

**SPECIAL CONDITIONS**  
**GENERAL PERMIT NO: WMGI001**

1. The statewide permit herein granted is limited to the processing of infectious waste using microwave radiation technology. The microwave equipment design, as permitted under this general permit, at a minimum, shall contain the following components: a system capable of loading infectious waste, shredding the waste and filtering the resultant contaminated air prior to its discharge in order to prevent pathogen release into the ambient air; a microwave generating section; and processed waste discharge equipment. Infectious waste processing shall be carried out in an enclosed system to protect employee and public health, safety, welfare, and the environment.
2. This permit does not authorize a person or municipality to operate a commercial infectious waste processing facility, as defined in Section 271.1 of the municipal waste management regulations.
3. Except for infectious waste, this permit prohibits the storage, processing, treatment, or disposal of solid waste.
4. The permittee shall locate the microwave equipment, at the waste generating facility, in an area where unauthorized access by the employees, patients, patrons of the facility, and the general public is restricted. If the facility is located outside a building, in an open area, steps shall be taken to restrict unauthorized access to the waste processing facility. Warning signs shall be clearly visible with respect to the type of waste processed and the processing facility.
5. The microwave waste processing equipment, under this general permit, shall be operated in accordance with all the conditions established by its manufacturer.
6. In the event of system shutdown or failure, the load of waste being processed shall be reprocessed after the equipment is repaired. No additional infectious waste shall be loaded into the processing equipment, until after the cause of the shutdown or failure is fully investigated, corrected, and confirmed by the operator.
7. During periods of extended equipment failure or shutdown, infectious waste may be stored for no more than the time limits indicated in Section 284.413. During such periods, infectious waste accepted from offsite generators may be stored for no more than the time limits indicated in Section 284.414. If the facility is not back in operation within 30 days, offsite waste shall not be accepted until the facility is back in operation. During such periods, both onsite and offsite generated infectious waste shall be manifested and transported by a licensed infectious waste transporter to an infectious waste processing facility, in accordance with the Department rules and regulations.
8. The storage of infectious waste and the processed residue shall comply with the applicable storage standards in Sections 284.401-.416, and 284.419.

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9. Nothing in this permit shall be construed to supersede, amend, or authorize a violation of any of the provisions of any valid and applicable local law, ordinance, or regulations, providing that said local law, ordinance, or regulations is not preempted by the Solid Waste Management Act, 35 P.S. §6018.101 et seq; and the Municipal Waste Planning, Recycling and Waste Reduction Act of 1988, 53 P.S. §4000.101 et seq.
10. As a condition of this permit and of the permittee's authority to conduct the activities authorized by this permit, the permittee hereby authorizes and consents to allow authorized employees or agents of the Department, without advance notice or search warrant, upon presentation of appropriate credentials and without delay, to have access to and to inspect all areas on which solid waste management activities are being, will be, or have been conducted. This authorization and consent shall include consent to collect samples of waste, soils, water, or gases; to take photographs; to perform measurements, surveys, and other tests; to inspect any monitoring equipment; to inspect the methods of operation; and to inspect and/or copy documents, books, and papers required by the Department to be maintained. This permit condition is referenced in accordance with Section 608 and 610 (7) of the Solid Waste Management Act, 35 P.S. Section 6018.608 and 6018.610 (7). This condition in no way limits any other powers granted under The Solid Waste Management Act.
11. This permit does not convey any property rights, either in real estate or materials, or in any privileges; nor does it authorize any injury to property or invasion of rights or any infringement of Federal, State, or local laws or regulations.
12. Approval of any plans or facilities herein refers to the functional design, but does not guarantee operational efficiency. Failure of the measures and facilities herein approved to perform as intended, or as designed, or in compliance with the applicable laws, rules and regulations, and terms and conditions of this permit, for any reason, shall be grounds for the revocation or suspension of the permittee's approval to operate under this permit.
13. Any independent contractors or agents retained by the permittee to construct or operate these facilities shall be subject to prior compliance history review by the Department as specified by The Solid Waste Management Act of 1980.
14. The activities authorized by this permit shall not harm or present a threat of harm to the health, safety, or welfare of the people or environment of this Commonwealth. The Department may modify, suspend, revoke, or reissue the authorization granted in this permit if it deems necessary to prevent harm or the threat of harm to the public health or the environment or if the facility, otherwise, cannot be adequately regulated under the conditions of this permit.

