

GUIDANCE ON THE INTERPRETATION AND IMPLEMENTATION OF THE 2009 GROUNDWATER REGULATIONS

INTRODUCTION

1. This guidance is intended to clarify the requirements of the Groundwater Regulations (Northern Ireland) 2009 (the “2009 Regulations”), which replace the Groundwater Regulations (Northern Ireland) 1998 (the “1998 Regulations”), and to explain how they should be implemented by the Northern Ireland Environment Agency (NIEA), which is the body within the Department of the Environment responsible for enforcing these Regulations in Northern Ireland. The guidance will be made widely available in order that applicants for groundwater authorisations and those subject to other controls are aware of the way in which the Regulations are intended to work.
2. The 1998 Regulations completed the implementation of the 1980 Groundwater Directive (80/68/EEC – the “1980 Directive”) in Northern Ireland and dealt with the pollution prevention aspects of groundwater protection. The Groundwater Daughter Directive (2006/116/EC – the “2006 Directive”) establishes a new and integrated approach to groundwater protection and takes a more risk based approach to pollution prevention and control. The Water Framework Directive (WFD) repeals the 1980 Directive with effect from 22 December 2013.
3. Articles 3, 4 and 5 of the 2006 Directive deal with the assessment of the chemical status of groundwater bodies and the identification of significant and sustained pollution trends and starting points for their reversal. These are new requirements for groundwater protection and are transposed by regulations 7-11 of the 2009 Regulations. These requirements are technical additions to the groundwater protection regime and are implemented by NIEA.
4. Article 6 of the 2006 Directive deals with the pollution prevention aspects for groundwater. This Article, as now implemented by the 2009 Regulations, covers the same aspects of groundwater protection as the 1980 Directive and meets the “prevent or limit” objective of Article 4(1)(b)(i) of the WFD, which applies to all groundwater whether or not it is in a groundwater body.
5. In many ways the new 2006 Directive does not require a major change of approach to the protection of groundwater. Whilst there are changes of detail, there should be relatively little practical impact. The key changes are that:
 - a larger range of substances come within control;

- there are different exclusions; and
 - the approach is generally more risk-based and less prescriptive.
6. The changes from the requirements of the 1980 Directive to the 2006 Directive involve a period of transition. This is necessary partly because the 1980 Directive remains in force until it is repealed in December 2013 and meanwhile runs in parallel with the new Directive. The 2009 Regulations therefore need to ensure that essential requirements of the 1980 Directive are not lost whilst facilitating a single change from the old to the new Directive. Inevitably there are uncertainties between the two Directives and where such doubt arises the 2006 Directive will be implemented. Authorisations granted under the 1998 Regulations remain valid and become authorisations under the 2009 Regulations. All new authorisations will be granted pursuant to, and existing authorisations reviewed in light of, the 2006 Directive and the 2009 Regulations.
7. The guidance follows the format and numbering of the 2009 Regulations.

PART 1 - INTRODUCTION

CITATION AND COMMENCEMENT

Regulation 1

8. The 2009 Regulations came into operation on 10 August 2009. England, Wales and Scotland have their own arrangements for transposition which will be through a combination of Regulation and Direction to their respective Environment Agencies.

INTERPRETATION

Regulation 2

9. The definition of 'authorisation' is essentially the same as in the 1998 Regulations except that an authorisation includes:
- a permit under the Pollution, Prevention and Control (Northern Ireland) Regulations 2003 in so far as it authorises the operation of a Part A installation or a Part A mobile plant.
 - a waste management licence, existing disposal licence or existing resolution of a district council; and
 - a registration under section 10 of the Radioactive Substances Act 1993 (registration of mobile radioactive apparatus) or an

authorisation under section 13 of that Act (disposal of radioactive waste).

