

State of New Jersey

Department of Environmental Protection Air Quality Permitting

Registration (R-001) For Used Oil Space Heaters

This registration allows for the construction, installation, reconstruction, modification and operation of:

- ◆ A single space heater burning used oil with a maximum rated heat input to the burning chamber of less than or equal to 500,000 BTU/hr;

OR

- ◆ Multiple space heaters burning used oil with a combined maximum rated heat input to the burning chamber of less than or equal to 500,000 BTU/hr.

Each facility may possess only one R-001 at any time. If a facility wants to add a new source, replace, or make changes to an existing source that's already registered under R-001, then, a new registration is required. The new registration will supersede the existing registration.

This registration is applicable to space heater(s) burning only on-specification used oil. *

*Note: used oil which meets the specifications established in the solid waste rules at N.J.A.C. 7:26A-6.2(a) and any amendments thereto.

I. DEFINITIONS

The terms used in this registration shall have the same definitions in N.J.A.C.7:27 et seq. or as defined below:

“Brake fluid” means oil drained from the braking system of a conveyance.

“Commercial fuel” means solid, liquid, or gaseous fuel normally produced or manufactured, and sold for the purpose of creating useful heat.

“Crankcase oil” means oil drained from the crankcase of a conveyance.

“Do-it-yourselfer used oil collection center” means any site or facility that accepts and/or aggregates and stores used oil collected only from household do-it-yourselfer used oil generators.

“Energy recovery” means the use of heat from combustion for a useful purpose, such as the heating of air or water for space heating or wash water.

“Fluid catalytic cracking unit” means a refinery process unit in which petroleum derivatives are continuously charged. The hydrocarbon molecules in the presence of a catalyst suspended in a fluidized bed are fractured into smaller molecules, or react with a contact material suspended in a fluidized bed. This is meant to improve feed stock quality for additional processing, and the catalyst or contact material is continuously regenerated by burning off coke or other deposits.

“Fuel oil” means a liquid or liquefiable petroleum product burned for lighting or for the generation of heat or power and derived directly or indirectly from crude oil.

“Fuel Totalizer” means a dedicated measuring and/or monitoring device that totalizes, or sums up, the amount of fuel consumed in a time period. Note: Other combustion sources (including insignificant sources) may be included on a fuel totalizer, but will count towards the amount of fuel consumed and/or any fuel limits a facility may have.

“Household do-it-yourselfer used oil” means oil that is derived from households, such as used oil generated by individuals who generate used oil through the maintenance of their personal motor vehicles.

“Household do-it-yourselfer used oil generator” means an individual who generates household do-it-yourselfer used oil.

“On-specification used oil” means used oil which meets the specifications, established in the solid waste rules at N.J.A.C. 7:26A-6.2(a) and any amendments thereto. These specifications are currently as follows:

<u>Constituent/Property</u>	<u>Allowable Level</u>
Arsenic	5 ppmw maximum
Cadmium	2 ppmw maximum

Chromium	10 ppmw maximum
Lead	100 ppmw maximum
Flash point	100 degrees Fahrenheit minimum
Total halogens	1000 ppmw maximum

“Power steering fluid” means oil drained from the power steering system of a conveyance.

“Registration” means the registering of a space heater with the Department on forms provided by the Department and containing such information as may be required in accordance with N.J.A.C. 7:27-20.3.

“Space heater” means a used oil fired space heater that is self-contained, automatically controlled, indirectly fired heating appliance for warming of a non- residential area or for other energy recovery with a maximum rated heat input to the burning chamber of less than or equal to 500,000 BTU/hr.

“Transmission fluid” means oil drained from a transmission of a conveyance.

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

“Visible smoke” means smoke which obscures light to a degree readily discernible by visual observation.

II. APPLICABILITY

This registration allows for the construction, installation, reconstruction, modification and operation of:

- A single space heater burning used oil with a maximum rated heat input to the burning chamber of less than or equal to 500,000 BTU/hr;

OR

- Multiple space heaters burning used oil with a combined maximum rated heat input to the burning chamber of less than or equal to 500,000 BTU/hr.

Each facility may possess only one R-001 at any time. If a facility wants to add a new source, replace or make changes to an existing source that’s already registered under R-001, then, a new registration is required. The new registration will supersede the existing registration

This registration is applicable to space heater(s) burning only on-specification used oil.

III. EXCLUSIONS

This registration cannot be used to register the following equipment:

1. Space heater whose maximum rated heat input to the burning chamber is greater than 500,000 BTU/hr;
2. Space heater burning fuel other than used oil;
3. Space heater located in a multi family residence (such an apartment building or a dormitory), a day care facility, a pre-school, a school, a hospital, a residence for the elderly, or a nursing home;
4. Space heater located in a single-family dwelling, two-family dwelling, or a dwelling of six or less family units, one of which is owner or occupied;
5. Used oil which has been blended with any hazardous waste, as defined pursuant to N.J.A.C. 7:26-26G-5, except as allowed under N.J.A.C.7:26A-6, 7:26G-8 and 9, and 7:27-8, as applicable.

