

INFORMATION COLLECTION REQUEST FOR SEWAGE SLUDGE INCINERATION (SSI) UNITS

This information collection request is being conducted by the Environmental Protection Agency's (EPA) Office of Air and Radiation (OAR) to assist the EPA Administrator in developing emission standards for sewage sludge (biosolids) incineration (SSI) units under Clean Air Act (CAA) section 129. The survey is being sent under the authority of Section 114 of the CAA.

BACKGROUND:

EPA proposed new source performance standards (NSPS) and emission guidelines (EG) for other solid waste incineration (OSWI) units on December 9, 2004 (69 FR 71472) and promulgated final regulations on December 16, 2005 (70 FR 74870). Units covered under this rule included certain very small municipal waste combustion (VSMWC) and institutional waste incineration (IWI) units. EPA did not issue standards or guidelines for SSI units and other categories of units. Following promulgation, EPA received a petition for reconsideration asking that SSI and other units be covered under the rule. In January 2007, EPA took final action on the reconsideration and concluded that no changes to OSWI were necessary. See 72 FR 2620 (Jan. 22, 2007). In June 2007, the United States Court of Appeals for the District of Columbia (D.C.) Circuit vacated EPA's Commercial and Industrial Solid Waste Incinerator (CISWI) Definitions Rule, which defined the term "solid waste incineration unit" for purposes of CAA section 129. NRDC v. EPA, 489 F.3d 1250 (D.C. Cir. 2007). The court specifically held that section 129 "unambiguously include(s) among the incineration units subject to its standards any facility that combusts any . . . solid waste material at all." NRDC, 489 F.3d at 1258. The court also vacated the maximum achievable control technology (MACT) emission standards for major source boilers and process heaters because it reasoned that the Boilers rule "will change substantially" as a result of the vacatur of the CISWI Definitions Rule. Furthermore, the D.C. Circuit also vacated the Brick MACT and Ceramic Kiln standards in the spring of 2007, which is relevant because the decision addresses issues associated with setting MACT standards. Sierra Club v. EPA, 479 F.3d 875 (D.C. Cir. 2007).

In light of the statutory requirements for establishing emission standards under CAA section 129, the recent case law relevant to those requirements, and the limited data the Agency currently has on SSI units, the Agency believes that it needs additional data from SSI units in order to set emission standards for such units. Some SSI emissions test data are available (from EPA's Compilation of Air Pollutant Emission Factors, known as "AP-42," and other sources), but most of that data is over 10 years old and not all CAA section 129 pollutants are represented. Some SSI data were collected between 1998 and 2000 by EPA, but not all facilities in this inventory had associated test data. EPA's 1998 through 2000 data collection was limited to dioxins. Furthermore, voluntary emissions data from industry were not representative of all pollutants. Therefore, the Agency has concluded that obtaining updated information is necessary to inform its decision on NSPS and emission guidelines for the SSI category.

CAA section 114(a) states that the Administrator may require any owner or operator subject to any requirement of this Act to:

(A) Establish and maintain such records; (B) make such reports; (C) install, use, and maintain such monitoring equipment, and use such audit procedures, or methods; (D) sample such emissions (in accordance with such procedures or methods, at such locations, at such intervals, during such periods, and in such manner as the Administrator shall prescribe); (E) keep records on control equipment parameters, production variables or other indirect data when direct

on control equipment parameters, production variables or other indirect data when direct monitoring of emissions is impractical; (F) submit compliance certifications in accordance with section 114(a)(3); and (G) provide such other information as the Administrator may reasonably require.

There are two aspects to this CAA section 114 information collection request. The first component of the information collection involves a survey requesting information on existing SSI unit and existing data. The second component requires owners to conduct testing. The testing requirements are set forth in the cover letter of this packet (CAA section 114 letter) as well as Enclosure 2.

DIRECTIONS:

- All recipients must complete and return Part I of this survey by November 19, 2009.
- All recipients must complete and return Parts II, III and IV of this survey, except as instructed in Part I, question 4 by December 19, 2009.
- Please note that you are not expected to generate new information for the attached survey (Enclosure 1).

