



## AIR POLLUTION CONTROL

*Shelby County  
Health Department*



**Public Health**  
Prevent. Promote. Protect.

## CONSTRUCTION PERMIT

**COMPANY NAME:** CTC Property LLC

**COMPANY ADDRESS:** 3231 Paul R Lowry Road, Memphis, TN 38109

**PERMIT NUMBER:** 01156-01PC

**ISSUANCE DATE:** July 2, 2025

**EXPIRATION DATE:** January 2, 2027

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### SOURCE DESCRIPTION

**Fifteen (15) Solar SMT-130 (16.48 MW capacity each)  
Natural Gas-Fired Combustion Turbines**

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The holder of this permit shall comply with all conditions contained in this permit as well as all applicable provisions of the Shelby County Code. A permit condition may be appealed by filing a petition for reconsideration within thirty (30) days after the mailing date of the permit.

This permit may be subject to revocation, suspension, modification or amendment by the Technical Secretary for cause including evidence of non-compliance with any of the above; or for any misrepresentation made in the application dated January 3, 2025, January 7, 2025, February 5, 2025, and February 27, 2025, including supporting data entered therein or attached thereto, or any subsequent submittal or supporting data; or for any alterations affecting the emissions from this source.

This Permit is further subject to and conditioned upon the terms, conditions, limitations, standards, or schedules contained in or specified on the attached 10 pages of this permit.

*Wasim Khokhar*

**WASIM KHOKHAR, TECHNICAL MANAGER  
POLLUTION CONTROL SECTION**

*Issuance of this permit shall not relieve any owner or operator of the responsibility to comply fully with any other requirements of local, State, or Federal law.*

**POST AND FILE AT INSTALLATION ADDRESS**

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## SECTION I – EMISSION UNITS (EU)

**TABLE 1**  
(Emission Units, Description, Emission Points, and Controls)

| Emission Unit<br>(Turbine Model)                 | Description                                                                                     | Emissions                                                                                                   | Emission Points and Control Devices                                                                                                                                                                                                                                                                                   |
|--------------------------------------------------|-------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>EU-1 through EU-15</b><br><br>(Solar SMT-130) | Fifteen Natural Gas Fired<br>Turbine Generators,<br>Maximum Power Output<br>Rate: 16.48 MW each | PM/PM <sub>10</sub> , SO <sub>2</sub> ,<br>NO <sub>x</sub> , CO, VOC,<br>NH <sub>3</sub> , HAP <sub>s</sub> | Each turbine has an exhaust stack as the emission<br>point (EP-1 through EP-15) and is equipped with<br>emission controls as follows:<br><br>1. Oxidation Catalysts for VOC and CO<br>2. DLE/SoLoNO <sub>x</sub> for NO <sub>x</sub><br>3. SCR for NO <sub>x</sub><br><br>Note: NO <sub>x</sub> and VOC require BACT. |

Note:

- PM: Particulate Matter
- SO<sub>2</sub>: Sulfur Dioxide
- NO<sub>x</sub>: Nitrogen Oxides
- CO: Carbon Monoxide
- VOC: Volatile Organic Compounds
- NH<sub>3</sub>: Ammonia
- HAPs: Hazardous Air Pollutants
- DLE: Dry Low Emissions
- SCR: Selective Catalytic Reduction
- BACT: Best Available Control Technology

## SECTION II – PERMIT CONDITIONS

1. This permit authorizes the operation of the equipment listed in Table 1, with associated emission control devices, for electricity production under the conditions specified herein.
2. The facility-wide maximum consecutive 12-month rolling emission rates at this facility shall not exceed the following:

**TABLE 2**  
(Emissions and Allowable Annual Limits)

| Pollutant Emission Limits (tons/consecutive 12-month rolling period) |       |                 |       |                 |                     |
|----------------------------------------------------------------------|-------|-----------------|-------|-----------------|---------------------|
| HAP <sub>s</sub>                                                     | VOC   | NO <sub>x</sub> | CO    | SO <sub>2</sub> | PM/PM <sub>10</sub> |
| 13.71                                                                | 84.82 | 87.14           | 93.96 | 29.58           | 72.95               |

