Non-Acute Hazardous Waste	1,000 kg (500 kg)	1,000 kg (500 kg)
Media Contaminated with Acute Hazardous Waste	250 kg (250 kg)	2,500 kg (2,500 kg)
Media Contaminated with Non-Acute Hazardous Waste	1000 kg (500 kg)	10,000 kg (5,000 kg)

¹ The quantity limits apply to each waste stream.

² Acute hazardous waste is discussed in Reference 5.

³ The amounts in parentheses are additional amounts that may be approved by the regulator through a variance procedure (see 40 CFR 261.4(e)(3)). For information on the variance procedure, see Reference 5.

⁴ One kilogram equals 2.2 pounds.

Besides the quantity limitations applicable to each waste stream from a process, generators and sample collectors must comply with weight limits for each sample shipment.

- In the 1988 treatability study sample exemption, the mass of each sample shipment may not exceed 1,000 kg of non-acute hazardous waste. The 1,000 kg quantity may be comprised entirely of media contaminated with non-acute hazardous waste, or it may include up to 500 kg of media contaminated with acute hazardous waste, or up to 1 kg of acute hazardous process waste.
- In the 1994 treatability study sample exemption the mass of each sample shipment may not exceed 10,000 kg. The 10,000 kg quantity may be comprised entirely of media contaminated with non-acute hazardous waste, or may it include up to 2,500 kg of media contaminated with acute hazardous waste, 1000 kg of non-acute hazardous process waste, and 1 kg of acute hazardous process waste.

Table 2. Quantity Limitations for Laboratories/Testing Facilities in the Treatability Study Sample Exemption (40 CFR 261.4(f)) ¹		
Type of Limitation	1988 Quantity Limits	1994 Quantity Limits
Treatment Initiation Rate for "As Received" Hazardous Waste	Up to 250 kg/day for all types of waste	Up to 10,000 kg/day of media contaminated with non-acute hazardous waste; 2,500 kg/day of media contaminated with acute hazardous waste; or 250 kg/day of other hazardous waste
Storage Limit ²	Up to 1000 kg, the total of which can include up to 500 kg of soils, water, or debris contaminated with acute hazardous waste, or 1 kg of acute hazardous waste	Up to 10,000 kg (5,000 kg), the total of which can include up to 10,000 kg (5,000 kg) of media contaminated with non-acute hazardous waste; 2,500 kg (2,500 kg) of media contaminated with acute hazardous waste; 1,000 kg (500 kg) of non-acute hazardous waste other than contaminated media; and 1 kg (1 kg) of acute hazardous waste

¹ One kilogram equals 2.2 pounds.

² The amounts in parentheses are additional amounts that may be approved by the regulator through a variance procedure (see 40 CFR 261.4 (e)(3) and (f)(4)). For information on the variance procedure, see Reference 5.

Can all DOE facilities take advantage of the larger waste quantities in the 1994 treatability study sample exemption?

No. Because the 1994 treatability study sample exemption is less stringent than the 1988 exemption, the 1994 exemption is not applicable in a State authorized to implement the base RCRA program until the State revises its program to adopt the 1994 exemption (or its equivalent) under State law. Authorized States are not required to adopt less-stringent regulations. Table 3 shows the status of the 1994 treatability study sample exemption in States where major DOE facilities are located.

If a generator ships treatability study samples to a laboratory/testing facility in another State, the quantity limitations in the State with the more stringent requirements apply to the samples. For example, the treatability study sample exemption cannot be applied to a shipment of more than 1,000 kg of hazardous waste from a DOE facility in Idaho if the laboratory/testing facility where the waste is being sent for the treatability study is in the Commonwealth of Kentucky.

Table 3. Status of the 1994 Treatability Study Sample Exemption in States Where Major DOE Facilities are Located (as of August 1996)	
State	Status of 1994 Treatability Study Sample Exemption
Idaho	Adopted
Kentucky	Not Adopted ¹
Nevada	Adopted
New Mexico	Adopted
Ohio	Not Adopted ²
South Carolina	Adopted
Tennessee	Adopted
Texas	Not Adopted ²
Washington	Adopted

¹ State does not intend to adopt the 1994 exemption.

