

Protecting Scotland's groundwater from pollution

A Consultation

November 2020



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1. PURPOSE

This consultation proposes a number of improvements to the way in which we protect groundwater in Scotland. These proposals have been developed in conjunction with the Scottish Environment Protection Agency (“SEPA”).

There are 3 distinct elements to our proposals:

- We are proposing to introduce revised environmental standards for substances that can adversely affect groundwater. In this context, the term “standard” is taken to mean the concentration of a pollutant at which an adverse impact would occur as well as the rules used to assess this. The standards would be used when assessing whether those substances are causing pollution of groundwater or impacting on the status of a groundwater body.
- A subset of these substances are so toxic, persistent and liable to accumulate in organisms (‘bioaccumulate’) that they pose a greater risk to groundwater. We need to prevent entry of these substances into groundwater to avoid a risk of deterioration. These are known as “groundwater hazardous substances”. We propose to introduce a revised list of such substances, with associated standards.

SEPA has revised its guidance on how to use these standards - [WAT-PS-10 Assigning groundwater assessment criteria for pollutant inputs](#), and is currently consulting on its draft guidance. You may wish to read that in conjunction with this paper.

- We are also proposing to make some changes to land contamination legislation, to provide greater clarity about the circumstances where remediation is required and to what extent, and to better prioritise sites for remedial action.

SEPA has developed revised guidance on [Land contamination and impacts on the water environment](#), and is consulting separately on that. You may wish to read that in conjunction with this paper.

2. RESPONDING TO THIS CONSULTATION

We are inviting responses to this consultation by 12 February 2021.

Please respond to this consultation using the Scottish Environment Protection Agency's (SEPA) consultation hub (<https://consultation.sepa.org.uk/>). You can access and respond to this consultation [online](#). You can save and return to your responses while the consultation is still open. Please ensure that consultation responses are submitted before the closing date of 12 February 2021.

If you are unable to respond using our consultation hub, please complete the Respondent Information Form and send to groundwater@sepa.org.uk

Handling your response

All respondents should be aware that SEPA is subject to the provisions of the Freedom of Information (Scotland) Act 2002 and would therefore have to consider any request made to it under the Act for information relating to responses made to this consultation exercise.

If you are unable to respond via SEPA's consultation hub, please complete and return the Respondent Information Form included in this document.

To find out how we handle your personal data, please see SEPA's privacy policy: <https://www.sepa.org.uk/help/privacy-policy/>

Next steps in the process

Following the closing date, all responses will be analysed and considered along with any other available evidence to help us. An analysis report will be made available.

Comments and complaints

If you have any comments about how this consultation exercise has been conducted, please send them to groundwater@sepa.org.uk

Scottish Government consultation process

Consultation is an essential part of the policymaking process. It gives us the opportunity to consider your opinion and expertise on a proposed area of work.

You can find all the Scottish Government's consultations online:

<http://consult.gov.scot>. However, this consultation is being hosted on SEPA's consultation hub as part of a package of proposals about groundwater standards and contaminated land. Each consultation details the issues under consideration, as well as a way for you to give us your views, either online, or by email.

Responses will be analysed and used as part of the decision making process, along with a range of other available information and evidence. We will publish a report of this analysis for every consultation. Depending on the nature of the consultation exercise the responses received may:

- indicate the need for policy development or review
- inform the development of a particular policy
- help decisions to be made between alternative policy proposals
- be used to finalise legislation before it is implemented

While details of particular circumstances described in a response to a consultation exercise may usefully inform the policy process, consultation exercises cannot address individual concerns and comments, which should be directed to the relevant public body.

3. INTRODUCTION

Groundwater refers to all water which is below the surface of the ground and which fills cracks or pore spaces within rocks or between soil grains.

Although often unseen, groundwater is vital to our economy and natural environment. Groundwater feeds rivers, burns, lochs, estuaries, and wetlands and is especially important in dry weather. It is also an important source of water for public and private water supply¹, whisky production, mineral water and agricultural irrigation. Where an aquifer is able to provide a significant amount of water it also has value as a future groundwater resource. Groundwater with future resource value has been divided up into management units called “groundwater bodies”. We want to protect and improve the quality of Scotland’s groundwater to safeguard these important components of our water environment.

