CHECKLIST FOR REVIEW OF FEDERAL RCRA PERMIT APPLICATIONS

SECTION D. PROCESS INFORMATION - WASTE PILES

Section and Requirement		Federal Regulation	Review Consideration[a]	Location in Application[b]	See Attached Comment Number[c]
D-3	Waste Piles	270.18; 264.250 - 259			
D-3a	List of Wastes	270.18(a)	List all hazardous waste to be placed in waste piles.		
D-3b	Liner Exemption	270.18(b)			
D-3b(1)	Enclosed Dry Piles	270.18(b); 264.250(c)	Demonstrate that neither runoff, nor leachate is generated from the pile.		
D-3b(1)(a)	Protection from Precipitation	270.18(b); 264.250(c)	Demonstrate that pile is inside or under structure that provides complete protection from precipitation.		
D-3b(1)(b)	Free Liquids	270.18(b); 264.250(c)(1)	Demonstrate that neither liquids, nor materials containing free liquids are placed in the pile.		
D-3b(1)(c)	Runon Protection	270.18(b); 264.250(c)(2)	Demonstrate that pile is protected from surface water runon.		
D-3b(1)(d)	Wind Dispersal Control	270.18(b); 264.250(c)(3)	Demonstrate that pile design and operation controls wind dispersal of waste.		
D-3b(1)(e)	Leachate Generation	270.18(b); 264.250(c)(4)	Demonstrate that pile will not generate leachate through decomposition or other reactions.		
D-3b(2)	Exemption for Monofills	270.18(b); 264.251(e)	This exemption applies only to waste generated from foundry furnace emission controls or metal casting molding sand that are not hazardous waste for reasons other than toxicity characteristics.		
D-3b(3)	Alternate Design/No Migration	270.18(c)(1);	This exemption from liner requirements is		

CHECKLIST FOR REVIEW OF FEDERAL RCRA PERMIT APPLICATIONS

SECTION D. PROCESS INFORMATION - WASTE PILES

Section and Requirement		Federal Regulation	Review Consideration[a]	Location in Application[b]	See Attached Comment Number[c]
		264.251(b)	based on documenting that design, operating practices, and local aspects will prevent migration of hazardous constituents into groundwater or surface water in the future.		
D-3b(4)	Exemption Based on Alternative Design and Location	270.18(c)(1); 264.251(d)	Document that alternative design and operating practices, together with location characteristics, will prevent migration of any hazardous constituent into groundwater or surface water at least as effectively as a double liner with leachate detection system, and will allow detection of hazardous constituents through the top liner as least as effectively.		
D-3b(5)	Exemption for Replacement Waste Piles	270.18(c); 264.251(f)	Demonstrate (1) that existing unit was constructed in compliance with design standards of Sections 3004(o)(1)(A)(i) and 3004(o)(5) of Resource Conservation and Recovery Act, and (2) there is no reason to believe that liner is not functioning as designed.		
D-3c	Liner System	270.18(c)(1); 264.251(a)(1)(i),(c)	Describe liner system and demonstrate that flow of liquids through liner will be prevented.		
D-3c(1)	Liner Description	270.18(c)(1); 264.251(a)(1)(i),(c)	Describe and draw liner system to demonstrate that any flow of liquids through the liner will be prevented.		
D-3c(1)(a)	Synthetic Liners	270.18(c)(1); 264.251(a)(1),(c)	Describe type, thickness, material, and brand name and manufacturer of liner.		

CHECKLIST FOR REVIEW OF FEDERAL RCRA PERMIT APPLICATIONS

SECTION D. PROCESS INFORMATION - WASTE PILES

Section and Requirement		Federal Regulation	Review Consideration[a]	Location in Application[b]	See Attached Comment Number[c]
		(1)			
D-3c(1)(b)	Soil Liner	270.18(c)(1); 264.251(a),(c)(1)(i)(B)	Describe bottom composite liner including its classification, thickness, and hydraulic conductivity.		
D-3c(2)	Liner Location Relative to High Water Table	270.18(c)(1); 264.251(a)(1)(i)	Provide data showing seasonal fluctuations in depth to water table and the location of seasonal high water table in relation to liner system.		
D-3c(3)	Calculation of Required Soil Liner Thickness	270.18(c)(1); 264.251(a)(1)(i)	Calculations using either numerical simulation techniques (unsaturated flow conditions) or Darcy Law-derived transit time equations (saturated flow conditions) must be provided.		
D-3c(4)	Liner Strength Requirements	270.18(c)(1); 264.251(a)(1)(i)	Provide calculations showing minimum strength requirements for liners considering pressure gradients, installation and operating stresses, and climatic change stresses.		
D-3c(5)	Liner Strength Demonstration	270.18(c)(1); 264.251(a)(1)(i)	Demonstrate that liner exceeds minimum strength requirements.		
D-3c(6)	Liner/Waste Compatibility Testing Results	270.18(c)(1); 264.251(a)(1)(i)	Demonstrate that liner material is compatible with both waste and leachate.		
D-3c(7)	Liner Installation	270.18(c)(1); 264.251(a)(1)(i)	Describe procedures for installing liner.		
D-3c(7)(a)	Synthetic Liner Seaming	270.18(c)(1); 264.251(a)(1)(i)	Describe techniques to be used to bond membrane liner seams and the strength and chemical compatibility of seams with		

