



## Regulation 61-107.18

# SWM: Off-site Treatment of Contaminated Soil

Effective Date May 25, 2001

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**Division of Mining & Solid Waste Management**

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DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL  
CHAPTER 61

Statutory Authority: 1976 Code Sections 44-96-260, 44-96-290,  
44-96-300, 44-96-310, 44-96-360, and 44-96-450 (1991)

**R.61-107.18. Solid Waste Management: Off-site Treatment of Contaminated Soil**

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**A. Applicability.**

1. This regulation establishes minimum standards for the procedures, documentation, and other requirements which must be met for the proper site selection, design, operation, and closure of facilities treating contaminated soil and soil-like materials, here in after referred to as soil, which is not hazardous waste as defined by Resource Conservation and Recovery Act (RCRA), Public Law 94-580, and R.61-79, Hazardous Waste Management Regulations promulgated pursuant to the South Carolina Hazardous Waste Management Act, (SCHWMA), as amended, S.C. Code Ann. Section 44-56-10 et seq., and that has been excavated and is being treated off-site. Off-site treatment processes include, but are not limited to: biological, low-temperature thermal desorption, composting, prepared beds, bioreactors, soil slurry reactors, chemical oxidation, soil washing, incineration, and biopile technology. Other Department or other agency laws and regulations may apply to the treatment or handling of soil not addressed in this regulation and to other entities who might handle the soil before or after treatment.

2. This regulation is not applicable to on-site treatment of contaminated soil of any kind.

3. A research, development, and demonstration (RD&D) permit, pursuant to R. 61-107.10, Solid Waste Management: Research, Development, and Demonstration Permit Criteria, may be required for the treatment of soil based on the contaminant and the proposed treatment technology, and at the discretion of the Department.

**B. Definitions As Used In This Regulation.**

1. "Aerobic" means able to live, grow, or take place only when free oxygen is present.

2. "Biological treatment" means the degradation of contaminants of concern in soil by increasing the microbial activity through the aeration and/or addition of minerals, nutrients, and/or moisture.

3. "Biopile technology" means heaping contaminated soil into piles (or cells) and stimulating microbial activity within the soil through aeration and/or addition of minerals, nutrients, and/or moisture.

4. "Bioreactor" means a contained vessel in which biological treatment takes place, e.g., fermentor.
5. "BTEX" means the total chemical constituents benzene, toluene, ethyl benzene, and total xylenes.
6. "Chemical oxidation" means a chemical reaction that increases the oxygen content in a compound or a reaction in which an element or ion loses electrons, resulting in a more positive valence.
7. "Class I soil" means soil contaminated with one or more of the following contaminants: gasoline, jet fuels, diesel fuels, kerosene, distillate fuel oils (number one and number two fuel oils), and other contaminants as approved by the Department for this classification.
8. "Class II soil" means soil contaminated with one or more of the following contaminants: combination fuel oils (number three and number four fuel oils), residual fuel oils (number five and number six fuel oils), virgin lubricating oils, used oils, weathered oils, other petroleum based products not listed in Class I, and other contaminants as approved by the Department for this classification.
9. "Class III soil" means soil contaminated with any contaminant other than those listed under Class I or Class II.
10. "Composting" means treatment of contaminated soil by aerobic biodegradation of contaminants in an above ground, contained, or uncontained environment.
11. "Contaminated soil" means soil and soil-like material containing contaminants at a concentration that the Department has deemed poses a potential threat to human health and/or the environment and that does not constitute a hazardous waste, as defined by RCRA, the SCHWMA, and the Regulations promulgated pursuant thereto, as amended.
12. "Department" means the South Carolina Department of Health and Environmental Control.
13. "Existing facility" means those facilities in place and operating on the effective date of this regulation.
14. "Ex-situ" means the excavation of contaminated soil from its original location followed by treatment off-site.
15. "Facility" means all contiguous land, structures, other appurtenances and improvements on the land used for treating and storing waste. A facility may consist of several treatment, storage, or disposal operational units.
16. "generator" means any person whose act or process produces or results in contaminated soil.
17. "Incineration" means an ex-situ technology that uses heating to volatilize and combust organic constituents.
18. "In-situ" means the treatment of contaminated soil on-site without excavation of the soil.
19. "Leachate" means a liquid that has passed through or emerged from contaminated soil and contains soluble, suspended, or miscible materials removed from such soil.