To do this we need standards to judge the quality of our groundwater. Currently SEPA has operational standards to enable it to make decisions on whether activities that discharge to land or to an infiltration system can be authorised by SEPA. These standards also inform any conditions that need to be attached to the authorisation. For example, these standards are used to assess the impact that sewage discharge or landfills sites have on groundwater. They are also used to determine when remediation of contaminated soil or groundwater should be considered.

We propose to introduce standards that have a better environmental basis, are transparent, and are a fair judge of impact across all sectors (section 4).

In addition, some substances are so toxic, persistent and liable to bioaccumulate that we need to prevent their entry into groundwater to avoid a risk of deterioration.

We propose to introduce an updated list of these groundwater hazardous substances, along with associated standards (section 5).

¹ There are over 22,000 private water supplies in Scotland – many of these are sourced from groundwater.

Scotland has a legacy of land contamination from past industrial activities. Contaminants from this land are leaching into the groundwater below, often causing significant impacts on the water environment. These impacts are normally addressed via the planning regime when a site is redeveloped. Where re-development is not proposed, the local authority can take action to get the site remediated, through Part IIA² of the Environmental Protection Act 1990.

We want to improve and clarify the way both the planning regime and Contaminated Land legislation are used, and in particular to make clear when remediation is required and the degree of remediation that is necessary. We also want to make sure that the sites having the most significant water environment impacts are prioritised for action. This will help developers and businesses plan ahead.

We are therefore proposing some small changes to Part IIA legislation (sections 6 and 7).

4. PROPOSALS FOR GROUNDWATER STANDARDS

We need standards to assess whether:

- inputs of pollutants into groundwater have or are likely to compromise the groundwater resource or significantly impact on a surface ecosystem or existing water supply. This is termed groundwater pollution.
- the contamination of the groundwater is so serious or widespread that it is causing or is likely to cause an entire groundwater body to be classified as poor status.

Groundwater standards are required by:

- SEPA and operators and their consultants to determine if existing or new activities regulated by SEPA pose an acceptable risk to the water environment.

² <https://www.legislation.gov.uk/ukpga/1990/43/part/IIA>

- Local authorities, SEPA, and developers and their consultants to determine if remediation of land contamination may be necessary when either planning permission is being sought to re-develop the land or the contamination is being addressed under the Part IIA regulatory regime.

The standards are designed to protect:

- current groundwater use;
- the future resource value of groundwater; and
- surface ecosystems fed by groundwater;

and as such there are a number of strands to the standards and how they are assessed

In this context, the term “standard” includes the concentration of a pollutant at which an adverse impact would occur, as well as the spatial rules used to assess this. The standards would be used when assessing whether those substances are causing pollution of groundwater or impacting on the status of a water body.

Standards to assess **groundwater pollution** have been in use by SEPA for many years, pre-dating the introduction of controls under the European Water Framework Directive in 2000.

The part of these standards used to assess impact on the groundwater resource is termed “resource protection values” and is based on drinking water values. The current approach uses such values as a maximum limit that should not be breached at any time.

We want to adopt the same approach used for the **groundwater status assessment** required by the Water Framework Directive. This uses an annual average to determine whether pollution has occurred, and is considered a more proportionate approach. This approach is also consistent with the approach

recommended by UK TAG³ for general chemical assessment during groundwater body classification.

A full list of 483 substances and their associated threshold values required to protect the future resource value of groundwater can be found [here](#).

These groundwater standards will be set out in revised directions to SEPA. Guidance on how to use the standards is provided in SEPA's revised guidance [WAT-PS-10, Assigning groundwater assessment criteria for pollutant inputs](#).

³ UK TAG Paper 11b(i) 'Groundwater Chemical Classification for the Purposes of the Water Framework Directive and the Groundwater Directive', 2019.

4.1 Groundwater pollution standard

There are three parts to this standard as it assesses whether a plume of contaminated groundwater can impact on:

- a) surface ecosystems;
- b) current groundwater use; or
- c) the future resource value of groundwater.

We are not proposing to change a) or b) as they are still considered to be fit for purpose. We are proposing to change c). This is the part of the standard used to assess whether harm to the groundwater resource has occurred or will occur, such that future use of the groundwater could be constrained. The aspects of this standard that we want to change are:

- How we identify groundwater with resource value, to which we apply the standards;
- How we judge when a meaningful amount of groundwater has been impacted; and
- The way we consider contaminants already in the groundwater when assessing if the standard will be met.

We plan to formalise all of the standards by setting them out in Directions to SEPA.