3. The facility-wide maximum consecutive 12-month rolling HAP emission rates at this facility shall not exceed the following:

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**TABLE 3**  
(Allowable Annual HAP Limits)

| HAP Emission Limits (tons/consecutive 12-month rolling period) |            |
|----------------------------------------------------------------|------------|
| Formaldehyde                                                   | Total HAPs |
| 9.79                                                           | 13.7       |

- The facility owner or operator shall only use pipeline-quality natural gas as fuel for the combustion turbine units, with a sulfur content not exceeding 1 grain per 100 standard cubic feet (scf).
- The combustion turbines shall not exceed the emission limits in Table 4 during daily simple cycle operation, except during startup, shutdown, malfunction, and combustion tuning periods.

**Table 4**  
(Simple Cycle Emission Limits)

| Pollutant                  | Emission Limits                         |
|----------------------------|-----------------------------------------|
| SO <sub>2</sub>            | 1 grain of sulfur / 100 scf natural gas |
| PM/PM <sub>10</sub>        | 0.0066 lbs./MMBtu                       |
| Ammonia (NH <sub>3</sub> ) | 5 ppm (0.00692 lbs./MMBtu)              |
| VOC                        | 2.0 ppm at 15% O <sub>2</sub>           |
| CO                         | 2.5 ppm at 15% O <sub>2</sub>           |
| NO <sub>x</sub>            | 2.0 ppm at 15% O <sub>2</sub>           |
| Formaldehyde               | 91 ppb at 15% O <sub>2</sub>            |

Note:

- A startup period begins at fuel ignition and ends when the final combustion system operational mode is achieved.
  - A shutdown period starts when the unit leaves optimal operation and ends when the flame is extinguished in the turbine.
  - Combustion tuning occurs periodically due to seasonal adjustments, combustor changes, major repairs, and maintenance.
- The facility shall install and operate BACT for each turbine, ensuring it is in place and operational by September 1, 2025, and is sufficient to meet the NO<sub>x</sub> emission limits in Table 4.
  - The facility owner or operator shall limit the combustion turbines (EU-1 through EU-15) to a maximum of twenty-two (22) startup events and 22 shutdown events per year, with a total combined duration of 110 hours annually. Each startup or shutdown event shall not exceed one (1) hour in duration.
  - The facility owner or operator is placed on notice that Conditions No. 2 through Conditions No. 7 of this permit allow the permittee to opt out of the major source operating permit program under City of Memphis Code Section 16-77 [Reference Rules and Regulations of Tennessee, Rule 1200-3-9-.02(11)].

Failure to comply may result in enforcement actions from the Department and the EPA.

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9. Should this facility become a major stationary source solely by virtue of relaxation of any enforceable limitation on the capacity of the source or modification otherwise to emit a pollutant, then the requirements of 40 CFR § 52.21 paragraphs (j) through (s) shall apply to the source or modification as though construction had not yet commenced on the source or modification. [Reference 40 CFR § 52.21(r)(4)].
10. Visible emissions from each emission point at the facility shall not exceed twenty percent (20%) in opacity for more than five (5) minutes in any one (1) hour period or more than twenty (20) minutes in any twenty-four (24) hour period. [City of Memphis Code Section 16-83 (Reference Rules and Regulations of Tennessee, Rule 1200-3-5-.01(1))]
11. The facility owner or operator shall maintain at least five (5) years of monitoring, preventive, and maintenance records for air pollution control equipment, making them available for Department review.
12. The facility owner or operator shall record and maintain monthly and consecutive 12-month rolling records of:
  - a) Facility-wide total natural gas usage in million standard cubic feet (MMscf);
  - b) Total natural gas usage in MMscf for each turbine;
  - c) HAPs, VOC, NO<sub>x</sub>, CO, SO<sub>2</sub>, and PM/PM<sub>10</sub> emissions, including calculations (see note).

Note: The calculations shall include emissions from startups, shutdowns, malfunctions, and tuning events, as specified in Condition No. 12 below. [Reference: emission calculation methods are outlined in Appendix D of the permit application dated January 7, 2025.]