IV. EQUIPMENT SPECIFICATIONS

Each space heater registered under this registration shall have a design maximum rated heat input of less than or equal to 500,000 BTU/hr based on manufacturer's specifications.

- The Permittee shall retain on site the following records for each space heater:
 1. The maximum rated heat input of the space heater, in BTU per hour (HHV), per manufacturer's specifications, and
 2. Written manufacturer's specifications or written standard operating procedures prepared by the owner or operator.

- The discharge point of the stack serving the space heater shall be higher than the peak of the roof of the building in which the space heater is located and that discharge point is at least 20 feet above grade.

V. SUBMITTAL / CONTACT INFORMATION:

For assistance or contact information please go to one of the following resources:

1. Regional Air Compliance and Enforcement at:
<http://www.nj.gov/dep/enforcement/air.html>
2. Small Business Assistance Program at:
<https://www.state.nj.us/dep/aqes/sbap/index.html>
3. Bureau of Air Permits at:
<http://www.nj.gov/dep/aqpp/>

VI. COMPLIANCE PLAN

The equipment covered by this registration is subject to the applicable requirements listed on the following pages.

FACILITY SPECIFIC REQUIREMENTS
for
USED OIL SPACE HEATERS
(R-001)

(COMPLIANCE PLAN)

COMPLIANCE PLAN: USED OIL SPACE HEATER(S):

Item No	Applicable Requirement	Monitoring Requirement	Record keeping Requirement	Submittal/ Action
1.	<p>The Registrant shall ensure combustion equipment included in this Registration is easily identifiable by clear and conspicuous labeling, including manufacturer name, model number, serial number, and maximum gross heat input rate to the burning chamber.</p> <p>[N.J.A.C. 7:27-8.13(a)]</p>	None.	None.	None.
2.	<p>This equipment shall not cause any air contaminant, including an air contaminant detectable by the sense of smell, to be present in the outdoor atmosphere in such quantity and duration which is, or tends to be, injurious to human health or welfare, animal or plant life or property, or would unreasonably interfere with the enjoyment of life or property, except in areas over which the Permittee has exclusive use or occupancy.</p> <p>[N.J.A.C. 7:27-5]</p>	None.	None.	<p>Any operation of the equipment which may cause a release of air contaminants in a quantity or concentration which poses a potential threat to public health, welfare, or the environment or which might reasonably result in citizen complaints shall be reported by the Permittee as required by the Air Pollution Control</p>

				<p>Act. The Permittee shall immediately notify the Department of any non-compliance by calling the Environmental Action Hotline at (877) 927-6337.</p> <p>[N.J.S.A. 26:2C-19(e)]</p>
3.	<p>Maximum No. of Billable Compliance Inspections <= 2 inspections. The equipment covered by this permit will be subject to inspection fees for the maximum periodic compliance inspections (as defined in N.J.A.C. 7:27-8.1) over the life of the Certificate, after it receives final approval for a five-year duration. The Permittee will be invoiced for a service fee per inspection pursuant to N.J.A.C. 7:27-8.6 after the periodic compliance inspection is conducted.</p> <p>[N.J.A.C. 7:27-8.13(e)]</p>	None.	None.	None.
4.	<p>Each facility may possess only one Registration (R-001) at any time.</p> <p>[N.J.A.C. 7:27-8.13(a)]</p>	None.	None.	None.

5.	<p>These Registration conditions shall only cover used oil space heater(s) at any one facility if:</p> <ul style="list-style-type: none">• the maximum rated heat input to the burning chamber of the space heater does not exceed 500,000 BTU/hr.; OR• the combined maximum rated heat input to the burning chamber of all space heaters does not exceed 500,000 BTU/hr. <p>The reason for this is that the cumulative health risks from additional used oil combustion would have to be evaluated on a case-by-case basis by the Department.</p> <p>[N.J.A.C. 7:27-8.13(h)]</p>	None.	None.	None.
6.	<p>The space heater shall be used for the purpose of energy recovery only (for example, space heating or hot water heating).</p> <p>[N.J.A.C. 7:27-20.3(b)1]</p>	None.	None.	None.

7.	<p>The used oil burned in the space heater shall be:</p> <ul style="list-style-type: none">i. Generated on-site by the owner or operator of the space heater, or by an agent of such person;ii. Generated by a household do-it-yourselfer used oil generator; ORiii. Collected by do-it-yourselfer used oil collection centers, such as those organized by a municipality. <p>[N.J.A.C. 7:27-20.3(b)2]</p>	None.	None.	None.
8.	<p>The discharge point of the stack serving the space heater shall be higher than the peak of the roof of the building in which the space heater is located and that discharge point is at least 20 feet above grade.</p> <p>[N.J.A.C. 7:27-20.3(b)5]</p>	None.	None.	None.