4.1.1 How we identify groundwater with resource value

Current approach

All groundwater that can supply 10m³/d or 50 people, even that right next to the sea where it may be saline, is currently considered to have future groundwater resource value.

Proposed approach

We propose small changes to the way groundwater with resource value is identified as follows:

- Superficial deposits close to the sea⁴ or with limited thickness⁵ are not considered a future resource but will still remain a pathway.
- Groundwater at significant depth⁶ and under the sea is not considered a future resource. It is a pathway to shallower groundwater and surface ecosystems.
- Minor changes to the technical assessment of whether a superficial deposit meet the criteria to qualify as a groundwater resource.

Details are set out in SEPA's revised guidance [WAT-PS-10 Assigning groundwater assessment criteria for pollutant inputs](#).

We are proposing these changes because groundwater under or very close to the sea and at great depth is normally naturally saline and not suitable for potable use without treatment.

Implications of this proposed change

The approach is unlikely to have any significant implications because:

- the areas close to the sea that this proposal affects are very limited in size and therefore there are unlikely to be many activities that it affects;
- activities which impact on groundwater beneath the sea or at great depth are very rare;
- regardless of impacts on groundwater controls will always be needed to protect the surface ecosystems such as rivers and the marine environment.

We plan to formalise all of the standards by setting them out in Directions to SEPA.

⁴ <50m from mean high water springs tidal limit

⁵ Less than 5m thick

⁶ >400m below ground level

Further details on how to use the standards is set out in [SEPA's guidance](#).

4.1.2 How we judge when a meaningful amount of groundwater has been impacted such that it causes pollution of the groundwater resource

Current approach

Harm to the resource value of groundwater is judged to have occurred when the drinking water value is exceeded in groundwater at a **distance** of between 50m and 250m from the downstream edge of the source, in any one sample.

Proposed approach

We propose to change two aspects of this approach.

Firstly, we are proposing that harm to the resource value of groundwater has occurred when an **area** of 1 hectare exceeds the drinking water based value.

We are proposing this as the current distance-based approach does not well measure the actual impact on groundwater. This is because it does not take account of the size of the source or the width of the plume. We propose to resolve this issue by applying an area-based approach. This will better align with the area-based approach already used to assess pollution risks to groundwater body status.

Figure 1 compares how pollution of the groundwater resource is assessed both now and under the proposed approach. The top figures show a small private sewage discharge and the bottom figures show a large area of land contamination. The actual source area i.e. the area under the discharge or contaminated soil, is marked in red. The proposed new 1ha area of contaminated groundwater is in orange.

Using the current approach a small sewage discharge would only have small impact on groundwater before it failed the standard at 50m. In comparison, the area of land

contamination could cause a significantly greater impact before it failed the standard at 50m.

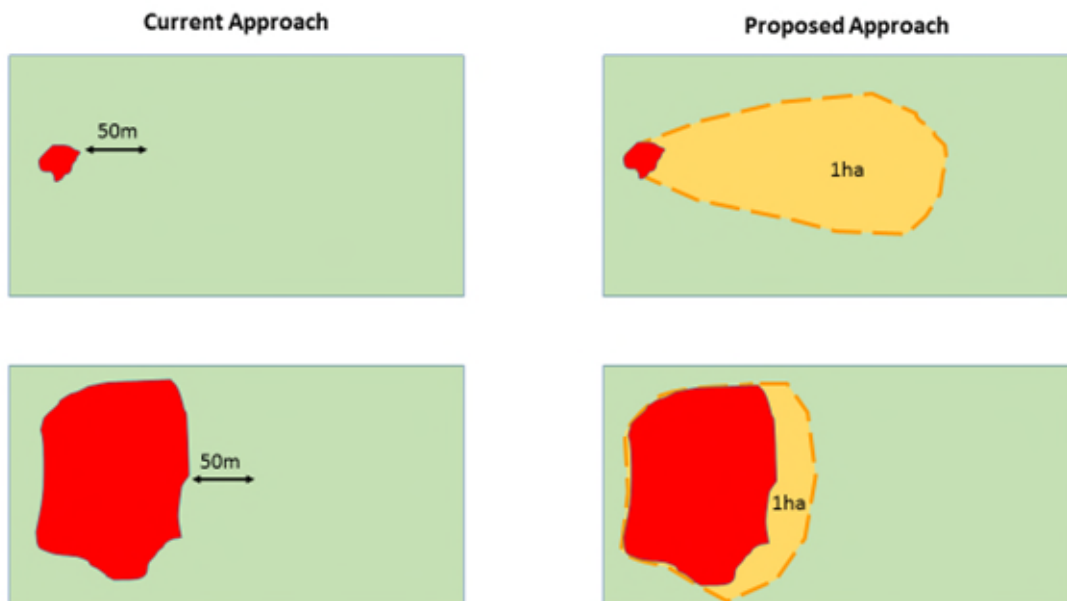


Figure 1: Comparing the current and proposed spatial approach to assessing pollution

