

Pollution Prevention and Control (Scotland) Regulations 2000 Intensive Agriculture Installation Systematic Assessment of Water Consumption

- This form is not compulsory but may be used as a template to complete your systematic assessment of water consumption.
- No water use reduction strategy should compromise livestock health and welfare.
- Please note that once submitted to SEPA this form will be placed on the public register unless you apply to have it, or parts of it, excluded from the register on the grounds of commercial confidentiality.

Introduction:

Under condition 2.2.2 of PPC Intensive Agriculture Permits linked to SEPA's Standard Farming Installation Rules (SFIR) operators are required to submit a systematic assessment of water consumption. These assessments are due within 18 months of the issue of the Permit and then every 4 years thereafter. The purpose of this assessment is to encourage operators to optimise water use and thereby limit their impact on the environment as a whole. Reducing water use should also have cost advantages for your business and optimise competitiveness.

Specifically the condition states that

"Within 18 months of the date of the permit and then at least every 4 years thereafter the Operator shall carry out a systematic assessment of water consumption associated with the Permitted Installation. The purpose of this assessment shall be to identify methods of optimising water use. Each assessment shall be recorded and a report of findings including estimated costs and payback period shall be submitted to SEPA."

Undertaking a systematic assessment

Following the key steps in this simple water audit will allow you to manage your water more effectively. This approach compares theoretical water use with actual use to identify potential areas for improvement.

- Identify all sources of water and how much you use
- Calculate water use
- Assess your theoretical demand for water
- Compare theoretical and actual water use
- Assess whether you can reduce your water use
- Calculate how much you spend on water
- Propose and cost improvements

What you should do now:

Please complete the following form and submit by either e-mail or post to the address given in section 5 of the explanatory notes at the back of your Permit.

Please contact your local office should you need assistance or wish to discuss any aspect of this form. Please retain a copy of the completed for your records.

Section 1 – Installation Details

Permit Number:	
Operator:	
Name of Installation:	
Details of any current abstraction licence(s)	

Section 2 – Identify all sources of water and how much you use

Record the source and amount of water you have used at your installation.

Water Source	DATES			
Mains supply water				
Abstraction (surface water)				
Abstraction (bore hole)				
Collected Rainwater				
Total Water Used				
Poultry only				
Number of crops				
Water used per crop				

Notes

Base your figures on any 12 month period (please specify the dates at the top of each column). If this is the first report you have completed you only need provide details for the period in which you have had your permit although you can extend back beyond this if you wish. Subsequent reports should cover the four year period since your last submission.

- If you do not use a particular source please indicate that they are not applicable.
- Please state the units you are reporting in clearly.
- If you do not have accurate records please indicate and use an estimate.

Section 2 - Calculate theoretical water use

The tables below should allow you to calculate theoretical demand for water on the site.

Poultry (Broilers) - Indicative figures per 1000 birds			
Bird	Drinking (per day)	Cleaning (per crop)	Total per crop
Broiler	200 litres	5000 litres	

Poultry (Layers) - Indicative figures per 1000 birds			
System	Drinking (per day)	Cleaning (per crop)	Total per crop
Caged	200 litres	6000 litres	
Non caged	220 litres	6000 litres	

Pigs - Indicative figures per animal, per day			
Type	Drinking	Cleaning	Total per year
Dry Sows & Gilts	6 litres	0.09 litres	
Farrowing Sows	30 litres	5.63 litres	
Maiden Gilts	5.5 litres	0.09 litres	
Barren Sows	5.5 litres	0.09 litres	
Boars	6 litres	0.09 litres	
Growers <50Kg	4 litres	0.37 litres	
Finishers >50kg	5.5 litres	0.23 litres	
Weaners	2 litres	0.29 litres	
Total			

Indicative water use figures taken from "Waterwise on the farm" (version 2) March 2007 published by the Environment Agency.

Section 3 - Comparison of theoretical and actual water use

Having calculated the theoretical demand for water, compare this against the actual quantity of water used in the year. If the figures are more than 10% greater this may indicate you are using water inefficiently.

Dates	Theoretical	Actual	Difference

If the difference changes much from year to year do you know why this might have happened?

Section 4 – Can you use less water?

It is hoped that in addition to ensuring permit compliance operators will also see this as an opportunity to save money through the efficient use of water.

In the table below you will be asked to consider a series of measures that could be employed on your farm to cut your water use and lower bills.