10. 'Direct input' replaces the term 'direct discharge' used in the 1998 Regulations and 'indirect input' replaces the term 'indirect discharge'.
11. The term 'hazardous substances' is used instead of List I substances in the 1998 Regulations and 'non-hazardous pollutants' is used instead of List II substances. In both cases the new terms are slightly wider in scope than those they succeed. These changes reflect the terminology of the WFD and the 2006 Directive.
12. The definition of 'groundwater' is the same as in the 1980 Directive, the 1998 Regulations and the WFD. It will continue to be a technical decision for NIEA to determine what is groundwater in certain circumstances for the purposes of the 2009 Regulations. For example, in very low permeability strata such as clays, evaporites and dense crystalline rocks it may not be possible to define a zone of saturation because the water is bound to the rock or is relatively immobile.
13. The inclusion of 'pollutant' as a defined term is an additional definition which reflects use of the term in the Directives and which relies wholly on the definition of pollution. 'Pollution' is defined in exactly the same way as in the WFD and is similar to the definition in the 1998 Regulations.
14. "River basin district and international river basin districts" details the main units for management for the purposes of the WFD.
15. The definition for "starting point" is in relation to the trigger point for action to be taken for the reversal of pollution trends.

MEANING OF 'HAZARDOUS SUBSTANCE'

Regulation 3

16. The List I and List II groupings of substances under the 1980 Directive and 1998 Regulations will no longer apply. Substances will instead be treated as either 'hazardous substances' (initially broadly equating to the former List I) or 'non-hazardous pollutants' (analogous to the former List II, but potentially applying to all other pollutants).
17. 'Hazardous substance' is defined in Article 2(29) of the WFD as meaning substances or groups of substances that are toxic, persistent and liable to bio-accumulate, and other substances or groups of substances which give rise to an equivalent level of

concern. Article 6.1 of the 2006 Directive adds an indicative list to this description. This comprises a combination of List I substances from the 1980 Directive (and the annex to the 1998 Regulations) and any other substances which meet the criteria for persistence, toxicity and bioaccumulation taking into account those substances listed in WFD Annex VIII. List I substances are effectively a (large) subset of the potentially wider group of hazardous substances.

18. The identification of hazardous substances will be the responsibility of NIEA on the recommendation of the Joint Agencies Groundwater Directive Advisory Group (JAGDAG). JAGDAG comprises a committee of experts drawn from the UK environment agencies, research and consultancy interests, the water industry and various other sector interests. In the absence of formal JAGDAG determinations NIEA may make preliminary determinations to enable it to fulfil its statutory duties. All such interim determinations should be referred to JAGDAG for prompt review.
19. The 1980 Directive and the 1998 Regulations required Member States or their competent authorities to determine which substances/compounds could be removed from List I in the light of the risks posed by their intrinsic properties. The 2006 Directive requires a different approach by which Member States or their competent authorities determine which substances should be determined as hazardous on the basis of their toxicity, persistence and capacity to bio-accumulate – i.e. positive determination rather than removal from a pre-determined list. This provides greater flexibility to include substances within, or alternatively exclude them from the ‘hazardous’ category. In practice substances which have been determined as List I will continue to be regarded as hazardous and will only be reviewed if new evidence becomes available.
20. Due to their nature, it is considered that all radioactive substances are hazardous substances.

MEANING OF “NON-HAZARDOUS POLLUTANT”

Regulation 4

21. There are no longer finite lists of substances over which control may be exercised under the 2006 Directive and the 2009 Regulations. All substances which are not determined to be hazardous are potentially non-hazardous pollutants. This enables control to be exercised over polluting substances which have hitherto been beyond control purely because, regardless of their impact, they were not listed in the 1980 Directive. In

practice NIEA will need to deal with substances which are current priorities of concern. It is clearly not necessary to expand the field to include all other substances in all circumstances unless they are liable to cause pollution.

EXCEPTIONS

Regulation 5

22. The consequences of unforeseeable accidents or exceptional circumstances are *excepted* from the provisions of these Regulations and are therefore not subject to the normal controls. Thus in these circumstances the requirements for prior authorisation of inputs, with a view to preventing or limiting the input of pollutants to groundwater, do not apply. This is a new and helpful provision. It does not apply in circumstances where the release of pollutants is due to the poor design of facilities, negligence or poor operating practices, since such events are neither unforeseeable nor exceptional.

