

Pollution Inventory reporting

Environmental Permitting (England and Wales)
Regulations 2010
Regulation 60(1)



January 2013, Version 5.

Intensive farming guidance note

1. Introduction

This guidance note is for operators of intensive livestock farms regulated by the Environmental Permitting Regulations (2010). It describes how to complete the Pollution Inventory (PI) reporting form. It should be used together with the PI General Guidance to make sure you meet the reporting requirements of the European Pollutant Release and Transfer Register (E-PRTR) Regulation. The reporting form includes questions on resource efficiency – this is voluntary for the intensive farming sector and so operators can submit their return without filling this section in.

See the web links below for further information on the background to the PI and E-PRTR, and other guidance notes.

Please read the notes on the reporting form in conjunction with this guidance.

PI Guidance: www.environment-agency.gov.uk/pi

E-PRTR: http://ec.europa.eu/environment/air/pollutants/stationary/eper/pdf/en_prtr.pdf

2. Completing Part 1

Questions 1.1-1.4

You need to enter general details about your permitted site (installation) here, such as name and address. They should be the same as those set out in your permit.

Question 1.5 NACE and NOSE-P codes

NACE – the main economic activity, enter either:

- '01.46' Raising of swine/pigs or
- '01.47' Raising of poultry

NOSE-P – the main polluting process

For pigs and poultry enter:

- '110.05' Manure management for manure/slurry stores

For pigs then enter:

- '110.04' Enteric fermentation

If relevant, NOSE-P codes for other polluting processes on the site could be included. For example:

'109.03' Incineration of animal carcasses and animal waste (incinerators larger than 50kg only).

Question 1.6

E-PRTR codes refer to the main activity and are listed below:

- 7. (a) installations for the intensive rearing of poultry or pigs (i) with 40, 000 places for poultry
- 7. (a) (ii) with 2, 000 places for production pigs (over 30 kg)
- 7. (a) (iii) with 750 places for sows

Questions 1.7 to 1.9 are voluntary questions.

3. Completing Parts 2 to 5 – Releases and Transfers

Parts 2-5 require you to tell us how much of a substance your installation has released to different media (air, land and water) during the calendar year. The following guidance suggests which substances are most likely to have been released from your installation. Example calculations are provided.

Please note the following:

- The list of substances on the PI reporting form includes substances released from all processes regulated by EPR - the majority will not be applicable for farms. We believe that only ammonia, methane, nitrogen oxides and particulate matter (PM₁₀) are relevant for farms.
- If you are aware that your installation has released additional substances please include these in the relevant table.
- For each substance reported you need to calculate the amount released. Do this by multiplying the number of livestock places used on your site for the calendar year by an emission factor. Note: your permit application had a maximum number of places – the number of places used may be lower than your permitted capacity.
- For each substance entered there's a reporting threshold (given after substance common name) – **if the release amount calculated is below the reporting threshold enter 'brt'** in the first column 'Total releases'.
- If the release amount calculated is above the reporting threshold then enter the amount released in the column 'Total releases'.
- Enter 'C' for calculated in the method column for each substance reported.
- Enter the unit kg in the 'Metric unit' column.
- You **don't** need to enter 'n/a' for substances that you aren't reporting. Leave them blank.

3.1 Part 2 Releases to air

You should report releases for ammonia and methane (page 3 of the Pollution Inventory reporting form) and nitrogen oxides and particulate matter PM₁₀ (poultry only, page 4).

3.1.1 Ammonia (page 3 of the Pollution Inventory reporting form)

Calculate the number of livestock places used on your site for the calendar year and then multiply by the relevant emission factor figure in Appendix 1 (poultry) or Appendix 2 (pigs). You should do this for livestock housing and for manure/slurry storage where manure/slurry is removed from the livestock house and stored on the site, either in the open or under cover. You don't need to include field heaps and wash water tanks. If applicable, you will

need to add the housing, manure storage and slurry storage (pigs only) numbers to give an overall ammonia emission.

If you have livestock in different types of housing on your site you will need to work out the places for the different housing and add them together. Remember to check that the number of places in different housing types matches the total number of places used on the site.

If your livestock numbers varied during the year you should work out what the emissions were per month depending on the number of livestock reared and the relevant emission factor, then calculate the figure for the year. We suggest you use the following method as this takes account of changes in emission factor if the type of animal reared changed.

$$\frac{(N \times F \times M)}{12} + \frac{(n \times F \times M)}{12} = \text{emissions in kg}$$

Where:

N = number of livestock

n = new number of livestock

F = relevant emission factor

M = months applicable

Example:

A broiler farm has 50,000 birds for the first five months of the year and 100,000 birds for the remaining seven months. The ammonia emission factor for broilers is 0.034. The ammonia calculation would be:

$$\frac{(50,000 \times 0.034 \times 5)}{12} + \frac{(100,000 \times 0.034 \times 7)}{12} = 2692\text{kg}$$

For layers in enriched cages use the appropriate emission factor that best matches the manure handling system.

