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3745-506-500

**Ground water assessment program.**

- (A) An owner or operator shall comply with this rule for a downgradient ground water monitoring well when there is a statistically significant change between background data and analytical results for any parameter required to be chemically and statistically analyzed by rule 3745-506-400 of the Administrative Code at that downgradient ground water monitoring well, unless the owner or operator has made a successful false positive demonstration in accordance with paragraph (B) of rule 3745-506-410 of the Administrative Code for all parameters exhibiting a statistically significant change from background data at that downgradient ground water monitoring well.
- (B) While conducting the ground water assessment program, an owner or operator shall undertake source control activities necessary to prevent the release from continuing. Any activities undertaken by the owner or operator shall be in compliance with all applicable federal and state laws and regulations. The source control activities are in addition to activities already required by rule, permit, or license. Source control activities may include but are not limited to gas migration mitigation, enhanced leachate collection and removal, early capping of disposed waste or C&DD, cap improvement, surface water management within the disposal limits, waste or C&DD removal, and cessation of waste or C&DD acceptance.
- (C) An owner or operator shall assess and characterize the rate and extent of migration and the concentrations of a release in accordance with rule 3745-506-510 of the Administrative Code.
- (D) An owner or operator shall conduct a separate ground water assessment program for each release unless approved by the director to combine separate ground water assessment programs.
- (1) The owner or operator may submit a written request to the director to combine separate ground water assessment programs. The request shall include the following:
- (a) A discussion of how combining the separate ground water assessment programs will facilitate the assessment of the release.
- (b) A discussion of how combining the separate ground water assessment programs is unlikely to cause the facility to pose a threat to public health or safety or the environment, to cause a nuisance or a health hazard, or to cause or contribute to water pollution.
- (2) The director may decline to act on the request.

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(3) The director may approve the combining of separate ground water assessment programs if the director determines the following:

(a) That combining separate ground water assessment programs will facilitate the assessment of the release.

(b) That combining separate ground water assessment programs is unlikely to cause the facility to pose a threat to public health or safety or the environment, to cause a nuisance or a health hazard, or to cause or contribute to water pollution.

(E) Ground water assessment plan.

An owner or operator shall create a ground water assessment plan that describes how the owner or operator will assess and characterize the rate and extent of migration and the concentrations of constituents in a release in accordance with rule 3745-506-510 of the Administrative Code. The plan shall also include at a minimum the following:

(1) A brief description of the hydrogeologic conditions at the facility.

(2) A brief description of the ground water detection program implemented at the facility, including the following:

(a) The number, location, and depth of ground water detection monitoring wells.

(b) A tabular summary of the ground water detection monitoring analytical data for each monitoring well that demonstrated the statistically significant change as well as the pertinent background data.

(3) A detailed description of the investigatory approach to be followed during the assessment, including but not limited to the following:

(a) The proposed number, location, depth, installation method, construction, development, maintenance, and sealing of each ground water monitoring well and piezometer to be installed to meet the requirements of rule 3745-506-510 of the Administrative Code. This description shall document how the assessment monitoring wells will conform to rule 3745-506-100 of the Administrative Code. At a minimum, the documentation shall include proposed boring logs, well construction diagrams, and blank well maintenance forms developed in accordance with rule 3745-506-130 of the Administrative Code. The owner or operator shall update the ground water assessment plan to document the actual number, location, depth, installation method, construction, development, maintenance, and sealing of each ground water monitoring well and piezometer that has been installed to meet the requirements of rule 3745-506-510 of the Administrative Code.

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- (b) The proposed method for gathering additional hydrogeologic information.
- (c) The planned use, if any, of supporting methodology including but not limited to soil-gas or geophysical surveys.
- (4) A ground water sampling and analysis plan that conforms to rule 3745-506-200 of the Administrative Code or a reference to a previously submitted sampling and analysis plan that conforms to rule 3745-506-200 of the Administrative Code.
- (5) Provisions for establishing background ground water quality in accordance with rule 3745-506-120 of the Administrative Code if not previously established during the ground water detection program in accordance with rule 3745-506-400 of the Administrative Code.
- (6) A detailed description of the data evaluation procedures that includes the following:

  - (a) A statistical analysis plan that conforms to rule 3745-506-300 of the Administrative Code if the owner or operator chooses to perform statistical analysis as part of the ground water assessment program. If statistical analysis is to be used, the statistical analysis plan shall include appropriate statistical analysis methods and procedures as necessary to comply with this rule.
  - (b) Details of all computer models the owner or operator chooses to use, including input parameters, the theory that is the basis of each model, all biases or limitations of each model that may affect the applicability to the ground water assessment program, and outputs of each model.
  - (c) If applicable, the use of previously gathered information.
  - (d) Criteria that will be utilized to determine if additional assessment activities are warranted.
- (7) A schedule of implementation that incorporates the requirements specified in paragraphs (F), (H), and (I) of this rule.
- (8) Provisions for installing at least one additional ground water monitoring well at the facility boundary in the direction of downgradient ground water flow from the affected ground water monitoring well and as many additional ground water monitoring wells at the facility boundary to meet the requirements of paragraph (D) of rule 3745-506-510 of the Administrative Code.