EXEMPTIONS GRANTED BY THE DEPARTMENT

Regulation 6

23. There are three circumstances in which NIEA may exempt from the requirement for an authorisation a discharge or activity that would result in an input of pollutants:

- in the opinion of NIEA if the quantity or concentration is so small as to obviate any present or future danger of deterioration in the quality of the receiving groundwater. In other words the quality of groundwater would to all intents and purposes be unaffected. A similarly worded exemption existed in the 1980 Directive and the 1998 Regulations. Case law means that this assessment had to be made purely on the basis of the intrinsic hazard of the potential discharge insofar that it could be assessed before such a discharge occurred. Under the 2006 Directive and the 2009 Regulations an assessment may be made on the basis of the potential impact on groundwater. However, it is intended that such an assessment should not require a detailed prior investigation of groundwater conditions and should be capable of rapid assessment of the impact on groundwater by NIEA;
- if in the view of NIEA the discharge or activity cannot be prevented without taking measures which would increase risks to human health or the quality of the environment as a whole. In other words, NIEA may need to prioritise in favour of human

health or wider environmental needs if the measures needed to protect groundwater would in themselves cause greater harm. For example, treatment may remove residual traces of substances in a discharge but may result in more serious pollution to a watercourse. In such cases both long and short term impacts should be assessed prior to granting an exemption. For example, more immediate impacts on surface water need to be balanced against longer term impacts on groundwater;

- for technical reasons is incapable of being prevented or limited without using disproportionately costly measures to remove pollutants from, or otherwise control their percolation in contaminated land or subsoil.
24. In each of the cases above the exemption may apply to an individual substance or group of substances within a discharge where the remainder of the discharge otherwise requires control under an authorisation.
25. The 2006 Directive brings within its scope two other cases which were excluded from the requirements of the 1980 Directive and 1998 Regulations. They are:
- discharges of matter containing radioactive substances; and
 - any discharge of domestic effluent from an isolated dwelling which is not connected to a sewerage system and which is situated outside any area protected for the abstraction of water for human consumption.
26. In the latter case all discharges of sewage effluent already require consent under the Water (Northern Ireland) Order 1999 and these are considered to be an authorisation within the 2009 Regulations. This change in the Regulations therefore has no material impact on current practice.

Radioactive Substances

27. The 2009 Regulations apply to authorisations, which (in so far as they apply to groundwater) are defined to include registration under section 10, or authorisations under section 13, of the Radioactive Substances Act 1993.

Exclusions and Exemptions

28. In the 2006 Directive the term 'exemption' is used to refer to

exclusions from the need to prevent or limit the input of pollutants to groundwater. In the 2009 Regulations the term 'exception' is applied to those cases (essentially accidents and unforeseen circumstances) which do not require control under the 2009 Regulations. The term 'exemption' relates to circumstances in which NIEA may decide that control need not be exercised through an authorisation.

29. Under the 2006 Directive and regulation 6(2) of the 2009 Regulations NIEA is required to keep records of the exemptions granted under regulation 6. Such exemptions may be specific or generic.

PART 2 – GROUNDWATER ASSESSMENT

GENERAL DUTY IN THE NEAGH BANN, NORTH WESTERN AND SHANNON INTERNATIONAL RIVER BASIN DISTRICTS

Regulation 7

30. This regulation requires NIEA to co-operate with the Government Department in the Republic of Ireland having responsibility for corresponding functions in relation to groundwater assessment for the whole of the international river basin districts.

THRESHOLD VALUES

Regulation 8

31. This regulation concerns threshold values which have been derived for the assessment of groundwater chemical status. The regulation requires that NIEA amend the list of threshold values when new information indicates that a change is necessary and that they supply this information to the Government Department in the Republic of Ireland having responsibility for corresponding functions if it impacts on an International River Basin District.