DEFINITIONS: For the purposes of this ICR only, the following terms have been defined:

- **Halogenated compounds** are defined as organic Hazardous Air Pollutant (HAP) compounds that contain halogen atoms (atoms of chlorine, fluorine or bromine).
- **Heavy Metals** are defined as metallic elements with high atomic weights; (e.g. mercury, chromium, cadmium, arsenic, and lead); can damage living things at low concentrations and tend to accumulate in the food chain.
- **Sewage Sludge Incinerator** is defined as any combustion device used in the process of burning sewage sludge reducing the volume of the sewage sludge by removing combustible matter.
- **Radioactive material** is defined as any material containing radionuclides which emits, by spontaneous nuclear disintegration, corpuscular or electromagnetic emanations.
- **Sewage sludge (Biosolids)** is defined as solid, semi-solid or liquid residue generated during the treatment of sewage in treatment works. Sewage sludge includes, but is not limited to, domestic septage; scum or solids removed in primary, secondary or advanced wastewater treatment processes; and a material derived from sewage sludge. Sewage sludge does not include ash generated during firing of sewage sludge in a sewage sludge incinerator.
- **Small entity** refers to a business owned by a small governmental jurisdiction that governs a city, county, town, school district or special district with a population of fewer than 50,000.

Sewage Sludge Incinerator (SSI) Survey Form

PART I. OWNER INFORMATION

For questions 2 through 4, if multiple facilities are owned, provide a separate Part I form for each facility.

1. Name of Legal Owner:

2. Complete street address of facility or facilities owned (physical location):

a. Address:

b. City:

c. State:

d. Zip:

e. County:

3. Facility/Facilities Owned Contact:

a. Name (First Name, Last Name):

b. Title:

c. Telephone Number:

Ext:

d. Fax Number:

e. E-mail:

Owner Name:

Facility Name:

Unit ID:

4. Incineration/Combustion Unit

We believe that you own a facility that has an incinerator or other combustion unit that burns sewage sludge. If you believe that this survey does not pertain to you, please indicate your reason below:

☐ Incineration/combustion unit is permanently shut down. Please also identify the date the unit was shut down and what steps were taken to close the unit.

☐ Incineration/combustion unit does not burn sewage sludge. Please indicate materials currently being burned. Please identify whether the facility ever combusted sewage sludge and if it did, identify when and why the burning of sewage sludge ceased.

☐ No incineration/combustion unit located at this facility.

Please mail, fax, or e-mail Part 1 to:

U.S. EPA Mailroom
Attn: Amy Hambrick
Mail Code: E143-03
Research Triangle Park, NC 27711
Phone: 919-541-0964
Fax: 919-541-3470
Email: hambrick.amy@epa.gov

If you do not operate an incineration/combustion unit which burns sewage sludge (i.e., your answer to question 4 is no), EPA will review that information and respond as to whether you need to complete any other part of the survey

Owner Name:

Facility Name:

Unit ID:

PART II. GENERAL INCINERATION/ COMBUSTION INFORMATION

Please complete the following questions for each incineration or other combustion unit that burns sewage sludge. Please note that you are not expected to generate new information for this survey. Only supply data that are readily available to you.

Please identify clearly any response(s) that you consider to be confidential business information (CBI). Any responses not so identified will be included in a publicly available database. Refer to Enclosures 3, 4, 5, and 6 for more information on the treatment of CBI and a list of information you may be asked to submit later to substantiate a claim of confidentiality.

1. Please provide the following general information for each SSI/combustion unit, if available:

- a. Population served by facility where the unit(s) is located (e.g., number of people, households, etc)
- b. Number of employees at the facility where SSI/combustion unit is located:
- c. Number of employees at the parent company, organization or institution (e.g. municipality, wastewater treatment agency, etc.) that owns the facility:
- d. Is the legal owner a small entity? Y N Unknown

Owner Name:

Facility Name:

Unit ID:

2. Please provide the following design information for each SSI/combustion unit, if known:

- a. Unique identification code:
- b. Manufacturer:
- c. Model No.:

[If you have the manufacturer's brochure/specifications, please submit a copy.]