² State intends to adopt the 1994 exemption.

What is the fate of post-study residues?

Qualifying laboratories (i.e., laboratories meeting the

requirements of 40 CFR 261.4(f)(1)-(11)) may return treated and untreated samples to the generator or sample collector under the treatability sample exemption (40 CFR 261.4 (e)) as long as the transportation and recordkeeping requirements associated with the exemption are fulfilled (see 40 CFR 261.4(f)(10)). Hazardous post-study residues generated by non-qualifying laboratories or other types of facilities must be managed as hazardous waste. Such post-study wastes and residues must meet the appropriate land disposal restrictions (LDR) regulations (see 40 CFR 268).

May samples be archived for future studies?

Yes. Under the treatability testing sample exemption, laboratories/testing facilities may archive up to 500 kg of treated material from a particular waste stream for future evaluation up to five years from the date of initial receipt. To retain the exemption, treated material must be returned to the generator within 90 days after the treatability study was completed, or within one year (two years for bioremediation studies) after the generator or sample collector shipped the sample to the laboratory/testing facility, whichever is sooner (see 40 CFR 261.4(f)(5)).

In contrast, the conditions under which samples may be archived for future studies under the waste sample exemption (40 CFR 261.4(d)) are more liberal. The waste sample exemption is used for waste characterization purposes (see References 1 and 2). Under the waste sample exemption, there are no specific regulations specifying how much sample may be archived for future evaluation or how long these samples may be stored. Samples meeting the conditions of the waste sample exemption (see 40 CFR 261.4(d)) are not subject to the requirements of 40 CFR 261-268, 270, or 124 or to the notification requirements of Section 3010 of RCRA. These samples may be archived either before or after they are characterized.

In the preamble to the interim final rule promulgating the waste sample exemption, EPA recognized that samples might sometimes have to be held for several years to perform additional analyses. Such analyses may be necessary to confirm the original analytical results or to test for additional constituents or properties. The preamble also mentions that samples may be stored by the laboratory for a specific purpose, such as when waiting until the conclusion of a court case or enforcement action (46 FR 47427; September 23, 1981). DOE laboratories performing characterization studies on radioactive mixed waste may use this exemption to archive unused samples to perform future analytical work and avoid the radiation exposure and high costs associated with acquiring certain new mixed waste samples.

DOE laboratories archiving waste samples for long

periods of time should ensure that:

- the quantity of samples in storage at any one time is small compared to the quantities of hazardous wastes in other storage facilities, and
- there is a special reason or purpose to continue to store the waste samples (see 46 FR 47428; September 23, 1981).

Can RCRA-hazardous waste from a CERCLA remediation site qualify for the waste and treatability study sample exemptions?

Yes. Hazardous wastes from CERCLA sites may qualify for the waste and treatability study sample exemptions as long as the applicable conditions related to the exemptions are met (see 40 CFR 261.4(d), (e), and (f)). Hazardous wastes removed from a CERCLA site and used to perform waste characterization studies or treatability studies, however, may not be returned to the site at the conclusion of the study unless specific permission is granted by the CERCLA Remedial Project Manager (Environmental Restoration Program Manager) in coordination with the lead oversight agency [40 CFR 300.440(a)(5)].

Why is the treatability study sample exemption important to DOE?

The treatability study sample exemption is important to DOE because of the large number of low-volume mixed waste streams managed by the Department for which treatment technologies must be evaluated and demonstrated. DOE estimates that the Department has 2,206 mixed waste streams. Almost half of these waste streams (1,033) are estimated to be less than one cubic meter in volume. To facilitate the widest possible use of treatability studies, DOE's Mixed Waste Focus Area (MWFA) recently published a survey of treatability study commercial providers (Reference 6).

Questions of policy or questions requiring policy decisions will not be addressed in EH-413 Information Briefs unless that policy has already been established through appropriate documentation. Please refer any questions concerning the material covered in this Information Brief to Katherine Nakata, EH-413, (202) 586-0801.

