aic
agricultural industries confederation

CODE OF PRACTICE FOR

THE PREVENTION OF WATER POLLUTION

FROM THE STORAGE AND HANDLING OF FLUID FERTILISERS

PART 1 - SUPPLIERS

2014

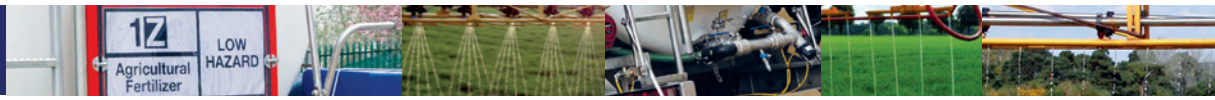
PRODUCED IN CONSULTATION WITH

Environment Agency

Cyfoeth Naturiol Cymru Natural Resources Wales

SEPA Scottish Environment Protection Agency

NIEA Northern Ireland Environment Agency



PART 1 - SUPPLIERS

This Code of Practice for the Prevention of Water Pollution from the Storage and Handling of Fluid Fertilisers (hereafter referred to as the 'Code') is in three parts:

PART 1 – SUPPLIERS

PART 2 – TANKER DRIVERS

PART 3 – USERS

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PREFACE

As a supplier of fluid fertilisers, you are storing and handling materials which, if spilled in quantity, can be very damaging to the water environment. This Code of Practice has been drawn up to help you to reduce the risk of causing water pollution as a result of losing fluid fertiliser from storage facilities.

There is clear economic benefit to the supplier in reducing losses of nutrients to the wider environment, whether from accidental spillage, poor management practices or vandalism. Any of these could result in water pollution which could have serious consequences, both legal and financial. The costs of pollution clean-up and any fish restocking for example would be charged to the polluter or relevant parties. With some forethought and planning for emergencies you should be able to answer the question: 'What would be the consequences of a major spillage of fluid fertiliser at your site?' You must know your site and the surrounding drainage system and what to do and how to react to an accident or emergency so as to minimise the chances of causing pollution.

Preplanning is essential so that you avoid having to deal with a real incident unprepared. Pollution of surface waters by fertiliser is a serious matter but at least it is possible to monitor it directly and carry out remedial action, albeit at some cost. If a major spillage of fluid fertiliser onto the ground is allowed to soak away, any groundwater contamination will be impossible to monitor except by costly techniques and may be impossible to remedy. Pollution of groundwater is potentially very serious because this water can be used extensively for public drinking water supplies and for industrial and agricultural use. The environment agencies in England, Wales, Scotland and Northern Ireland have identified all groundwater resources and have specific policies for the protection of sources through the control of activities and development in close proximity to source extraction boreholes. Groundwater resources and extraction boreholes are valuable and expensive assets. It is essential that those producing or storing fluid fertilisers are aware of the vulnerability of nearby groundwater sources so that this can be taken into account when siting storage facilities and drawing up emergency plans. The objective must be to ensure that pollution is prevented and that in the event of a major spillage, fluid fertiliser is not allowed to soak through the soil directly or by way of drains and soak-aways in these vulnerable areas.

If you require more specific information about the sensitivity of your site with respect to the water environment, the environment agencies are always pleased to offer advice. AIC also publishes a Code of Practice for the Prevention of Water Pollution from the Storage and Handling of Solid Fertilisers.

PART 1 – SUPPLIERS

1.1 INTRODUCTION

1.1.1 This '*Code of Practice for the Prevention of Water Pollution from the Storage and Handling of Fluid Fertilisers, (Part 1 - Suppliers)*' is a practical guide for the prevention of water pollution to help those involved with **fluid fertiliser**.

1.1.2 This Code is without prejudice to any other legal obligations, safety requirements or other codes of practice.

1.1.3 Following this Code is not a defence against a charge of causing pollution, although it should reduce the chance of pollution occurring and will help provide proof of due diligence and good working practice.