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15. Equipment used for the storage and processing of infectious waste shall be maintained in good operating condition. Daily inspection of the facility, its equipment, and surrounding area are to be conducted to determine its operating status and any evidence of equipment failure. A plan for the alternative storage and processing of infectious waste, during periods of equipment breakdown or emergencies, shall be developed and retained at each processing facility.
16. The storage and processing of infectious waste at the processing facility and its transportation, when applicable, shall be carried out in a manner which prevents the harborage or breeding of vectors and the creation of other nuisances which may be harmful to the public health, welfare, safety, or the environment.
17. The permittee shall notify the Department within 24 hours of any spills or accidental discharges which may enter the environment or which may have an adverse impact on public health.
18. The permittee shall comply with the terms and conditions of this general permit and with the environmental protection acts to the same extent as if the activities were covered by an individual permit. The Department may require the permittee to apply for, and obtain, an individual permit if the permittee is not in compliance with the conditions of this general permit or is conducting an activity that harms or presents a threat of harm to the health, safety, or welfare of the public or the environment.
19. Upon cessation of operations at the processing facilities, the operator shall remove any infectious waste and structures or other materials which contain or have been contaminated with infectious waste and shall provide for the processing and disposal of the waste or material in accordance with the Solid Waste Management Act, the Infectious and Chemotherapeutic Waste Disposal Act, the environmental protection acts, and the regulations promulgated thereunder.
20. The microwave processing of infectious waste shall meet the following performance standards:
  - a. All waste shall be thoroughly heated and maintained at 95° C or above, for a minimum of 40 minutes.
  - b. All waste shall be carried through the microwave section using a conveyer system or auger device and in a manner which ensures that the requirements of (a) are met.
  - c. All waste shall be shredded to a size consistency which ensures that the requirements of (a) above are met.
21. The number of microwave energy generating units (magnetron tubes), installed and operated, in a microwave processor shall be sufficient to meet the performance standards in

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Condition 20 and the disinfection standard, as established in Section 284.321(a) of the regulations. An adequate number of temperature sensors shall be located at appropriate locations to monitor waste temperature, as waste enters and exits the microwave section.

22. Shredding of the infectious waste, prior to disinfection, must occur within a continuous and enclosed disinfection process.
23. All infectious waste, **except the following**, may be processed by the microwave technology: Human or animal body parts including organs, chemotherapeutic waste, and commingled infectious and chemotherapeutic waste. In addition, radioactive waste, hazardous waste, residual waste, and other types of municipal waste shall not be processed in the microwave unit.
24. An air filtration system shall be installed to extract steam/air from the infeed hopper. It shall consist of a pre-filter, a HEPA (High Efficiency Particulate Air) filter, and a carbon filter. The HEPA filter shall be a Type D filter with a removal efficiency not less than 99.9995 % for 0.12 micron particles. Filters shall be installed and validated prior to equipment operation, as per the manufacturer's installation guidelines. All filters shall be inspected daily as per the preventive maintenance guidelines by the manufacturer. A continuous differential pressure meter shall be installed for monitoring and recording the pressure drop across the HEPA filter which shall be replaced when the pressure drop across the filter reaches 2.4 inches in H<sub>2</sub>O.
25. The exhaust air released into the ambient air, from the air filtration system, shall comply with the fugitive emission standards and the malodor standards adopted under the PA Air Pollution Control Act and the rules and regulations of Chapter 123, promulgated there under.
26. On removal from the microwave equipment, air filters shall be managed as infectious waste and disposed as such.
27. A person or municipality (registrant) proposing to operate under the terms and conditions of this general permit, after the date of its issuance, must register with the Department's Bureau of Land Recycling and Waste Management, Division of Municipal and Residual Waste, P.O. Box 8472, Harrisburg, PA 17105-8472, at least 30 days prior to commencing the noncommercial microwave disinfection of infectious waste. At a minimum, the following information must be submitted on application forms provided by the Department:
  - a. Name and street address of the registrant.
  - b. Location of the processing equipment.
  - c. Contact person (name and title).