If your emissions are above the 1,000kg reporting threshold then you need to enter the amount in the total releases column, if they are less than 1,000kg enter 'brt'.

Example 1 - Poultry

Please note that the broiler ammonia emission factor changed in 2009.

50,000 broiler places x emission factor of 0.034 = total release of 1,700kg

Releases from manure storage must be added if manure is removed from the poultry house and stored on the site.

Example 2 – Poultry manure storage outside the layer house from belt system

17 tonnes of manure

17 x emission factor of 2.38 = total release of 40.5kg.

Example 3 – Pig housing

A farm which used places for 800 sows and 1,500 finishers on straw in the calendar year

(800 x emission factor of 4.57) + (1,500 x emission factor of 2.97) = total release of 8,111kg

If manure or slurry are stored within the boundary of the site then releases from them need to be added to the main housing releases.

Example 4 – Pig manure storage

113 tonnes of fresh manure.

113 x emission factor of 1.49 = total release of 168.4 kg

Example 5 – Pig slurry storage

A slurry lagoon of 43 m² with no cover.

43 x emission factor of 1.4 = total release of 60.2 kg

3.1.2 Methane (page 3 of the Pollution Inventory reporting form)

Calculate the number of livestock places used for the calendar year and then multiply by the relevant methane emission factor figure in Appendix 1 (poultry) or Appendix 2 (pigs).

If your emissions are above the 10,000kg reporting threshold then you need to enter the amount in the total releases column, if they are less than 10,000kg enter 'brt'.

Poultry

You only need to report methane where you store manure on the site outside of livestock housing. Multiply your used capacity by an emission factor of 0.078.

Example 6 - an installation with 50,000 broilers

50,000 broilers x 0.078 = 3,900kg. This is less than 10,000kg so enter 'brt'.

Example 7 - an installation with 130,000 broilers

130,000 broilers x 0.078 = 10,140kg

Pigs

You need to add two calculations:

For enteric fermentation - multiply your used capacity by emission factor of 1.5

For manure management - multiply your used capacity by emission factor of 3

then add them together.

Example 8 – an installation with 800 sows

(800 x 1.5) + (800 x 3) = 3,600 kg. This is less than 10,000 so enter 'brt'.

Example 9 – an installation with 2,300 finishers

(2,300 x 1.5) + (2,300 x 3) = 10,350kg

3.1.3 Nitrogen oxides – NO and NO₂ as NO₂ (page 4 of the Pollution Inventory reporting form)

Insert 'brt' in the total releases column for all installations unless you have information to the contrary.

3.1.4 Particulate matter – PM₁₀ (page 4 of the Pollution Inventory reporting form)

For poultry, multiply the number of livestock places used by the relevant dust emission factor figure in Appendix 1. Then divide by 3 to get a value for PM₁₀s (a type of dust).

If your emissions are above the 1,000kg reporting threshold then you need to enter the amount in the total releases column, if they are less than 1,000kg enter 'brt'.

For pigs, leave the column blank.

Example 10 - an installation with 50,000 layers in cages

(50,000 x emission factor of 0.05) ÷ 3 = 833kg. This is less than 1,000 so enter 'brt'.

Example 11 – an installation with 50,000 broilers

(50,000 x emission factor of 0.1) ÷ 3 = 1,667kg

3.2 Part 3 Releases to land

You should not have any releases so leave this section blank.

3.3 Part 4 Releases to controlled waters

This refers to substances specified in a discharge consent. If you have a consent to discharge to controlled waters for your site, complete the relevant boxes. Your actual release may be less than the maximum specified in the consent.

3.4 Part 5 Off site transfers in wastewater

This refers to substances specified in a trade effluent consent (often referred to as a sewage consent), if applicable complete the relevant boxes. Your volume of transferred wastewater may be less than allowed in the consent.

4. Part 6 Off site waste transfers

You need to tell us about any waste you are sending off site. We need to know what type of waste it is and what type of disposal or recovery operation it's being sent to or for. This includes manure/slurry sent for disposal or recovery such as to a power station, but **excludes** manure/slurry sent off site for land spreading. **You don't need to report whole animal carcasses** as they aren't classified as waste under the Waste Framework Directive. You should continue to report any other animal tissue waste.