Secondly, we are proposing to assess whether pollution has occurred based on an annual average calculation, rather than a maximum one-off value. This is because we are more interested in the long-term impact of pollution on the groundwater resource, rather than in short spikes of pollution; and an annual average assessment better reflects the overall quality. To achieve this, we propose to use a value of 75% of the drinking water value as the baseline for our calculations, across an appropriate number of samples depending on the level of risk of pollution. This is consistent with the threshold value approach used in groundwater body status classification.

Implications of this proposed change

The proposed approach will mean that sites with large source areas or that are very wide relative to the groundwater flow direction may exceed the standard when they may not have done so previously; for example, some landfills, cemeteries or brownfield sites with historical land contamination. However, inputs from these sources may be permitted to exceed the standard if the activities meet the exemption

criteria outlined in section 5 of [WAT-PS-10](#); for example, for a non-hazardous landfill if alternative options for disposal would increase the risks to the quality of the environment as a whole.

Smaller sources of contamination, such as small sewage discharges to land, will not normally exceed the standard.

The area-based standard also allow us to more easily set standard rules⁷ for low risk activities, saving time and money for SEPA and industry.

4.1.3 The way we consider contaminants already in the groundwater when assessing if the standard will be met

Current approach

Currently, contamination already in groundwater is not taken into account when assessing if this standard is exceeded.

Proposed approach

We propose that the contribution of any existing contamination should be taken into account. SEPA's revised guidance [WAT-PS-10 Assigning groundwater assessment criteria for pollutant inputs](#) sets out details of how to do this.

Changing our approach will aid improved assessment of the total impact on groundwater. It also aligns with the approach we take to assessing compliance with surface water standards.

Implications of this proposed change

This proposed approach may result in some more stringent controls on discharges in areas where the groundwater is nearing the groundwater standard. It may affect

⁷ E.g. for planning responses

large-scale sewage or trade effluent discharges, areas of land contamination and the re-use of waste materials in quarry restoration.

4.2 The standard to assess the status of a groundwater body

As with the pollution standard there are a number of parts to this as it assesses if a plume of contaminated groundwater in a groundwater body can impact on surface ecosystems⁸, current groundwater use or the resource value of groundwater. We are not proposing to change the part of the standard used to assess impacts on current groundwater use.

The aspects of this standard that we want to change are:

- How we spatially judge when a meaningful amount of a groundwater body has been impacted such that it affects status; and
- Which groundwater dependent terrestrial ecosystems we are considering for status level impacts.

4.2.1 How we spatially judge when a meaningful amount of a groundwater body has been impacted such that it affects status

The part of the groundwater status assessment which looks at the impact on the future groundwater resource is based on two considerations:

- whether the spatial and temporal average concentration over the whole body exceeds an equivalent drinking water based value; and
- whether there is a localised plume of any contaminant. In this plume all annual average concentrations of pollutants must exceed an equivalent drinking water based value. This is sometimes referred to as point source contamination.

⁸ including groundwater dependent terrestrial ecosystem

Current approach

The size of localised plume required to trigger poor status of the future groundwater resource is 200ha and applies to hazardous and non-hazardous substances. The groundwater quality standard for drinking water concentration must be exceeded in at least one sample.

Proposed approach

We propose to reduce the size of localised plume required to trigger poor status of the future groundwater resource from 200ha to 20ha. We will restrict this assessment to hazardous substances only. We propose to make this change because an impact on 20ha is a very serious degree of impact as groundwater flow under this area can provide enough water to potentially supply a small town. Impacts from non-hazardous substances are less serious and are addressed by the existing test of impacts across the groundwater body as a whole.

We propose to remove the requirement for the groundwater quality standard for drinking water concentration to be exceeded in at least one sample. This is no longer necessary because the future use of groundwater is protected if annual average concentrations of pollutants do not exceed an equivalent drinking water based value.