1.1.4 Suppliers should ensure that they carry adequate insurance cover against liability for pollution. Special policies which cover Environmental Impairment Liability are available from a number of sources, including the Chemical Industries Association and some insurance companies.

1.1.5 This Code does not cover guidance for the appropriate usage of **fluid fertiliser**. Reference should be made to Protecting Our Water, Soil and Air: a Code of Good Agricultural Practice (Defra -. England), Prevention of Environmental Pollution from Agricultural Activity (Scottish Government - Scotland), and the Code of Good Agricultural Practice (DARD – Northern Ireland), and also to published fertiliser recommendations. See Fertiliser Manual (Appendix 1).

1.1.6 This Code has been drawn up in consultation with the Environment Agency England, Natural Resources Wales, the Scottish Environment Protection Agency and the Northern Ireland Environment Agency.

1.2 DEFINITIONS

For the purposes of this Code, the term:

1.2.1 '**Supplier**' shall refer to the manufacturer, importer, distributor, merchant, haulier and any other organisation or individual who stores or handles **fluid fertilisers**, excepting the end-using farmer, grower or application contractor.

1.2.2 '**Fluid Fertiliser**' shall include all solution fertilisers (otherwise known as liquid fertilisers), suspension fertilisers and aqueous ammonia solutions not exceeding 34% ammonia. Organic-based fluids containing plant nutrients such as farm slurries, AD digestate, sewage sludges or other effluents are expressly excluded.

1.2.3 '**Watercourse**' shall include any surface water whether coastal water, estuary, lake, pond, river, stream, canal and field ditch, (even when dry), unless it is a containment ditch.

1.2.4 '**Groundwater**' shall be defined as water which is below the surface of the ground in the saturation zone and in direct contact with the ground and/or water held in underground rock formations (aquifers). For the purposes of this Code it is considered that pollution of **groundwater** could result from incidents occurring where such aquifers outcrop at or near the soil surface, or occurring within 50 metres of a water abstraction borehole, or where no protection of the underlying water exists e.g. where there are soakaways, swallow holes or quarries.

1.2.5 '**Site**' refers to the premises operated by the **supplier** for the manufacture and/or storage and/or supply of **fluid fertiliser**.

1.2.6 '**Bund**' shall mean a strongly constructed secondary containment with impermeable walls and floor.

1.2.7 '**Major Spillage**' shall refer to a spillage which cannot be controlled and/or which involves significant loss of the spillage causing pollution of a **watercourse** or of **groundwater**.

1.2.8 '**Tanker Driver**' shall mean the driver of any vehicle designed to transport and deliver liquid fertilisers in bulk or semi-bulk (Intermediate Bulk Container (IBC)).

1.2.9 '**User**' shall mean the farmer, grower, application contractor and any organisation or individual responsible for the end-use of fluid fertilisers. Delivery and transportation on the public highway is covered in part 2 of this Code.

1.3 GENERAL PRINCIPLES

1.3.1 All procedures and installations shall be designed to avoid the loss of **fluid fertiliser** from primary containment.

1.3.2 In the event of a loss from primary containment occurring on the **site**, procedures and installations shall be designed to prevent the escape of the fertiliser to the surrounding environment by providing secondary containment. This containment is referred to as '**within-site containment**' (WSC).

1.3.3 In the event of a loss from containment occurring off the **site**, procedures shall be designed to prevent the pollution of **watercourses** or **groundwater**.

1.3.4 The **site** should be protected from access by unauthorised persons.

1.4 WITHIN-SITE CONTAINMENT (WSC)

1.4.1 To provide protection from potential pollution of the surrounding environment, it is necessary to contain occasional spillages that may occur in the storage and transfer of raw materials, intermediates and finished product. To this end, a WSC system should be designed to collect and recover all liquid including rainwater from working surfaces that could become contaminated. This would entail collecting all surface water from those areas of the site used for process, storage, handling and transfer and containing it in suitable storage (referred to in this Code as the '**site-water storage**').