For non hazardous waste there's an annual reporting threshold of 5 tonnes per waste type/disposal or recovery operation. If the tonnage is below the threshold enter 'brt'.

All hazardous waste transfers should be reported regardless of tonnage.

Your Waste Transfer Notes should contain the information to complete this section, we recommend you keep a running total of transfers through the year, so this is easier to complete in future years.

Please classify your waste according to the European Waste Catalogue (EWC) codes in Appendix 3. The EWC codes should be entered in the left hand column of the waste transfers table on page 13 of the form.

Then use the relevant Waste Framework Directive Disposal and Recovery (D&R) codes in Appendix 3 to tell us where the waste is going. These D&R codes should be entered in the top row of the waste transfers table on page 13.

Then fill in the grid with the relevant quantities of waste in tonnes per EWC/D&R code. Enter whether the weight was determined by estimation, weighing or calculation in the boxes under the table.

Example 12

A broiler farm sent 2,000 tonnes of litter to a power station for incineration and the remainder to another farm for land spreading. The litter sent for incineration will need reporting (as it's a reportable waste and exceeds 5 tonnes) but the litter sent for land spreading doesn't. Litter has the EWC code 02 01 06 and incineration at a power station the D&R code of R1.

Although the farm produced 7 tonnes of carcasses these **don't** need to be reported.

NB: If the farm has an incinerator, the production of incinerator ash (19 01 12) needs to be reported. If it's less than 5 tonnes it will 'brt' (below the reportable threshold) and have a D&R code of D1.

The farm also has 50kg of waste generator oil. Appendix 3 shows this is hazardous waste so it must be reported even though it's less than the 5 tonne threshold. It has the EWC code of 13 02 08 and D&R code of R9.

Other wastes include plastic bale twine (02 01 04), cardboard (15 01 01), wooden pallets (15 01 03) and protective clothing (15 02 03). The quantities of these are all less than 5 tonnes and so they are 'brt'. They go to landfill which has a D&R code of D1.

The table would be completed as follows, with all quantities as tonnes:

EWC code	WFD disposal and recovery codes			
	R1	D10	R9	D1
02 01 06	2000			
13 02 08			0.05	
02 01 04				brt
15 01 01				brt
15 01 03				brt
15 02 03				brt
19 01 12				brt

5. Part 7 Overseas waste transfer

This is unlikely to be applicable.

6. Part 8 Resource Efficiency Physical Index (REPI)

This section is voluntary for the intensive framing sector and so you can submit your return without filling this section in. However, the Pollution Inventory General Guidance provides information on how to fill out this section of the form, should you choose to do so.

7. Part 9.1 Qualification notes

Complete this box with any information we should be aware of in relation to your Pollution Inventory submission. If you've completed your PI return on line and any check flags have appeared, you will need to explain them in this box before you can submit your return.

8. Part 9.2 – Declaration

Please tick the box to confirm you understand and agree with the declaration, confirm your details and date the form. Then make a copy and send it or email it to your local Environment Agency Office.

Appendix 1: Poultry Ammonia, Dust and Methane Emission Factors

Ammonia - poultry housing

Housing type	Ammonia Emission Factor (kg NH ₃ /animal place/year)
Layers	
Cage with deep pit manure storage beneath	0.29
Ventilated deep pit	0.20
Manure removal twice a week by manure belt	0.035
Vertical tiered cages with forced air drying once a week removal	0.035
Vertical tiered cages with whisk forced air drying once a week removal	0.09
Vertical tiered cages with manure belt with drying tunnel over cage 24-36 hour removal	0.035
Barn and free range	
Perchery with deep litter	0.29
Litter system with forced air drying	0.12
Litter system with perforated floor and forced air drying	0.10
Aviary system	0.08
Broilers	
Naturally ventilated, fully littered floor, non-leaking drinkers	0.034
Fan ventilated, fully littered floor, non-leaking drinkers	0.034
Pullets	
Naturally ventilated, fully littered floor, non-leaking drinkers	0.06
Fan ventilated, fully littered floor, non-leaking drinkers	0.06
Turkeys	
Male	0.45
Female	0.23
Ducks	
	0.11

Ammonia - poultry manure storage

Manure storage	Kg NH ₃ /tonne fresh manure
Manure - belts	2.38
Manure – deep pit	2.38
Other	1.74

Poultry – dust emission factors

Poultry type	kg dust/animal place/year
Layers, perchery or aviary	0.1
Layers, cage	0.05
Broilers	0.1
Turkeys (male)	0.9
Turkeys (female)	0.5
Ducks	0.2
Pullets	0.1

Methane emissions factors

Description	Enteric fermentation (kg CH ₄ /animal place/year)	Manure management (kg CH ₄ /animal place/year)
Poultry	Not estimated	0.078