CRITERIA FOR ASSESSING GROUNDWATER CHEMICAL STATUS

Regulation 9

32. This regulation details the procedures that NIEA must apply to assess whether a body of groundwater shall be considered to be of good chemical status.

SIGNIFICANT AND SUSTAINED UPWARD TRENDS AND THE STARTING POINT FOR TREND REVERSAL

Regulation 10

33. Regulation 10 places a requirement on NIEA to identify significant and sustained upward trends in pollution and to determine a starting point for trend reversal. It also ensures that NIEA carry out an additional trend assessment in circumstances where existing plumes of pollution in bodies of groundwater may threaten the achievement of 'good chemical status' and to verify that they do not present a risk for human health and the environment.

INFORMATION TO BE INCLUDED IN A RIVER BASIN MANAGEMENT PLAN

Regulation 11

34. This regulation lists the information which NIEA must include in each river basin management plan and each revised river basin management plan. It also specifies that NIEA must ensure that it co-ordinates with the relevant competent authority in the Republic of Ireland with the aim of producing a single plan for the whole of each international river basin district. Where a single plan cannot be produced NIEA must prepare a plan for the part of the international river basin district falling within Northern Ireland.

PART 3 – AUTHORISATIONS

GRANTING AN AUTHORISATION

Regulation 12

35. This regulation simply sets out the obvious transposition requirement that, in the exercise of their functions in relation to authorisations, the relevant authorities must, for the purposes of implementing the WFD and the 2006 Directive, comply with the 2009 Regulations.

PREVENTING THE INPUT OF HAZARDOUS SUBSTANCES TO GROUNDWATER

Regulation 14

36. Not all discharges of hazardous substances will necessarily result in direct or indirect inputs to groundwater. This regulation requires NIEA to take all the necessary measures to prevent such inputs occurring. This obligation will have a direct effect on applicants as a result of enquiries and assessments required prior to determination of an application or as conditions in an authorisation.

37. The definition of 'direct' in relation to inputs to groundwater mirrors the definition used [in the 1998 Regulations] in respect of 'direct' discharges. Currently this definition is interpreted to mean that, for a discharge to be construed as direct, there will have been an input to groundwater with no percolation through the soil or ground or other natural or artificial barrier. This includes, for example, an engineered barrier or geological barrier in the case of solid waste disposal facilities. Technical details are set out in Annex 1.
38. An indirect input to groundwater is one where the input to groundwater occurs via percolation (seepage) through the soil or subsoil, including through the unsaturated zone of the aquifer in which the groundwater occurs or through a natural or artificial barrier, as noted above.
39. The WFD places a restriction on direct inputs of pollutants to groundwater. Article 6 of the 2006 Directive clarifies the requirement to take all measures necessary to prevent inputs of hazardous substances and to limit inputs of non-hazardous pollutants so as to avoid pollution. This approach is followed in the 2009 Regulations.
40. It is the clear objective of the 2006 Directive to prevent the input of all hazardous substances into groundwater. Clearly the interpretation of 'prevent' is important in this context and is to be interpreted having regard to the Common Implementation Strategy (CIS) guidance issued by the European Commission¹ This recognises that, whilst the aim is to avoid the introduction of hazardous substances into groundwater, it may not be technically feasible to stop all inputs of hazardous substances. Moreover some inputs are environmentally insignificant² and in such instances the exemption noted in regulation 6(1)(a) may be applied. The measures to be taken to 'prevent' in this context means all measures deemed necessary and reasonable to avoid the entry of hazardous substances to groundwater. The CIS guidance states that 'reasonable' means technically feasible and not involving disproportionate costs and this approach is adopted for the purposes of this guidance. More detail on this approach is provided at Annex 2.

¹ CIS Guidance Note 17 – Guidance on preventing or limiting direct and indirect inputs in the context of the Groundwater directive 2006/118/EC. 2007.

http://ec.europa.eu/environment/water/water-framework/groundwater/scienc_tec/cis/index_en.htm

² For example, an environmentally insignificant input into groundwater would be one that could not have any effect on (i) any of the receptors noted in the Water Framework/Groundwater Directive definition of pollution (ii) the chemical status of a groundwater body; or (iii) could give rise to a significant and sustained rising trend in the concentrations of pollutants in groundwater as noted in those directives.