1.4.2 The **site-water storage** shall be of a sufficient capacity to contain all the liquid from events such as exceptional heavy rainfall or failure of storage. If the surface water is channeled to a sump or ditch(es) for pumping to the **site-water storage**, then the capacity of the sump or ditch(es) and the pump shall be adequate for these exceptional events.

1.4.3 Containment ditches and banks supplementary to the WSC may be required to give emergency protection to surrounding land or offsite surface drains or **watercourses**. If the **site** is under-drained these drains should discharge to containment ditches. This water should be monitored and, if it becomes polluted, it should be able to be pumped to the **site-water storage**.

1.4.4 Contingency plans should be drawn up to ensure that the WSC is not compromised through the failure of any part of the system. Where the system requires pumping, this should include contingency for pump or electricity supply failure.

1.4.5 All working surfaces within the WSC should be constructed to specifications which prevent damage by vehicular traffic, loading shovels or demounted loaded road tankers etc., which could damage the impermeability of the working surface or impair its strength or stability.

1.5 RAW MATERIAL AND INTERMEDIATE PRODUCT STORAGE

1.5.1 Liquid raw materials and intermediates, excluding phosphoric acid and anhydrous ammonia, shall be stored as indicated for finished **fluid fertilisers**.

1.5.2 Phosphoric acid should be stored in appropriate tank(s), which should be located within a specific containment/bunded area, the bund being impermeable, appropriately constructed and capable of retaining a volume of either 110% of the volume of the largest tank or 25% of the total tank volume, whichever is the greater.

1.5.3 Anhydrous ammonia should be stored in appropriate tanks.

1.5.4 Solid raw materials should be stored on an impermeable surface within the WSC.

1.6 FLUID FERTILISER STORAGE, TANK STORES

1.6.1 Bunding of individual or groups of **fluid fertiliser** storage tanks is not required if the tanks are within the WSC. However if individual tanks are bunded, then the bund shall be capable of retaining 110% of the capacity of the tank. If more than one tank is to he included within the bund, then the impermeable bund shall be capable of retaining 110% of the capacity of the largest tank, or 25% of the total capacity of all the tanks, whichever is the greater.

1.6.2 Tanks and fittings should be of a suitable material resistant to corrosion and tanks should be sited on a base or on footings designed to support their weight when full.

1.6.3 Valves, pipework and sight tubes/gauges should be positioned or protected so that they are not vulnerable to accidental damage, particularly from passing vehicles. On bunded tanks they must be wholly within the bund.

1.6.4 The outside of steel tanks should be protected against corrosion with a suitable paint.

1.6.5 All tanks should be regularly inspected (at least once a year) for damage or corrosion which might give rise to leakage or failure, and appropriate maintenance undertaken. All inspections and any remedial actions should be recorded.

1.7 FLUID FERTILISER STORAGE, LAGOONS

1.7.1 **Fluid fertilisers** other than aqueous ammonia may be stored in lagoons suitably designed and tested, and constructed with impermeable walls, floor and cover.

1.7.2 All lagoons should be regularly inspected (at least once a year) for damage or rupture of the liner which could give rise to leakage and appropriate action taken to repair the liner or fittings as necessary. All inspections and any remedial actions should be recorded.

1.7.3 When lagoon liners are replaced or new or replacement lagoons constructed, the opportunity should be taken to include a suitable system of drainage pipes under the primary liner. These drains should discharge into a catchpot/sump outside the lagoon wall which can be emptied to the **site-water storage**. This drainage system will allow sampling to detect leakage and permit any leaked **fluid fertiliser** to be recovered.

1.7.4 If the lagoon is constructed on relatively impermeable clay soil these drains may be laid in the clay under the primary liner but if the lagoon is on free-draining soil then a secondary impermeable membrane should be laid under the drains.