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(9) Provisions for installing additional wells at the facility to meet the requirements of paragraph (C) of rule 3745-506-510 of the Administrative Code.

(F) Submitting a ground water assessment plan and commencing monitoring.

Unless the owner or operator has made a successful false positive demonstration in accordance with paragraph (B) of rule 3745-506-410 of the Administrative Code for all parameters exhibiting a statistically significant change from background data in each downgradient ground water monitoring well, not later than one hundred thirty-five days after the date required to notify Ohio EPA and the approved board of health of a statistically significant change between background data and analytical results in accordance with rule 3745-506-410 of the Administrative Code, an owner or operator shall do the following:

(1) Submit a ground water assessment plan that conforms to this rule to Ohio EPA and the approved board of health.

(2) Implement the ground water assessment plan and begin monitoring the ground water monitoring wells in accordance with the ground water assessment program monitoring schedule applicable to the facility contained in rules 3745-506-700 to 3745-506-999 of the Administrative Code.

(G) Reduced parameter list for low-yield wells not screened in the uppermost aquifer system.

(1) An owner or operator may submit a written request to the director to use a reduced parameter list for low-yield wells not screened in the uppermost aquifer system for the monitoring required by this rule. The owner or operator shall include at a minimum the following information in the request:

(a) The parameters that the owner or operator requests to be deleted from the list of parameters required to be monitored in accordance this rule.

(b) A discussion of whether the ground water monitoring well is constructed in accordance with rule 3745-506-100 of the Administrative Code.

(c) A discussion of whether the well screen is properly placed across the significant zone of saturation in order to maximize yield.

(d) A calculation of the maximum sustainable yield of the significant zone of saturation the ground water monitoring well is screened within.

(e) Field data demonstrating that the ground water monitoring well cannot recover sufficiently within twenty-four hours after purging to supply the volume necessary to obtain samples for the parameters required to be monitored in accordance with this rule.

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- (f) The amount of water needed to analyze the required parameters. This shall include a discussion of the parameters proposed for deletion and the amount of water needed to analyze the deleted parameters as well as the listing of the parameters which will be analyzed in the samples and how much water is required to analyze for those parameters.
- (g) If available, the concentrations in leachate of parameters required to be monitored in ground water by this rule.
- (h) A discussion of how the use of the reduced parameter list for low-yield wells not screened in the uppermost aquifer system is unlikely to cause the facility to pose a threat to public health or safety or the environment, to cause a nuisance or a health hazard, or to cause or contribute to water pollution.
- (i) If available, the types, quantities, and concentrations of parameters in waste and C&DD managed at the facility.
- (j) Other information requested by Ohio EPA.
- (2) The director may decline to act on the request.
- (3) The director may approve the reduced parameter list for low-yield wells not screened in the uppermost aquifer system if the director determines the following:

  - (a) Those monitoring wells not screened in the uppermost aquifer system cannot produce enough water within a twenty-four hour period to allow for the analysis of all of the required parameters.
  - (b) The use of the reduced parameter list for low-yield wells not screened in the uppermost aquifer system is unlikely to cause the facility to pose a threat to public health or safety or the environment, to cause a nuisance or a health hazard, or to cause or contribute to water pollution.

- (H) Establishing background ground water quality.

In order to establish background concentrations for each waste-derived constituent and C&DD-derived constituent detected in the ground water monitoring well that demonstrated a statistically significant change, an owner or operator shall comply with the following not later than two hundred seventy days after the date the ground water assessment plan was required to be submitted and implemented by paragraph (F) of this rule:

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- (1) Collect and analyze additional independent samples from any background ground water monitoring well sampled pursuant to paragraph (F) of this rule that does not have at least four independent analysis results for each waste-derived constituent and C&DD-derived constituent detected in the ground water monitoring well that demonstrated a statistically significant change. For a non-naturally occurring organic parameter, the owner or operator may in lieu of collecting background ground water samples assume that the concentration of the parameter in background ground water at the facility is below the lowest practical quantitation limit (PQL) for that parameter determined in accordance with paragraph (B)(2)(a) of rule 3745-506-200 of the Administrative Code.
- (2) If statistical analysis is to be used in the assessment program, the owner or operator shall collect and analyze additional independent samples from any background ground water monitoring well sampled pursuant to paragraph (F) of this rule that does not have at least eight independent analysis results for each waste-derived constituent and C&DD-derived constituent detected in the ground water monitoring well that demonstrated a statistically significant change. For a non-naturally occurring organic parameter, the owner or operator may in lieu of collecting background ground water samples assume that the concentration of the parameter in background ground water at the facility is below the lowest PQL for that parameter determined in accordance with paragraph (B)(2)(a) of rule 3745-506-200 of the Administrative Code.

(I) Ground water assessment reports.

Written ground water assessment reports shall be submitted to Ohio EPA and the approved board of health in accordance with rule 3745-506-520 of the Administrative Code.

(J) Compliance monitoring program within the ground water assessment program.

- (1) After complying with paragraphs (C) to (I) of this rule, an owner or operator may conduct a self-implementing compliance monitoring program within the ground water assessment program in accordance with this rule if the following requirements are met:

  - (a) The release will not threaten public health and safety and the environment, will not cause nuisances and health hazards, and will not cause or contribute to water pollution.
  - (b) The rate of migration, extent, and concentrations of the release determined in accordance with rule 3745-506-510 of the Administrative Code demonstrates that the concentrations of the constituents in the release that are hazardous, including parameters numbered fifteen to two hundred forty-six in Table 1 of rule 3745-506-60 of the Administrative Code do not

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exceed a GWAS at all points within the release that lie beyond the potential sources of contamination.

(c) The determination of the rate of migration, extent, and concentrations of the release conducted in accordance with rule 3745-506-510 of the Administrative Code demonstrates that the release is not discharging to surface water and that the release has not reached the facility boundary.

[Comment: If the conditions of paragraph (J)(1) of this rule are met, the owner or operator is not required to obtain authorization from the director to enter compliance monitoring, and thus is "self-implementing."]

(2) After complying with paragraphs (C) to (I) of this rule, an owner or operator may conduct a director-approved compliance monitoring program within the ground water assessment program in accordance with this rule if the following requirements are met:

(a) The release will not threaten public health and safety and the environment, will not cause nuisances and health hazards, and will not cause or contribute to water pollution.

(b) The rate of migration, extent, and concentrations of the release determined in accordance with rule 3745-506-510 of the Administrative Code demonstrates that the concentrations of the constituents in the release that are hazardous, including parameters numbered fifteen to two hundred forty-six in Table 1 of rule 3745-506-60 of the Administrative Code do not exceed a GWAS at all points within the release that lie beyond the limits of the potential sources of contamination.

(c) A permit to discharge to surface waters of the state has been obtained from Ohio EPA, or Ohio EPA has determined that a permit is not necessary if it has been determined in accordance with rule 3745-506-510 of the Administrative Code that the release is discharging to surface water.

(d) The owner or operator shall submit a compliance monitoring proposal to the director and shall receive written authorization from the director to conduct a compliance monitoring program.

(i) The compliance monitoring proposal shall include the information required by rule 3745-506-520 of the Administrative Code and at a minimum the following information:

(a) Proximity of the facility to a ground water protection area or setback area as described in the siting criteria within the rules for the applicable authorizing documents for the facility.

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(b) Whether the owner or operator owns additional land contiguous to but beyond the facility boundary, the distance to the property line beyond the facility boundary, and the ability to incorporate such contiguous property owned by the owner or operator into the facility for the purposes of monitoring the release to ground water.

(c) Location of all public and private water supply wells and surface water bodies within one mile of the facility.

(d) The current and expected future uses of ground water inside of and beyond the facility boundary and property boundary, including the proximity and the withdrawal rate of current and expected future users.

(ii) The director may decline to act on the request.

(iii) The director may approve the request if the director determines the following:

(a) The request from the owner or operator conforms to paragraph (J)(2)(d)(i) of this rule.

(b) The use of the compliance monitoring program is unlikely to cause the facility to pose a threat to public health or safety or the environment, to cause a nuisance or a health hazard, or to cause or contribute to water pollution.

(3) If a facility enters the compliance monitoring program in accordance with either paragraph (J)(1) or (J)(2) of this rule, the owner or operator shall conduct the compliance monitoring program in accordance with rule 3745-506-530 of the Administrative Code.