CHECKLIST FOR REVIEW OF FEDERAL RCRA PERMIT APPLICATIONS

SECTION D. PROCESS INFORMATION - WASTE PILES

Section and Requirement		Federal Regulation	Review Consideration[a]	Location in Application[b]	See Attached Comment Number[c]
			waste and leachate.		
D-3c(7)(b)	Soil Liner Compaction	270.18(c)(1); 264.251(a)(1)(i)	Describe procedures for installing soil liner and compacting liner to achieve desired permeability. Include maximum height of lifts to be placed.		
D-3c(7)(c)	Installation Inspection/testing Programs	270.18(c)(1); 264.254(a)	Describe quality assurance/quality control procedures to be used during liner installation.		
D-3c(8)	Liner Coverage	270.18(c)(1); 264.251(a)(1)(iii)	Demonstrate that liner will be installed to cover all surrounding earth likely to be in contact with waste or leachate.		
D-3c(9)	Liner Exposure Prevention	270.18(c)(1); 264.251(a)(1)(i)	Demonstrate that either the liner is protected from, or is resistant to, exposure to climatic conditions.		
D-3c(10)	Synthetic Liner Bedding	270.18(c)(1); 264.251(a)(1)(i)	Demonstrate that sufficient bedding will be provided above and below liner to prevent rupture during installation and operation.		
D-3d	Liner Foundation Report				
D-3d(1)	Liner Foundation Design Description	270.18(c)(1); 264.251(a)(1)(ii)	Describe liner foundation design and materials of construction and ability to withstand expected static and dynamic loadings.		
D-3d(2)	Subsurface Exploration Data	270.18(c)(1); 264.251(a)(1)(ii)	Verify engineering characteristics of foundation materials through subsurface exploration.		
D-3d(3)	Laboratory Testing Data	270.18(c)(1); 264.251(a)(1)(ii)			

CHECKLIST FOR REVIEW OF FEDERAL RCRA PERMIT APPLICATIONS

SECTION D. PROCESS INFORMATION - WASTE PILES

Section and Requirement		Federal Regulation	Review Consideration[a]	Location in Application[b]	See Attached Comment Number[c]
D-3d(4)	Engineering Analyses	270.18(c)(1); 264.251(a)(1)(ii)			
D-3d(4)(a)	Settlement Potential	270.18(c)(1); 264.251(a)(1)(ii)			
D-3d(4)(b)	Bearing Capacity and Stability	270.18(c)(1); 264.251(a)(1)(ii)			
D-3d(4)(c)	Potential for Bottom Heave or Blow-Out	270.18(c)(1); 264.251(a)(1)(ii)			
D-3d(4)(d)	Construction and Operational Loading	270.18(c)(1); 264.251(a)(1)(ii)			
D-3d(5)	Foundation Installation Procedures	270.18(c)(1); 264.251(a)(1)(ii)			
D-3d(6)	Foundation Installation Inspection Program	270.18(c)(1); 264.251(a)(1)(ii)	Describe quality assurance/quality control procedures to be used during foundation installation.		
D-3e	Leachate Collection and Removal System	270.18(c); 264.251(a)(2),(c)(2)	Describe design and operation of system to collect and remove leachate from new portions of existing waste piles and from new waste piles.		
D-3e(1)	Upper Leachate Collection and Removal System	270.18(c)(1); 264.251(a)(2),(c)(2)	Describe design and operating conditions to ensure that leachate depth over the liner does not exceed 1 foot.		
D-3e(2)	Leachate Detection System	270.18(c)(1); 264.251(a)(2),(c)(3)	Describe design and operating features of leachate detection system.		
D-3e(2)(a)	Grading and Drainage	270.18(c)(1);	Demonstrate that leak detection system		