41. When considering which measures are “necessary” in the case of radioactive substances consideration should be given to the significance of any input in respect of the radiation doses which might be received by people and non-human species, due, for example, to plausible future abstractions of drinking water and due to natural processes involving the return of groundwater to the other environmental media. NIEA should have regard to the radiological protection system of the International Commission on Radiological Protection (ICRP) and must have regard to the standards specified in the Euratom Directives of the European Union. This is intended to ensure conformity with the radiological protection system of the ICRP and standards specified in Euratom Directives of the European Union.
42. Also in the case of radioactive substances, when considering which measures are “reasonable”, the radiation protection principle of optimisation should be observed. This principle requires that radiation doses to people are kept as low as reasonably achievable, subject to economic and social factors. It will also be necessary to manage radiological risks to non-human species together with any non-radiological hazards associated with radioactive waste.
43. The main controls for radioactive substances will be through registration and authorisation as set out in paragraphs 9 and 27 above.
44. For disposals of any solid wastes, absolute and indefinite containment of pollutants within a disposal facility will not be achievable. At some point after a disposal facility has closed, there will eventually be some inputs into groundwater. These facilities should be designed such that the long term inputs of hazardous substances to groundwater will be insignificant from an environmental and human health perspective.
45. The exemption from the requirement to prevent the entry of List I substances to groundwater where the groundwater was considered to be *permanently unsuitable for other uses* that was in the 1980 Directive and 1998 Regulations is not repeated in the 2006 Directive or the 2009 Regulations.
46. When determining applications for permitting inputs of pollutants to groundwater NIEA must not only consider what is needed to ‘prevent or limit’ such inputs but also avoid measures which would compromise other WFD objectives.

LIMITING THE INPUT OF NON-HAZARDOUS POLLUTANTS INTO GROUNDWATER

Regulation 15

47. This regulation is similar to regulation 14 but in relation to direct and indirect inputs of non-hazardous pollutants to groundwater. NIEA must be satisfied that pollution of groundwater will not be caused (which includes avoiding causing deterioration in status or environmentally significant and sustained upward trends in the concentration of pollutants) and ensure that the proposal and any conditions necessary to achieve this objective are attached to the authorisation.

DISCHARGES THAT MAY BE PERMITTED

Regulation 16

48. This regulation makes provision for a list of circumstances in which, notwithstanding the requirements of regulations 14 and 15, discharges which (may) result in inputs of pollutants to groundwater may be authorised. Authorisations may be granted for these provided that such authorisations do not compromise the achievement of the other WFD Article 4 objectives for groundwater (namely good chemical status, no deterioration in status and reversing significant and sustained upward trends of pollutants).

AUTHORISATIONS GENERALLY

Regulation 17

49. This regulation sets out more general requirements when considering an application for an authorisation which might lead to the discharge of a pollutant and in particular the requirement for prior investigation of the circumstances of such applications. As a minimum requirement an authorisation may not be granted unless hydrogeological conditions, the purifying powers of the soil and subsoil and the risk of pollution and alteration of the quality of the groundwater have been examined. Where an authorisation is granted, conditions to the authorisation must require any necessary technical precautions to be observed to prevent inputs of hazardous substances and to limit the input of non-hazardous pollutants to ensure that such inputs do not cause pollution of groundwater.

50. The application process for an authorisation has not changed as a consequence of the 2009 Regulations.

51. The 2009 Regulations do not make significant changes to the way land containing contaminants is regulated. It remains an offence to knowingly or otherwise discharge or deposit pollutants to water contained in underground strata under the Water (Northern Ireland) Order 1999 but, as was previously the case, a passive release of pollutants from such land contamination where the original activity that led to the contamination has ceased is not considered to be a discharge to groundwater that needs an authorisation under the 2009 Regulations as there is no surface activity to control. Only if there is activity which disturbs such land contamination which causes a release of pollutants, is there then a discharge to groundwater that potentially requires an authorisation.
52. It is envisaged that passive discharges will continue to be controlled via a combination of the planning regime and Works Notices under Article 17 of the Water (Northern Ireland) Order 1999.