13. The facility owner or operator shall record the date, time, and durations of all startups, shutdowns, malfunctions, and tuning events.

**40 CFR Part 60, Subpart KKKK**  
**New Source Performance Standards for Stationary Combustion Turbines**

14. The combustion turbines (EU-1 through EU-15) are subject to 40 CFR Part 60, Subpart KKKK. The facility owner or operator shall comply with all applicable requirements of 40 CFR Part 60 Subpart A and Subpart KKKK.
15. The facility owner or operator shall comply with the NO<sub>x</sub> emission limit of no more than 25 ppm at 15% O<sub>2</sub> or 150 ng/J (1.2 lbs. NO<sub>x</sub>/MWh) for all 15 turbines pursuant to §60.4320(a).
16. The facility owner or operator shall maintain pollution control and monitoring equipment pursuant to §60.4333 to always minimize emissions including startup, shutdown, maintenance, and combustion tuning periods.
17. The facility owner or operator shall conduct performance tests pursuant to § 60.4400 as follows:
  - a) An initial performance test for NO<sub>x</sub> emissions from all 15 turbines within 180 days of this permit issuance.

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- b) The initial performance test shall also include test results for VOC, CO, and formaldehyde. For this test, five turbines shall be selected for testing, assuming all turbines are identical [Local Requirements].
  - c) Subsequent performance tests shall be performed no later than 14 calendar months after the previous test to demonstrate continuous compliance of NO<sub>x</sub> emissions.
  - d) Subsequent performance tests shall include test results for VOC, CO, and formaldehyde, to be conducted no later than 60 calendar months after the previous tests that included VOC, CO, and formaldehyde. For each test, five different turbines shall be selected from those not previously tested, assuming all turbines are identical, with different turbines rotated for each subsequent test [Local Requirements].
18. The Technical Manager may change the frequency of subsequent performance tests based on the results of the previous performance tests pursuant to §60.4340.
19. The facility owner or operator shall implement the standard test methods listed in Table 5 for the major pollutants requiring performance tests related to the turbine operation.

**Table 5**  
(Test Methods Recommendations)

| Pollutants Required Testing | Test Method Recommendations                                         |
|-----------------------------|---------------------------------------------------------------------|
| VOC                         | EPA Method 18 or EPA Method 25A                                     |
| CO                          | EPA Method 10                                                       |
| Formaldehyde                | EPA Method 320, or ASTM D6348-12e1                                  |
| NO <sub>x</sub>             | Simplified EPA Method 1, or EPA Method 20 in § 60.4400(a)(3)(ii)(C) |

20. The facility owner or operator shall comply with the natural gas sulfur content requirements pursuant to §60.4360, §60.4370, or §60.4365 in one of the listed methods below:
- a) Monitor the total sulfur content of the fuel being fired in EU-1 through EU-15 by using total sulfur methods described in § 60.4415 or using ASTM D4084, D4810, D5504, D6228, or Gas Processors Association Standard 2377 if the total sulfur content of the gaseous fuel during the most recent performance test was less than 10 grains per 100 standard cubic feet natural gas.  
  
The monitoring frequency should be no less than once per operating day unless specified by the facility owner or operator in accordance with §60.4370 (c).
  - b) Demonstrate compliance by maintaining on-site a current, valid purchase contract, tariff sheet, transportation contract, or other appropriate documentation for the natural gas which specifies that the total sulfur content for the natural gas fuel is 20 grains or less per 100 standard cubic feet, has potential sulfur emissions of less than 26 ng SO<sub>2</sub>/J (0.060 lbs. SO<sub>2</sub>/MMBtu) heat input.

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21. The facility owner or operator shall submit semiannual reports to the Technical Manager containing monthly and consecutive 12-month rolling records pursuant to §60.7(c) and City of Memphis Code Section 16-85 [Reference Rules and Regulations of Tennessee, Rule 1200-3-10] including:
- a) Fuel usage in MMscf;
  - b) Facility-wide emissions: HAPs, VOC, NO<sub>x</sub>, CO, PM/PM<sub>10</sub>, and SO<sub>2</sub>;
  - c) Excess emissions for all operating periods including startups, shutdowns, and malfunctions per §60.4375.