20. "Low-Temperature Thermal Desorption" (LTTD), also known as "low-temperature thermal volatilization," "thermal stripping," and "soil roasting," means the ex-situ technology that uses heat to physically separate contaminants from excavated soil. Vaporized hydrocarbons may require treatment in a secondary treatment unit, such as an afterburner, prior to atmospheric discharge.
21. "New facility" means those treatment facilities not in place and operating on the effective date of this regulation.
22. "Off-site" means a location other than the property on which the contamination of the soil occurred and any contiguous property under the same ownership.
23. "On-site" means the property on which the contamination of the soil occurred and all contiguous property under the same ownership.
24. "Open-dumping" means any unpermitted solid waste disposal activity.
25. "Owner/operator" means the person who owns the land on which a solid waste management facility is located or the person who is responsible for the overall operation of the facility, or both.
25. "PAH" means polynuclear aromatic hydrocarbons
26. "Person" means an individual, corporation, company, association, partnership, unit of local government, state agency, federal agency, or other legal entity.
27. "Prepared beds" means a contained area above ground where soil can be tilled or variously manipulated to increase biological treatment, i.e., contained land farming.
28. "RD&D Permit" means a research, development and demonstration permit issued pursuant to R.61-107.10.
29. "Residence" means any structure, all or part of which is designed or used for human habitation, that has received a final permit for electricity, permanent potable water supply, permanent sewage disposal, and a certificate of occupancy, if required by the local government.
30. "Road base" means that portion of road construction which is overlain with a permanent impervious surface.
31. "Shipment" means all soil from the same release area.
32. "Soil-like material" means material, man-made or naturally occurring, that has good absorption capabilities and is used to absorb and bulk solid waste spills, e.g., kaolin clay, bentonite, kitty litter, sand, vermiculite.
33. "Soil slurry reactor" means biological or chemical treatment of soil by making a mixture with water and treating in a contained vessel.
34. "Soil treatment facility" means a facility that treats contaminated soil and soil-like material.
35. "Soil venting," means a method to remove volatile and semi-volatile contaminants from soil. A positive or negative air pressure is applied either passively or actively to soil to remove vapors which are

appropriately treated.

36. “Soil washing” means an ex-situ process to mechanically scrub soil to remove contaminants. Soil particles are separated from soil in an aqueous-based system. The wash water may be augmented with leaching agents, surfactants, pH adjustment or chelating agents.

37. “TCLP” means Toxicity Characteristic Leaching Procedure, a laboratory test used to determine if a substance is a hazardous waste due to leachability. The TCLP (Method 1311) is published in “Test Methods for Evaluating Solid Waste, Physical/Chemical Methods,” EPA Publication SW-846, as incorporated by reference in R.61-79.260.11.

38. “TPH” means total petroleum hydrocarbons.

39. “Treatment” means the off-site manipulation of contaminated soil in a confined and regulated environment to bring the soil into compliance with standards established in this regulation.

40. “Used Oil” means any oil that has been refined from crude oil or synthetic oil that has been used, and as a result of such use is contaminated by physical or chemical impurities.

41. “Virgin oil” means oil that has never been used or weathered.

42. “Waste profile sheet” means a form filled out by the waste generator outlining specific information regarding the generator, generator’s site location, generating process information, and a full waste characterization. This includes describing the chemical and physical (solid, liquid, or gas) characteristics of the solid waste, a description of the waste including a list of the chemical contaminants in the waste, analytical testing certification, quantity, and container size for proper disposal. The generator shall submit the waste profile sheet to the treatment facility for approval prior to shipment of soil pursuant to this regulation.

43. “Weathered oil” means oil that has been exposed to leaching and low-level biodegradation or biotransformation and soil chemical reactions for extended periods of time, resulting in a contaminant chemical composition that is no longer virgin oil.

### **C. General Provisions.**

1. The siting, design, construction, operation, and closure activities for facilities that treat contaminated soil shall conform to the standards set forth in this regulation, unless otherwise approved by the Department. Engineering plans, specifications, reports and other documents approved by the Department during the review process shall become enforceable documents upon issuance of a permit pursuant to this regulation. Facilities shall be constructed as approved and permitted.

2. Prior to the construction of a new soil treatment facility, a permit shall be obtained from the Department pursuant to this regulation. Prior to the modification of an existing soil treatment facility, as-built drawings of the existing facility which have current Department approval shall be submitted in addition to plans and specifications of proposed modifications to the facility. Any modification to the design/operation of a facility that would change the language of the permit shall receive prior Department approval.

3. Prior to operation of a new permitted soil treatment facility or a permitted modification to an existing facility, the facility shall be inspected by the Department and receive operational approval.

4. The Department reserves the right to require the soil treatment facility to acquire an RD&D permit

pursuant to Regulation 61-107.10 for any process or compound for which the information provided is deemed insufficient to establish the efficacy of the proposed process to the Department's satisfaction. If, after the two (2) years expiration of the RD&D permit, the process is proved to be a viable method for treating soil, a permit pursuant to this regulation may be issued for the process. Petroleum and other compounds that have been shown to be highly degradable via the proposed treatment process will not generally require a RD&D permit. A permit requested pursuant to this regulation may be denied should the process not be determined to be acceptable to the Department's satisfaction.