Implications of this proposed change

The reduction in plume size is not expected to result in a significant increase in the number of groundwater bodies classified as poor status. This is because most activities will never cause this level of impact. Also, this decrease in area is balanced by the fact that the assessment now only applies to hazardous substances rather than all pollutants. This change will also make it easier for SEPA, local authorities and operators to monitor because determining the current and potential future extent of large plumes in Scotland's complex hydrogeological setting is difficult.

4.2.2 The groundwater dependent terrestrial ecosystems (GWDTE) we are considering for status level impact

The Scotland River Basin District (Status) Directions 2014 set out the criteria for poor groundwater body chemical status. One of these is evidence of significant damage to a wetland caused by pollution and the pollutant or group of pollutants responsible for that damage is judged to have reached the wetland via groundwater.

Current approach

Currently, the status assessment considers impacts on all GWDTE, regardless of their size or importance.

Proposed approach

Because status impact assessment is intended to take account of very serious impacts, we propose that only wetlands with national importance should be included.

Implications of this proposed change

Our proposal will not significantly change the number of groundwater bodies at poor status. This is because there are currently no groundwater bodies classified as poor status because of pollution impacts on a GWDTE. As the proposed approach only includes a subsets of all the GWDTEs this number will remain at zero unless new impacts come to light. Protection to non-nationally significant wetlands will be provided by ensuing authorised inputs do not cause pollution.

5. PROPOSALS FOR GROUNDWATER HAZARDOUS SUBSTANCES

A hazardous substance is one that is toxic, persistent and liable to bioaccumulate. We want to prevent these substances from entering groundwater in quantities that pose a risk of deterioration.

5.1 Updating our list of groundwater hazardous substances

Current approach

SEPA is currently responsible for defining the list of hazardous substances in Scotland. The current list is based on recommendations from Joint Agencies Groundwater Directive Advisory Group JAGDAG⁹.

Proposed approach

JAGDAG has produced a [revised methodology for determining if substances](#) are hazardous or non-hazardous, and has used this to produce an updated list of hazardous substances. We propose that SEPA will update its [list of hazardous substances](#) based on the recent [JAGDAG recommendations](#). These recommend that 311 substances should be identified as “groundwater hazardous substances”. The list will therefore now include arsenic, lead and chromium VI which were not previously classified as “hazardous”. It will no longer include a number of substances including cadmium, 1,2-dichloroethene and naphthalene. The full list of substances proposed to be identified as hazardous is set out [here](#).

Many of these substances are man-made and are not naturally present in groundwater. A few others, such as arsenic, lead and chromium VI can naturally occur. However, arsenic is highly toxic in its inorganic form, accumulates in the body and most seriously affects the developing central nervous system in young children. Chromium VI is a carcinogen. It is therefore appropriate to consider these substances as hazardous.

⁹ This group includes UK experts from industry and the environment agencies.

We expect that JAGDAG will continue to determine whether substances are hazardous, and make recommendations to update the list of hazardous substances. Those determinations still in the list made using the previous methodology or criteria will be revisited using the revised methodology when JAGDAG considers it appropriate.

Implications of this proposed change

Arsenic, lead and chromium VI are commonly found to varying degrees in areas of land contamination, ash, mining waste and construction and demolition waste. Changing them to “hazardous” will mean that further treatment of “waste” materials containing these substances, such as incinerator ash, may be required prior to their use in construction and restoration projects¹⁰. This will allow protection of groundwater and surface waters into which the groundwater flows.

It may mean slightly more engineering of new landfill cells in order to prevent inputs of these hazardous substances. However, not many new cells are expected as landfills are a declining sector. At some existing sites the standards for arsenic, lead and chromium VI may be slightly exceeded. In these cases, we expect SEPA to work with the sector to minimise the inputs via controls such as managing the level of leachate sitting on the base of the landfill.

For the remediation of land contamination some additional remediation may be required but this is not likely to be very significant because decision-making regarding the degree of remediation required should take into account whether the remediation is disproportionately costly.

5.2 Groundwater hazardous substance standards

Current approach

¹⁰ So they meet the requirements of a registration of an Exemption from Waste Management Licensing - usually under Paragraph 9 or 19

We are required by law to prevent the input of hazardous substances into groundwater¹¹, but we are permitted to allow inputs that are so small that they don't pose a risk of deterioration to the quality of groundwater.