The reports shall be due within 60 days of June 30 and December 31 each calendar year. The reporting periods are January 1 through June 30 and July 1 through December 31 of each calendar year.

22. The facility owner or operator shall submit a written report of the results of each performance test required pursuant to §60.4400 before the close of business on the 60th day following the completion of the performance test.
23. The issuance of this permit does not exempt the permittee from any requirement of the Environmental Protection Agency (EPA) regarding the operation of this source.

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## **APPENDIX A**

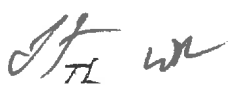
### **Construction Permit General Conditions**

#### **SECTION I: OPERATIONAL REQUIREMENTS**

1. The facility owner or operator shall control dust, fumes, gases, mist, vapors, or any combination thereof in such a manner as to not cause a nuisance in accordance with City of Memphis Code Section 16-88(a).
2. The facility owner or operator shall not cause, suffer, allow, or permit any air contaminant source to be operated without employing suitable measures for the control of the emission of objectionable odors in accordance with City of Memphis Code Section 16-88(b).
3. The facility owner or operator shall not discharge from any source whatsoever such quantities of air contaminant, uncombined water, or other materials which cause a traffic hazard, in accordance with City of Memphis Code Section 16-77 [Reference Rules and Regulations of Tennessee, Rule 1200-3-9-.03(3)].
4. The facility owner or operator shall not cause, suffer, allow, or permit any materials to be handled, transported, or stored; or a building, its appurtenances, or a road to be used, constructed, altered, repaired or demolished without taking reasonable precautions to prevent particulate matter from becoming airborne, in accordance with City of Memphis Code Section 16-89.
5. The open burning of residential, commercial, institutional, or industrial solid waste is prohibited except as specified in this permit or in City of Memphis Code Section 16-50.
6. Air contaminant sources must take all reasonable measures to keep emissions to a minimum during startups, shutdowns, and malfunctions in accordance with City of Memphis Code Section 16-87 [Reference Rules and Regulations of Tennessee, Rule 1200-3-20-.02]. These measures may include installation and use of alternate control systems, changes in operating methods or procedures, cessation of operation until the process equipment and/or air pollution control equipment is repaired, maintaining sufficient spare parts, use of overtime labor, use of outside consultants and contractors, and other appropriate means. Failures that are caused by poor maintenance, careless operation or any other preventable upset condition or preventable equipment breakdown shall not be considered malfunctions, and shall be considered in violation of the emission standard exceeded and this rule.

#### **SECTION II: TESTING REQUIREMENTS**

7. The facility owner or operator may be required to conduct or have conducted such tests as are necessary to establish the quantity or identity of air contaminants emitted from an air contaminant source. Such tests shall be conducted in a manner approved in advance by the Technical Manager, in accordance with City of Memphis Code Section 16-85.



8. Whenever the Technical Manager has reason to believe that the emission limits of the regulations set forth herein are being violated, the Technical Manager may require the facility owner or operator to conduct or have conducted at the owner's or operator's expense, tests to determine the emission level of specific air contaminants, in accordance with City of Memphis Code Section 16-85.
9. The facility owner or operator of an air contaminant source to be tested shall provide the Technical Manager at least 30 days prior written notice of any performance test and the test protocol form, except as otherwise specified in a promulgated test method, to afford the Technical Manager the opportunity to have an observer present and to approve the test protocol, in accordance with City of Memphis Code Section 16-85.
10. Performance tests shall be conducted under representative performance conditions of the tested air contaminant source(s) for which compliance is to be demonstrated by the test. Samples shall be taken in such number, duration and location as to be statistically significant and representative of performance conditions for which compliance is to be demonstrated by the test, in accordance with City of Memphis Code Section 16-86. Unless otherwise specified in the test method, each performance test shall be corrected to standard conditions, defined as a temperature of 293 K (68° F) and a pressure of 29.92 in. Hg.
11. Unless otherwise specified in the test method, each performance test shall consist of three separate runs using the applicable test method. Each test run shall be conducted for the time and under the conditions specified in the applicable test method. For the purpose of determining compliance with an applicable standard, the arithmetic mean of results of the three runs shall apply. In the event that a sample is accidentally lost or conditions occur in which one of the three runs must be discontinued because of forced shutdown, failure of an irreplaceable portion of the sample train, extreme meteorological conditions, or other circumstances beyond the owner or operator's control, compliance may, upon the Administrator's approval, be determined using the arithmetic mean of the results of the two other runs, in accordance with City of Memphis Code Section 16-85, [Reference Rules and Regulations of Tennessee, Rule 1200-3-10].
12. The facility owner or operator may be required to retest at the request of the Technical Manager if the maximum production rate that occurred during compliance testing is exceeded by 10 percent or more, in accordance with City of Memphis Code Section 16-86.
13. The results of performance testing shall be submitted to the Department within 60 days after completion of the required performance testing.