Appendix 2: Pig Ammonia and Methane Emission Factors

Ammonia - pig housing

Housing type	Ammonia Emission Factor (kg NH ₃ /animal place/year)
Sows	
Fully Slatted Floor (FSF)	3.01
Solid Floor – straw system	4.57
Part-slatted floor (PSF) with reduced manure pit	2.41
FSF with vacuum system for frequent slurry removal	2.26
Farrowers	
Fully Slatted Floor (FSF)	5.84
Solid Floor – straw system	8.88
FSF/PSF with combination of water and manure channel	2.80
FSF/PSF with flushing system with manure gutters	2.34
FSF/PSF with manure pan underneath	2.04
Weaners	
Fully Slatted Floor (FSF)	0.29
Solid Floor – straw system	0.21
Pen/flatdeck with FSF/PSF with vacuum system for frequent slurry removal	0.22
Pen/flatdeck with FSF beneath where there is concrete sloped floor to separate faeces or urine	0.20
Pen with PSF (2-climate system)	0.19
Pen with PSF and sloped or convex solid floor	0.17
Pen with PSF with triangular slats and manure channel with sloped side-walls	0.08
Growers	
Fully Slatted Floor (FSF)	1.59
Solid Floor – straw system	1.14
FSF with vacuum system for frequent slurry removal	1.19
PSF with reduced manure pit including slanted walls and vacuum system	0.64
PSF with central convex solid floor at front and manure gutters with slanted sidewalls and sloped manure pit	0.64
Finishers	
Fully Slatted Floor (FSF)	4.14
Solid Floor – straw system	2.97
FSF with vacuum system for frequent slurry removal	3.11
PSF with reduced manure pit including slanted walls and vacuum system	1.66
PSF with central convex solid floor at front and manure gutters with slanted sidewalls and sloped manure pit	1.66

Ammonia - pig manure/slurry storage

Manure storage	Kg NH₃ / tonne fresh manure
Manure heap	1.49
Slurry storage	Kg NH₃ / m²
Circular store - no cover	1.4
Circular store - rigid cover	0.28
Circular store - floating cover	0.7
Circular store - low tech cover	1.05
Lagoon - no cover	1.4
Lagoon - rigid cover	0.28
Lagoon - floating cover	0.56
Lagoon - low tech cover	0.84

Methane emissions factors

Description	Enteric fermentation (kg CH₄/animal place/year)	Manure management (kg CH₄/animal place/year)
Pigs	1.5	3

Appendix 3: European Waste Catalogue (EWC) and Waste Framework Directive Disposal and Recovery (D&R) codes

European Waste Catalogue (EWC) Codes

Process / Industry	Sub-division	EWC code (waste type)	Description	Hazardous
02			Wastes from agriculture, horticulture, aquaculture, forestry, hunting and fishing, food preparation and processing	
	02 01		wastes from agriculture, horticulture, aquaculture, forestry, hunting and fishing	
		02 01 01	sludges from washing and cleaning	No
		02 01 02	animal-tissue waste	No
		02 01 03	plant-tissue waste	No
		02 01 04	waste plastics (except packaging)	No
		02 01 06	animal faeces, urine and manure (including spoiled straw), effluent, collected separately and treated off-site	No
		02 01 07	wastes from forestry	No
		02 01 08	agrochemical waste containing dangerous substances	Yes
		02 01 09	agrochemical waste other than those mentioned in 02 01 08	No
		02 01 10	waste metal	No
		02 01 99	wastes not otherwise specified	No
13			Oil wastes and wastes of liquid fuels (except edible oils and those in chapters 05, 12 and 19)	
	13 02		waste engine, gear and lubricating oils	
		13 02 04	mineral-based chlorinated engine, gear and lubricating oils	Yes
		13 02 05	mineral-based non-chlorinated engine, gear and lubricating oils	Yes
		13 02 06	synthetic engine, gear and lubricating oils	Yes
		13 02 07	readily biodegradable engine, gear and lubricating oils	Yes
		13 02 08	other engine, gear and lubricating oils	Yes
	13 05		oil/water separator contents	
		13 05 01	solids from grit chambers and oil/water separators	Yes
		13 05 02	sludges from oil/water separators	Yes
		13 05 03	interceptor sludges	Yes
		13 05 06	oil from oil/water separators	Yes
		13 05 07	oily water from oil/water separators	Yes
		13 05 08	mixtures of wastes from grit chambers and oil/water separators	Yes
	13 07		wastes of liquid fuels	
		13 07 01	fuel oil and diesel	Yes
		13 07 02	petrol	Yes
		13 07 03	other fuels (including mixtures)	Yes

