

CHECKLIST FOR REVIEW OF FEDERAL RCRA PERMIT APPLICATIONS**SECTION D. PROCESS INFORMATION - LAND TREATMENT**

Section and Requirement	Federal Regulation	Review Consideration^a	Location in Application^b	See Attached Comment Number^c
D-7 Land Treatment	270.20; 264.270 - 264.283			
D-7a Treatment Demonstration	270.20(a); 264.272			
D-7a(1) Demonstration Wastes	270.20(a)(1); 264.272(a),(c)(1)(i)	Describe waste used in demonstration and waste to be treated during normal operation. Identify concentrations of all hazardous constituents reasonably expected to be present in both wastes.		
D-7a(2) Demonstration Data Sources	270.20(a)(2); 264.272(b)	Describe source of data used for treatment demonstration and provide available determinations.		
D-7a(2)(a) Existing Literature	270.20(a)(2); 264.272(b)	If existing literature is used to demonstrate treatment, submit brief written review of scientific literature and previous studies that contain pertinent information. Information sources should be properly referenced. In general, existing literature will not be acceptable as demonstration unless it can be shown that site and waste characteristics are identical to those in literature.		
D-7a(2)(b) Operating Data	270.20(a)(2); 264.272(b)	Provide any operating data gathered from units to be permitted, including application rate data and operating records.		
D-7a(3) Laboratory/Field Testing Programs	270.20(a)(3); 264.272(b),(c)	Field and laboratory tests to be used for demonstration must be thoroughly described. Include interpretive		

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		discussions as appropriate.		
D-7a(3)(a) Toxicity Testing	270.20(a)(2); 264.272(b)	Describe acute toxicity test procedures used to estimate impact of waste application or waste constituents on soil biota responsible for waste treatment.		
D-7a(3)(b) Field Plot Testing	270.20(a)(2),(3); 264.272(b),(c)	Describe field plot studies used to demonstrate treatability of waste(s) or waste constituents.		
D-7a(3)(c) Laboratory Testing	270.20(b)(2),(3); 264.272(b),(c)	Describe laboratory test methods used to demonstrate treatability of waste(s) or waste constituents.		
D-7b Land Treatment Program	270.20(b); 264.271	Describe characteristics and operating conditions of land treatment unit(s) to be permitted.		
D-7b(1) List of Wastes	270.20(b)(1); 264.271(b)			
D-7b(2) Operating Procedures	270.20(b)(2); 264.273(a)	Describe operating procedures used to assure uniform and complete degradation, transformation, and immobilization.		
D-7b(2)(a) Waste Application Rates	270.20(b)(2)(i); 264.273(a)(1)	Identify rate and frequency of waste application and concentration of limiting constituents in waste.		
D-7b(2)(b) Waste Application Methods	270.20(b)(2)(i); 264.273(a)(1)	Describe method(s) used to apply and incorporate waste into treatment zone.		
D-7b(2)(c) Control of Soil pH	270.20(b)(2)(ii); 264.273(a)(2)	Identify acceptable limits of soil pH and describe rationale for those limits.		

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		Describe how soil pH will be measured and adjusted, including a schedule for the same.		
D-7b(2)(d) Enhancement of Microbial or Chemical Reactions	270.20(b)(2)(iii); 264.273(a)(3)	Describe measures used to enhance treatment, including method and frequency of such measures (e.g., fertilization, microbial inoculations, soil aeration).		
D-7b(2)(e) Control of Soil Moisture	270.20(b)(2)(iv); 264.273(a)(4)	Identify limits on soil moisture content. Describe how soil moisture will be monitored and adjusted, if necessary.		
D-7c Unsaturated Zone Monitoring Plan	270.20(b)(3); 264.278	Submit unsaturated zone monitoring plan describing measures used to determine if hazardous wastes have migrated from treatment zone.		
D-7c(1) Soil-Pore Liquid Monitoring	270.20(b)(3); 264.278	Describe program for sampling and analysis of soil-pore liquid to detect migration of dissolved constituents below treatment zone.		
D-7c(1)(a) Sampling Location	270.20(b)(3)(ii); 264.278(b), (d)	Identify sampling locations and indicate that samples will be collected immediately below treatment zone.		
D-7c(1)(b) Sampling Frequency	270.20(b)(3)(i); 264.278(e)	Provide schedule for sampling soil-pore liquid.		
D-7c(1)(c) Sampling Equipment	270.20(b)(3)(i); 264.278(e)	Identify equipment used to obtain soil-pore liquid samples.		
D-7c(1)(d) Sampling Equipment Installation	270.20(b)(3)(i);	Describe procedures used to install soil-		

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	264.278(e)	pore liquid monitoring devices.		
D-7c(1)(e) Sampling Procedures	270.20(b)(3)(i); 264.278(e)(1),(2)			
D-7c(1)(f) Analytical Procedures	270.20(b)(3)(iii); 264.278(e)(3)	Identify analytical procedures used to determine concentration of hazardous constituents in soil-pore liquid samples.		
D-7c(1)(g) Chain of Custody	270.20(b)(3)(iv); 264.278(e)(4)			
D-7c(1)(h) Background Values	270.20(b)(3)(v); 264.278(c)	Describe sampling and analytical program used to establish background soil-pore liquid concentrations of hazardous constituents. Provide background data, if available.		
D-7c(1)(i) Statistical Methods	270.20(b)(3)(vi); 264.278(f)	Describe statistical methods that will be used to determine differences between background and treatment zone concentrations of hazardous constituents.		
D-7c(1)(j) Justification of Principle Hazardous Constituents	270.20(b)(3)(vii); 264.278(a)(2)	Provide suggested list of 261 Appendix VIII hazardous constituents to be monitored for in soil-pore liquids.		
D-7c(2) Soil Core Monitoring	270.20(b)(3); 264.278	Describe program for monitoring soil cores to detect migration of hazardous constituents below treatment zone.		
D-7c(2)(a) Sampling Location	270.20(b)(3)(ii); 264.278(b),(d)	Identify sampling locations and indicate that soil cores will be collected immediately below treatment zone.		

