Inspection Checklist

Date: _____

Workplace: _____

Completed by: _____

Hazardous Waste TSDF Groundwater Monitoring

The following is EPA's RCRA groundwater inspection checklist. EPA inspectors refer to this checklist when inspecting a hazardous waste TSDF.

	YES	NO
SECTION A—MONITORING SYSTEM (40 CFR 264 TO 265)		
1. Does the facility have a groundwater monitoring system in operation?	☐	☐
a. If yes, does the system consist of (40 CFR 265.91):		
1. Minimally, one upgradient monitoring well? (40 CFR 265)	☐	☐
2. Minimally, three downgradient monitoring wells? (40 CFR 265)	☐	☐
b. Are monitoring wells cased so that the integrity of the boreholes is maintained? (40 CFR 265.91)	☐	☐
c. Is a compliance monitoring system installed whenever hazardous waste constituents are detected at the compliance point? (40 CFR 264.92)	☐	☐
d. Is a corrective-action program initiated whenever the groundwater protection standard is exceeded? (40 CFR 264.100(c))	☐	☐
e. Is a detection monitoring program instituted in all other cases? (40 CFR 264.98)	☐	☐
2. Does the facility have a monitoring and response program? (40 CFR 264)	☐	☐
a. If yes, is a compliance monitoring system instituted whenever hazardous constituents are detected at the compliance point? (40 CFR 264.99)	☐	☐
b. Whenever the groundwater protection standard is exceeded, does facility institute a corrective-action program? (40 CFR 264.99)	☐	☐
c. In all other cases, does the facility institute a detection monitoring program? (40 CFR 264.99)	☐	☐
SECTION B—SAMPLING AND ANALYSIS (40 CFR 265.92)		
1. Does the facility obtain and analyze samples from the groundwater monitoring system? 40 CFR 265.92(a))	☐	☐
2. Has the facility developed and followed a groundwater sampling and analysis plan? (40 CFR 265.92(a))	☐	☐
a. If yes, does this plan include procedures and techniques for (40 CFR 265.92(a)):		
1. Sample collection?	☐	☐
2. Sample preservation?	☐	☐
3. Analytical procedures?	☐	☐
4. Chain-of-custody control?	☐	☐

	YES	NO
b. Does the facility determine the concentration or value of the following parameters in groundwater samples (40 CFR 265.92(b)):		
1. Parameters characterizing the suitability of the groundwater as a drinking water supply, as specified in 40 CFR 265, Appendix 3?	☐	☐
2. Parameters establishing groundwater quality (chloride, iron, manganese, phenols, sodium, sulfate)?	☐	☐
3. Parameters used as indicators of groundwater contamination (pH, specific conductance, total organic carbon, total organic halogen)?	☐	☐
c. Has the owner/operator established initial background concentrations or values of all parameters specified at least on a quarterly basis? (40 CFR 265.92(c))	☐	☐
d. Has the owner/operator obtained at least four replicate measurements for each sample, and has the owner/operator determined the initial background arithmetic mean and variance? (40 CFR 265.92(c))	☐	☐
e. After the first year, does the owner/operator sample and analyze the following frequencies (40 CFR 265.92(d)):		
1. Samples collected to establish background water quality at least annually?	☐	☐
2. Samples collected to indicate contamination at least semiannually?	☐	☐
3. Elevation of groundwater surface at each monitoring well at each sampling event?	☐	☐

SECTION C—PREPARATION, EVALUATION, AND RESPONSE (40 CFR 265.93)