5. No later than six (6) months from the effective date of this regulation, existing soil treatment facilities shall submit to the Department a permit application with supporting documents as outlined in Section D of this regulation.

6. Failure to begin construction of the treatment facility within twelve (12) months of the issuance of the Department permit shall render that permit invalid.

7. Upon reasonable cause to suspect that the treatment facility and/or treatment process poses a threat to human health or the environment, the Department, upon notification to the owner/operator, may require the owner/operator to investigate and, if appropriate, develop and implement a corrective action program approved by the Department.

8. Soil treatment facilities shall demonstrate consistency with the host Region/County Solid Waste Management Plan pursuant to Section D. of this regulation.

9. Open dumping of contaminated soil is prohibited.

10. Soil treatment facilities shall adhere to Federal and State rules and regulations and local zoning, land use and other applicable local ordinances and OSHA requirements.

11. Transfer of ownership.

a. The Department may, upon prior written request, transfer a permit to a new owner or operator of a soil treatment facility where no other change in the permit is necessary. The proposed new owner or operator of a permitted soil treatment facility shall, at least forty-five (45) days prior to the scheduled change in ownership or operating responsibility, provide to the Department:

(1) Documentation of the new owner's name and address;

(2) Documentation of the name and address of the party responsible for the operation and maintenance of the facility, if different from the owner;

(3) A written agreement signed by the current owner/operator and the proposed new owner/operator indicating the intent to change ownership or operating responsibility of the facility. The agreement shall contain a specific date for the transfer of permit responsibility;

(4) Documentation indicating that the facility shall be operated in accordance with the existing permit in effect at the time of transfer;

(5) Documentation of financial assurance as required in Section E. of this regulation. The previous owner/operator shall maintain financial assurance responsibilities until the new owner/operator can demonstrate satisfactory compliance with the financial assurance requirements outlined in this regulation;

and,

(6) A disclosure statement as required in Section D. of this regulation.

b. Upon approval of all documents required by Item 11.a. above, the Department shall transfer the permit from the current owner/operator of the facility to the new owner/operator.

c. A request for a permit modification shall be submitted with the permit transfer request, if the facility will not be operated in accordance with the approved plans. The permit modification shall be in accordance with all provisions of this regulation.

d. The new owner shall submit legal documentation to the Department of the transfer of ownership of the facility within fifteen (15) days of the actual transfer.

12. All chemical and biological analyses required by this regulation for submittal to the Department shall be analyzed by a laboratory certified by the Department for that particular parameter.

13. All analytical methods used shall be appropriate for the parameters being quantified given the sample matrix (gasoline and diesel range organics at a minimum.) Quantification of total petroleum hydrocarbons shall employ appropriate extraction methods and include both short and long chain hydrocarbons.

14. Approval from the State Toxicologist shall be required when intergeneric (i.e., bioengineered) microorganisms or pathogenic (i.e., disease-causing) microorganisms are used in the proposed technology.

15. A maintenance plan shall be submitted that describes how each major component of the soil treatment facility and all associated equipment shall be maintained at the facility, and how the facility shall be operated in accordance with its intended use.

16. It is incumbent on the soil treatment facility to ensure that any soil-like material is compatible with the approved treatment process. Any contaminants in the soil-like material shall be treated to acceptable standards.

**D. Administrative Review.** All off-site soil treatment facilities shall request and obtain a Department permit pursuant to this regulation.

1. The first phase of the Department's review is the administrative review. All permit requests submitted to the Department shall include three (3) copies of the following documents for administrative review:

a. A letter from the host region/county of the soil treatment facility stating that the facility is consistent with the host region/county's solid waste management plan;

b. A letter of proof of proper zoning and land use from the county or city;

c. A letter from the Office of Ocean and Coastal Resources Management (OCRM) stating that the project is consistent with the South Carolina Coastal Zone Management Plan if the proposed treatment facility is located in the coastal zone as defined by the OCRM or stating that the facility is exempt from this requirement because it is not located in that zone;

d. A letter from the Department's air program stating that the project is consistent with the goals of



the South Carolina State Implementation Plan.

e. A disclosure statement, pursuant to S.C. Code Section 44-96-300, as amended. The Department may accept one disclosure statement for multiple facility permit applicants. Local governments and regions comprised of local governments are exempt from this requirement;

f. A cost estimate for complete closure of the facility. This estimate requires Department approval prior to the owner/operator establishing a financial assurance mechanism pursuant to Section E. of this regulation that shall ensure satisfactory closure of the facility;

g. A written request for any variances from the requirements of this regulation;

h. A completed permit application on a form provided by the Department, to include a brief description of the method of soil treatment;

i. Complete engineering plans and reports that are stamped by a South Carolina Licensed Professional Engineer in accordance with Section E. of this regulation; and,

j. A letter of approval from the State Toxicologist for the use of chemical and biological agents, if applicable.

