Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs

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APPROVAL FOR REMEDIAL USE
Pursuant to Title, 310 CMR 15.000

Name and Address of Applicant:

IMET Corporation
P.O. Box 10753
Cleveland, Ohio 44147

Trade name of technology: 1036 IMET Remediator (hereinafter called the "System"). Schematic drawing of a typical System and Technology inspection checklist are a part of this Approval.

Transmittal Number: 23-WP61A-0002-APP
Date of Issuance: April 26, 2024

Authority for Issuance

Pursuant to Title 5 of the State Environmental Code, 310 CMR 15.000, the Department of Environmental Protection hereby issues this Approval for Remedial Use to: IMET Corporation, P.O. Box 10753, Cleveland, Ohio 44147 (hereinafter "the Company"), approving the System described herein for Remedial Use in the Commonwealth of Massachusetts. Sale and use of the System are conditioned on compliance by the Company and the System owner with the terms and conditions set forth below. Any noncompliance with the terms or conditions of this Approval constitutes a violation of 310 CMR 15.000.


for

April 26, 2024
Date

Marybeth Chubb, Section Chief
Wastewater Management Program
Bureau of Water Resources

I. **Purpose**

The purpose of Remedial Use Approval ('the Approval') is to allow installation of the Technology in Massachusetts, on a remedial use basis to repair residential and commercial systems failing to protect public health and safety and the environment where failure has occurred as described in 310 CMR 15.303 (1) (a) (1) and (2) due to clogging of the soil absorption system (SAS).

The Approval requires that sufficient performance testing be completed so that the Department may determine whether the System is capable of consistently functioning to effectively reduce Biochemical Oxygen Demand (BOD_5) and Total Suspended Solids (TSS) in the effluent to 30 mg/L or less respectively and provides a level of environmental protection at least equivalent to that of a system designed and constructed in accordance with 310 CMR 15.100 through 15.293.

1. With the necessary permits and approvals required by 310 CMR 15.000, this Approval for Remedial Use authorizes the use and installation of the System in Massachusetts.

2. The System may only be installed on residential and commercial facilities that meet the criteria of 310 CMR 15.284(2).

3. This Approval for Remedial Use authorizes the use of the System where the local approving authority finds that the System is for upgrade of a failed, failing or nonconforming system and the design flow for the facility is less than 1,500 gallons per day (GPD).

4. With the other applicable permits or approvals that may be required by Title 5, the Approval authorizes the installation and use of the Alternative System in Massachusetts. All the provisions of Title 5, including the General Conditions for all Alternative Systems (310 CMR 15.287), apply to the sale, design, installation, and use of the System, except those provisions that specifically have been varied by the Approval.

II. **System Description**

The IMET Restorative System utilizes naturally occurring environmental processes to reduce BOD, and TSS. There is no introduction of chemical or biological agents as part of this treatment train. IMET technology utilizes the aerobic digestion to convert dissolved carbon-based materials, in the presence of air into carbon dioxide, water, and a variety of lower molecular weight organic compounds, which may be themselves further digested.

IMET technology uses proprietary media inside the cylindrical IMET module to provide a larger surface area on which the microbes/bacteria can proliferate. Additionally, IMET employs a diversity of media with varied surface characteristics to accommodate suitable conditions for various strains of microbes/bacteria to grow.

The installation application of the IMET System consists of two basic components, the IMET Module and an air pump. The Module dimensions of the heavy-weight PVC cylinder used for residential and commercial restorative treatment is 14.1 inches outside diameter and is 36 inches to 40 inches tall and weighs 80 to 140 lbs dry. The IMET Module is lowered through the

manway of the treatment tank/compartment of the septic system and is submerged 2 to 6 inches above the bottom of the tank/compartment. A wire rope is secured to the riser for the manway opening and the air-line from the tank passes through the riser via a watertight connection and is attached to an air pump on the exterior to the tank.

The air pump is placed in a weather resistant housing or dry location within 50 feet of the riser and operates to provide 100 to 200 liters per minute air flow, using between 120 and 240 watts of 110VAC electricity.