1.	Did owner/operator prepare an outline of a groundwater quality assessment program? (40 CFR 265.93(a))	☐	☐
	a. If yes, did program determine the following (40 CFR 265.93(a)):		
	1. Whether hazardous waste or hazardous waste constituents have entered the groundwater?	☐	☐
	2. Rate and extent of hazardous waste or hazardous waste constituent migration in groundwater?	☐	☐
	3. Concentrations of hazardous waste or hazardous waste constituents in groundwater?	☐	☐
	b. For each well, has owner/operator calculated the arithmetic mean and variance, based on four replicate measurements for each sample, and compared the results with initial background mean? (40 CFR 265.93(b))	☐	☐
	c. Has owner/operator submitted information documenting any significant increase in comparisons for upgradient wells (or decrease in pH)? (40 CFR 265.93(c))	☐	☐
	d. If the comparison for downgradient wells shows a significant increase (or pH decrease), has the owner/operator obtained additional groundwater samples from those downgradient wells in which a significant decrease was detected? (Samples must be split in two, and analyses must be obtained of all additional samples to determine whether the significant difference was a result of lab error.) (40 CFR 265.93(c))	☐	☐
	1. If analyses were performed, and confirmed the significant increase (or pH decrease), did the owner/operator notify the EPA regional administrator within 7 days?	☐	☐
	2. If analyses confirmed significant increase (or pH decrease), did owner/operator submit to the EPA regional administrator within 15 days after notification a certified groundwater quality assessment program? (40 CFR 265.93(d))	☐	☐

	YES	NO
a. If yes, does plan include the following:		
1. Number, location, and depth of wells?	☐	☐
2. Sampling and analytical methods for those hazardous wastes and hazardous waste constituents at the facility?	☐	☐
3. Evaluation procedures, including any use of previously gathered groundwater quality information?	☐	☐
4. Schedule of implementation?	☐	☐
2. Did owner/operator implement the groundwater quality assessment program and, at a minimum, did the owner/operator determine the following (40 CFR 265.93(d)(4)):		
a. Rate and extent of the migration of the hazardous waste constituents in the groundwater?	☐	☐
b. Concentrations of the hazardous waste in the groundwater?	☐	☐
3. Did owner/operator submit a report to the EPA regional administrator containing the requests of the assessment outlined in No. 2 within 15 days? (40 CFR 265.93(d)(5))	☐	☐
4. Did owner/operator notify the EPA regional administrator of reinstatement of indicator evaluation program upon finding that no hazardous waste or hazardous waste constituents had entered the groundwater? (40 CFR 265.93(d)(6))	☐	☐
5. If owner/operator determined that hazardous waste or hazardous waste constituents entered the groundwater, did the owner/operator either continue to make the determinations listed in No. 2 on a quarterly basis until final closure or groundwater quality assessment plan was implemented prior to post-closure care, or cease to make determinations required in No. 2 if groundwater quality assessment plan was implemented during post-closure? (40 CFR 265.93(d)(7))	☐	☐
6. If any groundwater quality assessment program is implemented to satisfy No. 2 prior to final closure, has owner/operator completed the program and reported to the regional administrator, as outlined in No. 3 above? (40 CFR 265.93(e))	☐	☐
7. If owner/operator does not monitor at least annually to satisfy No. 2, does owner/operator evaluate data on groundwater elevation obtained under No. 2e in Section B to determine whether the requirements for location monitoring wells are satisfied? (40 CFR 265.93(f))	☐	☐
a. If evaluation shows that the requirements for monitoring wells are not satisfied, has owner/operator modified the number, location, or depth of the monitoring wells to bring the system into compliance?	☐	☐

SECTION D—RECORDKEEPING AND REPORTING (40 CFR 265.94)

1. Unless owner/operator is monitoring to satisfy the requirements of 40 CFR 265.93(d)(4), does owner/operator (40 CFR 265.94(a)):		
a. Keep records of the analyses required in 40 CFR 265.92(c) and (d), the associated groundwater surface elevations required in 40 CFR 265.92(e), and groundwater surface elevations required in 40 CFR 265.93(b) throughout the active life of the facility and throughout post-closure?	☐	☐
b. Report the following information to the EPA regional administrator (40 CFR 265.94(a)(2)):	☐	☐
1. Within 15 days of analysis for each quarterly sampling event, does owner/operator submit results of background concentrations?	☐	☐