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- d. The registrant must have documented ownership interest in the waste processing equipment. The registrant may contract with an independent contractor to construct, operate, and maintain the equipment.
  - e. Total volume of infectious waste to be processed on a daily or monthly basis.
  - f. If waste will be accepted from offsite generators, their names, addresses, infectious waste generating locations, and weights or volumes of infectious waste to be accepted for processing, on a daily or monthly basis, from each waste generator.
  - g. Number and title of the general permit.
  - h. Documentation that the categories of infectious waste to be processed are consistent with the general permit.
  - i. Site-specific facility operation plan including ongoing equipment maintenance and employee training plan, as required by the Department's municipal waste management regulations.
  - j. A signed and notarized statement by the registrant that the registrant accepts all the terms and conditions included in the general permit.
  - k. A registration fee in the amount specified in Section 284.133(a)(1) of the municipal waste management regulations made payable to the "Commonwealth of Pennsylvania."
  - l. Proof that copies of the registration have been submitted to each municipality and county in which the microwave processing facility will be located.
  - m. Documentation that the registrant has legal right to enter the land and operate the facilities approved under this permit. The registrant shall identify any and all pending litigations contesting their rights to enter upon the land where the processing equipment will be operated.
  - n. An irrevocable written consent from the landowner giving the Department permission to enter upon land where the registrant will be conducting infectious waste processing activities under this general permit.
  - o. A Contingency Plan for the facility in accordance with the Department's municipal waste management regulations for a waste processing facility.
  - p. Documentation of compliance history of the registrant.
  - q. Documentation of the compliance history of any independent contractor, retained to operate or construct the facility, as specified in (d) above.
  - r. Submission of a disinfection monitoring protocol, for Department approval, consistent with Condition 30 of this permit.
28. Any person or municipality, who registered to operate under the provisions of this general permit, may amend the registration to operate microwave waste processing equipment at a new location or to expand the existing operation by submitting to the Department a request to modify the existing registration, as follows:
- a. For expansion of the existing operation, submission of information, as required in items e, f, and h, of Condition 27 above, is mandatory whereas items n, and o are required only when the information related to land ownership by the registrant has changed. Similarly, information related to item r in Condition 27 above, is required if the

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- processing equipment is different from the equipment permitted under the existing registration. This request shall be submitted, at least, 30 days prior to starting the new or expanded operation.
- b. For a new operation at a new location, the information required in items a, b, c, d, e, f, g, h, j, l, m, n, o, p, q and r of Condition 27, above, must be submitted.
29. Upon completion of the 30-day waiting period, after the submission of the registration or amendment to the registration, the permittee may conditionally operate, under the general permit, pending final action by the Department on the registration application or the amended registration request.
30. Infectious waste shall be monitored during waste processing, using spores of *Bacillus subtilis*, variety niger (globigli), as required by Section 284.321(a)(2), at a minimum, every 40 hours of the equipment operation. The disinfection monitoring procedures shall be based on an established protocol, designed using standard microbiological testing procedures, to ensure disinfection. The protocol shall be submitted for approval, as part of permit registration. A minimum of  $1 \times 10^6$  or greater test articles stated above, in replicate samples with proper controls, shall be used during disinfection monitoring. A 4 log 10 reduction or greater in the samples tested shall indicate that waste processing meets the disinfection standard of Section 284.321(a)(2). The test articles used shall be of the American Type Culture Collection (ATCC) variety.
31. When the microwave disinfection equipment, registered under this permit is installed, disinfection monitoring using indicator organisms, shall be conducted once per day, until the test meets the disinfection standard for 5 consecutive days. At least 40 test and 2 control samples of *B. subtilis*, variety niger (globigii) shall be used during each validation. The results shall be certified to meet the requirements of Section 284.321(a)(2) and kept on file for 3 years.
32. Any time the disinfection monitoring standard is not met, that waste load shall be reprocessed to meet the standard or transported, under the Department's manifesting procedures, to an approved infectious waste processing facility.
33. Reduced-pressure backflow preventers shall be installed on all water supply lines providing water to the equipment. Each backflow preventer shall be installed to prevent damage from vandals or freezing weather and shall be inspected and tested, at least annually.
34. The entire waste processing equipment, including the shredder and two hopper assemblies, shall be cleaned using the system shutdown procedures established in the Operation & Maintenance Manual after processing of the final waste load and shall be disinfected prior to conducting any routine, preventative or emergency maintenance, in accordance with the manufacturer's specifications and standards. Daily, weekly, monthly, and annual