### **SECTION III: MONITORING and RECORDKEEPING REQUIREMENTS**

14. A log of all malfunctions, startups, and shutdowns resulting in emissions in excess of the standards in the City of Memphis Code or any permit issued thereto must be kept at the facility in accordance with City of Memphis Code Section 16-87 [Reference Rules and Regulations of Tennessee, Rule 1200-3-20-.04]. This log must record at least the following:

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- a) Stack or emission point involved;
- b) Time of malfunction, startup, or shutdown or when first noticed;
- c) Type of malfunction and/or reason for shutdown;
- d) Time startup or shutdown was complete or time the air contaminant source returned to normal operation; and
- e) The company employee making entry on the log must sign, date and state the time of each log entry. The information under items (a) and (b) above must be entered into the log by the end of the shift during which the malfunction, startup, or shutdown began.

All information shall be entered in the log no later than twenty-four (24) hours after the startup or shutdown is complete, or the malfunction has ceased or has been corrected. Any later discovered corrections can be added in the log as footnotes with the reason given for the change.

#### **SECTION IV: REPORTING and NOTIFICATION REQUIREMENTS**

- 15. The facility owner or operator shall submit a report to the Department on an annual basis that establishes the amount of actual emissions of each regulated pollutant for the facility according to the provisions in City of Memphis Code Section 16-98. This report shall be submitted no later than February 28<sup>th</sup> of each calendar year and shall include emissions that occurred during the previous calendar year.
- 16. When any air contaminant source malfunctions in such a manner as to cause the emission of air contaminants in excess of the applicable emission standards contained in Division 1200-3 or any permit issued thereto, or of sufficient duration to cause damage to property or public health, the owner or operator of the air contaminant source shall promptly notify the Technical Manager of such malfunction and provide a statement giving all pertinent facts, including the estimated duration of the malfunction, in accordance with City of Memphis Code Section 16-87 [Reference Rules and Regulations of Tennessee, Rule 1200-3-20-.03]. Violations of the visible emission standard (excluding visible emissions caused by hazardous air pollutants named in Chapter 1200-3-11), which occur for less than 20 minutes in one day (midnight to midnight) need not be reported. Prompt notification shall be within 24 hours of the malfunction and shall be provided by telephone to the Shelby County Health Department, Pollution Control Section.
- 17. The Technical Manager shall be notified when the malfunction has been corrected, in accordance with City of Memphis Code Section 16-87 [Reference Rules and Regulations of Tennessee, Rule 1200-3-20-.03]. In attainment and unclassified areas if emissions other than from sources designated as significantly impacting on a nonattainment area in excess of the standards will not and do not occur over more than a 24-hour period (or will not recur over more than a 24-hour period) and no damage to property and or public health is anticipated, notification is not required. Any malfunction that creates an imminent hazard to health must be reported by telephone immediately to the Shelby County Health Department, Pollution Control Section and the Emergency Management Agency.