The IMET System can also operate with a solar powered air pump whereby solar panels may be used to provide the 110VAC power that is required to run the air pump. The RPS-IMET 1800- watt PhotoVoltaic system is used to power "off-grid " the IMET restorative process.

Operating conditions for the solar powered air pump based on cloud cover is provided by RPS-IMET below:

- Detailed mechanical and electrical diagrams for the solar powered pump need to be provided to the Local Approving Authority (LAA) prior to each installation.
- If cloud formations do not obscure more than 30% of the sunlight for many days consecutively, the air pump will run indefinitely.
- Constant 40% overcast, the pump will run continuously for 5 days, after which time, the pump will cycle for approximately 18 hours "on" and 6 hours "off".
- In a 50% constant overcast the pump will run continuously for 2 days and then cycle indefinitely for approximately 16 hours "on" and 8 hours "off".
- This regression in the percentage of sunlight can be carried forward, but the weather/cloudiness is rarely constant for a protracted number of days and when there is even the slightest cloud break, the battery system will gain capacity towards "full charge".
- This means that even during Massachusetts historically cloudiest month, May, the IMET air pump is fully operational a high percentage of the time during each day.

III. Design Standards

1. The System consists of an aeration device, using between 120 and 240 watts of 110VAC electricity. operated on a continuous basis, and a System bacterial source installed in an existing septic tank, or a new septic tank designed in accordance with 310 CMR 15.223 through 15.228. The media used on the interior of the module is customized for residential and commercial applications and is selected for the anticipated effluent for a design flow of 250 to 1500 GPD. The System converts the septic tank into a facultative bioreactor to treat residential and commercial strength wastewater from facilities with a design flow of less than 1,500 GPD. The treated effluent is discharged to the existing soil absorption system.

2. A microbial culture is established in the septic tank and maintained using the aeration device and the bacterial source. The aerator mixes the contents of the septic tank with the bacteria and aerates the liquid. The effluent from the septic tank contains dissolved

oxygen and System bacteria that discharge to the SAS and act to reduce the thickness of the biomat improving the soil absorption capacity.

3. Prior to installation of the System, the site and existing system shall be evaluated in accordance with 310 CMR 15.100 through 15.107. The existing on-site system including the septic tank, distribution box and SAS shall be inspected in accordance with 310 CMR 15.302. The evaluation shall include identification of existing components, their compliance with 310 CMR 15.000, cause of failure, and the location for the upgrade of the system if required in the future.

4. A System shall not be proposed for installation where:

   i. The high groundwater elevation determined in accordance with 310 CMR 15.103 would be less than two feet in soils with recorded percolation rate more than two minutes per inch or less than three feet in soils with a recorded percolation rate of two minutes per inch or less below the bottom of the SAS.

   ii. A facility for which the site investigation indicates that the existing onsite system was designed and installed for a design flow smaller than required by 310 CMR 15.203. The minimum area for the existing SAS shall not be less than 50 percent of the area required in accordance with 310 CMR 15.242.

   iii. The existing septic tank(s) has not been tested and shown to be watertight.

   iv. The existing system includes a leaching pit or cesspool.

   v. A site investigation indicates that the existing soil absorption system must be removed and replaced prior to installation of the System.

5. For seasonal use, the System shall be reactivated by the addition of a fresh culture of bacteria at each start up and ensure System is operating properly.

6. System installation shall not include modifications, excavations, or any other changes to the existing SAS, with the exception of the work required in section IV (6).

IV. **General Conditions**

1. All provisions of 310 CMR 15.000 are applicable to the use of this System, the System owner and the Company, except those that specifically have been varied by the terms of this Approval.

2. Any required sample analysis shall be conducted by an independent U.S. EPA or DEP approved testing laboratory, or a DEP approved independent university laboratory. It shall be a violation of this Approval to falsify any data collected pursuant to an approved testing plan, to omit any required data or to fail to submit any report required by such plan.
3. The facility served by the System and the System itself shall be open to inspection and sampling by the Department and the local approving authority at all reasonable times.

4. In accordance with applicable law, the Department and the local approving authority may require the owner of the System to cease operation of the system and/or to take any other action as it deems necessary to protect public health, safety, welfare and the environment.