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preventive maintenance checks and services shall be conducted in accordance with the manufacturer's specifications and instructions. All modifications or amendments to the approved Operation & Maintenance Manual relative to the cleaning and maintenance time frames and procedures must be approved in writing by the Department prior to implementation.

35. The equipment shall be monitored during the operation, on a daily basis, for radiation leakage. Each magnetron tube shall be monitored individually for leakage which shall be measured with a microwave survey meter, such as, HI 1501. The microwave survey meter shall be operated in accordance with its manufacturer's specifications. If leakage in excess of 5 mW/cm<sup>2</sup> is detected in one or more of the magnetron tubes, waste processing shall cease until the problem is identified and corrected. In addition, the manufacturer of the processing equipment shall be informed, in accordance with the equipment specifications.
36. Fire extinguishers shall be maintained in working condition at the microwave processing facility.
37. Only trained and designated personnel shall operate the equipment. Such personnel shall be employees of the permittee or of the independent contractor. Protocols used for training employees shall be those recommended and documented by the manufacturer of the equipment. The equipment manufacturer shall provide training for the individuals responsible for operating the equipment. Individual employee training records shall be maintained at the processing facility.
38. Disposal of infectious waste containers shall be managed as infectious waste. Reusable containers shall be cleaned in accordance with the Department's most recent Policy and Procedure on "Container/Vehicle Decontamination and Small Spill Clean-up and Section 284.417.
39. The microwave equipment recorder, which makes permanent records of the temperature of the microwave section and speed of the waste conveyance system, shall be used at all times of equipment operation.
40. Incompatible waste, such as thermometers, metallic items, and other waste items that contain elemental mercury, shall be removed from the waste stream, prior to charging waste into the processing equipment.
41. The Contingency Plan, consistent with the Department's most recent guidelines, shall be maintained at the processing facility and updated as necessary or, at least, every five years.
42. A log shall be maintained to record the time and date of the disinfection monitoring,

operator name and title, total number of test and control samples used, density of test articles in each of the test and control samples, the minimum time samples remain in the

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microwave and holding sections of the equipment, minimum temperature of the microwave section during waste processing, and the final results. The final results shall be certified to meet the requirements of Section 284.321(a)(2). The results of disinfection monitoring, including equipment calibration must also be recorded. A copy of the log shall be maintained at the facility for 3 years and made available to the Department, upon request.

43. Records of equipment servicing during routine maintenance and emergency situations shall be kept for 3 years and made available to the Department, upon request.
44. The various gauges for monitoring the time, temperature, and pressure of the equipment during operation shall be inspected, in accordance with the manufacturer's specifications, for proper functioning and any problems
45. Daily records shall be maintained of weight or volume of infectious waste charged into the equipment. The load charged shall not exceed the recommended capacity of the equipment.
46. The operator of the infectious waste processing facility shall dispose of all properly disinfected processed residue from the microwave processing unit in a landfill or incinerator that is permitted by the Department and has been approved to accept the waste. If the processed waste is disposed outside the Commonwealth, the receiving State's requirements shall be met.