CHECKLIST FOR REVIEW OF FEDERAL RCRA PERMIT APPLICATIONS

SECTION D. PROCESS INFORMATION - WASTE PILES

Section and Requirement		Federal Regulation	Review Consideration[a]	Location in Application[b]	See Attached Comment Number[c]
		264.251(a)(2); 264.221(c)(2)(ii)	design meets or exceeds specifications described in referenced regulations.		
D-3e(3)	Chemical Resistance	270.18(c); 264.251(a)(2)(i)(A)(c)(3); 264.251(c)(3)	Demonstrate that all leachate collection and removal system components are chemically resistant to waste managed in the pile and the leachate expected to be generated.		
D-3e(4)	Strength of Materials	270.18(c); 264.251(a)(2)(i)(B); 264.251(c)(3)	Demonstrate that system components are of sufficient strength and thickness to prevent collapse under expected static and dynamic loadings.		
D-3e(5)	Prevention of Clogging	270.18(c); 264.251(a)(2)(ii); 264.251(c)(3)	Demonstrate that leachate collection and removal system's design and operation will prevent clogging throughout active life and post-closure period of waste pile.		
D-3e(6)	Installation	270.18(c); 264.251(a)(2)	Describe installation methods and construction quality assurance/quality control procedures.		
D-3e(7)	Maintenance	270.18(c); 264.251(a)(2)	Describe anticipated maintenance activities that will be used to assure proper leachate management system operation throughout pile's expected active life.		
D-3e(8)	Liquid Removal	270.18(c); 264.251(c)(3)	Describe leachate removal system, including sumps and other equipment, and fate of the collected leachate.		
D-3e(9)	Location Relative to Water Table	270.18(c); 264.251(c)(4)	Demonstrate that operation of leak detection system will not be adversely affected by presence of groundwater.		

CHECKLIST FOR REVIEW OF FEDERAL RCRA PERMIT APPLICATIONS

SECTION D. PROCESS INFORMATION - WASTE PILES

Section and Requirement		Federal Regulation	Review Consideration[a]	Location in Application[b]	See Attached Comment Number[c]
D-3f	Action Leakage Rate	270.18(c)(1)(v); 264.252	Action leakage rate must be approved by regional administrator based on system design.		
D-3f(1)	Determination of Action Leakage Rate	270.18(c)(1)(v); 264.252(a)	Determine action leakage rate for waste pile units subject to 264.251(c),(d). Include adequate safety margin to allow for uncertainties in design, construction, operation, and location of leak detection system, waste and leachate characteristics, sources of other liquids in system, and proposed response actions.		
D-3f(2)	Monitoring of Leakage	270.18(c)(1)(v); 264.252(b)	Weekly leachate flow rate data must be converted to average daily flow rate.		
D-3g	Leakage Response Action Plan	270.18(c)(1)(v); 264.253			
D-3g(1)	Response Action	270.18(c)(1)(v); 264.253(a)	Provide response action plan to describe actions to be taken if flow rate into leak detection system exceeds action leakage rate.		
D-3g(2)	Leak and/or Remedial Determinations	270.18(c)(1)(v); 264.253(b),(c)	Response action plan must describe actions to be taken to comply with 264.223(b),(c) if the action leakage rate is exceeded.		
D-3g(3)	Notifications	270.18(c)(1)(v); 264.253(b)	Response action plan must indicate that regional administrator will be (1) notified in writing within 7 days of determining that action leakage rate has been exceeded, (2) provided with preliminary assessment		

CHECKLIST FOR REVIEW OF FEDERAL RCRA PERMIT APPLICATIONS

SECTION D. PROCESS INFORMATION - WASTE PILES

Section and Requirement		Federal Regulation	Review Consideration[a]	Location in Application[b]	See Attached Comment Number[c]
			and action plan within 14 days of initial determination that action leakage rate has been exceeded, and (3) provided with status report within 30 days after original notification that action leakage rate has been exceeded. Regional administrator must receive monthly status reports for as long as flow rate exceeds action leakage rate.		
D-3h	Runon Control System	270.18(c)(2); 264.251(g)	Describe system that will be used to prevent runon into active portions of piles.		
D-3h(1)	Calculation of Peak Flow	270.18(c)(2); 264.251(g)	Identify peak surface water flow expected to result from 25-year design storm. Describe data sources and methods used to make peak flow calculation.		
D-3h(2)	Design and Performance	270.18(c)(2); 264.251(g)	Demonstrate that runon control system design will prevent runon from reaching active portions of unit.		
D-3h(3)	Construction	270.18(c)(2); 264.251(g)	Describe runon control system construction methods and any construction quality assurance/quality control procedures.		
D-3h(4)	Maintenance	270.18(c)(2); 264.251(g)	Describe any maintenance activities required to assure continued proper runon system operation throughout unit's active life.		
D-3i	Runoff Control System	270.18(c)(3); 264.251(h)	Describe the runoff control system to be used to collect and control runoff from active portions.		