## SECTION V: OPERATING PERMIT APPLICATION REQUIREMENTS

18. Application for an operating permit shall be made on forms available from the Technical Manager and signed by the applicant in accordance with City of Memphis Code Section 16-77 [Reference Rules and Regulations of Tennessee, Rule 1200-3-9-.02(1 and 3)]. Such an application for an operating permit shall be filed with the Technical Manager:
- a) Not more than thirty (30) days after initial startup of an air contaminant source constructed or modified in accordance with a construction permit issued by the Technical Manager.
  - b) If stack sampling or other test data has been required as a condition on the construction permit, this time period is extended to the time specified on the construction permit for submittal of the test report(s). In no case shall this period exceed the period allowed in the applicable regulation.

## SECTION VI: MISCELLANEOUS GENERAL REQUIREMENTS

19. This permit is not transferable from one air contaminant source to another air contaminant source, nor from one location to another location pursuant to City of Memphis Code Section 16-77 [Reference Rules and Regulations of Tennessee, Rule 1200-3-9-.03(6)].
20. The facility owner or operator shall pay fees in accordance with City of Memphis Code Sections 16-93 through 16-96.
21. The facility owner or operator shall maintain this construction permit readily available for inspection by the Technical Manager or his/her designated representative on the operating premises. A person required by regulations to have one or more construction permits shall keep at least one operating permit prominently and conspicuously displayed on the operating premises in accordance with City of Memphis Code Section 16-77 [Reference Rules and Regulations of Tennessee, Rule 1200-3-9-.02(5)].
22. The Shelby County Health Department in conjunction with the Memphis and Shelby County Air Pollution Control Board shall have authority, at their option, to institute and litigate proceedings for violations as set out therein, in accordance with City of Memphis Code Section 16-57. Any person who knowingly:
- a) Violates or fails to comply with any provision of the City of Memphis Code, any board or administrative order or any permit condition;
  - b) Makes any false material statement, representation, or certification in any record, report, plan, or other document required by permit to be either filed or maintained;
  - c) Falsifies, tampers with, renders inaccurate or fails to install any monitoring device or method required to be maintained or followed;
  - d) Fails to pay fee

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exceed ten thousand dollars (\$10,000) per day per violation. For the purpose of this section, each day of continued violation constitutes a separate offense and is punishable as such.

23. The facility owner or operator of any air contaminant source shall be responsible for complying with emission regulations as contained in other chapters of these regulations at the earliest practicable time and for this purpose the Board shall have the authority and responsibility to require compliance with these regulations at an earlier date than indicated where such earlier compliance may reasonably be accomplished, in accordance with City of Memphis Code Section 16-77 [Reference Rules and Regulations of Tennessee, Rule 1200-3-9-.03(1)].
24. The facility owner or operator shall not use any plan, activity, device or contrivance which the Technical Manager determines will, without resulting in an actual reduction of air contaminants, conceal or appear to minimize the effects of an emission which would otherwise constitute a violation of these Regulations, in accordance with City of Memphis Code Section 16-77 [Reference Rules and Regulations of Tennessee, Rule 1200-3-9-.03(2)]. Methods considered circumvention of the regulations include but are not limited to the following:
  - a) Air (or other gases) introduced for dilution purposes only;
  - b) The staggered installation and operation of a facility to avoid coverage by a standard that applies only to operations larger than a specified size.
25. The Technical Manager may suspend or revoke any construction or operating permit if the permit holder fails to comply with the provisions, stipulations, or compliance schedules specified in the permit; all provisions of these regulations; and all provisions of the Tennessee Air Quality Act, in accordance with City of Memphis Code Section 16-77 [Reference Rules and Regulations of Tennessee, Rule 1200-3-9-.03(7)]. Upon permit suspension or revocation, if the permit holder fails to take remedial action, he shall become immediately subject to enforcement actions prescribed by law.
26. For the purpose of carrying out the requirements of the City of Memphis Code, the Technical Manager or his/her authorized representatives shall be permitted at all reasonable times to enter into manufacturing plants, business buildings or other buildings, and all lots, grounds and premises, in order to thoroughly examine any items in relation to public health and air pollution thereon and therein, in accordance with City of Memphis Code Section 16-61.
27. Any request to extend the expiration date of this construction permit must be made in writing by the facility owner or operator prior to the expiration date of the permit.

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