- d. Year unit **k** as originally installed:
- e. Original capital cost of the unit:
- f. Provide information on upgrades to the SSI and associated air pollution control trains:
- g. Unit design capacity (indicate whether dry pounds of sewage sludge per hour or per day, or provide other unit of measure):
- h. Describe any and all materials burned including, but not limited, any fuel used (e.g. dry tons of sewage sludge, auxiliary fuels, grit, screenings, skimmings, coal, solids waste, etc.). Provide the average percentage of each material burned annually from 2003-2008:

Material	Description of Material	% of Annual Input

Owner Name:

Facility Name:

Unit ID:

- i. For each material burned, please indicate the source and amount (dry tons) from which the material originates (e.g. material generated on-site or material that originates at another plant (s) and the name of the plant(s))
- j. Typical number of hours the unit is operated (indicate whether per week, per month or per year):
- k. Total amount of material burned annually:
- l. Average sewage sludge feed rate while operating (indicate unit of measure):
- m. Average moisture content of total sewage sludge (indicate unit of measure):
- n. Annual cost to operate the unit in 2006, 2007, 2008 (separate annual operating cost into components - utilities, maintenance, labor, etc):

3. Does the unit have heat/energy recovery? Y N

If yes, please list the type of units uses (e.g. recycling of center shaft air, heat exchanger, boiler, turbine, etc) and how is the energy used (e.g., combustion air, plume suppression, steam production for , processes heat, or building comfort heating, space heat, electricity production, etc.):

4. For each unit, please provide the following information on emissions:

- a. Do you have any emissions test data in the past five years? Y N
- b. If yes, what year(s) was/ (were) the test(s) done?

Owner Name:

Facility Name:

Unit ID:

5. EPA requests information on each test conducted at a specific unit. Please copy this page and provide the following information for each test conducted.

a. Date of test:

b. Duration of test:

c. Which pollutants were tested? Check from list below.

- | | | | | |
|---|--|---|------------------------------------|-----------------------------------|
| <input type="checkbox"/> Particulate Matter (PM) | <input type="checkbox"/> Carbon Monoxide | <input type="checkbox"/> Chromium | <input type="checkbox"/> Beryllium | <input type="checkbox"/> Nickel |
| <input type="checkbox"/> PM 2.5 | <input type="checkbox"/> Nitrogen Oxides | <input type="checkbox"/> Dioxins/Furans / Coplanar PCBs | <input type="checkbox"/> Cadmium | <input type="checkbox"/> Selenium |
| <input type="checkbox"/> Condensable PM | <input type="checkbox"/> Sulfur Dioxide | <input type="checkbox"/> Opacity | <input type="checkbox"/> Cobalt | <input type="checkbox"/> Mercury |
| <input type="checkbox"/> Filterable PM | <input type="checkbox"/> Hydrogen Fluoride | <input type="checkbox"/> Antimony | <input type="checkbox"/> Manganese | |
| <input type="checkbox"/> Total Hydrocarbons (THC) | <input type="checkbox"/> Hydrogen Chloride | <input type="checkbox"/> Arsenic | | |

Other Pollutant(s) tested:

[Please submit a copy of the test reports and indicate what test methods were used (e.g., Clean Water Act Part 503). For pollutants measured with continuous emissions monitoring systems (CEMS), please submit a copy of the most recent Relative Accuracy Test Audit (RATA) for the last 30 day period including those days where manual testing was conducted.]

Owner Name:

Facility Name:

Unit ID:

6. For each incineration/combustion unit, provide the following information regarding air pollution control devices: Please copy this page and provide the following information for each unit:

- a. Does the unit have a control device that reduces air pollution? Y N
- b. Type of control device:
- c. Year installed:
- d. Manufacturer:
- e. Model No.:
- f. Original capital cost of the control device:
- g. Annual cost to operate the control device (Annual operating costs include maintenance, labor, energy, etc.):

7. For each unit, identify whether there are measures other than add-on control devices used to minimize emissions (e.g. low-NO_x burners, annual tune-ups of burners, good combustion practices, pollution prevention measures, or any other emission control approaches that reduces HAP emissions)? If yes, please list devices, measures, and practices for each unit and specify the name of the unit when responding to this question:

Owner Name:

Facility Name:

Unit ID:

8. If your facility employs waste segregation or recycling practices to reduce the volume of sewage sludge combusted, list which materials are segregated from the stream before combustion. Please indicate which units employ waste segregation and segregation methods used:

- a. Please summarize any practices that your facility utilizes to manage sewage sludge received (e.g. identifying dischargers that adversely impact the treatment plant and the quality of the sewage sludge produced):

9. If you did not burn sewage sludge in your SSI or Combustion unit(s), what would be the most likely alternative use or disposal method? (*check all that apply*)

- | | |
|--|---|
| <input type="checkbox"/> dispose on-site | <input type="checkbox"/> sell as a fuel |
| <input type="checkbox"/> contract for special disposal service | <input type="checkbox"/> no other alternative currently available |
| <input type="checkbox"/> send to a landfill off-site | <input type="checkbox"/> don't know |
| <input type="checkbox"/> sell as a product | |

10. For the alternative disposal methods checked above, *estimate* the cost of each alternative or if you have evaluated the cost of the alternative(s) checked, what were the costs:

Owner Name:

Facility Name:

Unit ID:

11. If you have made any modifications to the process or to the incineration/combustion unit to reduce emissions, describe the modifications for each unit:

[Please submit a copy of any cost information you have for the modification.]

12. Please provide the following information for operations during start-up and shutdown:

- a. How often does the unit start-up and shutdown (e.g., routine, never, etc.): Please indicate number of times per year:
- b. Please list what procedures are followed or any activities that occur during start-up and shutdown (e.g. turn off unit, monitor pressure, etc.):
- c. Is the emission profile of the incineration/combustion unit different during start-up and shutdown than during normal operating conditions?
- d. If the answer to Part II.12.c. is yes, please explain, in detail, how emissions are different during start-up and shutdown and why. Please also provide any information that supports your response to this question:
- e. Do you have test data that show emissions during start-up or shutdown? Y N

If yes, when did you conduct such testing and why? What were the test conditions at the time of testing? Were the tests associated with a routine start-up or shut-down?

Please submit any test data you have conducted during any start-up or shutdown of the incineration/combustion unit.

Owner Name:

Facility Name:

Unit ID:

PART III. DETAILED INCINERATION/COMBUSTION INFORMATION FOR UNITS THAT COMBUST SEWAGE SLUDGE

Photocopy this section as needed to complete the following for each sewage sludge incinerator or other combustion unit that burns sewage sludge.

Please note that you are not expected to generate new information for this survey. Only supply data and information that are readily available to you.

Please identify clearly any response(s) that you consider to be CBI. Any responses not so identified will be included in a publicly available database. Refer to Enclosures 3, 4, 5 and 6 for more information on the treatment of CBI and a list of information you may be asked to submit later to substantiate a claim of confidentiality.

1. Incinerator/Combustor Type

- ☐ Incinerator without heat recovery ☐ Incinerator with heat recovery
- ☐ Other combustor (specify):

2. Operating Parameters

- a. Typical operating rate (expressed as % of design rate):

3. Description

- a. Incineration/combustion design (indicate all that apply):

- ☐ fluidized bed ☐ multiple hearth
- ☐ other (identify and describe the specific design):

- b. Incineration/ combustion unit gas temperature at chamber exit, °F:

- c. Incineration/ combustion unit gas residence time at or above temperature in 3.b, seconds:

Owner Name:

Facility Name:

Unit ID:

4. Heat recovery unit information (if you checked "Incineration/ Combustion with heat recovery" in Question 1.)

a. Heat recovery unit Manufacturer:

Model Number:

☐ Integrated into design of SSI unit when installed ☐ Add-on unit

b. If add-on, year installed

c. Heat Recovery Unit Design Capacity (fill in boxes corresponding to appropriate units)

..... million btu/hr input gpm of hot water

..... 1000 lb steam/hr other:

d. If incinerator/ combustor has heat recovery unit, what is design steam quality or pressure (indicate units of measure):

e. Type of Heat Recovery Unit (indicate all that apply):