CHECKLIST FOR REVIEW OF FEDERAL RCRA PERMIT APPLICATIONS

SECTION D. PROCESS INFORMATION - WASTE PILES

Section and Requirement		Federal Regulation	Review Consideration[a]	Location in Application[b]	See Attached Comment Number[c]
D-3i(1)	Calculation of Peak Flow	270.18(c)(3); 264.251(h)	Identify the total runoff volume expected to result from a 24-hour, 25-year storm, and include data sources and methods used to make peak flow calculation.		
D-3i(2)	Design and Performance	270.18(c)(3); 264.251(h)	Demonstrate that system has sufficient capacity to collect and hold total runoff volume calculated in D-3i(1).		
D-3i(3)	Construction	270.18(c)(3); 264.251(h)	Describe runoff system construction methods and any construction quality assurance/quality control procedures.		
D-3i(4)	Maintenance	270.18(c)(3); 264.251(h)	Describe any maintenance activities required to assure continued proper runoff system operation throughout unit's active life.		
D-3j	Management of Collection and Holding Units	270.18(c)(4); 264.251(i)	Describe how collection and holding facilities will be managed to maintain system design capacity.		
D-3k	Control of Wind Dispersal	270.18(c)(5); 264.251(j)	Describe how pile is covered or otherwise managed to control wind dispersal.		
D-3l	Groundwater Monitoring Exemption	270.18(b); 264.90(b)(2)	To receive exemption from groundwater monitoring requirements of Subpart F, conditions specified in D-3l(1) through D-3l(7) must be met.		
D-3l(1)	Engineered Structure	270.18(b); 264.90(b)(2)(i)	Provide design data showing that unit is engineered structure.		
D-3l(2)	No Liquid Wastes	270.18(b);	Describe procedures for ensuring that no		

CHECKLIST FOR REVIEW OF FEDERAL RCRA PERMIT APPLICATIONS

SECTION D. PROCESS INFORMATION - WASTE PILES

Section and Requirement		Federal Regulation	Review Consideration[a]	Location in Application[b]	See Attached Comment Number[c]
		264.90(b)(2)(ii)	liquid waste or waste containing free liquids will be received by, or contained in, unit.		
D-3l(3)	Exclusion of Liquids	270.18(b); 264.90(b)(2)(iii)	Demonstrate how liquids, precipitation, and other runon and runoff will be excluded from unit.		
D-3l(4)	Containment System	270.18(b); 264.90(b)(2)(iv)	Describe containment system (both inner and outer layers) that will enclose waste.		
D-3l(5)	Leak Detection System	270.18(b); 264.90(b)(2)(v)	Describe design and operating data demonstrating leak detection system built into each containment layer.		
D-3l(6)	Operation of Leak Detection System	270.18(b); 264.90(b)(2)(vi)	Demonstrate means for ensuring continuing operation and maintenance of leak detection systems during active life of unit and closure and post-closure care periods.		
D-3(7)	No Migration	270.18(b); 264.90(b)(2)(vii)	Demonstrate to reasonable degree of certainty that unit will not allow hazardous constituents to migrate beyond outer layer of containment system prior to end of post-closure care period.		
D-3m	Treatment Within the Pile	270.18(e)	If any treatment is conducted in pile, provide descriptions specified in D-3m(1) through D-3m(3).		
D-3m(1)	Treatment Process Description	270.18(e)	Describe the process by which wastes are treated and the effect of the treatment on the wastes.		
D-3m(2)	Equipment Used	270.18(e)	Describe any equipment or other materials		

CHECKLIST FOR REVIEW OF FEDERAL RCRA PERMIT APPLICATIONS

SECTION D. PROCESS INFORMATION - WASTE PILES

Section and Requirement		Federal Regulation	Review Consideration[a]	Location in Application[b]	See Attached Comment Number[c]
			required to initiate or promote treatment.		
D-3m(3)	Residuals Description	270.18(e)	Describe nature and quantity of waste remaining in pile after treatment is complete.		
D-3n	Special Waste Management Plan for Piles Containing Wastes F020, F021, F022, F023, F026, and F027	270.18(i); 264.259	If waste pile is not enclosed, provide plan describing how pile will be designed, constructed, operated, and maintained in order to protect human health and environment.		
D-3n(1)	Waste Description	270.18(i)(1); 264.259(a)(1)	Identify volume, physical, and chemical characteristics of waste, including potential to migrate through soil or volatilize or escape into atmosphere.		
D-3n(2)	Soil Description	270.18(i)(2); 264.259(a)(2)	Describe attenuative properties of underlying and surrounding soils or other materials.		
D-3n(3)	Mobilizing Properties	270.18(i)(3); 264.259(a)(3)	Describe mobilizing properties of other materials codisposed of with this waste.		
D-3n(4)	Additional Management Techniques	270.18(i)(4); 264.259(a)(4)	Document effectiveness of additional treatment, design, operating, or monitoring techniques.		
D-3o	Construction Quality Assurance Program	270.18(c)(iv); 264.19	Provide written construction quality assurance program to comply with regulations found in 264.19.		

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.