	YES	NO
2. Does owner/operator inform the EPA regional administrator about any parameters that exceed minimum contaminant levels listed in Appendix III?	☐	☐
3. (Annually) does owner/operator report concentrations or values of parameters listed in 40 CFR 265.92(b)(3) for each well, including required evaluations for these parameters under 40 CFR 265.93(b)?	☐	☐
c. Does owner/operator also identify differences from initial background concentrations found in the upgradient wells no later than March 1 following each calendar year?	☐	☐
2. Does owner/operator submit results of the groundwater surface elevations under 40 CFR 265.93(f), along with a description of the response, if needed? (40 CFR 265.94(a)(2))	☐	☐
3. If groundwater is monitored to satisfy requirements of 40 CFR 265.93(d)(4), did owner/operator do the following (40 CFR 265.94(b)):		
a. Keep records of analyses and evaluations specified in the plan throughout active life and post-closure?	☐	☐
b. (Annually, until final closure) submit to the EPA regional administrator a report containing the results of the groundwater quality assessment program, including the calculated rate of migration of hazardous waste or hazardous waste constituents by March 1 following each calendar year?	☐	☐

SECTION E—GENERAL REQUIREMENTS

1. Does facility comply with the following requirements (40 CFR 264.97):		
a. Are sufficient wells installed at appropriate locations and depths?	☐	☐
b. Have sampling and analysis techniques been consistent?	☐	☐
c. Have groundwater elevation data been recorded?	☐	☐
d. Have background concentrations been determined?	☐	☐
2. If groundwater is monitored to satisfy requirements of 40 CFR 265.93(d)(4), did owner/operator:		
a. Keep records of the analyses and evaluations specified in the plan throughout the facility's active life, and, for disposal facilities, throughout post-closure?	☐	☐
b. Report the following groundwater monitoring information:		
1. During the first year when initial background concentrations are being determined, did owner/operator submit values within 15 days after completing analysis?	☐	☐
2. If yes, did owner/operator also submit an identification of any parameters whose concentrations exceed maximum levels in Appendix III?	☐	☐
3. (Annually) did owner/operator report concentrations or values of the parameters listed in 40 CFR 265.93(b)(2) for each well, along with required evaluations for these parameters under 40 CFR 265.93(b)?	☐	☐
4. Did owner/operator also separately identify any significant differences from initial background concentrations for upgradient wells?	☐	☐
5. Did owner/operator report on the results of groundwater surface elevations (and a description of the results if necessary) by March 1 of the following year?	☐	☐

	YES	NO

SECTION F—DETECTION MONITORING PROGRAM (40 CFR 264.98)

1.	Has owner/operator established detection monitoring system to provide reliable indications or detection releases?	☐	☐
	a. If yes, are the following components included in the system:		
	1. Background values?	☐	☐
	2. Determination of groundwater flow rate?	☐	☐
	3. Determination of groundwater compliance point semiannually?	☐	☐
	4. Determination of statistically significant increases over background concentrations?	☐	☐
	5. Notification to the EPA regional administrator if there was a statistically significant increase?	☐	☐

SECTION G—COMPLIANCE MONITORING PROGRAM (40 CFR 264.99)

1.	Does facility operate a compliance monitoring program?	☐	☐
	a. Does facility determine concentrations of hazardous constituents at least quarterly?	☐	☐
	b. Does facility determine groundwater flow rate and direction in uppermost aquifer at least quarterly? (40 CFR 264.99(e))	☐	☐
	c. Does facility analyze samples for Appendix IX constituents annually? (40 CFR 265.99(g))	☐	☐
	d. Does facility make statistically significant increases over background values? (40 CFR 264.99(h))	☐	☐
	e. If there is an increase, does facility notify the EPA regional administrator and establish a corrective-action program? (40 CFR 264.99(h))	☐	☐

SECTION H—CORRECTIVE-ACTION PROGRAM (40 CFR 264.100)

1.	Does facility follow a corrective-action program that meets the facility's permit requirements?	☐	☐

Corrective Action Completed (date): _____

Supervisor: _____

Routed to: _____