☐ Water tube ☐ Multi-pass ☐ Combination

☐ Fire tube ☐ Integral drum ☐ Other:

☐ Single pass ☐ Elevated drum

f. Does the heat recovery unit have supplemental firing? Y N

g. Type of auxiliary fuel used? (if you answered "yes" to 4.f)

☐ Natural Gas ☐ Fuel Oil ☐ Other (please specify)

Owner Name:

Facility Name:

Unit ID:

- h. *For incinerators or other combustors with heat recovery units.* Approximately what percent of your total facility annual energy need (including process heat, steam, space heat, and electricity generation) is met by the units?
- i. *For incinerators or other combustors with heat recovery units.* Considering all of the incinerators/combustors with heat recovery units, what percentage of the energy produced by these units is used to produce steam or electricity to be sold off-site?

5. Materials Combusted

- a. Do any of the materials incinerated/combusted contain the following? (See definitions for descriptions)

heavy metals	<input type="checkbox"/> yes	<input type="checkbox"/> no	<input type="checkbox"/> don't know
halogenated compounds	<input type="checkbox"/> yes	<input type="checkbox"/> no	<input type="checkbox"/> don't know
radioactive materials	<input type="checkbox"/> yes	<input type="checkbox"/> no	<input type="checkbox"/> don't know
chemotherapeutic	<input type="checkbox"/> yes	<input type="checkbox"/> no	<input type="checkbox"/> don't know
Other:	<input type="checkbox"/> yes	<input type="checkbox"/> no	<input type="checkbox"/> don't know

6. Operator Training

- a. For each incineration/combustion unit that you operate, is operator training required by a local or state agency as a condition of plant operation? Y N

If yes, please name the agency(s):

Owner Name:

Facility Name:

Unit ID:

- b. For each incineration/combustion unit that you operate please **estimate** how many hours of formal training are conducted in each of the following areas?

	Prior to Starting Work	During First Year of Employment	After First Year of Employment
Sewage sludge handling			
Combustor operation			
Air pollution control devices			
Residue handling			
Hands-on training			
Other (specify)			

- c. Who conducts the operator training?

- ☐ In-house personnel
 ☐ Private contractor
☐ State or local agency
 ☐ Other (specify):

7. Best Management Procedures

- a. Does the facility make written Standard Operating Procedures (SOPs) available to all operators? Y N
- b. Does the facility keep Operations and Maintenance manuals from the equipment manufacturer near operator locations? Y N
- c. Does the facility employ additional practices that ensure operation of the incinerator/ combustor is consistent from one shift to another? Y N
- If yes, please explain

Owner Name:

Facility Name:

Unit ID:

8. Incineration/ Combustion Process Control System

- a. For each of the process control parameters listed below, please indicate whether the control system is manual or automatic.

Control Parameter	Control Mode		
	Manual	Automatic	Not Controlled/ Not applicable
CO in Flue Gas			
THC in Flue Gas			
O ₂ in Flue Gas			
Fuel Burnout			
Burn Cycle			
Incinerator Exit Temperature (i.e., gas temperature at last combustion chamber <u>outlet</u>)			
% Excess Air			
Other control parameters, (please specify):			

If unit includes heat recovery:

Control Parameters	Control Mode		
	Manual	Automatic	Not Controlled
Steam Production			
Heat Recovery Unit Temperature (i.e., gas temperature at superheater or quench reactor <u>inlet</u>)			
Other control parameters, (please specify):			

Owner Name:

Facility Name:

Unit ID:

PART IV. DETAILED AIR POLLUTION CONTROL DEVICE OR TECHNIQUE INFORMATION FOR INCINERATORS AND OTHER COMBUSTION UNITS THAT COMBUST SEWAGE SLUDGE

Please complete the following questions. Please note that you are not expected to generate new information for this survey. Only supply data that are readily available to you.

Complete Part IV for each incineration/combustion unit that combusts sewage sludge and identify the unit.

Please make the appropriate number of copies of Part IV before entering responses.

1. Control Device or Technique

Unit identification: _____

- a. Provide the following information for each device or technique that controls emissions.