9..	<p>The used oil space heater(s) shall combust only used oil from conveyances that are powered by an internal combustion engine, consisting of any combination of the following substances: used crankcase oil, used brake fluid, used transmission fluid or used power steering fluid.</p> <p>Commercial Number 1 fuel oil (Kerosene) and commercial Number 2 fuel oil (home heating oil), can be blended with the used oil and charged to the used oil space heater.</p> <p>Other substances may not be added to the used oil storage tank including, but not limited to: antifreeze, carburetor cleaner, paint thinner, paint, part degreaser solvents, oil additives, gasoline, chlorinated solvents, battery acid, or substances defined as hazardous wastes pursuant to N.J.A.C. 7:26G-5.</p> <p>The used oil brought to the facility by household do-it-yourselfer used oil generators shall be visually inspected prior to it being charged to the used oil storage tank.</p> <p>(It is recommended that the Registrant post written instructions in areas where used oil is handled and by the used oil storage tank as to what types of used oil can be put in the tank. Further, it is advisable to train employees who handle the used oil as to what to look for in the used oil brought to the facility by household do-it-yourselfer used oil generators.)</p>	None.	None.	None.
	[N.J.A.C. 7:27-20.3(b)3] and [N.J.A.C. 7:27-20.3(b)11]			

10.	<p>The Registrant shall adjust the combustion process of the used oil space heater (s) within 24 operating hours after startup and annually thereafter.</p> <p>The Registrant shall perform the adjustment of the combustion process in accordance with the specific procedures as follows:</p> <ul style="list-style-type: none">i. Adjusting the air-to-fuel ratio to the manufacturer's recommended standards and ensuring that it is correctly calibrated and functioning properly;ii. Inspecting the space heater and cleaning or replacing any components of the space heater(s) as necessary to minimize total emissions of carbon monoxide (CO). <p>[N.J.A.C. 7:27-20.3(b)8]</p>	<p>The Registrant shall perform the adjustment of the combustion process in accordance with the specific procedures as follows:</p> <ul style="list-style-type: none">i. Taking an exhaust stream sample and analyzing it for CO and oxygen. This sampling and analysis may be done with a portable monitor. The results of the sampling and analysis shall ensure that CO emissions after adjustment are no more than 100 ppmv, dry basis, hourly average, corrected to seven percent oxygen. Testing for less than one hour is permitted if the CO reading is no more than 100 ppmv, dry basis, corrected to 7% O₂ for 5 consecutive minutes of operation;<ul style="list-style-type: none">1) The CO testing equipment shall be capable of measuring and recording the in-stack concentrations of CO, over a range of 0 to 500 ppmv with an accuracy of plus/minus five percent of the reading when measuring 100 ppmv;2) If an exhaust stream sample exceeds the CO standard of 100 ppmvd, 1-hr average, corrected to 7 % O₂, the used oil space heater shall not be operated, except for adjustment purposes, until the owner or operator corrects any mechanical problems, readjusts the space heater, and the space heater has been demonstrated to meet the carbon monoxide standard of no more than 100 ppmvd, 1-hr average, corrected to 7% O₂;	<p>Recordkeeping by manual logging of parameter or storing data in a computer data system upon performing combustion adjustments of the following information for each adjustment:</p> <ul style="list-style-type: none">1. The dates of each adjustment made to the space heater(s);2. The name, title and affiliation of the person who made the adjustment;3. Record the manufacturer and model number of the portable monitor used for the CO and oxygen measurements including all carbon monoxide and oxygen readings. <p>All record shall be maintained and kept on-site in a central file in a permanently bound logbook or in readily accessible computer memories and made available for inspection by the Department for a period of three years after the date of each record.</p> <p>[N.J.A.C. 7:27-20.3(b)8]</p>	None.
-----	---	---	--	-------

		<p>ii. Ensuring the exhaust emissions at the stack do not contain visible particulate emission.</p> <p>If the sample taken exceeds the CO standard of 100 ppmv, dry basis, corrected to 7% O₂, 1-hr average, no violation shall occur if the space heater continues to be operated only as is outlined above.</p> <p>[N.J.A.C. 7:27-20.3(b)8] and [N.J.A.C. 7:27-20.3(b)9]</p>		
--	--	---	--	--

