

**TITLE 35: ENVIRONMENTAL PROTECTION**  
**SUBTITLE B: WASTE DISPOSAL**  
**SUBCHAPTER I: SOLID WASTE AND SPECIAL WASTE HAULING**

**PART 816**

**ALTERNATIVE STANDARDS FOR COAL COMBUSTION POWER  
GENERATING FACILITIES WASTE LANDFILLS**

**Section**

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AUTHORITY: Implementing Sections 5, 21, 21.1, 22, 22.17 and 28.1 and authorized by Section 27 of the Environmental Protection Act [415 ILCS 5/5, 21, 21.1, 22, 22.17, 28.1 and 27].

SOURCE: Adopted in R96-1 at 20 Ill. Reg.12614, effective August 15, 1996.

**Section 816.500      Scope and Applicability**

- a) Except as otherwise specified in this Subpart, landfills receiving solely flue gas desulfurization (FGD) sludges and coal combustion wastes produced by coal combustion power generating facilities shall be designed, constructed and operated in compliance with all applicable requirements of 35 Ill. Adm. Code 811, 812 and 815.
- b) All general provisions of 35 Ill. Adm. Code 810 apply to this Part.

**Section 816.510      Poz-O-Tec Liners and Caps**

Notwithstanding the liner and cap requirements set forth at 35 Ill. Adm. Code 811.306, 811.314 (solely to the extent that it may preclude Poz-O-Tec materials from being used as a landfill cap or liner) and 811.507(a)(5), FGD sludges and coal combustion waste produced by coal combustion power generating facilities may be used for liner or cap construction for the purposes of Subpart C of Part 811, provided that:

- a) These raw FGD sludges and coal combustion wastes have been processed into Poz-O-Tec materials;

- b) The permeability of the liner constructed of Poz-O-Tec material is demonstrated to be less than or equal to  $1 \times 10^{-7}$  cm/sec after placement and curing based upon a geometric average of the permeability testing results prior to the placement of any waste upon the liner;
- c) The Poz-O-Tec material has an unconfirmed compressive strength of greater than or equal to 150 psi based upon an arithmetic average of the strength testing results obtained in accordance with Section 816.530(c) of this Part;
- d) The bottom liner has a minimum thickness of three feet but this thickness may be increased as necessary to make the demonstrations required by 35 Ill. Adm. Code 812 or 815;
- e) The base of the liner is constructed at least five feet above the average historical groundwater table;
- f) Only coal combustion wastes and FGD sludges produced from power generating facilities are placed into the landfill;
- g) A final cover system is installed in accordance with the requirements of 35 Ill. Adm. Code 811.314 except that the low permeability layer of the cap shall consist of Poz-O-Tec materials which are at least three feet thick;
- h) The material testing procedures specified in Section 816.530 are implemented;
- i) The landfill is designed, constructed and operated in compliance with all applicable requirements of 35 Ill. Adm. Code 811, 812 and 815;
- j) The bottom liner and low permeability layer of the cap are constructed according to a construction quality assurance program in accordance with 35 Ill. Adm. Code 811.Subpart E;
- k) An acceptable groundwater impact assessment pursuant to 35 Ill. Adm. Code 811.317(b), 812.316, 813.304, or 815.203, as appropriate for the given facility, is submitted to the Agency by the owner or operator;
- l) A test liner is constructed by the owner or operator, so that all that remains is the curing of the test liner, before construction of the actual full-scale liner of Poz-O-Tec material may commence, in accordance with 35 Ill. Adm. Code 811.507(a)(1) through (4). The test liner must be fully evaluated in accordance with Section 816.530 and the results must be provided to the Agency. If the test liner evaluation results indicate a failure of the test liner to meet any of the

performance standards in this Section, and if the Agency so directs, the user must excavate and properly dispose of all Poz-O-Tec liners at the site, as well as any waste deposited in and around such liners; and

- m) Owners or operators using Poz-O-Tec materials in accordance with this Section shall comply with the Illinois Environmental Protection Act (415 ILCS 5/1 et seq.) and 35 Ill. Adm. Code 807, 810, and 811, to the extent those provisions are not otherwise addressed herein.

### **Section 816.520 Poz-O-Tec Monofills**

Any monofill receiving solely FGD sludges and coal combustion wastes produced by coal combustion power generating facilities shall be exempt from the requirements of 35 Ill. Adm. Code 811.105 (solely as it relates to the placement of wastes at the lowest part of the active face), 811.306, 811.307, 811.308, 811.309, 811.313 (solely as it relates to soil cover), 811.314(b)(3)(C) (solely to the extent that it may preclude Poz-O-Tec materials from being used as a landfill cap) and 811.321 (relating solely to waste placement), provided that:

- a) The FGD sludges and coal combustion wastes have been processed into Poz-O-Tec materials;
- b) The permeability of the liner constructed of Poz-O-Tec material is demonstrated to be less than or equal to  $1 \times 10^{-7}$  cm/sec after placement and curing based upon a geometric average of those cylinders tested for permeability which were formed from a single sample in accordance with Section 816.530(b);
- c) The Poz-O-Tec material has an unconfined compressive strength of greater than or equal to 150 psi using an arithmetic average of the strength testing results obtained in accordance with Section 816.530;
- d) The base of the monofill is constructed at least five feet above the average historical groundwater table;
- e) A monofill liner and low permeability cap is constructed from the Poz-O-Tec materials as described in Section 816.510;
- f) A drainage layer is constructed atop the monofill liner which has a permeability greater than or equal to  $1 \times 10^{-3}$  cm/sec which extends over the entire liner system of the monofill;
- g) The material is placed in such a manner that it will form a monolithic block through placement of the material in one to two foot lifts, which are compacted,

rolled to smooth and graded and sloped such that any rainfall rapidly runs off the upper surface without puddling;

- h) At all times a berm is maintained around three sides of the landfill mass and the grading is such that the run-off is directed toward the open side where it is collected for reuse or treated (if necessary) and discharged pursuant to an NPDES permit;
- i) The material testing procedures specified in Section 816.530 are implemented;
- j) Construction of the full scale monofill may commence immediately upon completion of the test pad;
- k) An acceptable groundwater impact assessment pursuant to 35 Ill. Adm. Code 811.371(b), 812.316, 813.304, or 815.203, as appropriate for the given facility, is prepared; and
- l) Owners or operators using the Poz-O-Tec materials in accordance with this section shall comply with the Illinois Environmental Protection Act [415 ILCS 5] and 35 Ill. Adm. Code 811, to the extent those provisions are not otherwise addressed herein.

### **Section 816.530 Testing of Poz-O-Tec Liners and Caps and Poz-O-Tec Monofills**

The owner or operator shall implement the following material testing procedures for testing Poz-O-Tec liners and caps and Poz-O-Tec Monofills:

- a) Creation and Sampling of Test Pad
  - 1) The owner or operator shall construct a test pad in accordance with 35 Ill. Adm. Code 811.507(a), unless such construction is waived by the Agency pursuant to subsection (b) of that section;
  - 2) The test pad shall be allowed to cure for 56 days at 73° Fahrenheit (or equivalent cure);
  - 3) After curing, fifty samples shall be taken using a 4 inch diameter coring bit; and
  - 4) The specimens shall be trimmed to proctor cylinder size utilizing an abrasive blade masonry saw, and tested for unconfined compressive strength and coefficient of permeability as described in subsection C, below. Of the specimens taken from the pad, 20 shall be analyzed for

their coefficient of permeability and 30 shall be analyzed for their unconfined compressive strength.

b) Collection of Production Samples

The owner or operator shall collect samples from the production of Poz-O-Tec in the following manner:

- 1) Utilizing a large scoop, five gallon buckets of freshly produced material shall be collected at uniform intervals during construction of the test pad and shipped to a laboratory for analysis.
- 2) Five proctor cylinder specimens shall be prepared from each bucket of freshly produced material. Three of these five cylinders shall be tested for unconfined compressive strength and the other two shall be tested for permeability.
- 3) Additional uncured samples shall be taken as necessary for preparation and testing to determine moisture content, lime content, the ratio of fly ash to sludge and in-place density. Testing for these parameters shall be conducted in accordance with standard test methods.

c) Strength and Permeability Testing

- 1) Uncured samples shall be taken to a laboratory, placed into proctor cylinders, compacted to simulate field conditions, cured in sealed containers for 56 days at 73° (or equivalent cure) and tested for coefficient of permeability and unconfined strength using the following test methods, which are incorporated by reference in 35 Ill. Adm. Code 810.104:
  - A) U.S. Army Corps of Engineers Engineering Manual 1110-2-1906 Appendix VII, Falling-Head Permeability Test with Permeameter Cylinder.
  - B) ASTM Method D5102; Standard Method for Unconfined Compressive Strength of Cohesive Soils.
- 2) Field samples shall be tested using the same methods as specified in subsection (c)(1) above.

d) Data Correlation

Laboratory data and field data shall be compared to determine any statistically significant differences using standard statistical correlation methodologies.

e) Subsequent Testing

Upon completion of field verification, as described above in (c)(2), the owner or operator of the site shall conduct quality control/quality assurance testing by taking monthly samples of freshly produced Poz-O-Tec materials and sending those samples to a laboratory where they shall be formed into proctor cylinder specimens for testing. Two of those samples shall be tested for their coefficient of permeability, three for unconfined compressive strength, and one each for the parameters set forth in subsection (b)(3) above. Laboratory testing for permeability and strength must be conducted in accordance with the test methods referenced in subsection (c) above. Test results must demonstrate a coefficient of permeability of less than or equal to  $1 \times 10^{-7}$  cm/sec using a geometric average of the permeability testing results, and an unconfined compressive strength of greater than or equal to 150 psi using an arithmetic average of the strength testing results.