

SCHEDULE

Article 2

Code of Practice on Sewerage Nuisance – Assessment and Control of Odour from Waste Water Treatment Works

Interpretation

1. In this Code of Practice:–

“existing WWTW” means WWTW in operation on 22nd April 2006;

“new WWTW” means any WWTW coming into operation after 22nd April 2006;

“OIP” means an Odour Improvement Plan containing a systematic evaluation of the sources and causes of odour nuisance and a review of all available control options to develop a plan detailing the proposed measures to mitigate the odour nuisance that reflect the best practicable means for control of odour at the particular WWTW as detailed in paragraph 10;

“OMP” means an Odour Management Plan, being a core document which is intended to detail operational and control measures appropriate to management and control of odour at the WWTW as detailed in paragraph 6;

“odour nuisance” means smells and discharges emanating from, or present at, any part of the public sewerage system so as to be prejudicial to health (that is to say, injurious, or likely to cause injury, to health) or a nuisance;

“p.e.” means “population equivalent” and is a measurement of organic biodegradable load, and a population equivalent of 1 (1 p.e.) is the organic biodegradable load having a five day biochemical oxygen demand (BOD5) of 60g of oxygen per day, the load being calculated on the basis of the maximum average weekly load entering the WWTW during the year, excluding unusual situations such as those due to heavy rain;

“relevant local authority” means the local authority in whose area the WWTW is located;

“sewage treatment works” has the same meaning as in section 59(1) of the Sewage (Scotland) Act 1968(1), but does not include a pumping station except where that station is situated at the same location as other plant, works or equipment at which sewage is subject to physical or biological treatment; and

“WWTW” (Waste Water Treatment Works) means sewage treatment works which are (either or both)–

- (a) vested in Scottish Water; or
- (b) used by Scottish Water (or a person acting on its behalf or under its authority) in connection with the exercise of Scottish Water’s core functions as respects the provision of sewerage or disposal of sewage.

Application of the Code

2.—(1) This Code of Practice applies for the purposes of assessing, controlling and minimising odour nuisance.

(2) This Code of Practice applies to all new and existing WWTW.

Objective of the Code

3.—(1) The objective of this Code of Practice is to apply the best practicable means for assessing, controlling and minimising odour nuisance.

(1) 1968 c. 47; as amended by the [Water Environment and Water Services \(Scotland\) Act 2003 \(asp 3\)](#), Schedule 3, paragraph 23.

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(2) Without prejudice to sub paragraph (1), this Code of Practice applies the best practicable means to control odour emissions from contained and fugitive sources to ensure that emissions do not create an odour nuisance beyond the boundary of the WWTW.

Compliance

4. The circumstances in which Scottish Water or any other person to whom this Code of Practice applies is to be regarded as complying with it are that—

- (a) the requirements of paragraphs 6 to 9 are met;
- (b) in cases where an odour nuisance exists and the requirements of sub paragraph (a) have been met, an OIP in accordance with paragraph 10 has been prepared;
- (c) the measures that represent the best practicable means for the control of odour, as defined in the OIP, are implemented within the timescales contained in the OIP to ensure that emissions do not create an odour nuisance beyond the boundary of the WWTW;
- (d) all odour abatement equipment to which paragraph 13 applies meets the requirements of that paragraph; and
- (e) any relevant compliance dates specified in paragraph 15 are met.

Baseline Control Measures

5. The requirements in paragraphs 6 to 9 shall apply to all WWTW.

6.—(1) Subject to sub paragraph (5), an OMP shall be prepared for each WWTW and this shall detail operational and control measures appropriate to management and control of odour at the WWTW and shall—

- (a) include the documented complaints administration procedure prepared in accordance with paragraph 7;
- (b) describe the best practicable means relevant to the particular WWTW for the implementation of the measures listed in paragraph 8; and
- (c) outline procedures for training staff and documenting training records in accordance with paragraph 9.

(2) The procedures and practices included in the OMP shall be adopted and implemented at the WWTW at all times and the format of the OMP should provide sufficient detail to allow operators and staff to clearly understand the operational procedures for both normal and abnormal conditions.

(3) The OMP shall be regularly reviewed and updated as new equipment or plant is installed, existing plant is substantially upgraded and when new policies, practices or procedures are adopted and shall, in any event, be reviewed at least once in any 12 month period.

