

Recommendation on Best Available Techniques at Agro-industrial Units

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Prepared by EMIS Expert Group.

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International Commission for the Protection of the Danube River

Vienna International Centre D0412

P.O. Box 500

A-1400 Vienna, Austria

Phone: +(43 1) 26060 5738

Fax: +(43 1) 26060 5895

e-mail: icpdr@unvienna.org

web: <http://www.icpdr.org/>

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The Commission,

recalling Paragraph 1 of Article 2 of the Danube River Protection Convention in which the Contracting Parties shall strive at achieving the goals of a sustainable and equitable water management, including the conservation, improvement and the rational use of surface waters and ground water in the catchment area as far as possible;

recalling also Paragraph 2 of Article 2 of the Danube River Protection Convention according to which the Contracting Parties pursuant to the provisions of this Convention shall cooperate on fundamental water management issues and take all appropriate legal, administrative and technical measures, to at least maintain and improve the current environmental and water quality conditions of the Danube River and of the waters in its catchment area and to prevent and reduce as far as possible adverse impacts and changes occurring or likely to be caused;

recalling further Paragraph 2 b of Article 5 of the Danube River Protection Convention in which the Contracting Parties shall separately or jointly adopt legal provisions providing for requirements including time limits to be met by waste water discharges;

recalling further Paragraph 1 of Article 7 of the Danube River Protection Convention in which the Contracting Parties taking into account the proposals from the International Commission shall set emission limits applicable to individual industrial sectors or industries in terms of pollution loads and concentrations and based in the best possible way on low- and non-waste technologies at source.

Where hazardous substances are discharged, the emission limits shall be based on the best available techniques for the abatement at source and/or for waste water purification;

recalling further Part 1 of Annex 1 of the Danube River Protection Convention in which the term “best available techniques” is defined;

recommends to the Contracting Parties of the Danube River Protection Convention that the following measures should be applied:

1. Technical In-Plant Measures for the Reduction of Waste Water Volume and Abatement of Pollution load

Waste water from agro-industrial units (manure like slurry, solid manure or urine, compost etc.) should only be discharged if waste water volume and pollution load are minimised by application of manure on farmland according to the principles of good agricultural practice and by in-plant measures using best available techniques, i.a.

- Priority of application of manure on farmland over treatment and discharge into surface waters;
- Set up of a “Manure Management Plan” considering the annual amount of manure, the nutrient content, the maximum annual limits on nutrient application, the necessary minimum storage capacity for manure, the required and the available areas of land keeping free not suitable areas and buffer zones along all water courses.
- Energy recovery through anaerobic pre-treatment;
- Prohibition of direct discharge of manure into groundwater;
- Separate collection and treatment of solid and liquid manure (except deep bedding);
- Automatic control of storage of liquid manure and of treatment processes;
- Installation of safety mechanisms to prevent overfilling of liquid manure storage vessels;
- Priority of mechanical cleaning over cleaning with liquids;

- Use of vapour condensates for cleaning operations;
- Use of biodegradable cleaning agents;
- Use of peroxyacids instead of chlorine-containing cleaning agents and disinfectants (for control of epidemics), to avoid generation of hazardous chlorinated substances;
- Controlled discharge of waters containing disinfectants in order to protect subsequent biological treatment steps;
- Separate collection and disposal of disinfectant rests and used concentrates;
- Separate sludge treatment and control of sludge quality before application.

Waste water discharges and the application of manure on farmland should be in accordance with the relevant national and EU-regulations (Nitrates Directive 91/676/EEC, Integrated Pollution Prevention Control Directive 96/61/EC) and with the permits issued by the authorities.

2. Reduction of Pollution Load by End-of-Pipe Measures

After implementation of relevant measures listed under chapter 1 at least mechanical-biological treatment shall be ensured. Agro-industrial units which discharge more than 100 m³/d either directly into water bodies, or to municipal waste water treatment plants which have no mechanical-biological treatment yet, should meet the following requirements. The values for concentration or for the percentage of reduction shall apply alternatively.