1.7.5 It is preferable for input and output pipework to pass over the lagoon wall rather than through the liner as this reduces the possibility of leakage.

1.7.6 The lagoon should he designed so that, after allowing for rainfall, there is a sufficient freeboard.

1.8 MAINTENANCE AND INSPECTION

1.8.1 A schedule of maintenance and inspection procedures should be drawn up, so that regular checks are made of the integrity of all plant, pipework, storage facilities, roadways, bunding and security systems to minimise the risk of accidental leakage or failure.

1.8.2 Liners should be regularly tested as being suitable for continued use once outside any guarantee period.

1.8.3 Records should be kept of all such maintenance and inspection checks together with remedial action taken.

1.9 DISTRIBUTION

1.9.1 On-site loading procedures should be established to prevent accidental spillage from valves, pipework or overfilling.

1.9.2 Emergency procedures should be drawn up so that appropriate actions are taken by the **supplier** and the road **tanker driver** in the event of any accident occurring in transit. (See Part 2 of this Code).

1.9.3 Emergency procedures should be drawn up for use in the event of a **major spillage** occurring during **fluid fertiliser** transfer on farm to ensure that appropriate actions are taken to contain the spillage and prevent any pollution of a **watercourse** or **groundwater**. See Part 3 of this Code.

1.9.4 Emergency procedures drawn up to minimize any polluting effects of spillage of **fluid fertiliser** in transit or during delivery should include arrangements for reserve tankers to recover polluted waters from **watercourses** where possible.

1.9.5 Procedures for delivery to farm and offloading of **fluid fertiliser** should be drawn up for the guidance of tanker drivers. These procedures should include instruction that the **fluid fertiliser** is transferred in such a way that spillage which could lead to pollution does not occur, that hatches and valves are securely closed at all times when being moved and that valves are inoperable when unattended.

1.9.6 The tanker driver should be instructed to refuse to offload **fluid fertiliser** if he/she considers the storage and/or transfer conditions inappropriate. Reference should be made to Part 3 of this Code for guidance on appropriate on-farm storage.

1.9.7 All hatches and valves should be securely closed before tankers are moved and valves of laden tankers or bowsers should be inoperable when unattended.

1.9.8 The person undertaking any transfer of **fluid fertiliser** must be aware of all relevant procedures and be capable of taking appropriate action in the event of an incident. They shall remain present and monitor pipework and the receiving tank at all times during the transfer of **fluid fertiliser**.

1.9.9 Tanks or bowsers should not be filled to capacity, so as to allow for the expansion of the contents in warm weather.

1.10 FERTILISER APPLICATION CONTRACTORS

1.10.1 Procedures should be drawn up for the delivery of **fluid fertiliser** for the use of fertiliser application contractors. As part of these procedures, delivery tanker drivers should be instructed that they must be satisfied that the receiving store is in a fit condition, has the necessary spare capacity to receive the load, allowing for expansion of contents and is appropriately sited, taking account of any nearby **watercourse** before off-loading or parking. The delivery drivers may refuse delivery if, in their opinion, the storage and/or transfer conditions or location is inappropriate.

1.10.2 If **fluid fertiliser** is transferred on farm for use by fertiliser application contractors this is often into mobile bowsers which may be supported on parking legs designed for the purpose.

1.10.3 No **fluid fertiliser** should be delivered into bowsers or tankers supported on parking legs unless these legs are resting on made-up roadway or concrete of known and adequate thickness or are resting on a support of suitable size and thickness, to carry the loaded weight of the bowser or tanker without it sinking into ground and becoming unstable.

1.10.4 Emergency procedures should be drawn up as detailed in Part 2 (**Tanker Drivers**) of this Code.

1.10.5 All hatches and valves should be securely closed before tankers are moved and valves of laden tankers or bowsers should be inoperable when unattended.