5. The Department has not determined that the performance of the System will provide a level of protection to public health and safety and the environment that is at least equivalent to that of a sewer system. No System shall be installed, upgraded or expanded, if it is feasible to connect the facility to a sanitary sewer, unless as allowed by 310 CMR 15.004. When a sanitary sewer connection becomes feasible, the facility served by the System shall be connected to the sewer, within 60 days of such feasibility, and the System shall be abandoned in compliance with 310 CMR 15.354, unless a later time is allowed, in writing, by the approving authority.

6. Design, installation and operation shall be in strict conformance with the Company's DEP approved plans and specifications, 310 CMR 15.000 and this Approval.

7. A minimum of one (1) inspection port shall be provided within the SAS down to the lower stone/soil interface to enable monitoring for ponding.

V. Conditions Applicable to the System Owner

1. The System is approved for use with sanitary sewage only. Any wastes that are non-sanitary sewage generated or used at the facility served by the System shall not be introduced into the System and shall be lawfully disposed.

2. Operation and Maintenance Agreement:
   A. Throughout its life, the System owner shall operate and maintain the System in accordance with the Company and designer's operation and maintenance requirements and this Approval. To ensure proper operation and maintenance (O&M), the System owner shall enter into an O&M agreement. No O&M agreement shall be for less than one year.
   B. No System shall be used until an O&M agreement is submitted to the local approving authority which:
      i. Provides for the contracting with the Company or its approved management company, trained by the Company as provided in Section VI (7), to operate the System consistent with the System's specifications and the operation and maintenance requirements specified by the designer and any specified by the Department;
      ii. Contains procedures for notification to the Department and the local board of health within five days of a System failure or alarm event and for corrective measures to be taken immediately;
      iii. Provides the name of an O&M provider, which must be an approved Title 5 System Inspector trained by the Company that will operate and monitor

the System. The O&M provider must inspect and maintain installed Systems at single family homes at least quarterly and anytime there is an alarm event; and

iv. For all other Systems the O&M provider must inspect and maintain the System at least every month and anytime there is an alarm event.

3. The System owner shall at all times have the System properly operated and maintained in accordance with this Approval, the designer's operation and maintenance requirements and the Company's approved operating procedures. The System owner shall notify the Department and the local approving authority in writing within seven days of any cancellation, expiration or other change in the terms and/or conditions of their O&M agreement.

4. Prior to transferring any or all interest in the property served by the System, or any portion of the property, including any possessory interest, the System owner shall provide written notice of all conditions contained in this Approval to the transferee(s). Any and all instruments of transfer and any leases or rental agreements shall include as an exhibit attached thereto and made a part thereof a copy of this Approval for the System. The System owner shall send a copy of such written notification(s) to the local approving authority within 10 days of such notice being given.

5. Monitoring Requirements:

A. Systems approved and installed after August 4, 2009 shall monitor quarterly for single family homes and monthly for all other system installations.

The system shall monitor the depth of the ponding below the leaching field after three months of System operation to indicates the dose storage (dose storage is the void space from the discharge pipes invert to the bottom of stone/naturally occurring soil interface.).

i. If the depth of the ponding indicates at least 50% of dose storage available then monitoring may be reduced from monthly to quarterly; quarterly to every six months. Further reduction in monitoring is not allowed;

ii. If the depth of the ponding indicates less than 50% of dose storage then repeat the monitoring 30 days later. If the second reading is at least 50% of dose storage then the previous observation port measurement reduced frequency may be continued. However if the second reading is not at least 50% of dose storage then the system must be monitor monthly, evaluated and a report provided to the local approving authority. The report shall include water use data as well as depth of ponding; and

iii. If the System continues to indicate excessive ponding for 6 consecutive months as defined above, the System is in failure and shall be removed in accordance with Section V (8).

Example for monitoring the depth of ponding: For a leaching field has 12 inches depth from the discharge pipes invert to the bottom of stone/ naturally occurring soil interface. If monitoring shows ponding level is more than 6 inches then 50% of dose storage is not met. If monitoring shows the ponding level is less than 6 inches then 50% of dose storage is met.