11.	<p>The space heater shall be listed and tested by a nationally recognized laboratory in accordance with standards equivalent to the Underwriters Laboratory, Incorporated 296A Standard for Safety, UL296A “Waste Oil Burning Air Heating Appliances” or Canadian Standards Association--CSA Standard B140.4-1974 (R1991)--Oil Fired Warm Air Furnaces and FBL Notice Number 72 Requirements for Appliances Burning Used Oil in an Atomizing Burner. This listing shall be documented by the manufacturer of the used oil space heater(s) and provided to the registrant. [N.J.A.C. 7:27-20.3(b)6]</p>	None	None	None
-----	--	------	------	------

<p>12.</p>	<p>The space heater shall not be operated in a manner which will cause visible emissions, exclusive of visible condensed water vapor, except for a period of no more than three minutes in any consecutive 30 minute period.</p> <p>[N.J.A.C. 7:27-20.3(b)10]</p>	<p>Monitored by visual determination upon occurrence of event. The Registrant shall conduct visual opacity inspections during daylight hours (certified opacity reader not necessary). Visual inspections shall consist of a visual survey to identify if the stack has visible emissions other than condensed water vapor. If visible emissions are observed, the following measures shall be implemented:</p> <ol style="list-style-type: none"> 1. The operator manual shall be referred to for corrective measures, and the corrective actions taken shall be recorded; 2. Except for adjustment purposes, the used oil space heater(s) shall not be operated after visible emissions are observed, until the owner or operator corrects any mechanical problems, readjusts the air-to-fuel ratio, if necessary, and the space heater has been demonstrated to meet the no visible emission standard. <p>[N.J.A.C. 7:27-20.3(b)10]</p>	<p>The Registrant shall maintain records including the following;</p> <ul style="list-style-type: none"> • The determination of presence of visible emissions, if any; • any corrective action taken. <p>All records shall be maintained and kept on-site in a central file in a permanently bound logbook or in readily accessible computer memories and made available for inspection by the Department for a period of three years after the date of each record.</p> <p>[N.J.A.C. 7:27-20.3(b)10]</p>	<p>Any operation of the equipment which may cause visible emissions which might reasonably result in citizen complaints shall be reported by the Permittee as required by the Air Pollution Control Act. The Permittee shall immediately notify the Department of any non-compliance by calling the Environmental Action Hotline at (877) 927-6337.</p> <p>[N.J.A.C. 7:27-20.3(b)14]</p>
------------	---	--	---	--

<p>13.</p>	<p>The used oil in the storage tank for the space heater shall not exceed the following limits. The Department may obtain an oil sample to verify that the used oil is within these limits:</p> <table border="0"> <thead> <tr> <th>Constituent/Property</th> <th>Allowable Level</th> </tr> </thead> <tbody> <tr> <td>Arsenic</td> <td>5 ppmw maximum</td> </tr> <tr> <td>Cadmium</td> <td>2 ppmw maximum</td> </tr> <tr> <td>Chromium</td> <td>10 ppmw maximum</td> </tr> <tr> <td>Lead</td> <td>100 ppmw maximum</td> </tr> <tr> <td>Flash point</td> <td>100 degrees F minimum</td> </tr> <tr> <td>Total halogens</td> <td>1,000 ppmw maximum</td> </tr> <tr> <td>Sulfur</td> <td>5,000 ppmw maximum</td> </tr> </tbody> </table> <p>[N.J.A.C. 7:27-20.3(b)12]</p>	Constituent/Property	Allowable Level	Arsenic	5 ppmw maximum	Cadmium	2 ppmw maximum	Chromium	10 ppmw maximum	Lead	100 ppmw maximum	Flash point	100 degrees F minimum	Total halogens	1,000 ppmw maximum	Sulfur	5,000 ppmw maximum	<p>Used Oil Content: Monitored by fuel sampling (e.g.oil) upon request of the Department.</p> <p>[N.J.A.C. 7:27-8.13(d)]</p>	<p>For oil sampling, the Registrant shall keep the following records:</p> <ul style="list-style-type: none"> • the date of fuel sampling; • results of the sampling; <p>All records shall be maintained and kept on-site in a central file in a permanently bound logbook or in readily accessible computer memories and made available for inspection by the Department for a period of three years after the date of each record.</p> <p>[N.J.A.C. 7:27-8.13(d)]</p>	<p>None.</p>
Constituent/Property	Allowable Level																			
Arsenic	5 ppmw maximum																			
Cadmium	2 ppmw maximum																			
Chromium	10 ppmw maximum																			
Lead	100 ppmw maximum																			
Flash point	100 degrees F minimum																			
Total halogens	1,000 ppmw maximum																			
Sulfur	5,000 ppmw maximum																			
<p>14.</p>	<p>The Registrant of the used oil space heater shall maintain the oil filtering equipment in accordance with manufacturer's specifications and shall not operate the used oil space heater without an installed and operational filter.</p> <p>[N.J.A.C. 7:27-20.3(b)13]</p>	<p>None.</p>	<p>None.</p>	<p>None.</p>																