2. When administratively complete, the Department will public notice the permit application and begin the technical review. Comments will be accepted throughout the technical review period.

**E. Technical Review and Design Requirements.** The Department's technical review of the permit application will involve the documents addressed in this section. All soil treatment facilities shall meet the criteria established in this section.

1. Siting Requirements.

a. Engineering Plans and Reports. The engineering plans and reports, pursuant to Section D.1.i. of this regulation, shall include the following documents:

(1) A site plan of the facility layout on a scale of not greater than two hundred (200) feet per inch clearly identifying conditions at the site. This plan shall at a minimum identify the following items:

(a) Identified on plan as "existing": property boundaries and all existing site conditions to be utilized in the operation of the soil treatment facility including, but not limited to, structures, access roads, on-site roads, parking areas, loading and unloading areas, soil storage areas, processing areas, fences, and gates; and

(b) Identified on plan as "proposed": all proposed site conditions that will be constructed including, but not limited to, structures, access roads, loading and unloading areas, soil storage areas, processing areas, fences, and gates; and,

(2) A location map that shows the location of all residences, schools, churches, day-care centers, hospitals, publicly owned recreational park areas, drinking water wells, monitoring wells, injection wells, roads, surface water bodies, dry runs, wetlands, the 100-year flood plain boundaries, and other applicable details regarding the general topography of the site and adjacent properties within one-fourth (3) mile of the proposed site's property line.

b. Depending on conditions defined in Items E.1.a.(1)(a) and (b), and E.1.a.(2) above, the Department may require additional hydrogeological investigation prior to permit approval.

c. Site Standards. The site for a new soil treatment facility or expansion of an existing facility shall meet the standards outlined below, unless otherwise approved by the Department. Compliance with these standards shall be demonstrated in the engineering plans and reports referenced in Section E.1.a. of this regulation.

(1) A soil treatment facility located in a 100-year floodplain shall not restrict the flow of the 100-year flood as demonstrated on a 100-year flood plain map.

(2) A soil treatment facility shall be in compliance with the U.S. Army Corps of Engineers and the U. S. Environmental Protection Agency requirements concerning wetlands, where applicable.

(3) The soil treatment and storage area boundaries, as identified in the location map, shall not be located within:

(a) One hundred (100) feet of any property line;

(b) Two hundred (200) feet of any residence, school, church, day-care center, hospital or publicly owned recreational park area;

(c) Two hundred (200) feet of any surface water body which holds visible water for greater than six (6) consecutive months, excluding drainage ditches, sedimentation ponds and other operational features on the site; and,

(d) One hundred (100) feet of any drinking water well.

## 2. Facility Layout Requirements/Design Criteria.

a. Engineering Plans and Reports. The engineering plans and reports, pursuant to Section D.1.i. of this regulation, shall, at a minimum, include the following:

(1) All pertinent engineering drawings, on a scale no greater than one (1) foot per quarter inch, that identify and distinguish all existing and proposed construction of items (a) & (b) listed immediately below. Representative cross sections shall be used to show compliance with these requirements.

(a) The treatment process; and,

(b) The entire soil treatment facility, including, but not limited to, loading/unloading area(s), in-coming contaminated soil storage area(s), out-going treated soil storage area(s), soil processing area(s), impermeable floor, containment system(s), alarm system, fire fighting system, and leachate control system, if applicable.

(2) Technical details and specifications necessary to support the engineering drawings and operation plans for the facility including, but not limited to:

(a) A general operating plan including, but not limited to, a description of the methods of keeping all incoming shipments of contaminated soil segregated, the types and maximum quantity of contaminated soil to be accepted on a yearly basis, the storage areas for in-coming contaminated and out-

going treated soil, the method(s) of preventing releases to the environment, and the measures taken to prevent unauthorized dumping and access.

(b) A plan for handling process waste water generated by the facility, if appropriate.

(c) A description of the treatment process. This detailed description shall, at a minimum, specify the methodology of the process to address how each of the following criteria impacts the process:

- (i) Temperature(s)
- (ii) Concentrations of contaminants
- (iii) Microorganism activity
- (iv) Nutrients - including oxygen
- (v) Physical adjustments (mixing, tilling, etc.)
- (vi) Moisture
- (vii) pH adjustments
- (viii) Soil characteristics
- (ix) Concentrations of chemicals added
- (x) Process by-product(s), and
- (xi) Any other criteria applicable to the process to be used.