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D-7c(2)(b) Sampling Frequency	270.20(b)(3)(i); 264.278(e)	Provide schedule for sampling soil.		
D-7c(2)(c) Sampling Equipment	270.20(b)(3)(i); 264.278(e)	Identify equipment used to sample soil cores.		
D-7c(2)(d) Sampling Procedures	270.20(b)(3)(i); 264.278(e)(1),(2)			
D-7c(2)(e) Analytical Procedures	270.20(b)(3)(iii); 264.278(e)(3)	Identify analytical methods used to determine concentration of hazardous constituents in soil core samples.		
D-7c(2)(f) Chain of Custody	270.20(b)(3)(iv); 264.278(e)(4)			
D-7c(2)(g) Background Values	270.20(b)(3)(v); 264.278(c)	Describe sampling and analytical program used to establish background soil core concentrations of hazardous constituents. Provide background data, if available.		
D-7c(2)(h) Statistical Methods	270.20(b)(3)(vi); 264.278(f)	Describe statistical methods that will be used to determine differences between background and treatment zone concentrations of hazardous constituents.		
D-7c(2)(i) Justification of Principal Hazardous Constituents	270.20(b)(3)(vii); 264.278(a)(2)	Provide suggested list of 261 Appendix VIII hazardous constituents to be monitored for in soil core samples.		
D-7d Treatment Zone Description	270.20(b)(5); 264.271(c)	Identify dimensions of treatment zone.		
D-7d(1) Horizontal and Vertical	270.20(b)(5);			

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Dimensions		264.271(c)			
D-7d(2)	Soil Survey	270.20(b)(2); 264.272(c)(1)(iv)	Provide map or plat plan delineating horizontal boundaries of treatment zone and all soil series occurring within treatment zone.		
D-7d(3)	Soil Series Descriptions	270.20(b)(2); 264.272(c)(1)(iv)	Submit description of each soil series identified within treatment zone.		
D-7d(4)	Soil Sampling Data	270.20(b)(2); 264.272(1)(iv)			
D-7d(5)	Seasonal High Water Table	270.20(b); 264.271(c)(2)	Identify depth to seasonal high water table and source of that data.		
D-7e	Unit Design, Construction, Operation, and Maintenance	270.20(c); 264.273	Describe design, construction, operation, and maintenance of runon, runoff, and wind dispersal controls.		
D-7e(1)	Runon Control	270.20(c)(1); 264.273(c)	Submit scale drawing of unit showing any runon controls used.		
D-7e(2)	Runoff Control	270.20(c)(1); 264.273(c)	Describe runoff collection and control system.		
D-7e(3)	Minimizing Hazardous Constituent Runoff	270.20(c)(3); 264.273(b)			
D-7e(4)	Management of Accumulated Runon and Runoff	270.20(c)(4); 264.273(e)	Describe fate of collected surface water, including sampling and analysis protocols for determining contaminant levels.		
D-7e(5)	Control of Wind Dispersal	270.20(c)(6); 264.273(f)			
D-7f	Food-Chain Crops	270.20(d); 264.276	Demonstrate that there is no substantial		

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		risk to human health or environment caused by growth of food-chain crops on unit.		
D-7f(1) Food-Chain Crop Demonstration	270.20(d); 264.276(a)(1)			
D-7f(1)(a) Demonstration Basis	270.20(d)(1),(2); 264.276(a)(3)(i)	Show that demonstration results will be representative of unit to be permitted.		
D-7f(1)(b) Test Procedures	270.20(d)(3); 264.276(a)(3)(ii)	Describe procedures used in any tests referenced or conducted.		
D-7f(2) Cadmium-Bearing Wastes	270.20(e); 264.276(b)			
D-7f(2)(a) Crops for Human Consumption	270.20(e); 264.276(b)(1)	If crops are to be grown for human consumption, provide: soil pH; soil pH controls; cadmium-loading rate; and soil cation exchange capacity.		
D-7f(2)(b) Animal Feed	270.20(e); 264.276(b)(2)	If only animal feed is to be grown, provide soil pH and soil pH controls. Provide copy of operating plan demonstrating how animal feed will be distributed to preclude ingestion by humans, including control of alternative land use.		
D-7g Special Waste Management Plan for Land Treatment Units Containing Wastes F020, F021, F022, F023, F026, and F027	270.20(i); 264.283	Provide plan describing how land treatment units containing referenced waste are, or will be, designed, constructed, operated, and maintained to protect human health and environment.		

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D-7g(1)	Waste Description	270.20(i)(1); 264.283(a)(1)			
D-7g(2)	Soil Description	270.20(i)(2); 264.283(a)(2)			
D-7g(3)	Mobilizing Properties	270.20(i)(3); 264.283(a)(3)			
D-7g(4)	Additional Management Techniques	270.20(i)(4); 264.283(a)(4)			
D-7h	Incompatible Wastes	270.20(h); 264.282	Indicate that incompatible waste will not be placed in, or on, the same treatment zone.		

Notes:

^a Considerations in addition to the requirements presented in the regulations.

^b For each requirement, this column must indicate one of the following: NA for not applicable, IM for information missing, or the exact location of the information in the application.

^c If application is deficient in an area, prepare a comment describing the deficiency, attach it to the checklist, and reference the comment in this column.