Currently SEPA bases the hazardous substance standards on laboratory detection limits. They are termed Minimum Reporting Values (MRVs). They are not set out in directions but are listed in SEPA's guidance because these standards were in place prior to the water Environment (Controlled Activities) (Scotland) Regulations coming into force.

The current standards apply to all groundwater, including deep groundwater and under the sea.

Proposed approach

UKTAG has set concentrations¹² at which:

- 1) an input to groundwater has occurred; and
- 2) below which the danger of deterioration in the quality of the receiving groundwater is avoided.

Rather than use the standards which determine when an input has occurred and then determine what a 'risk of deterioration' means on a case by case basis we propose to set national standards based on the approach outlined in 2) above. Standards will therefore be set on an (eco)toxicological basis for each substance that defines the threshold beyond which deterioration would occur. This will provide consistency of regulation and certainty for operators.

We believe this makes more sense than setting standards based on a default detection limit that can vary between laboratories, or become more stringent over

¹¹ The Water Environment (River Basin Management Planning: Further Provision) (Scotland) Regulations 2013

¹² https://www.wfduk.org/sites/default/files/Media/UKTAG_Technical%20report_GW_Haz-Subs_ForWebfinal.pdf

time as technology improves. In addition, laboratory-based limits do not always adequately reflect the standards required to protect the future use of groundwater or nearby surface waters.

We are therefore proposing revised standards that we will base on drinking water values and surface water Environmental Quality Standards. It is proposed that the revised standards will be set at 50% of the relevant potable standard, or at twice the surface water environmental quality standard if this is more stringent and the site is close to a surface water. This ensures that, even if there were no dilution in groundwater and irrespective of the size of the source, the pollution standard could not be breached and that groundwater fed surface waters are protected.

We also propose to include taste and odour thresholds as part of the potable values, where these are more stringent than (eco)toxicologically based values. This is because having a bad taste or odour would affect the future use of the water resource. Only where none of these values are available has a value been based on laboratory detection limits.

We propose that these values will be set out in directions to SEPA.

We do not intend to apply this standard to groundwater at significant depth¹³ or under the sea if there is no significant pathway for contaminants to reach surface ecosystems. This is because groundwater at great depth and under the sea is typically saline and not readily accessible. It is not suitable for future abstraction, and therefore does not need the same level of protection.

Maintaining our current approach allows for multiple inputs of pollutants to take place without any risk of deterioration occurring and does not require an understanding of other inputs in the vicinity.

Implications of the proposed change

¹³ >400m below ground level

Compared to the MRVs currently used by SEPA, about 60% of substances have proposed standards that are less stringent than the MRV, about 20% are more stringent than the MRV and about 20% have the same concentration. For example, those with a more stringent concentration include dichloroethane and benzene, which are commonly found in areas of land contamination and landfills.

Groundwater hazardous substances can be present to varying degrees in landfills, land contamination, secondary aggregates such as crushed bricks, tiles and concrete¹⁴ and waste materials.

Inputs of groundwater of hazardous substances from landfills are considered when SEPA permits new landfill cells, assesses compliance and reviews a permit. Landfill is a declining sector and there will be few new applications for new cells. For new cells seeking authorisation from SEPA the proposed standards are unlikely to change the degree of engineering and control required significantly. This is because a minimum degree of engineering is already required by the regulations. At a few operational sites, the proposed standards may be slightly exceeded. In these cases, we expect SEPA to work with the sector to minimise the inputs via reasonable controls such as managing the level of leachate sitting on the base of the landfill.

An assessment of whether inputs of hazardous substances are entering groundwater is not required for Contaminated Land addressed under Part IIA. However, this does need to be considered when a site is re-developed. Our legislation¹⁵ allows the remediation of land contamination during re-development to take account of whether it would be technically feasible or disproportionately costly to achieve the standards. This, rather than the standard, normally limits the remediation undertaken. Therefore, whilst the proposed standards will trigger an assessment of the remediation required, they are unlikely to have a major impact on the level of remediation undertaken.

¹⁴ these are widely used in Scotland and are an important means of recycling construction and demolition waste

¹⁵ [The Water Environment \(River Basin Management Planning: Further Provision\) \(Scotland\) Regulations 2013](#)

Secondary aggregates such as crushed bricks, tiles and concrete are used extensively across the country, including below the water table. They can contain small quantities of groundwater hazardous substances. Studies on natural background groundwater quality do not show any exceedances of the proposed standards. This suggests that secondary aggregates are not currently causing the standards to be exceeded, otherwise this would be picked up in widespread groundwater sampling. The proposed standards will be taken into account when assessing the suitability of waste materials for re-use in scenarios that might affect groundwater and during End of Waste assessments.