(d) A soil screening plan to ensure that the facility accepts only properly characterized soil that it is permitted to treat, and removes only the soil from the soil treatment facility that has been tested and meets the standards set forth in this plan. This portion of the plan shall, at a minimum, specify the following:

- (i) The criteria from which determinations are made on whether to accept or reject contaminated soil;
- (ii) The procedure and time frame that will be used to verify that waste profile sheets provided by the generator match all shipments of soil;
- (iii) The procedure and time frame that will be taken if an incoming shipment of contaminated soil does not match the waste profile sheet provided by the generator including, but not limited to, a description of how the shipment will be managed and stored or removed based on the type waste;
- (iv) The criteria used to determine whether the shipment of treated soil meets the standards for removal from the soil treatment facility;
- (v) The procedure for the proper handling, storage, and removal of all treated soil; and,
- (vi) Analytical procedures and protocols.

(e) Upon receipt of a petition, the Department may consider sampling reduction based on consistent demonstration of treatment results. The petition shall include technical justification and a proposed alternate sampling plan. Upon approval by the Department in writing, the facility's permit will be amended to reflect the change in sampling frequency and the new sampling plan may be implemented.

(f) A contingency plan that describes a technically and financially feasible course of action to be taken in response to contingencies during the operation of the facility. This plan shall set forth procedures to be employed during periods of non-operation, e.g., equipment breakdown which may require standby equipment, extension of operation hours, or diversion of shipments to other facilities. The plan shall be designed to minimize hazards to human health and the environment from fires, explosions, or any unplanned sudden or non-sudden release of potentially harmful constituents to air, soil or surface water.

(g) A detailed closure plan which shall identify the steps necessary to close the facility. It shall identify the components at the facility that will remain in-place and those that will be removed. The plan shall be amended whenever changes in operating plans or facility design effect the closure plan. The plan shall address the satisfactory maintenance, closure and post-closure care, monitoring and/or corrective action, if appropriate.

(h) A plan for training personnel to perform their duties in a way that ensures the facility's compliance with this regulation and their health and safety.

b. Design Standards. Unless otherwise approved by the Department, all soil treatment facilities shall be designed in accordance with the following standards:

(1) Access to the facility shall be controlled through the use of fences, gates, berms, natural barriers, or other means to prevent unauthorized dumping and access;

(2) Contaminated soil awaiting processing shall be completely contained from the outside environment and shall be:

(a) Placed only on an impermeable surface, e.g., sealed concrete;

(b) Stored in such a manner as to prevent releases to the environment; and,

(c) Covered with either a structure or an impermeable cover.

(3) The Department may require the process area to be covered and containment barriers installed based on the technology approved. During processing, soil shall be:

(a) Placed only on an impermeable surface, e.g., sealed concrete; and,

(b) Maintained in such a manner as to prevent releases to the environment.

c. Operation Standards.

(1) The facility shall be operated and maintained in a manner which will protect the established water quality standards of the surface and ground waters, and the air quality standards.

(2) Dust, odors, fire hazards, litter and vectors shall be effectively controlled so they do not

constitute nuisances or hazards.

(3) Personnel Training. The personnel training program shall at a minimum:

(a) Identify positions that will require training and a knowledge of the procedures, equipment, and processes at the facility;

(b) Instruct facility personnel in how to perform their duties in a way that ensures the facility's compliance with this regulation, including the proper procedures for handling unauthorized solid waste;

(c) Instruct facility personnel in the proper responses to all emergencies and require employees to become familiar with the contingency plan, emergency and safety equipment, emergency procedures and emergency systems; and,

(d) Document employee training. This documentation shall be maintained at the facility for all employees. Documentation of training shall include the following:

(i) The job title for each position related to solid waste management at the facility and the name of the employee filling each position;

(ii) A written job description for each position including the requisite skill, education or other qualifications, and duties of employees assigned to each position;

(iii) A written description of the type and amount of both introductory and continuing training that will be given to each employee; and,

(iv) Records that document the training and/or job experience completed by each employee. Training records for each employee shall be maintained at the facility for a minimum of three (3) years for all current personnel.

(4) Soil containing non-compatible contaminants shall not be mixed during processing.

(5) Any contaminated soil received that is not acceptable for treatment, based on the facility's permit, shall be removed from the facility within ten (10) days of receipt in accordance with an approved contingency plan. Should the facility receive known or suspected hazardous wastes, a representative of the facility shall call the appropriate Department EQC District Office within twenty-four (24) hours of receipt.

(6) A waste profile sheet shall be provided with each soil shipment received by the soil treatment facility.

(7) Leachate and washwater from a soil treatment facility, including soil storage areas, shall not be allowed to drain or discharge into waters of the State unless an effluent disposal permit, i.e., National Pollutant Discharge Elimination System (NPDES), No Discharge (ND), or Underground Injection Permit, has been granted by the Department.

(8) Treated soil stored outside shall be managed in such a manner as to comply with S.C. Regulation 61-9, Water Pollution Control Permits and the NPDES General Permit issued pursuant to Regulation 61-9, as amended.