Control Device / Technique	Shared between combustion units?	
	<input type="checkbox"/> Yes	<input type="checkbox"/> No
	<input type="checkbox"/> Yes	<input type="checkbox"/> No
	<input type="checkbox"/> Yes	<input type="checkbox"/> No
	<input type="checkbox"/> Yes	<input type="checkbox"/> No
	<input type="checkbox"/> Yes	<input type="checkbox"/> No
	<input type="checkbox"/> Yes	<input type="checkbox"/> No
	<input type="checkbox"/> Yes	<input type="checkbox"/> No

If a control device is shared, please identify the other incineration/combustion units or process equipment that are routed to the same control device:

- b. Percent of flue gas through air pollution control system: _____%

- c. Total duct length from the incineration/ combustion outlet to the inlet to existing control devices: _____feet

Owner Name:

Facility Name:

Unit ID:

2. Electrostatic Precipitator (ESP)

If the unit has an ESP, please identify the type:

☐ Wet ESP☐ Dry ESP☐ No ESP

If the unit has an ESP, please provide the following information:

a. Design particulate removal efficiency (as percent of inlet mass loading):

b. Total ESP Collection area: _____ square feet

c. Design flue gas inlet flow rate: _____ acfm

d. Design flue gas inlet temperature: _____ °F

e. Maximum flue gas inlet temperature: _____ °F

f. Minimum flue gas inlet temperature: _____ °F

g. Design superficial gas velocity: _____ ft/second

h. Maximum water flow: _____

i. Minimum water flow: _____

j. Please indicate any other operating conditions of the ESP or WESP:

3. Scrubber

If the incineration/ combustion unit has a scrubber, please provide the following information:

a. Scrubber intended for removal of:

☐ PM☐ SO₂☐ Organics☐ HCl☐ Acid Gas☐ Other:

Owner Name:

Facility Name:

Unit ID:

b. Type of scrubber:

☐ venturi☐ impingement tray☐ plate/tray☐ advanced venturi☐ injection☐ packed bed☐ other: _____

c. Design flue gas inlet flow rate: _____ acfm

d. Design flue gas inlet temperature: _____ °F

e. Scrubbing medium (describe): _____

f. Scrubbing medium pH: _____

g. Scrubber water flow: _____

h. Scrubber pressure drop (across each of multiple scrubbers): _____

i. Mist eliminator: ~~AY~~ ~~AN~~

j. Average outlet temperature for each section: _____

k. Please describe the incinerator/combustor's scrubber general source and quality of the water (i.e. is it effluent water and what is the total solids content of the water): _____

4. Fabric Filter

If the unit has a fabric filtration device, provide the following information:

a. Design particulate removal efficiency (as percent of inlet mass loading): _____

b. Number of compartments: _____

c. Number of bags per compartment: _____

d. Total bag area: _____ square feet

Owner Name:

Facility Name:

Unit ID:

e. Design flue gas inlet flow rate: _____ acfm

f. Design flue gas inlet temperature: _____ °F

g. Maximum operating temperature: _____ °F

h. Minimum operating temperature: _____ °F

i. Bag material and coating: _____

j. Bag cleaning method: _____

☐ Shake☐ Reverse air☐ Pulse jet

k. Pressure drop across fabric filter: inches water _____

l. Typical bag life: _____ months

5. Other control devices

Complete for control devices listed in IV.1 that are not ESP, scrubbers or fabric filters.

a. Design removal efficiency (as percent of inlet mass or volume loading):

Control Device	Pollutant	Removal Efficiency

b. Design flue gas inlet flow rate: _____ acfm

c. Design flue gas inlet temperature: _____ °F

Owner Name:

Facility Name:

Unit ID:

- d. For each of the control devices listed in 5.a., please provide the monitored parameters (i.e., temperature, pressure drop, reagent flow rate, etc.)

Control Device	Parameter	Set Point

6. Other HAP emission reduction techniques

- a. Complete for each emission reduction technique listed in IV.1 that is not a control device.

Emission reduction technique description	Pollutants affected	Reduction efficiency

- b. What parameters are monitored to ensure operation of the emission reduction technique?

- c. At what frequency is monitoring done?