1.10.6 The person undertaking any delivery or transfer of **fluid fertiliser** must be aware of all relevant procedures and be capable of taking appropriate action in the event of an incident. They shall remain present and monitor pipework and receiving tank at all times during transfer of **fluid fertiliser**.

1.11 INCIDENT MANAGEMENT AND REPORTING

1.11.1 Having drawn up the procedures required for the management of spillage resulting from a road traffic or other accident in transit, or management of a **major spillage** on farm, the **supplier** should ensure that all necessary and agreed resources are available. Procedures should include appointing a responsible person to co-ordinate any incident management and reporting.

1.11.2 The **supplier** should ensure that records are kept of all reported incidents involving spillage resulting from a road traffic or other accident in transit and from any **major spillages** occurring on farm.

1.11.3 Any incident of environmental pollution must be reported immediately to the appropriate environment agency (for emergency telephone numbers see Appendix 1).

1.12 FARM USER SUPPORT

The **supplier** should provide advice and assistance to end-user customers and contractors to encourage an awareness of the importance of careful storage, handling and use of **fluid fertilisers** with respect to the prevention of pollution. Attention should be drawn to Part 3 of this Code.

1.13 TRAINING

Suppliers should ensure that all employees and subcontractors involved in the manufacture, storage, sale, distribution and application of **fluid fertilisers** are adequately informed about the appropriate procedures designed to avoid pollution of **watercourses** and **groundwater**.

APPENDIX 1

SOURCES OF INFORMATION

Containment Systems for the Prevention of Pollution:
Secondary, tertiary and other measures for industrial and commercial premises. CIRIA (C736)
www.ciria.org.uk

Protecting our Water, Soil and Air: a Code of Good Agricultural Practice for Farmers, Growers and Land Managers, Defra, 2009.
The Stationery Office, ISBN 978 0 11 243284 5
www.gov.uk/government/publications/protecting-our-water-soil-and-air

Prevention of Environmental Pollution from Agricultural Activity
The Scottish Government, 2005, ISBN 0 7559 4106 3.
www.scotland.gov.uk/Publications/2002/06/14968/7848

Code of Good Agricultural Practice
DARD, 2008, ISBN 978 1 84807 068 4.
www.dardni.gov.uk/cogap

Fertiliser Manual (RB209) 8th Edition, 2010
The Stationery Office, ISBN 978 0 11 243286 9
www.gov.uk/government/publications/fertiliser-manual-rb209

SRUC Technical Notes: Fertiliser Series
www.sruc.ac.uk

Eurocode 2. Design of concrete structures. Liquid retaining and containing structures
BS EN 1992-3:2006
www.techstreet.com/products/1278297

Groundwater protection: Principles and practice (GP3)
www.environment-agency.gov.uk/research/library/publications/144346.aspx

Recommendations for Safe Storage and Handling of Wet Process Phosphoric Acid, (Phosphoric Acid Produced from Sulphuric Acid), 1991
EFMA, Avenue E Van Nieuwenhuyse 4,
B-1160, Brussels
www.fertilizerseurope.com

Hazardous Properties of Ammonia, 1990
EFMA, Avenue E Van Nieuwenhuyse 4,
B-1160, Brussels
www.fertilizerseurope.com

Code of Practice for the Prevention of Water Pollution from the Storage and Handling of Solid Fertilisers
Agricultural Industries Confederation, 2009,
Confederation House, East of England Showground,
Peterborough, PE2 6XE
www.agindustries.org.uk

Guidance for the Preparation of Safety Data Sheets for Fertilizer Materials 2008
EFMA, Avenue E Van Nieuwenhuyse 4,
B-1660, Brussels
www.fertilizerseurope.com

FACTS
For details of the FACTS Scheme and its qualified advisers in crop nutrition
Tel: 01335 343945
www.basis-reg.com/facts

