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3745-510-232

One hundred gallon per minute unconsolidated aquifer system.

The report on the hydrogeologic investigation identified in rule 3745-510-100 of the Administrative Code shall include clearly labeled and tabbed pages for the section titled "One Hundred Gallon per Minute Unconsolidated Aquifer System," and shall include the following:

(A) A report of the following:

(1) A determination, based on publicly available information, of whether an unconsolidated aquifer system capable of sustaining a yield of at least one hundred gallons per minute for a twenty-four-hour period is present or absent at the facility.

(2) If the applicant, owner, or operator chooses to refute the determination made pursuant to paragraph (A)(1) of this rule, the following:

(a) A description of the site investigation activities, including field testing and laboratory testing, directly related to determining whether and where an unconsolidated aquifer system capable of sustaining a yield of at least one hundred gallons per minute for a twenty-four-hour period exists at the facility.

(b) Summary logs and drawings appropriate for the subsurface investigatory method used to identify, locate, and characterize the subject unconsolidated aquifer system. The applicant, owner, or operator shall also include the yield of any aquifer system between the uppermost aquifer system and the subject unconsolidated aquifer system.

(c) A summary of results from field test and laboratory tests used to identify, locate, and characterize the unconsolidated aquifer system capable of sustaining a yield of at least one hundred gallons per minute for a twenty-four-hour period. If a field or laboratory test result was not used, include reasoning for excluding the result from consideration.

(B) If the applicant, owner, or operator chooses to refute the determination made pursuant to paragraph (A)(1) of this rule, results from the site investigation shall include the following:

(1) A brief description of each field test method and each laboratory test method used to characterize the geologic and hydrogeologic properties of the unconsolidated aquifer system.

(2) Information and results from each field test that was conducted, including completed, failed, or incomplete results. An explanation shall be provided for

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any test result that was not used. The results shall include the following information:

- (a) Quality assurance and quality control testing conducted by the laboratory to verify the accuracy and precision of testing methods and equipment.
  - (b) The results of data validation.
  - (c) The characterization of each specimen used in each test.
  - (d) Intermediate data produced during testing.
  - (e) The final results of each test.
- (3) All figures, drawings, or references used and marked to show how they relate to the characterization of the geologic and hydrogeologic properties.
- (4) Logs, including field notes and other pertinent information, from each subsurface investigatory site used to obtain information, data, or samples utilized to identify, locate, and characterize the subject unconsolidated aquifer system, the uppermost aquifer system, and all significant zones of saturation above the uppermost aquifer system. As appropriate for the method, logs shall include the following:
- (a) A description of where information, data, or samples were obtained, including, as appropriate, the following:
    - (i) The location of each site with northings and eastings referenced to the facility grid system or referenced to the following if a facility grid system was not established:
      - (a) Horizontally to the "1927 North American Datum," "1983 North American Datum," or "State Plane Coordinate System."
      - (b) Vertically to the "1929 or 1988 North American Vertical Sea Level Datum" as identified on the USGS 7.5 minute (topographic) map.
    - (ii) The surface elevation of each site to the nearest tenth of a foot.
    - (iii) The depth interval of all samples collected, including those samples submitted for laboratory testing.
  - (b) Information related to the subsurface investigatory method, including, as appropriate, the following:
    - (i) The diameter, or width and length at the surface, of the boring.

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- (ii) The total depth of the boring.
- (iii) The total depth of the well.
- (iv) The inside diameter of the well casing.
- (v) The top-of-casing elevation used for water level measurement reference, which shall be surveyed to the nearest hundredth of a foot.
- (vi) The screened interval depth and elevation, the screen slot size, and the inside diameter of the screen.
- (vii) The description of all construction materials and the elevations at which all construction materials were placed including at a minimum a description and depth of the following:
  - (a) Sand pack.
  - (b) Grout.
  - (c) Well seal.
- (c) The top and bottom elevations for each consolidated and unconsolidated stratigraphic unit.
- (d) Information or data on the characteristics, composition, and features for each consolidated and unconsolidated stratigraphic unit including the following:
  - (i) For unconsolidated stratigraphic units, the textural classification using the Unified Soil Classification System (USCS), as described in ASTM D2487 as described in rule 3745-500-03 of the Administrative Code.
  - (ii) For consolidated stratigraphic units, the rock type (such as limestone, dolomite, coal, shale, siltstone, or sandstone).
  - (iii) Color.
  - (iv) Moisture content.
  - (v) Stratigraphic features (such as layering, interbedding, and weathering).
  - (vi) Fracturing, jointing, and other types of secondary porosity, and any visible accessory minerals (such as pyrite, calcite, or gypsum).
  - (vii) Lateral extent.

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(viii) The depth to saturation.

(ix) The depth to the static water level in the boring.

(e) Information or data on the hydraulic conductivity according to the following:

(i) For each saturated unconsolidated stratigraphic unit, two field measurements of hydraulic conductivity or at least one measurement per saturated unconsolidated stratigraphic unit for each twenty acres, whichever is more.

(ii) For each unconsolidated stratigraphic unit from which an undisturbed sample can be collected, two laboratory measurements of vertical hydraulic conductivity or at least one measurement per unconsolidated stratigraphic unit for each twenty acres, whichever is more.

(iii) For each saturated consolidated stratigraphic unit, two field measurements of hydraulic conductivity or at least one measurement per saturated consolidated stratigraphic unit for each twenty acres, whichever is more.

(iv) When laboratory measurements of vertical hydraulic conductivity are obtained for unconsolidated stratigraphic units that are wholly or partially saturated, the vertical hydraulic conductivity shall be compared to the field hydraulic conductivity to evaluate the extent to which near-vertical fractures may be contributing to ground water flow through the unit.

(v) Hydraulic conductivity data shall be interpreted with respect to the primary and secondary porosity features that are observed or are reasonably expected to occur in the investigated units as well as the stratigraphic and structural features of the investigated units.

(f) All structural geologic features beneath the facility that may influence ground water flow in the subject unconsolidated aquifer system or in any significant zone of saturation above the uppermost aquifer system.

(5) Results of sampling and analyzing the ground water from the subject unconsolidated aquifer system.