(4) The OMP may be produced in three phases as follows—

- (a) a Phase I OMP, which will be generic and shall include the following information:—
 - (i) a summary of the WWTW location, odour sources, treatment process overview and location of sensitive receptors;
 - (ii) details of the WWTW management responsibilities and procedures for reporting faults, identifying maintenance needs and replenishing consumables;
 - (iii) a complaints reporting procedure;
 - (iv) arrangements for the inspection and maintenance of plant and equipment (both routine and in an emergency);
 - (v) spillage management procedures;

- (vi) operator training provisions;
 - (vii) record keeping, including information about the format of, and responsibility for completion and location of, records;
 - (viii) emergency breakdown and incident response planning, including responsibilities and mechanisms for liaison with the relevant local authority;
 - (ix) the documented complaints administration procedure prepared in accordance with paragraph 7; and
 - (x) procedures for training staff and documenting training records in accordance with paragraph 9;
- (b) a Phase II OMP which, in addition to the matters specified in sub paragraph (a), shall include generic operational and management procedures relevant to odour management for the odour control measures and the plant and equipment necessary to meet the requirements of paragraph 8; and
- (c) a Phase III OMP which, in addition to the matters specified in sub paragraphs (a) and (b), shall include detailed operational and management procedures relevant to odour management specific to the odour control measures and the plant and equipment used at that particular WWTW necessary to meet the requirements of paragraph 8.
- (5) No OMP shall be required for WWTW with a capacity of 500 p.e. or less.

7.—(1) A documented complaints administration procedure shall be maintained for all WWTW.

(2) The procedure specified in sub paragraph (1) shall be integrated into any OMP and shall clearly define responsibilities for receiving, responding to, processing and resolving complaints.

(3) The procedure specified in sub paragraph (1) shall also identify responsibilities for liaison with the relevant local authority and the local community.

8.—(1) The measures detailed in sub paragraphs (2) to (10) shall be implemented for the following purposes:—

- (a) where possible to prevent the generation and emission of odours;
- (b) in any case to contain and treat odour to minimise releases; and
- (c) to ensure that an odour nuisance is not caused beyond the WWTW boundary.

(2) All plant and equipment and odour control measures shall be operated effectively and efficiently.

(3) Operating conditions shall be managed to minimise effluent septicity at the WWTW (other than for plant and equipment that is designed to operate under anaerobic conditions) and shall include regular inspection and review of the process to identify possible septicity and, where this occurs, treatment of the conditions leading to the septicity to minimise odour release.

(4) Efficient and effective housekeeping shall be adopted at all times which shall include avoiding spillage as far as practicable and, where spillage does occur, cleaning as soon as possible after identification of the spillage.

(5) All plant and equipment shall be subject to regular visual inspection and the performance of plant and equipment shall be monitored to ensure efficient and effective operation and management of odour emissions.

(6) Adequate supplies of reagents and consumables used for process optimisation or as part of the odour control measures shall be readily available.

(7) An effective, planned inspection and preventative maintenance regime shall be employed in respect of all plant and equipment, the failure or malfunction of which may lead to odour nuisance.

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(8) Where maintenance or cleaning operations are likely to lead to the release of nuisance odours, these operations shall be scheduled to minimise odour impact and odour minimisation measures shall be incorporated.

(9) Adequate supplies of essential spares for odour-critical plant shall be readily available.

(10) Storage of sludge at the WWTW shall be minimised as far as efficient operation permits and the loading and offloading procedures shall minimise odour release.

9. Staff at all levels having duties related to the management, operation, maintenance or repair of odour critical processes and plant shall be appropriately trained and competent and have documented training records.

Odour Improvement Plans

10.—(1) In cases where the requirements of paragraphs 6 to 9 are met but an odour nuisance exists, an investigation shall be undertaken to identify and evaluate the sources and causes of the odour.

(2) Based upon the results of this investigation a detailed review shall be undertaken of the available options to control the odour release in order to avoid odour nuisance and to define the measures that represent the best practicable means for control of odour at the particular WWTW.

(3) The review carried out under sub paragraph (2) shall include (but is not limited to) the requirements set out in paragraph 11 and shall include consideration of financial implications as detailed in sub paragraph (7) and the environmental impact.

(4) Details of the investigation carried out under sub paragraph (1) and of the review carried out in accordance with sub paragraphs (2) and (3) shall be documented in an OIP.

(5) The OIP shall identify a phased investigation programme including defined dates for delivery of reports and other outputs, and may be prepared in a number of phases.

(6) The first phase of the OIP should contain—

(a) a preliminary plan which identifies and evaluates the likely sources and causes of odour nuisance following an investigation carried out under sub paragraph (1); and

(b) a timetable for the submission of plans for subsequent phases,

and shall be approved by the relevant local authority.

(7) The compliance timescales and the extent of the measures to be implemented in subsequent phases of the OIP shall take account of the phased approach of the OIP and the analysis of costs (including avoided costs) and benefits set out in sub paragraph (9) and shall be approved by the relevant local authority.

(8) The approach to odour control taken in the OIP shall be based upon a phased implementation of additional measures according to the following hierarchy:—

(a) the instigation of operational and/or waste water treatment process changes to prevent, where practicable, and, in any case, to minimise, the conditions that result in odour release;

(b) where operational changes are not appropriate the odour sources shall be reviewed to identify possible measures to contain emissions within the process equipment; and

(c) where emission reduction by operational change or containment is not sufficient to prevent odour nuisance, methods for enclosure of odour sources linked to the use of extract ventilation to control the emissions in accordance with paragraph 12 and, where necessary, the provision of end-of-pipe treatment of the exhausted air in accordance with paragraph 13, shall be reviewed.