REVIEW OF AUTHORISATIONS

Regulation 18

53. The 1980 Directive required that authorisations should be reviewed on at least a four-yearly basis and this requirement was reflected in the 1998 Regulations. A similar review process is also necessary as part of the process of drawing up or reviewing programmes of measures contained in river basin management plans. The review process has to ensure that the requirements of the 2006 Directive are met as well as ensuring that no lesser level of protection is provided by comparison with the 1980 Directive. This regulation requires that all existing authorisations must be reviewed by 22 December 2012 by which time the first programme of measures under the WFD must be fully operational.
54. In future authorisations will be reviewed on the basis of risk to the environment since no time period for review is stipulated in the 2006 Directive. In practice it may be appropriate to review authorisations every six years to coincide with river basin management plan reviews of programmes of measures, unless problems become apparent sooner. The scope of reviews should take into account the risk to the environment.

PART 4 – DISCHARGE OF A HAZARDOUS SUBSTANCE OR A NON-HAZARDOUS POLLUTANT

OFFENCES

Regulation 19

55. This and subsequent regulations deal with the offence of causing or knowingly permitting an unauthorised discharge which could lead to the indirect input of a hazardous substance or non-hazardous pollutant to groundwater. The regulation is restricted in its effect to indirect inputs because direct inputs are already dealt with under the Water (Northern Ireland) Order 1999 and there is no need to repeat this provision. The same approach was followed for the 1998 Regulations.
56. The offence described is to all intents and purposes identical to the relevant offence at Article 7 of the Water (Northern Ireland) Order 1999.
57. Regulation 19(3) provides for an exception in respect of road drains. Because of the potential for a road drain to discharge directly or indirectly to groundwater, the Directives require that control should be exercised. However there are many thousands of road drains and it is impractical (and unnecessary) for each to be individually authorised. Control is therefore exercised on the basis of risk, such that a specific authorisation is required only where a significant risk to the environment arises from use of a road drain. This control would be initiated by service of a notice under regulation 25 requiring an authorisation to be obtained. Unless such a notice has been served no offence is committed under this regulation.
58. Regulation 19(4) limits the effect of this regulation to a road drain which the Department is entitled to keep open under Article 45 of the Roads (Northern Ireland) Order 1993.

APPLICATION OF THE WATER (NORTHERN IRELAND) ORDER 1999

Regulation 20

59. This regulation provides that the defences which are available under the Water (Northern Ireland) Order 1999 also apply to an offence under regulation 19. It also provides for the power to make a scheme of charges as available under the Water (Northern Ireland) Order 1999 to apply in relation to an authorisation issued under regulation 19.

TRANSFER OF AN AUTHORISATION UNDER REGULATION 19

Regulation 21

60. This regulation provides that authorisations under regulation 19 may be transferred in the same way as discharge consents granted under the Water (Northern Ireland) Order 1999 (see Schedule 1, paragraph 8).

GRANT OF AN AUTHORISATION UNDER REGULATION 19

Regulation 22

61. This regulation provides that applications for an authorisation must be made to NIEA and where there are special reasons NIEA may require advertisement of an application in a specified manner. Authorisations may be subject to conditions and, where an application is refused, reasons must be given. NIEA may also vary or revoke an authorisation by notice in writing, giving its reasons. A revocation does not take effect for three months.

APPEALS AGAINST REFUSAL, VARIATION OR REVOCATION OF AN AUTHORISATION

Regulation 23

62. An applicant may appeal against a refusal, variation or revocation within 28 days from the date of the notice. Any decision taken by NIEA on behalf of the Department will have effect pending the outcome of the appeal.