6. By February 15th of each year for the previous year, the System owner shall submit to the local approving authority all data collected in accordance with item 5, above, and an O&M technology checklist, completed by the System O&M provider for each inspection performed during the previous calendar year. A copy of the technology inspection checklist is attached to this Approval.

7. Prior to the issuance of a Certificate of Compliance for the System, the System owner shall record and/or register in the appropriate Registry of Deeds and/or Land Registration Office, a Notice disclosing the existence of the alternative system subject to this Approval on the property. If the property subject to the Notice is unregistered land, the Notice shall be marginally referenced on the owner's deed to the property. Within 30 days of recording and/or registering the Notice, the System owner shall submit the following to the local approving authority: (i) a certified Registry copy of the Notice bearing the book and page/instrument number and/or document number; and (ii) if the property is unregistered land, a Registry copy of the owner's deed to the property, bearing the marginal reference. https://www.mass.gov/doc/alternative-sewage-disposal-system-deed-notice-0/download

VI. Conditions Applicable to the Company

1. The Company shall provide in print and electronic format to the owner/operator/designer/installer, Board of Health, and the MassDEP upon request, copies of the following procedures and protocols:
   A. minimum site evaluation criteria and installation requirements,
   B. technology inspection checklist including a standard protocol for evaluating ponding within the SAS (with acceptable performance of System defined as maintaining ponding elevation within the SAS consistently at or below the naturally occurring soils elevation (stone bottom elevation),
   C. homeowner/System owner guidance information on substances that should not be disposed to the septic system,
   D. System operating manual with recommended schedule for maintenance and replacement of components essential to consistent successful performance, and
   E. protocol for completing inspections and monitoring of the System and any procedures that will be implemented should the System fail.

2. Systems approved and installed after the date of this Approval, thirty (30) days prior to submitting an application for a Disposal System Construction Permit (DSCP), the Company or its representative shall provide to the Local Board of Health a

certification, signed by the owner of record for the property to be served by the unit, stating that the property owner:

A. has been provided a copy of the Remedial Use Approval and all attachments and agrees to comply with all terms and conditions;

B. has been informed of all the owner's costs associated with the operation including power consumption, maintenance, sampling, recordkeeping, reporting, and equipment replacement;

C. understands the requirement for a contract with a company approved O&M provider for life of System and has been provided a current list of all approved O&M providers;

D. agrees to fulfill his responsibilities to provide a Deed Notice as required by 310 CMR 15.287(10) and the Approval; and

E. agrees to fulfill his responsibilities to provide written notification of the Approval conditions to any new owner, as required by 310 CMR 15.287(5).

3. The O&M provider shall submit within 30 days of the date of site inspections, inspection reports to the owner, Company and local approving authority or Board of Health.

4. The Company shall maintain the following additional information for the Systems installed in Massachusetts and make it available to the Department within 30 days of a request by the Department:

A. The total number of units of the System sold for use in Massachusetts during the previous year; the address of each installed System, the owner's name and address, the type of use (e.g. residential, commercial, institutional) and the design flow;

B. Date when system was installed and started up;

C. Tabulation of the sampling parameters and results with backup inspection and laboratory sheets;

D. Tabulation of systems that are in failure as described in 310 CMR 15.303 (1)(a)(1) or (2) due to excessive ponding of effluent in the SAS, reasons for non-compliance and any corrective action taken including but not limited to design, installation and/or operation or maintenance changes required to reach compliance;

E. Completed technology inspection checklists shall be maintained by the Company or Company's representative on file for possible Department auditing;

F. A general summary of the results for the year, any recommended changes to the design, installation and/or operation and maintenance procedures and a schedule for implementing those changes; and

G. Warranty issues both resolved and unresolved or an explanation of any warranty claims that have been received and their resolution.

5. The Company or its designee shall review the plans and site evaluation conducted for the System prior to the sale of any unit to ensure that the proposed installation of the System is at a site consistent with this Approval and the System's capabilities. The Company shall certify in writing that the System plan and existing site conditions conform to the requirements of this Approval and any requirements of the Company and shall submit a copy of that certification to the local approving authority and the System owner.