(9) The control measures identified shall be subject to an assessment based upon costs (including avoided costs) and benefits to ensure that the selected measures are proportionate and represent the best practicable means.

(10) Where an odour nuisance existed immediately before and continues on 22nd April 2006, an investigation shall be undertaken to identify and evaluate the sources and causes of the nuisance (notwithstanding that the requirements of paragraphs 6 to 9 are not yet being met) and the first phase of the OIP as described in sub paragraph (6) shall be prepared and submitted to the relevant local authority for approval.

Enhanced Control Measures

11. Where the investigation required by paragraph 10(1) identifies particular sources which may have caused the odour nuisance, the appropriate enhanced control measures detailed in sub paragraphs (a) to (g) below shall be included in the review of options to be set out in the OIP, namely–

- (a) measures to prevent or minimise septicity or odours in the influent to the WWTW;
- (b) measures to prevent or minimise odour release from the inlet works of the WWTW, including a review of emissions from odorous imported wastes, storm conditions and storage and handling of screenings and grit;
- (c) measures to prevent or minimise odour release from storm tanks, including a review of the frequency of use, frequency of emptying and efficiency of sludge removal and flushing after use;
- (d) measures to prevent or minimise odour release from primary sedimentation tanks including review of methods to minimise excessive turbulence and to minimise the sludge retention time;
- (e) measures to prevent or minimise odour release from secondary and tertiary treatment including a review of methods to ensure aerobic conditions are maintained and to minimise the sludge retention time;
- (f) measures to prevent or minimise odour release from sludge handling, storage, treatment and thickening and also loading and unloading sludge tanks including a review of containment, enclosure and abatement of emissions; and
- (g) measures to prevent or minimise odour release from anaerobic digestion processes, including a review of methods for venting and treatment of off-gas from the digester.

Odour Containment and Abatement

12.—(1) In cases where odour containment within plant and equipment is not possible and control is based upon fully enclosing the odour source within a building or providing localised covers or enclosures, the system shall be kept free from leaks and the extract ventilation rate shall be consistent with the efficient capture of emissions and maintaining a safe working environment.

(2) Where upgrading works are required to comply with the requirements of sub paragraph (1), and an OIP is required by paragraph 10, a plan identifying the proposed measures and timescales for carrying out the works shall be submitted to the relevant local authority as part of the OIP.

13.—(1) All odour abatement equipment that treats contained emissions (odorous air collected by extract ventilation from enclosed or covered tanks or channels, plant, equipment or a process building) shall have an odour removal efficiency of not less than 95%.

(2) Where the inlet odour concentrations are very low and 95% odour removal efficiency is difficult to demonstrate due to measurement reproducibility and equipment efficiency at low concentrations, the final discharge to air should contain less than 500 odour units/m³.

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(3) Determination of the odour removal efficiency shall be by dynamic dilution olfactometry in accordance with EN13725(2) and shall be based upon manual extractive sampling undertaken simultaneously at the inlet and outlet of the odour abatement equipment and at least three samples shall be taken from both the inlet and outlet.

(4) Where odour abatement equipment that has been installed before 22nd April 2006 fails to meet the requirements of sub paragraphs (1) to (3) but emissions from that equipment are causing an odour nuisance, the equipment shall be upgraded to the odour removal efficiency specified in sub paragraph (1).

(5) Where odour abatement equipment that has been installed before 22nd April 2006 fails to meet the requirements of sub paragraphs (1) to (3) but emissions from that equipment are not causing an odour nuisance, the use of that equipment shall continue to be accepted until the end of its reasonable operational life.

(6) Where sub paragraph (5) applies—

- (a) available equipment must be optimised for odour containment and removal; and
- (b) to monitor on going performance, an odour removal efficiency shall be established based upon operating data.

New WWTW

14. When developing new and significantly upgraded WWTW, a detailed review of the proposed design shall be undertaken and this shall include a justification for the selection of process technology and controls at the planning and design stage. The design shall incorporate adequate odour containment and treatment provisions.

Compliance dates

15.—(1) The Table below details the compliance dates for this Code of Practice for all existing WWTW.

Table

<i>Code paragraph</i>	<i>Requirement</i>	<i>Compliance date</i>
6(2)	Adoption and implementation of OMP	See sub paragraph (2) below
6(1), 6(4)(a)	Preparation of Phase I OMP	1st August 2006
6(1), 6(4)(b)	Preparation of Phase II OMP	1st January 2007
6(1), 6(4)(c)	Preparation of Phase III OMP	1st April 2007
8	Operational controls	1st April 2007
9	Training	1st July 2007
10(10)	Preparation of first phase of OIP	1st April 2007
13	Odour Control Limits	1st August 2007

(2) CEN Olfactometry Standard; BS EN 13725: 2003, Air Quality – Determination of Odour Concentration by Dynamic Olfactometry.

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(2) The procedures and practices contained in each phase of the OMP shall be adopted and implemented at the WWTW in accordance with paragraph 6(2) from the date listed in the Table for the preparation of that Phase.