63. For authorisations which are dealt with under the Water (Northern Ireland) Order 1999, Industrial Pollution Control (Northern Ireland) Order 1997, Pollution Prevention and Control Regulations (Northern Ireland) 2003, a waste management licence, existing disposal licence or existing resolution of a district council and the Radioactive Substances Act 1993, the authorisations and appeal procedures are as provided under that legislation.

PART 5 – ENFORCEMENT AND PENALTIES

POWER TO REQUIRE THE PROVISION OF INFORMATION

Regulation 24

64. NIEA is empowered to require by notice such information as it may require in order to discharge its functions under the 2009 Regulations, including determination of an application for an

authorisation. Failure to comply without reasonable excuse is an offence.

PROHIBITION NOTICE

Regulation 25

65. Where an activity 'on or in the ground' is carried out in a way which might lead to the input to groundwater of a hazardous substance or non-hazardous pollutant, NIEA may serve a notice on the person prohibiting the activity. Breach of a prohibition notice or a notice condition is an offence.

APPEALS AGAINST NOTICES

Regulation 26

66. An appeal may be made against a regulation 25 notice within 28 days from the date of the notice. The Appeals Commission may cancel or confirm a notice, with or without charges. The notice must be complied with pending the outcome of the appeal.

CODES OF PRACTICE

Regulation 27

67. This is similar to regulation 20 of the 1998 Regulations. It provides for NIEA to approve codes of good practice giving guidance to those who need to comply with these Regulations although compliance with such a code of practice would not guarantee compliance with the 2009 Regulations.

68. As under the 1998 Regulations NIEA must take into account whether a code of practice is being, or is likely to be, complied with before taking enforcement action (including service of a notice under regulation 25). A code of practice will be publicised as NIEA sees fit.

PARTICULARS TO BE INCLUDED IN REGISTERS

Regulation 28

69. This regulation sets out the requirements for recording authorisations and other decisions taken by NIEA in a public register and is self-explanatory.

PENALTIES AND CORPORATE OFFENCES

Regulation 29 and 30

70. These regulations specify the penalties in relation to the offences in the 2009 Regulations and provide for corporate liability in appropriate cases.

REVOCATION

Regulation 31

71. This regulation revokes the Groundwater Regulations (Northern Ireland) 1998.

Annex 1: Interpretation of 'direct discharge' into groundwater

The definition of 'direct discharge' to groundwater in Directive 2000/60/EC (the Water Framework Directive (WFD)) refers to discharge of pollutants into groundwater "...without percolation throughout the soil or subsoil". Though this differs slightly from the equivalent definition in the Groundwater Regulations (Northern Ireland) 1998 which says "without percolation through the ground or subsoil" (*emphasis added*), for practical purposes the meaning is the same.

A discharge can be regarded as direct, i.e. there is no percolation:

- where it is made into an open man made structure such as a shaft, borehole or well which extends down to or into the water table;
- where it is made into a natural feature such as a swallow hole when it is known or reasonable to deduce that flow to a saturated zone occurs via uninterrupted cascade or very rapidly down open, vertical or near vertical conduits; or
- where leachate arising from the deposit of any waste material below the water table moves into surrounding ground without the presence of a natural geological barrier or engineered barrier constructed to relevant standards.

A discharge is indirect, i.e. percolation does occur:

- where it is made into a natural feature, even though it may involve rapid conduit flow, when (a) best judgement and available information indicates that the connection between the surface and the saturated zone is tortuous, i.e. gradual rather than a cascade, and (b) there is some potential for attenuation, however limited;
- in all other intergranular or fissure flow geological environments when a discharge infiltrates a natural soil or rock either at the surface or via a soakaway, drainage field or other similar feature – provided an unsaturated zone is maintained; or
- where leachate arising from deposit of any waste material below the water table moves into surrounding ground across a natural geological barrier or engineered barrier constructed to relevant standards.

A discharge, for example, to a soakaway could be to periodically saturated ground where water tables fluctuate naturally or the discharge itself causes mounding of the water table. If this only occurs from time-to-time and the transition from indirect to direct does not alter the technical acceptability of the discharge, the discharge may be considered as indirect. In cases where saturation predominates then the discharge can be regarded as direct.

