



## Ohio Administrative Code Rule 3745-400-09 Site characterization.

Effective: April 17, 2015

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(A) Site characterization for employment of the recompacted soil liner requirement.

(1) A recompacted soil liner, as described in paragraph (F)(5)(a) of rule 3745-400-07 of the Administrative Code, is required for all unfilled areas in a facility except when the in situ or added geologic material separating the uppermost aquifer system from the bottom of the leachate collection system in unfilled areas meets the criteria in paragraphs (A)(2) and (A)(3) of this rule and one of the following:

(a) When, in a facility that was in operation or under construction on September 30, 1996, the in situ or added geologic material separating the uppermost aquifer system from all placed debris meets the criteria in paragraphs (A)(2) and (A)(3) of this rule.

(b) When the unfilled areas of a facility that was in operation or under construction on September 30, 1996 meet the requirements of paragraph (A)(1) of this rule and a barrier layer is constructed on existing placed debris in accordance with paragraph (F)(5)(d) of rule 3745-400-07 of the Administrative Code.

(c) When the unfilled areas of a facility that was in operation or under construction on September 30, 1996 meet the requirements of paragraph (A)(1) of this rule and a minimum fifteen foot horizontal separation exists between existing placed debris and the limits of debris placement in unfilled areas.

(2) The in situ or added geologic material shall have the following:

(a) A minimum thickness of five feet with a maximum permeability of  $1 \times 10^{-5}$  cm/sec.

(b) A maximum permeability equivalent to two feet of soil with a permeability of  $1 \times 10^{-6}$  cm/sec.

(3) Added geologic material, if any, shall meet the requirements in paragraph (F)(5)(b) of rule 3745-



400-07 of the Administrative Code.

(B) Site characterization for the ground water monitoring requirement. A ground water monitoring well system, as described in paragraph (A) of rule 3745-400-10 of the Administrative Code, is required for a facility accepting debris on or after September 30, 1996, unless all of the following conditions are met:

(1) The limits of debris placement are not within five feet of the uppermost aquifer system.

(a) The five feet of isolation material between the uppermost aquifer system and the limits of debris placement shall have a permeability equivalent to at least five feet of soil with a maximum permeability of  $1 \times 10^{-6}$  cm/sec.

(b) None of the geological material to be included as the minimum five feet of isolation material shall have a permeability greater than  $1 \times 10^{-5}$  cm/sec.

(2) The limits of debris placement are not within the boundaries of a sole source aquifer designated by the Administrator of the United States environmental protection agency under the "Safe Drinking Water Act", 88 Stat. 1660 (1974), 42 U.S.C. 300F.

(3) The limits of debris placement are not within the limits of any unconsolidated aquifer systems delineated on the Ohio department of natural resources ground water resource maps as yielding at least one hundred gallons per minute.

(4) The limits of debris placement are not within the limits of an Ohio EPA endorsed wellhead protection area or source water protection area for ground water.

(5) The limits of debris placement are not within one thousand feet of a public water supply well in a public water supply well field delivering less than seventy-five thousand gallons per day.

(6) The limits of debris placement are not within one thousand five hundred feet of a public water supply well in a public water supply well field delivering seventy-five thousand or more gallons per day.



(7) The limits of debris placement are not within one thousand feet of any water supply well or developed spring.

[Comment: New facilities required to have ground water monitoring must implement the system prior to accepting debris for disposal {see paragraph (R)(4) of rule 3745-400-11 of the Administrative Code}.]

(C) Site characterization report.

(1) The purpose of the site characterization report is to have a qualified ground water scientist provide documentation that the standards established in rule 3745-400-06 of the Administrative Code (prohibited locations), paragraph (A) of this rule (liner), and paragraph (B) of this rule (ground water monitoring) are met and that the ground water monitoring system as outlined in rule 3745-400-10 of the Administrative Code is capable of determining the quality of the ground water under the facility.

The site characterization report is a part of the facility design plan as outlined in paragraph (A) of rule 3745-400-07 of the Administrative Code. The owner or operator of a new facility shall submit the site characterization report with the first license application.

The site characteristics shall be documented in a narrative report using such maps and cross sections as to clearly convey the nature of the site and the hydrogeology beneath the facility. If the facility meets the standards in paragraph (A) of this rule, the hydrogeologic investigation can be conducted in phases, of which each phase shall be described in the site characterization report.

(2) The site characterization report shall contain documentation that the ground water scientist meets the qualifications of a qualified ground water scientist as defined 3745-400-01 of the Administrative Code.

(3) The qualified ground water scientist shall make a final summary as to whether the standards established in rule 3745-400-06 of the Administrative Code (prohibited locations), paragraph (A) of this rule (liner), and paragraph (B) of this rule (ground water monitoring) are met. The final



summary shall state each standard and whether the standard has been met. The final summary shall be signed by the qualified ground water scientist.