Other activities which result in inputs of pollutants to groundwater, such as wastewater discharges regulated by SEPA under the Water Environment (Controlled Activities) (Scotland) Regulations 2011, do not normally contain significant quantities of groundwater hazardous substances and so are not discussed further in this section.

6. CLARIFYING THE CIRCUMSTANCES IN WHICH THE STANDARDS DO NOT NEED TO BE MET

Current approach

Our legislation¹⁶ allows for impacts on groundwater above the standards in a limited number of circumstances where an exemption from meeting the groundwater objectives applies. For example where it is technically infeasible or disproportionately costly to prevent or limit the inputs by remediation of historical land contamination or where an existing regulated site such as a landfill already exceeds the relevant assessment criteria. Currently there is no guidance on how this should be assessed.

Proposed approach

SEPA has now produced some draft guidance on the circumstances in which an activity may be exempt from meeting the groundwater objectives.

For example, we expect landfill sites to be appropriately designed and maintained to minimise the input into groundwater of pollutants in line with good practice. However, we recognise that these activities will allow small amounts of non-hazardous pollutants to enter groundwater. SEPA may permit landfills to exceed the pollution standard because it is recognised that that it is not always feasible for the footprint of these activities to be less than 1 ha, and that measures to prevent the standards being breached could increase the risks to human health or the quality of the environment as a whole.

It is set out in [Assigning groundwater assessment criteria for pollutant inputs](#) and [Land contamination and the water environment](#).

Implications of this proposed change

¹⁶ The Water Environment (River Basin Management Planning: Further Provision) (Scotland) Regulations 2013

This guidance should allow business to better plan for redevelopment and other future activities because there is more clarity as to what is expected.

7. PROPOSED CHANGES TO THE WAY LAND CONTAMINATION IS ADDRESSED TO PROTECT THE WATER ENVIRONMENT

The local authorities principally oversee the identification and remediation of land contamination. This mainly happens when a site is redeveloped. Occasionally, a site may be identified as “Contaminated Land” under Part IIA of the Environmental Protection Act if a site is causing significant pollution of the water environment¹⁷.

Remediation will then be required by the appropriate person. Where certain criteria are met (see sections 7.3 and 7.4), a local authority may designate a site as a “Special Site”. SEPA can require remediation where sites have been designated as a “Special Site” by the local authority.

We want to better protect the water environment and improve the way land contamination is addressed. The sections below explain how we propose to do this.

7.1 Keeping a record of any residual land contamination

Historical land contamination can cause an exceedance of groundwater standards¹⁸. This can result in impacts on groundwater resources, surface ecosystems and water supplies. Even after redevelopment some contamination can remain on a site. This is because it is technically infeasible or disproportionately costly to meet the relevant groundwater standards.

Current approach

Currently there is no register kept of sites that have been remediated and where it has been judged by SEPA to be technically infeasible or disproportionately costly to achieve the relevant groundwater standards.

Proposed approach

¹⁷ A site may also be “Contaminated Land” for other reasons.

¹⁸ Hazardous substance standard or pollution standard

As part of our Green Recovery we need to remediate land contamination and bring the land back into use. This will benefit our communities, the environment and help sustainable growth. Exemptions¹⁹ from fully meeting the groundwater standards are an important mechanism to facilitate the re-use of brownfield land. In order to have a national picture of the extent of land contamination where remediation has taken place but where an exemption from the groundwater standards was considered justified, we propose that Scotland should keep a register of sites where an exemption has been applied.

Implications of this proposed change

Collecting this information will have the following benefits:

- Future developers and communities can be aware of contamination that continues to exceed the groundwater standards.
- Areas that may not be suitable for the development of a water supply are identifiable.
- Areas where complications may be encountered when undertaking temporary dewatering are identified.
- It will help SEPA to understand why there may be ecological or water quality impacts on our surface water systems.
- It should help²⁰ to identify how much brownfield land in Scotland is being remediated and made ready for use.

It would be unreasonable for this to be done retrospectively so any register will not provide a complete picture of the situation. However, it will improve over time. There will be an increased administrative burden in doing this for local authorities and SEPA. This could be minimised as this information is already collected for planning and Part IIA, just not in a central location.