BOD ₅	50 mg/l	or 70 – 90 % reduction
COD	200 mg/ l	or 75 % reduction
tot-N	50 mg/l *)	or 70 – 80 % reduction
tot-P	10 mg/l	or 80 % reduction

*) for plants with a raw waste water load more than 100 kg/d tot-N (according to the standard N-values of annex 1) and if temperature in biological reactor is above 12 °C
 BOD = BOD₅ = five-day biochemical oxygen demand consumption with suppression of nitrification

COD = COD_{cr} = chemical oxygen demand consumption using the dichromate method

Percentage of reduction = reduction in relation to the load of the influent

Internationally accepted standardised sampling (preferably 24 hour- or 2-hour sampling), analysing and quality assurance methods (e.g. CEN-standards, ISO-standards, DIN-standards and OECD-Guidelines) should be used whenever available.

Wherever possible concentration values should be complemented with specific production-orientated load values.

3. Environmental Management Improvement

To improve the environmental management and co-operation between the plant and the permitting environmental authority and other organisations/institutions, in order to implement this Recommendation, the following measures should be taken:

- the plant should provide a list with the number of animals per category (comparable to Annex 1) and the quantities and ecotoxicological properties (safety data sheet) of cleaning agents and disinfectants to the responsible environmental authorities;
- self-controlling of the plant and its reporting should be specified by the responsible environmental authority;
- the authorities should take into account the promotion of pilot projects in order to establish examples for other plants;
- development and exchange of information including the work of farmers associations and research should be intensified.

Recommends also that this Recommendation should be implemented from from 1 January 2006;

Recommends further that the Contracting Parties should report (see Annex 2) to the Commission on implementation of this Recommendation in 2008 and thereafter every three years.

Animal Categories and Standard Values for N in Manure:

<i>Category</i>	<i>Subcategory</i>	<i>Standard N-values (kg.animal⁻¹ .year⁻¹)</i>	<i>Subsidiary factors</i>
Dairy cows	Low N diet (2% N)	50	Liveweight, milk yield
	Medium N diet (2.5% N)	80	Liveweight, milk yield
	High N diet (3% N)	110	Liveweight, milk yield
Sows	With piglets <10 kg	18	N loss from manure
	With piglets - 25 kg	25	N loss from manure
Growing pigs	Normal feeding	10	N loss from manure
	Biphasic feeding	8	N loss from manure
Laying hens	Low N loss	0.7	Diet
	High N loss	0.4	Diet
Broilers	Occupancy -100%	0.4	N loss from manure
	Occupancy 75%	0.3	N loss from manure
Other poultry	Slaughter weight 0.2 kg	0.07	N loss from manure
	Slaughter weight 1 kg	0.18	N loss from manure
	Slaughter weight 5 kg	0.5	N loss from manure
	Slaughter weight 10 kg	0.8	N loss from manure
Ewes	Low N diet	10	Contribution lambs
	High N diet	20	Contribution lambs

Annex 2

Reporting Format for the Recommendation on Best Available Techniques at Agro-industrial Units

Country: _____ Year: _____

The following items have to be reported:

1. Number of plants which discharge more than 100 m³/d into water bodies or municipal sewers
2. Overall description of the situation referring to items 1 (in-plant measures) and 3 (Environmental management improvement).
3. The following data have to be reported for every plant which discharges more than 100 m³/d into water bodies:
 - 3.1. Name of the plant
 - 3.2. Name of water body and location of the plant (co-ordinates; indication if within a “vulnerable zone” according to the EU Nitrates Directive)
 - 3.3. Number of animals per category (comparable to Annex 1)
 - 3.4. Waste water volume (m³/d, m³/a)
 - 3.5. Discharge concentrations, loads, the mode of sampling (grab or 2h-, 8h- or 24h-sampling) and used methods of analysis

	Concentration mg/l (annual mean)	Method of sampling and analysis	Specific load kg/t product (if available)	Annual load (t/a)
COD				
BOD ₅				
tot-N ^{*)}				
tot-P				

*) only for plants with a raw waste water load more than 100 kg/d tot-N (according to the standard N-values of annex 1).