(4) The site characterization report shall contain the following publicly available information to support the final summary:

(a) An applicable map prepared under the "National Flood Insurance Act of 1968" 82 Stat. 572, 42 U.S.C. 4001, showing where the facility is located with respect to the one hundred year flood plain of a watercourse. If no such map has been prepared for the watercourse, the location of the facility and the delineation of the one hundred year flood plain shall be shown on a plan sheet. The boundaries of the one-hundred-year flood plain of a watercourse shall be determined by the applicant for a license based upon a design storm of seven inches of precipitation in twenty-four hours and upon standard methodologies set forth in "Urban Hydrology for Small Watersheds" and section 4 of the "National Engineering Hydrology Handbook."

[Comment: Note that the above mentioned maps also include flood plains not associated with a watercourse. Location in such flood plains is not prohibited by section 3714.03 of the Revised Code. However, there may be other authorities, such as local zoning boards or the federal emergency management agency, that may otherwise restrict a facility from locating in a flood plain.]

(b) A map showing the location of the facility with respect to the sole source aquifer designated by the administrator of the United States environmental protection agency under the "Safe Drinking Water Act", 88 Stat. 1660, 42 U.S.C. 300F. If a sole source aquifer is not in the vicinity, a statement of that fact will be sufficient.

(c) The ground water resource map for the applicable county prepared by the Ohio department of natural resources showing where the facility is located.

(d) A map showing the location of the facility with respect to Ohio EPA endorsed wellhead protection area or source water protection area for ground water. If a wellhead protection area or source water protection area for ground water is not in the vicinity, a statement to that fact will be sufficient.



(e) A map showing the location of the facility and all public water supply wells within two thousand feet of the limits of debris placement. The yield of any public water supply well field shall also be stated.

(f) A map showing the location of the facility and all water supply wells within one thousand five hundred feet of the limits of debris placement.

(5) The site characterization report shall contain the following site specific hydrogeologic information to support the final summary. The hydrogeologic information shall be collected from borings, test pits, or piezometers. The minimum number of locations utilized to collect data for the hydrogeologic investigation shall be equal to the first whole number above the number represented by the square root of the number of acres which comprise the limits of debris placement. The hydrogeologic investigation shall be documented in a narrative report using such maps and cross sections as to clearly convey the nature of the hydrogeology beneath the facility.

[Comment: Test pits to be recompact and borings need to be plugged to meet the standards in paragraph (A) or (B) of this rule.]

(a) A description of the consolidated and unconsolidated stratigraphic units from the ground surface down to the uppermost aquifer system. This description shall include the following:

(i) Sedimentary, including for unconsolidated formations, the textural classification using the "Unified Soil Classification System."

(ii) Hydraulic conductivity.

(iii) Thickness and lateral extent.

[Comment: Boreholes, when located near the perimeter of the facility, may be used to establish the wells for ground water monitoring.]

(b) A description of the methodology, equipment, and procedures used to identify and characterize the hydrogeology beneath the facility as required by paragraphs (C)(5)(a) and (C)(5)(c) of this rule,



including the following:

(i) Well and piezometer construction specifications.

(ii) Water level measurement procedures.

(iii) The drilling and soil sampling methods used in characterizing the soil and its hydrogeologic properties under the facility.

(iv) All borings logs, test pit logs, soil analytical data, and any other data generated while preparing this report. A map shall be submitted showing the location of all borings, test pits, and soil sampling sites.

[Comment: This information may be shown on the map required in paragraph (F)(3)(h) of rule 3745-400-07, of the Administrative Code, which may also show the ground water monitoring well system as required for paragraph (A) of rule 3745-400-10 of the Administrative Code and for rule 3745-37-02 of the Administrative Code.]

(c) When ground water monitoring is required for a facility, a description and documentation of the first continuous significant zone of saturation underlying the facility. This description and documentation shall include the depth to and lateral and vertical extent of the first continuous significant zone of saturation underlying the facility. This description, using narrative, cross sections, and potentiometric maps, shall include the direction of flow within the first continuous significant zone of saturation underlying the facility.

(D) Incorporation by reference. The text of the incorporated materials is not included in this rule and are hereby made a part of this rule. Only the specific version specified in this rule is incorporated. Any amendment or revision to a referenced document is not incorporated until this rule has been amended to specify the new version. The materials incorporated by reference are available as follows:

(1) Federal statutes. The full text is available in electronic format at <http://www.gpo.gov/fdsys>. These laws are also available for inspection and copying at most public libraries and "The State Library of



Ohio." As used in this rule the appropriate versions are those versions of the laws amended through January 7, 2011, including the following:

(a) "Safe Drinking Water Act;" 88 Stat. 1660 (1974), 42 U.S.C. 300F.

(b) "National Flood Insurance Act of 1968;" 82 Stat. 572, 42 U.S.C. 4001.

(2) Other publications. The availability of these documents is provided below; however, many of the documents are also available for inspection and copying at most public libraries and "The State Library of Ohio."As used in this rule:

(a) United States department of agriculture, natural resources conservation service publication, "National Engineering Hydrology Handbook," updated March 1993. The full text is available in electronic format at <http://www.nrcs.usda.gov/wps/portal/nrcs/detailfull/national/water/?&cid=stelprdb1043063>.

(b) United States department of agriculture, natural resources conservation service technical release number 55, "Urban Hydrology for Small Watersheds," updated June 1986. The full text is available in electronic format at <http://ftp.wcc.nrcs.usda.gov/wntsc/H&H/other/TR55documentation.pdf>.