Please indicate in the appropriate boxes the measures you currently employ. If you answer “No” to any of the following you may be wasting money.

	Minimising losses from leaks	YES	NO	N/A
1	In winter, do you drain down and close off all lengths of pipe that are not in use? (Prevents freezing, bursts and overflowing which wastes money)			
2	Do you insulate pipes properly? (Lag all exposed pipe-work within 750 mm of ground level)			
3	Are drinking systems installed properly? (Fix all drinkers / troughs and pipe-work securely, check frequently)			
4	Do you read your water meters frequently, at least once per month? (If you detect an unexpected increase in water flow it is probably a leak)			
5	Do you know how to locate a leak? (Use stop taps to isolate lengths of water pipes step by step. When the unexpected flow stops, you have found the leak. You can also use a sounding rod to listen for leaks, noise means water is flowing. If the noise stops when the stop tap is turned off, then the leak is downstream of the tap)			
6	Do you fix dripping taps promptly?			
7	Have you fitted automatic shut-off to taps?			
8	Do you have plans of all farm pipelines? (Readily available plans of the pipeline system can speed up repairs and reduce costs)			
	Reducing Water Use			
9	Do you train staff in the need to save water and the ways to do this?			
10	Do all hoses, hand lances and washing equipment have trigger controls? (Fit triggers to all hoses to avoid wasting water between jobs)			
11	Have you consider the use of pressure washers to improve efficiency of cleaning and reduce water use?			
12	Do you use tank covers on water tanks? (Covers prevent algal growth, contamination and evaporation.)			

13	Do you use dry cleaning wherever possible? (Brush or blow any solid waste away before washing down. This will reduce the amount of water needed and liquid waste generated)			
14	Have you installed stock drinkers which avoid spillage? (Use bite type drinkers in bowls for pigs, nipple and cup drinkers for poultry.)			
15	Do you monitor and adjust drinkers height and water pressure on a regular basis?			
	Reuse of Water			
16	Are there opportunities to re-use water?			
17	Are there any opportunities to collect clean rainwater and use it?			

Section 5 - Estimate how much you pay for water

You do not need to present this part of the form to SEPA however it should illustrate to you how saving water will save you money.

It is important to include not just the cost of the water, but also the operating costs associated with pumping and distributing water around the farm and disposing of dirty water.

Things to factor in

- The price charged by a supplier (normally Scottish Water)
- The cost of standing charges or licensing fees
- Energy and maintenance costs from pumps
- Costs of disposal eg increased slurry volume (fuel, labour, reduced storage)
- Capital costs of storage treatment, pumping and distribution facilities

Calculate the total costs associated with each source (including standing charges energy, labour and disposal etc.) and fill in the table below.

Source	Total volume	Total costs per unit	Total cost
Mains			
Abstracted			
Rainwater capture			

Section 6 - Assessment of current systems

Having read the guidance and carried out an inspection of the site are you confident that the techniques you are using on the farm are not wasting water and costing you money? Are you using the best techniques available to you?

If you have ticked "NO" in any of the boxes above there is likely to be an opportunity for you to use water more efficiently. Operators should look into each of these and identify those which are likely to be a viable proposition on their operation. You may also have identified other opportunities for you to save water which are not highlighted in section 4.

Section 7 - Results of the assessment

Having assessed the viability of opportunities 4 you have identified to save water (especially those actions to which you responded "NO" in section 4 above). Please **summarise** your findings and decisions for each question in the following tables. If you require additional boxes copy and paste additional tables (electronic version) or photocopy the next page (hard copy).

Section number	
Outline the problem with you current system -	
Possible improvements identified -	
Estimated costs of improvement	
Estimated payback time	
Decision and Justification -	

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Declaration Signature:

It is an offence under Regulation 30 of the Pollution Prevention and Control (Scotland) Regulations 2000 to:

- Make a statement which you know to be false or misleading in a material particular
 - Recklessly make a statement which is false or misleading in a material particular,
- where that statement is made in purported compliance with a requirement to furnish any information imposed by or under any provision of the Regulations.

Date water review completed:	
Name of person who carried out the review:	
Signature:	

Appendix 1: Conversion factors

Conversion factor	Multiply by:
UK gallons to cubic metres	0.0045
UK gallons/ hour cubic metres/hour	0.0045
UK gallons/ minute cubic metres/ hour	0.2728
Cubic metres litres	1000
Cubic metre/ hour litres/ second	0.2