Annex 2 : Prevention of inputs of hazardous substances

During negotiations on the new Groundwater Directive (2006/118/EC) the nature of the duty to prevent was discussed at length and the Commission subsequently issued Common Implementation Strategy guidance on the implementation of the Water Framework Directive (WFD) and the new Groundwater Directive (GWD) by way of clarification. (CIS Guidance Note No. 17 – Guidance on preventing or limiting direct and indirect inputs in the context of the Groundwater Directive 2006/118/EC, section 3.4.)

This guidance states

“The broadening of controls on pollutants by the WFD noted above, is now balanced by a series of exemptions introduced by the GWD (Article 6.3). It is indeed not technically feasible to stop all inputs of hazardous substances, and some small inputs are environmentally insignificant and therefore do not present a risk to groundwater. Without these exemptions, the “prevent” requirement would imply an onerous and sometimes unfeasible task. Each exemption applies to both the ‘prevent’ and the ‘limit’ objective (both hazardous and non-hazardous substances) but must not override other more stringent requirements in other EC legislation.

To “prevent” an input into groundwater means: taking all measures deemed necessary and reasonable to avoid the entry of hazardous substances into groundwater and to avoid any significant increase in concentration in the groundwater, even at a local scale. “Reasonable” means technically feasible without involving disproportionate costs. How to define “disproportionate costs” depends on the local circumstances”.

Note : The CIS guidance outlines what Member States should do. In practice this will be achieved via a combination of the actions by regulatory authorities and the regulated. In the context of this Annex, reference to measures below is to both actions by NIEA and those actions (technical precautions) that NIEA should seek from operators via conditions on authorisations or notices. The purpose of this Annex is to explain how the CIS guidance should be applied – it does not seek to prescribe the actions in any specific case (NIEA may issue its own guidance for such purposes).

The CIS interpretation of “prevent” recognises that there is a practical limit to what realistically can be achieved within the overall context of aiming to avoid the introduction of all hazardous substances into groundwater. It is possible to deploy only those measures which are technically feasible and proportionate, including in terms of cost.

An input of hazardous substances would be prevented, for example, if:

- There is no discernible concentration of a hazardous substance in the discharge. This would also clearly come within the exemption under Regulation 6(1)(a), with only limited assessment needed to make this judgement; or
- There are no discernible concentrations of hazardous substances attributable to the discharge in groundwater immediately down-gradient

of the discharge zone, subject to adequate monitoring (or in the case of new discharges a detailed predictive hydrogeological impact assessment); or

- There are (or are predicted to be) discernible concentrations of hazardous substances in the groundwater down-gradient of the discharge zone attributable to the discharge but all of the following conditions apply:
 - (a) Concentrations will not result in any actual pollution or a significant risk of pollution in the future; and
 - (b) There should be no progressive increase in the concentration of hazardous substances outside the immediate discharge zone, i.e. there will be no statistically and environmentally significant and sustained upward trend or significant increasing frequency in pollutant “spikes”; and
 - (c) All necessary and reasonable measures to avoid the entry of hazardous substances into groundwater have been taken (see below).

Necessary and Reasonable Measures

Assessment of necessary measures must be preceded by investigation to determine pathways and is a site-specific judgement.

A reasonable measure would be one where the necessary technical precautions to prevent inputs to groundwater are technically feasible, not disproportionately costly and are within the control of the operator. Such measures could include: source control, alteration of discharge mechanism, treatment of the discharge, interception or diversion of contaminated groundwater, and diversion of the discharge to another disposal route. For new developments this could include simply not conducting the activity in a location where valuable groundwater resources would be particularly vulnerable to inputs of hazardous substances.

Any measures taken should not result in a net environmental disbenefit.

If there is actual pollution, or a substantial risk of such pollution, remedial measures must be taken. Cost-benefit assessment is not a factor in deciding *whether* to take action in such cases but may be a consideration in determining *which* precautions are necessary.