(9) A construction permit from the Department's air program shall be required for the storage or processing of any soil that may cause the release of any regulated air pollutant unless an exemption is granted pursuant to S.C. Regulation 61-62.1.II.A, Air Pollution Control Regulations and Standards.

(10) Treated soils for restricted use shall be stored on a covered, nonporous surface.

(11) Emergency Preparedness. In addition to requirements set forth in the contingency plan, all soil treatment facilities shall, at a minimum:

(a) Provide access to fire equipment and make provisions for availability of local fire-fighting services;

(b) Be equipped with a device, e.g., telephone or hand held two-way radio, at the scene of operations capable of summoning emergency assistance from local police departments, fire departments, and State or local emergency response teams;

(c) Be equipped with portable fire extinguishers and other fire control equipment; and,

(d) Ensure that facility personnel are trained to respond effectively to all emergencies, including different types of fires, by familiarizing them with the contingency plan, emergency and safety equipment, emergency procedures and emergency systems.

(12) Signs. Signs shall be posted and maintained in conspicuous places which:

(a) Identify the owner, operator, or a contact person and telephone number in case of emergencies and the hours during which the facility is open for business;

(b) Identify that the facility is a soil treatment facility; and,

(c) Identify the valid DHEC Solid Waste Permit Number for the soil treatment facility.

(13) Financial Assurance. Prior to accepting contaminated soil, soil treatment facilities shall fund a financial responsibility mechanism acceptable to the Department to ensure the satisfactory maintenance, closure and post-closure care. A final closure cost estimate, based on third party costs to complete closure by disposing of the maximum quantity of material at a facility, shall be calculated annually and adjusted annually, as necessary. Local governments are exempt from this requirement until such time as federal regulations require such local governments or regions to demonstrate financial responsibility for such facilities and the Department promulgates regulations addressing this issue.

## **F. Standards.**

1. General Requirements. Soil shall be treated in accordance with the following criteria:

a. Soil shall be treated to levels that are protective of human health and the environment as approved by the Department. Treatment standards shall be based in part upon the intended use of the soil after the treatment process is complete. It is the responsibility of the permitted treatment facility to provide to the user of the treated soil written notice stating the treatment goals achieved and the end use of the soil as approved by the Department, including any restrictions on the use of the soil that are included in the facility's permit or in this regulation.

b. Contaminated soil treated under the purview of this regulation shall not be used to grow edible food crops nor to supplement soil used for the purpose of growing edible food crops. Other agricultural uses of soil treated under this regulation shall require approval from the Department prior to use.

c. Soil treated under the purview of this regulation shall not contain benzene in excess of 5 ppb after treatment unless it can be demonstrated that the end use of the treated soil will not impact groundwater such that it would exceed 5 ppb benzene or cause an adverse risk to human health as determined by the Department. Any soil treated to >5 ppb benzene shall be for restricted end use to be approved by the Department.

d. The type, composition, breakdown products and potential affect to human health and the environment shall be provided for all materials or microorganisms introduced into the soil for treatment purposes. In addition, the breakdown products for the microorganisms and contaminants being treated in the process shall be clearly defined.

e. The Department may require additional soil testing and/or alternate treatment activities, and/or soil removal for proper disposal, if the permittee is unable to demonstrate that the treatment process is effective, or the process has failed to perform to design standards. Additional testing and/or treatment may be required if constituents are present in the soils for which the permitted treatment process will not be effective, e.g., metals.

f. Based on the nature of the treatment process and the types of soil proposed for treatment at the facility, the Department may require additional environmental monitoring to be performed at the facility. Likewise, additional engineering provisions may be required by the Department to ensure protection of human health and the environment.

g. Contaminated soil shall be categorized into three classes, i.e., Class I, Class II, or Class III, based on the contaminants present in the soil. Treatment levels to be achieved for each class of soil differ.

h. Soil treated under the purview of this regulation shall be used in a manner which minimizes contact with the seasonal high water table.

i. When facilities co-mingle compatible soils prior to treatment, the end use of the treated co-mingled soil shall be limited to the most conservative end use as determined from the approved end uses identified for each of the co-mingled soils by permit.

2. Class I. Class I soil is soil contaminated with one or more of the following contaminants: gasoline, jet fuels, diesel fuels, kerosene, and distillate fuel oils (number one and number two fuel oils.) Treatment levels for Class I contaminated soil shall depend on the planned end use of the soil after treatment processes are completed:

a. All Class I contaminated soil shall be analyzed for total petroleum hydrocarbons (TPH), and total benzene, toluene, ethyl benzene and xylene (BTEX).

b. Class I contaminated soil which is for restricted specific end uses as approved by the Department, e.g., as cover at municipal solid waste landfills, or in road base or similar types of construction, shall, unless otherwise approved by the Department, be treated to the following levels or below for TPH and BTEX:

<u>TPH</u>	<u>BTEX (total)</u>
200 ppm	20 ppm (with Benzene <5 ppb)

c. For all unrestricted end uses, Class I contaminated soil shall be treated to the following levels or below for TPH and BTEX:

<u>TPH</u>	<u>BTEX (total)</u>
10 ppm	1 ppm (with Benzene <5 ppb)

d. Alternate treatment levels may be specified by the Department based on the intended final use of the soil and the potential risk to human health and the environment.

e. The Department may require testing of incoming batches of contaminated soil and treated soil for additional parameters other than TPH and BTEX should there be reason to believe that other parameters of potential concern are present in the soil. Treatment levels for these additional parameters shall be determined by the Department on a case-by-case basis, taking end use into consideration and potential risk to human health and the environment.

3. Class II. Class II soil is soil contaminated with one or more of the following contaminants: combination fuel oils (number three and number four fuel oils), residual fuel oils (number five and number six fuel oils), virgin lubricating oils, weathered oils, and used oils that have not been mixed with other waste. Treatment levels for Class II contaminated soil shall depend on the planned end use of the soil after treatment processes are completed:

a. All Class II soil shall be analyzed for TPH, BTEX (total), and polynuclear aromatic hydrocarbons (PAH.)

b. Class II contaminated soil, including contaminated soil with polynuclear aromatic hydrocarbons (PAH) levels that exceed those levels listed in the current EPA approved Risk Based Concentrations (RBC) tables as determined by the Department, shall be restricted to specific end uses as approved by the Department, e.g., as cover at municipal solid waste landfills, or in road base or similar types of construction. Unless otherwise approved by the Department, this soil shall be treated to the following levels or below:

<u>TPH</u>	<u>BTEX (total)</u>	<u>PAH</u>
200 ppm	20 ppm (with Benzene <5 ppb)	≥ RBC values

c. For all unrestricted end uses, Class II contaminated soil shall be treated to the following levels or below:

<u>TPH</u>	<u>BTEX (total)</u>	<u>PAH</u>
10 ppm	1 ppm (with Benzene <5 ppb)	< RBC values

d. Soil contaminated with used oil and soil contaminated with weathered oil shall be considered as Class II.a. soil and shall be restricted to specific end use, as approved by the Department.

e. Alternate treatment levels may be specified by the Department based on the intended final use of the soil and the potential risk to human health and the environment.

f. The Department may require testing of incoming batches of contaminated soil and treated soil for additional parameters other than TPH, BTEX, and PAH should there be reason to believe that other parameters of potential concern are present in the soil. Treatment levels for these additional parameters shall be determined by the Department on a case-by-case basis, taking end use into consideration and potential risk to human health and the environment.



4. Class III. Class III soil is soil contaminated with any contaminant other than those listed under Classes I and II above.

a. Facilities applying for a Class III permit under this regulation shall submit for Department review, technical data that demonstrates that the proposed soil treatment technique can treat soil to concentration levels equal to or less than those levels listed in the current EPA approved Risk Based Concentrations (RBC) tables as determined by the Department. If the applicant fails to submit data, or the Department determines that the data submitted is insufficient, the facility shall obtain a Research, Development, and Demonstration (RD&D) permit as outlined in R.61-107.10. If the facility demonstrates to the Department under the RD&D permit that the soil treatment technique used is effective on each contaminant to be treated without the creation of harmful degradation products, the Department will issue the facility a Class III permit, pursuant to this regulation.

b. The permittee shall submit a list of contaminants to the Department for review and approval based on the chemical and physical nature of the Class III contaminated soil. Based on this information, the Department shall determine appropriate levels of treatment.

c. All Class III soil shall be analyzed for parameters approved by the Department.

d. The end use of Class III contaminated soil shall be approved by the Department prior to accepting the soil for treatment. Treatment levels for soil to be treated shall be determined by the Department on a case-by-case basis, and based on the intended end use. The Department will take potential risk to human health and the environment into consideration when determining appropriate treatment levels. These site specific determinations may be based on current EPA approved risk based concentrations (RBC) tables, toxicological review, scientifically defensible published data which are appropriate for use in developing permit limits and contaminant levels for which EPA has not developed national criteria or for which South Carolina has no standards. The Department will consider the site specific routes of potential exposure and the hydrogeological conditions for the potential to leach contaminants to the water table, and will use health and/or technical literature.

e. Those treatment processes which can be proved to the Department to effectively treat the contaminants in the Class III contaminated soil may be exempted from the requirements to obtain a RD&D permit under R.61-107.10 and may be permitted under this regulation. In all cases, the Department shall retain the authority to set treatment levels based on end use considerations to ensure treatment is protective of human health, surface water standards, and ground water standards.