	13 08		oil wastes not otherwise specified	
		13 08 01	desalter sludges or emulsions	Yes
		13 08 02	other emulsions	Yes
		13 08 99	wastes not otherwise specified	Yes
15			Waste packaging; absorbents, wiping cloths, filter materials and protective clothing not otherwise specified	
	15 01		packaging (including separately collected municipal packaging waste)	
		15 01 01	paper and cardboard packaging	No
		15 01 02	plastic packaging	No
		15 01 03	wooden packaging	No
		15 01 04	metallic packaging	No
		15 01 05	composite packaging	No
		15 01 06	mixed packaging	No
		15 01 07	glass packaging	No
		15 01 09	textile packaging	No
		15 01 10	packaging containing residues of or contaminated by dangerous substances	Yes
		15 01 11	metallic packaging containing a dangerous solid porous matrix (for example asbestos), including empty pressure containers	Yes
	15 02		absorbents, filter materials, wiping cloths and protective clothing	
		15 02 02	absorbents, filter materials (including oil filters not otherwise specified), wiping cloths, protective clothing contaminated by dangerous substances	Yes
		15 02 03	absorbents, filter materials, wiping cloths and protective clothing other than those mentioned in 15 02 02	No
16			Wastes not otherwise specified in the list	
	16 01		end-of-life vehicles from different means of transport (including off-road machinery) and wastes from dismantling of end-of-life vehicles and vehicle maintenance (except 13, 14, 16 06 and 16 08)	
		16 01 03	end-of-life tyres	No
		16 01 04	end-of-life vehicles	Yes
		16 01 06	end-of-life vehicles, containing neither liquids nor other hazardous components	No
		16 01 07	oil filters	Yes
		16 01 08	components containing mercury	Yes
		16 01 09	components containing PCBs	Yes
		16 01 10	explosive components (for example air bags)	Yes
		16 01 11	brake pads containing asbestos	Yes
		16 01 12	brake pads other than those mentioned in 16 01 11	No
		16 01 13	brake fluids	Yes
		16 01 14	antifreeze fluids containing dangerous substances	Yes
		16 01 15	antifreeze fluids other than those mentioned in 16 01 14	No
		16 01 16	tanks for liquefied gas	No

	16 01 17	ferrous metal	No
	16 01 18	non-ferrous metal	No
	16 01 19	plastic	No
	16 01 20	glass	No
	16 01 21	hazardous components other than those mentioned in 16 01 07 to 16 01 11 and 16 01 13 and 16 01 14	Yes
	16 01 22	components not otherwise specified	No
	16 01 99	wastes not otherwise specified	No
16 06		batteries and accumulators	
	16 06 01	lead batteries	Yes
	16 06 02	Ni-Cd batteries	Yes
	16 06 03	mercury-containing batteries	Yes
	16 06 04	alkaline batteries (except 16 06 03)	No
	16 06 05	other batteries and accumulators	No
	16 06 06	separately collected electrolyte from batteries and accumulators	Yes
17 06		Insulation materials and asbestos-containing construction materials	
	17 06 01	insulation materials containing asbestos	
	17 06 05	construction materials containing asbestos	
18 02		wastes from research, diagnosis, treatment or prevention of disease involving animals	
	18 02 01	sharps (except 18 02 02)	No
	18 02 02	wastes whose collection and disposal is subject to special requirements in order to prevent infection	Yes
	18 02 03	wastes whose collection and disposal is not subject to special requirements in order to prevent infection	No
	18 02 05	chemicals consisting of or containing dangerous substances	Yes
	18 02 06	chemicals other than those mentioned in 18 02 05	No
	18 02 07	cytotoxic and cytostatic medicines	Yes
	18 02 08	medicines other than those mentioned in 18 02 07	No
19 01		wastes from incineration or pyrolysis of waste	
	19 01 12	bottom ash and slag (not containing dangerous substances)	No
20 01		Municipal wastes including separately collected fractions	
	20 01 21	fluorescent tubes and other mercury-containing waste	Yes

Waste Framework Directive Disposal and Recovery (D&R) codes

D&R Code	Description
D1	Deposit into or onto land (for example landfill, etc.)
D10	Incineration on land
R1	Use principally as a fuel or other means to generate energy
R3	Recycling/reclamation of organic substances which are not used as solvents (including rendering, composting and other biological transformation processes)
R4	Recycling/reclamation of metals and metal compounds
R5	Recycling/reclamation of other inorganic materials
R9	Oil re-refining or other reuses of oil
R10	Land treatment resulting in benefit to agriculture or ecological improvement