

CHECKLIST FOR REVIEW OF FEDERAL RCRA PERMIT APPLICATIONS**SECTION E. GROUNDWATER MONITORING**

Section and Requirement	Federal Regulation	Review Consideration^a	Location in Application^b	See Attached Comment Number^c
E-1 Exemption from Groundwater Protection Requirements	270.14(c)			
E-1a Waste Piles	270.18(b); 264.90(b)(2), (5)			
E-1b Landfill	270.14(c); 264.90(b)(2)			
E-1c No Migration	270.14(c); 264.90(b)(4)			
E-1d Drip Pad	270.26(b); 264.90(b)(2)			
E-2 Interim Status Groundwater Monitoring Data	270.14(c)(1)			
E-2a Description of Wells	270.14(c)(1)	A copy of topographic map provided for 270.14(b) on which location and identification of each interim status monitoring well is indicated. Details of design and construction of each interim status monitoring well.		
E-2b Description of Sampling and Analysis Procedures	270.14(c)(1); 265.92	A copy of facility's groundwater sampling and analysis plan.		
E-2c Monitoring Data	270.14(c)(1); 265.92	Provide all interim status monitoring results.		
E-2d Statistical Procedures	270.14(c)(1); 265.93	Provide information relating to statistical procedures.		
E-2e Groundwater Assessment Plan	270.14(c)(1); 265.93(d)(2)	If required, based on statistical comparison results, provide specific plan for		

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		groundwater quality assessment program along with results obtained from implementation of plan.		
E-3 General Hydrogeologic Information	270.14(c)(2)	Include description of regional and site-specific geologic and hydrogeological setting.		
E-4 Topographic Map Requirements	270.14(c)(2), (3),(4)(i)			
E-5 Contaminant Plume Description	270.14(c)(2), (4),(7)	In some cases, contaminant plumes may be defined under groundwater quality assessment programs carried out during interim status period which may not address complete list of Appendix VIII constituents as required under 270.14(c)(4). Additional monitoring may be required to identify concentration of each Appendix VIII constituent in plume.		
E-6 General Monitoring Program Requirements	270.14(c)(5); 264.90(b)(4); 264.97			
E-6a Description of Wells	270.14(c)(5); 264.97(a),(b),(c)			
E-6b Description of Sampling and Analysis Procedures	270.14(c)(5); 264.97(d),(e),(f)			
E-6c Procedures for Establishing Background Quality	270.14(c)(5); 264.97(a)(1),(g)			
E-6d Statistical Procedures	270.14(c)(5);			

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	264.97(h), (i)(1),(5),(6)			
E-6d(1) Parametric Analysis of Variance (ANOVA)	270.14(c)(5); 264.97(h)(1), (i)(2)			
E-6d(2) Nonparametric ANOVA (based on ranks)	270.14(c)(5); 264.97(h)(2), (i)(2)			
E-6d(3) Tolerance or Prediction Interval Procedure	270.14(c)(5); 264.97(h)(3), (i)(4)			
E-6d(4) Control Chart Approach	270.14(c)(5); 264.97(h)(4), (i)(3)			
E-6d(5) Alternative Approach	270.14(c)(5); 264.97(h)(5),(i)			
E-7 Detection Monitoring Program	270.14(c)(6); 264.91(a)(4); 264.98			
E-7a Indicator Parameters, Waste Constituents, Reaction Products to be Monitored	270.14(c)(6) (i); 264.98(a)			
E-7b Groundwater Monitoring System	270.14(c)(6) (ii); 264.97(a) (2),(b),(c); 264.98(b)	Identify number, location, and depth of each well, and describe well construction materials.		
E-7c Background Groundwater	270.14(c)(6)			

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Concentration Values for Proposed Parameters	(iii); 264.97 (g); 264.98(c), (d)			
E-7d Proposed Sampling and Analysis Procedures	270.14(c)(6) (iv); 264.97 (d),(e),(f); 264.98(d),(e), (f)			
E-7e Statistically Significant Increase in any Constituent or Parameter Identified at any Compliance Point Monitoring Well	270.14(c)(6); 264.98(g); Part 264 Appendix IX			
E-8 Compliance Monitoring Program	270.14(c)(7); 264.99			
E-8a Waste Description	270.14(c)(7)(i)	Description must include historical records of volumes, types, and chemical composition of waste placed in units in waste management areas.		
E-8b Characterization of Contaminated Groundwater	270.14(c)(7)(ii)	For each well at point of compliance and for each background well, provide concentrations of each constituent in 261 Appendix VIII, major cations and anions, and constituents listed in Table 1 of 264.94, if not already mentioned above.		
E-8c Hazardous Constituents to be Monitored in Compliance Program	270.14(c)(7) (iii); 264.98 (g)(3); 264.99 (a)(1)			
E-8d Concentration Limits	270.14(c)(7) (iv); 264.94,			

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	264.97(g),(h); 264.99(a)(2)			
E-8e Alternate Concentration Limits	270.14(c)(7)(iv); 264.94(b); 264.99(a)(2)	Provide justification for establishing alternate concentration limits. Justification must address the following two factors.		
E-8e(1) Adverse Effects on Groundwater Quality	270.14(c)(7)(iv); 264.94(b)(1)			
E-8e(2) Potential Adverse Effects	270.14(c)(7)(iv); 264.94(b)(2)			
E-8f Engineering Report Describing Groundwater Monitoring Systems	270.14(c)(7)(v); 264.95; 264.97(a)(2), (b),(c); 264.99(b)	Provide details supporting representative nature of groundwater quality at background monitoring points and compliance monitoring point.		
E-8g Proposed Sampling and Statistical Analysis Procedures for Groundwater Data	270.14(c)(7)(vi); 264.97(d),(e),(f); 264.99(c) - (g)			
E-8h Groundwater Protection Standard Exceeded at Compliance Point Monitoring Well	270.14(c)(8); 264.99(h),(i)			
E-9 Corrective Action Program	270.14(c)(8); 264.99(j); 264.100			
E-9a Characterization of Contaminated Groundwater	270.14(c)(8)(i)	For each well at point of compliance and for each background well, provide concentrations of each constituent in 261		

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		Appendix VIII, major cations and anions, and constituents listed in Table 1 of 264.94, if not already determined by the above.		
E-9b Concentration Limits	270.14(c)(8)(ii); 264.94; 264.100(a)(2)			
E-9c Alternate Concentration Limits	270.14(c)(8)(ii); 264.94(b); 264.100(a)(2)	Provide justification for establishing alternate concentration limits. Justification must address the following two factors.		
E-9c(1) Adverse Effects on Groundwater Quality	270.14(c)(8); 264.94(b)(1)			
E-9c(2) Potential Adverse Effects	270.14(c)(8); 264.94(b)(2)			
E-9d Corrective Action Plan	270.14(c)(8)(iii); 264.100(b)	Provide detailed plans and engineering report on corrective actions proposed for facility, including maps of engineered structures, construction details, plans for removing waste, description of treatment technologies, effectiveness of correction program, description of reinjection system, additional hydrogeologic data, operation and maintenance plans, and closure and post-closure plans.		
E-9e Groundwater Monitoring Program	270.14(c)(8)(iv); 264.100(d)			
E-9e(1) Description of Monitoring System	270.14(c)(7)(v),(8)			

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E-9e(2) Description of Sampling and Analysis Procedures	270.14(c)(7)(v),(8)			
E-9e(3) Monitoring Data and Statistical Analysis Procedures	270.14(c)(7)(v),(8)			
E-9e(4) Reporting Requirements	270.14(c)(7); 264.100(g)			

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.