5. Facilities may be permitted to treat only Class I soil, only Class II soil, only Class III soil, or a combination of any of these soil types. Any facility treating a combination of contaminated soil types that includes Class III soil type may be required to receive a permit under the authority of this regulation, and also a RD&D permit. Upon the two years expiration of the RD&D permit, if the process is proved to be a viable method for treating soil, the facility's existing permit issued under the authority of this regulation may be amended to include the treatment process proved viable under the RD&D permit.

#### **G. Monitoring and Reporting Requirements.**

1. Should the Department have evidence to suspect potential environmental and/or health problems associated with the treatment facility, monitoring (including groundwater, surface water, and air quality) may be required by the Department, as appropriate, and based on a case-by-case evaluation to ensure protection of the environment.

2. An annual report, on a form provided by, or acceptable to, the Department, shall be submitted to the Department by October 15 for the previous fiscal year (July 1 through June 30,) which includes, at a minimum, the following information:

- a. The total quantity in tons of contaminated soil received at the facility for the previous fiscal year;
- b. The total quantity in tons of treated soil transported off-site and the destination of this soil; and,
- c. The county in South Carolina in which the contaminated soil originated, or the State if the soil originated outside South Carolina.

3. Analytical data showing that all treated soil met appropriate standards, pursuant to Section F. of this regulation, prior to removal from the facility, shall be maintained on-site for a minimum of five (5) years from the date the results are received from the laboratory. This data shall be generated by a laboratory certified by DHEC for the required parameters and in accordance with SW-846, Chapter 9. This data shall be made available to the Department upon request.

4. Documentation related to the acceptance, rejection, storage, operational data, and proper disposal of all contaminated soil received by the facility shall be maintained for a minimum of five (5) years, and made available to the Department upon request.

5. Upon implementation of the contingency plan, the owner or operator shall immediately notify the Department (using the 24-hour number 803-253-6488) and note, in the operating record and annual report, the following information:

- a. The name, address and telephone number of the operator and the facility;
- b. The date, time and type of incident (spill, fire, explosion, etc.); and,
- c. The extent of physical damages to the operational part of the facility.

6. Upon request by the Department in response to a notification made in Item 5 of this Section, a written report shall be submitted to the Department that includes the following information:

- a. An assessment of actual or potential hazards to human health or the environment, where this is applicable;
- b. The procedures or equipment available to prevent a recurrence of the reported event; and,
- c. Any long-term corrective action proposals. Upon Department review and approval, the corrective action proposal shall be implemented.

7. Records of all monitoring and reporting information, pursuant to these regulations, shall be maintained at the facility for a minimum of five (5) years from the sample or measurement date, unless otherwise specified by the Department. These reports shall be made available to Department personnel upon request.

**H. Closure and Post-Closure Procedures.** The following closure and post-closure procedures addressed in this section apply to all soil treatment facilities:

1. At least sixty (60) days prior to closure, the owner or operator shall submit to the Department written notice of intent to close and a proposed closure date;
2. Upon closing, the owner or operator shall immediately remove all treated soil, properly dispose of any waste associated with the treatment process, transport all contaminated soil to either another permitted soil treatment facility or permitted disposal facility, and post signs at the facility which state that the facility is no longer in operation;
3. Within thirty (30) days of final removal of all contaminated and treated soil, the owner or operator shall complete closure as outlined in the facility's approved closure plan and notify the Department;
4. After receiving notification that the facility closure is complete, the Department will conduct an inspection of the facility. If all procedures have been correctly completed, the Department will approve the closure in writing, at which time the Department permit shall be terminated; and,
5. If the Department's inspection reveals that closure, as outlined in the facility's approved closure plan, is incomplete, the owner or operator shall submit to the Department a post-closure care plan for Department approval to address the deficiencies noted by the Department. Post closure environmental monitoring and/or corrective action may be required. This post-closure care plan, if required, shall be submitted within thirty (30) days of the inspection, and shall include a time table.

**I. Violations and Penalties.** A violation of this regulation or any permit, order, or standard issued pursuant to or related to this regulation subjects the person to the issuance of a Department order or to civil enforcement action in accordance with S.C. Code Section 44-96-450, as amended, which may include civil penalties in accordance with the Solid Waste Policy and Management Act (SCPMA) and any amendments thereto. Willful violation of this regulation or any permit, order, or standard issued pursuant to or related to this regulation subjects the person to the issuance of a Department order which may also include civil penalties in accordance with the SCPMA, as amended, and may also result in a criminal enforcement action in accordance with S.C. Code Section 44-96-450, as amended. Any person to whom an administrative order is issued may appeal it as a contested case pursuant to R.61-72, Procedures for Contested Cases, and the S.C. Administrative Procedures Act, S.C. Code Section 1-23-310 et seq., as amended.

**J. Severability.** Should any section, paragraph, sentence, clause or phrase of this regulation be declared unconstitutional or invalid for any reason, the remainder of this regulation shall not be affected thereby.