[Comment: Paragraph (K) of this rule requires that if a facility conducting a ground water assessment fails to enter the compliance monitoring program or does not receive director's authorization to return to the ground water detection program in accordance with paragraph (M) of this rule within one thousand five hundred days after the date the ground water assessment plan is required to be submitted, the facility shall enter the corrective actions program, unless an alternative time frame is granted by the director in writing.]

(K) Entering the ground water corrective actions program.

Upon assessing and characterizing the rate and extent of migration and the concentrations of the release in accordance with rule 3745-506-510 of the Administrative Code, an owner or operator shall conduct a ground water corrective

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actions program by complying with rule 3745-506-600 of the Administrative Code if one or more of the following is determined:

- (1) The concentrations of the parameters in the release that are hazardous, including parameters numbered fifteen to two hundred forty-six in Table 1 of rule 3745-506-60 of the Administrative Code exceed a GWAS at any point within the release that lies beyond the potential sources of contamination.
  - (2) The release is discharging to surface water and the discharge is causing unacceptable impacts to surface water as determined in accordance with paragraph (C) of rule 3745-506-510 of the Administrative Code.
  - (3) The facility does not return to the detection monitoring program in accordance with paragraph (M) of this rule or the facility does not enter the compliance monitoring program in accordance with paragraph (J) of this rule within one thousand five hundred days after the date the ground water assessment plan is required to be submitted by paragraph (F) of this rule, unless an alternative time frame is approved by the director in writing.
  - (4) The facility is in the compliance monitoring program but no longer qualifies to remain in the compliance monitoring program pursuant to paragraph (J) of this rule or rule 3745-506-530 of the Administrative Code.
  - (5) The director determines that the release may threaten public health or safety or the environment, may cause a nuisance or health hazard, or may cause or contribute to water pollution. Without limitation the director may order an owner or operator to perform a ground water corrective actions program in accordance with rule 3745-506-600 of the Administrative Code. Factors that the director may consider in making this order include but are not limited to the following:
    - (a) Whether concentrations of the constituents in the release exceed a GWAS at any point within the release that lies beyond the potential sources of contamination.
    - (b) The rate and extent of migration of the release as determined in accordance with rule 3745-506-510 of the Administrative Code.
    - (c) Whether the facility lies within a ground water protection area or a setback area as described in the siting criteria within the rules for the applicable authorizing documents for the facility.
- (L) Ground water monitoring wells not used or needed to make a determination of rate and extent of migration of the release.

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- (1) Ground water monitoring wells not used to make a determination of the rate and extent of migration and the concentrations of the release in accordance with rule 3745-506-510 of the Administrative Code shall continue to be monitored in accordance with the ground water monitoring program applicable to those ground water monitoring wells prior to the initiation of the ground water assessment program.
- (2) If a ground water monitoring well was installed in accordance with paragraph (E) of this rule and is not needed to make a determination of the rate and extent of migration and the concentrations of the release in accordance with rule 3745-506-510 of the Administrative Code, then that well may be placed in the ground water detection program, may be used as a piezometer for collecting ground water elevations, or may be properly abandoned in accordance with Chapter 3745-9 of the Administrative Code.
- (3) An owner or operator shall document all changes in use for the ground water monitoring well, including copies of any well sealing reports, in the appropriate monitoring plan.

(M) Reinstatement of the ground water detection program.

- (1) An owner or operator may submit a written request to the director to reinstate the ground water detection program described in rule 3745-506-400 of the Administrative Code.
- (2) The request shall include a demonstration of one or combination of the following:
  - (a) That the concentrations of all waste-derived constituents and C&DD-derived constituents at all wells within a ground water assessment program are at or below background concentrations using the statistical analysis methods described in the statistical analysis plan submitted with the ground water assessment plan for two consecutive sampling events.
  - (b) That a source other than a potential source of contamination at the facility caused the ground water contamination.
  - (c) That the statistically significant change between background data and the analytical results resulted from an error in one or a combination of the following:
    - (i) Sampling or reporting of sampling of the ground water monitoring wells.
    - (ii) Chemical analysis or reporting of chemical analysis of the ground water samples.

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(iii) Statistical analysis or reporting of statistical analysis of the chemical analytical data.

(d) That the statistically significant change between background data and the analytical results resulted from natural variation in ground water quality.

(3) If more than one ground water assessment program is being conducted at the facility, then a request for reinstatement submitted pursuant to this rule shall specify which ground water assessment program is the subject of the request.

(4) The director may decline to act on the request.

(5) The director may approve reinstatement of the ground water detection program described in rule 3745-506-400 of the Administrative Code if the director determines that the owner or operator has demonstrated that one or a combination of criteria in paragraph (M)(2)(a) have occurred.