THE ENVIRONMENT AGENCY ENGLAND
Free emergency incident telephone number: 0800 80 70 60
General enquiries: 03708 506506
www.environment-agency.gov.uk

NATURAL RESOURCES WALES
Free emergency incident telephone number: 0800 807060
General enquiries: 0300 065 3000
www.naturalresourceswales.gov.uk

SEPA
Free emergency incident telephone number: 0800 807060
www.sepa.org.uk

NORTHERN IRELAND ENVIRONMENT AGENCY
Free emergency incident telephone number: 0800 80 70 60
www.doeni.gov.uk

APPENDIX 2

PRIMARY LEGISLATION

EU Fertiliser Regulation (EC) No 2003/2003

EU REACH (Registration, Evaluation, Authorization and Restriction of Chemicals) Regulation No 1907/2006

EU Regulation (EC) No 1272/2008 on Classification, Labelling and Packaging of Substances and Mixtures

The Nitrates Directive (EC) No 676/1991

The Water Framework Directive (EC) No 60/2000

Agriculture Act 1970

Consumer Protection Act 1987

Control of Pollution Act 1974, as amended

Environmental Protection Act 1990

Water Resources Act (England and Wales) 1991, as amended

Water (Northern Ireland) Order 1999

REGULATIONS

The Environmental Permitting (England and Wales) Regulations 2010.

Control of Substances Hazardous to Health Regulations 1994. SI No 437

Environmental Protection (Prescribed Processes & Substances) Regulations 1991 as amended, SI No 472

The Carriage of Dangerous Goods (Classification, Packaging and Labelling) and Use of Transportable Pressure Receptacles Regulations, 1996, SI No 2092

The Carriage of Dangerous Goods and Transportable Pressure Equipment Regulations, 2009, SI No 1348

The Fertilisers Regulations 1991, as amended, SI No 2197

The Transport of Dangerous Goods (Safety Advisers) Regulations 1999 SI No 257

The Nitrate Pollution Prevention (Amendment) Regulations 2012, SI 2012 1849*

The Nitrate Pollution Prevention (Wales) Regulations 2013, SI 2506 (W.245)*

The Action Programme for Nitrate Vulnerable Zones (Scotland) Amendment Regulations 2013, SI 2013/123*

Nitrates Action Programme Regulations (Northern Ireland) 2010, SI 411*

Phosphorus (Use in Agriculture) Regulations 2006, SI 488

Copies of all the above can be obtained from The Stationery Office and some are online at www.opsi.gov.uk

**Subsequent reviews may apply*

APPENDIX **3**

PRODUCT SAFETY DATA SHEETS

Under the REACH Regulation, a safety data sheet (SDS) in the prescribed format must be provided by the producer of 'hazardous' substances or mixture for progression down the supply chain. The list of hazardous materials includes:

AN Hot Solution Mixture 80-93 percent eSDS

An SDS is not required if the substances/mixtures are not classified as hazardous. However, a producer may provide such documents, on request, as 'advisory information' sheets. Non-hazardous fertilisers include:

SDS FERTILISER GROUP 9
Fluid straight nitrogen ammonium nitrate-based fertilisers in the form of aqueous solutions.
www.agindustries.org.uk/latest-documents/sds-fg-9/

SDS FERTILISER GROUP 10
Fluid compound fertilisers (NPK, NP, NK) in the form of aqueous solutions or suspensions.
www.agindustries.org.uk/latest-documents/sds-fg-10/

APPENDIX 4

PROTECTING THE ENVIRONMENT

The essentials for storing solid and liquid fertilisers

Tanker/tank Inspection Check List

Fluid Fertiliser Storage Tank Environmental Risk Assessment for Spillages

Tanker/tank Sticker

Agricultural Industries Confederation
Confederation House
East of England Showground
Peterborough
PE2 6XE

T 01733 385230
F 01733 385270
E enquiries@agindustries.org.uk
W www.agindustries.org.uk

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