6. Prior to the issuance of a Certificate of Compliance for the System, the Company or its designee shall submit to the local approving authority and the System owner a signed certification that the System has been installed in accordance with the Company's requirements, the approved plan and this Approval. This certification in no way changes the requirements of 310 CMR 15.021(3).

7. The Company or the Company's approved operation and maintenance contractor shall maintain a contract with the System owner that:

A. Provides for operating and maintaining the System with an O&M provider that has been trained by the Company to operate the System consistent with the System's specifications and any additional operation and maintenance requirements specified by the designer or by the Department;

B. Contains procedures for notification to the System owner, the Department and the local approving authority within five days of knowledge of a System failure and for corrective measures to be taken immediately;

C. Contains procedures for inspecting the plastic media bacterial source at each quarterly visit and if necessary replacing the media. At a minimum, the microbial inoculants shall be replaced annually; and

D. Contains a plan to determine if required, after the first three months of operation why the effluent groundwater elevation/ponding within the SAS is as high or higher than the water surface elevation when the System was installed.

8. The Company shall institute and maintain a program of O&M provider training and continuing education. The Company shall maintain and annually update and make the list of qualified O&M providers available by February 15th of each year. The company shall update the list of qualified O&M providers and make the list known to users of the technology.

9. The Company shall provide to each System owner a written warranty transferable to a new owner that includes the following:

    A. Refund of the cost of equipment and installation should the System continue in failure as described in 310 CMR 15.303(1)(a)(1) and (2) after 120 days of operation that is conducted in accordance with the Company's specifications and oversight; or

    B. Refund of the cost of equipment and installation should the System fail as described in section IV(5) within two years of installation provided that the System owner has entered into and maintained an operation and maintenance contract with the Company and has operated the System in accordance with the Company's specifications.

10. The Company shall conduct a performance evaluation starting after the first 100 systems have been installed and operating for at least one year. A report shall be submitted to the Department no more than 180 days beyond the one-year period evaluating whether at least 90 percent of the units installed for at least one year have demonstrated a reduction in depth and that the reduction in depth of the effluent elevation for the SAS systems has occurred within 120 days of start-up or that ponding elevations are not excessive. Should the System not demonstrate the capability to reduce or eliminate ponding in 90 percent of the failed systems, the report shall detail the changes that must be made in site evaluation, design, installation and/or operation or maintenance to meet the goal and shall include a schedule containing a deadline for implementing those changes. No more than 100 systems shall be installed until the performance report has been completed and the results indicate that over 90 percent of the Systems are no longer in failure.

11. The Company shall include copies of this Approval and the procedures and protocol described in Section V (1) with each System that is sold. In any contract executed by the Company for distribution or re-sale of the System, the Company shall require the distributor or re-seller to provide each purchaser of the System with copies of this Approval and the procedures and protocol described in Section VI (1).

12. The Company shall notify the Director of the Wastewater Management Program at least 30 days in advance of the proposed transfer of ownership of the technology for which this Approval issued. Said notification shall include the name and address of the proposed new owner and a written agreement between the existing and proposed new owner containing a specific date for transfer of ownership, responsibility, coverage and liability between them. All provisions of this Approval applicable to the Company shall be applicable to successors and assigns of the Company, unless the Department determines otherwise.

13. The Company shall furnish the Department any information that the Department requests regarding the System within 30 days of the receipt of that request.

VII. Reporting

1. Any notices and documents to be submitted to the Department required by this Approval shall be submitted to:

Director
Wastewater Management Program
Department of Environmental Protection
100 Cambridge Suit – Suite 900
Boston, Massachusetts 02114

VIII. Rights of the Department

1. The Department may suspend, modify or revoke this Approval for cause, including, but not limited to, non-compliance with the terms of this Approval, inadequate system performance demonstrated by the annual report required in Section VI (2) or other relevant information, non-payment of the annual compliance assurance fee, for obtaining the Approval by misrepresentation or failure to disclose fully all relevant facts or any change in or discovery of conditions that would constitute grounds for discontinuance of the Approval, or as necessary for the protection of public health, safety, welfare or the environment, and as authorized by applicable law. The Department reserves its rights to take any enforcement action authorized by law with respect to this Approval and/or the System against the owner, or O&M provider of the System and/or the Company.