¹⁹ i.e. where is technically infeasible or disproportionately costly

²⁰ In combination with a list of all sites that have been remediated

7.2 Raising the bar at which significant pollution is considered to occur in relation to the future groundwater resource

Current approach

Part IIA of the Environment Protection Act is triggered if significant pollution of the water environment is being caused or there is a significant possibility of such pollution being caused. The measures of significant pollution are set out in [A.46 of Environmental Protection Act 1990: Part IIA, Contaminated Land Statutory Guidance: Edition 2, known as the Part IIA Statutory Guidance](#).

Currently SEPA's working interpretation of "significant pollution" is taken to mean causing pollution of a surface ecosystem or water supply or causing localised pollution of the future groundwater resource.

Proposed approach

Whilst we don't propose to change these measures of significant pollution set out in legislation, it is proposed to revise the working interpretation so that "significant pollution" will only be considered to have occurred when a very serious degree of impact on the groundwater resources has occurred. This will be when the resource has been impacted to the extent that the assessment of the groundwater body status is, or is likely to become, poor status. In future, we propose that local pollution of the groundwater resource will no longer be sufficient to cause "significant pollution".

We plan to do this because Part IIA is a regime designed to capture the most pressing and serious problems. We consider that sites that are causing or are likely to cause a localised impact on the future use of groundwater are better addressed when a site is re-developed or when it is done on a voluntary basis.

Implications of this proposed change

It is anticipated that this will have a minor impact on the number of sites designated as Contaminated Land under Part IIA²¹ because:

- The majority of sites are normally remediated via the planning process or voluntarily.
- It is not common for a site to be designated under Part IIA because of impact on the future groundwater resource alone – most also have impacts on other water environment receptors such as rivers or burns etc.

The remediation standard required under Part IIA remains as “breaking any significant pollutant linkages and ensuring that the effects of any significant harm or significant pollution of the water environment are remedied”. It is always open to the appropriate person to carry out remediation on a broader basis than this. Decisions on remediation also take into account factors such as cost, and technical feasibility.

7.3 Updating the criteria for water pollution by which a site is designated a special site

Current approach

A “special site” is a Contaminated Land site regulated by SEPA. The criteria by which a site is identified as “special” include:

- The previous use of the site and contaminant type present²²;
- Whether there is an impact on a source of drinking water for human consumption; and
- Whether the site is impacting on Devonian sandstone and Permian sandstone aquifers. The degree of impact that a site is having on these aquifers could be local or widespread.

These criteria have been based on:

²¹ Of the order of less than 10 sites.

²² See Regulation 3 of the Contaminated Land (Scotland) Regulations 2000 (as amended)

- SEPA's expertise in dealing with certain sites and contamination;
- The protection of human health; and
- These aquifers being capable of supplying significant quantities of water for future supply.

Proposed approach

We do not intend to change the first two criteria listed above as they are fit for purpose. We do propose to change the Devonian sandstone and Permian sandstone criteria. This is because in Scotland groundwater in many different types of aquifers is used, not just that in Devonian and Permian sandstone aquifers. It is important that we protect all of this resource as well as the rest of the water environment. We therefore want to focus our effort where contamination is greatest, rather than in certain geographical locations. We therefore propose to change the Devonian and Permian sandstone criteria to where the impact on the water environment as a whole is so serious that it is causing, or likely to cause a water body to be at less than good status.

Implications of this proposed change

It is not anticipated that changing the water assessment criteria for special sites will have a major impact in terms of numbers because only a small number of sites are remediated via Part IIA. However it will ensure that SEPA becomes responsible for taking action to improve those sites that have the most relevant and pressing problems in relation to the water environment.

7.4 Identification of "Special Sites"

Current approach

Where SEPA holds information that an area of Contaminated Land fits the criteria for a Part IIA special site it can inform the local authority of this risk. The local authority then is required to determine if the land should be designated as a special site.

Proposed approach

Where SEPA holds information that a site not yet identified as Part IIA Contaminated Land fits the criteria for a special site it can inform the local authority. The local authority will be required to determine if the land should be designated as Contaminated Land and a special site.

Implications of this proposed change

This approach will allow the sites that are having the greatest impact on the water environment to be quickly and efficiently passed to SEPA for remedy. This will only be used in exceptional cases and most sites will be identified by the local authority in the normal way.

8. CONSULTATION QUESTIONS

Pollution standards

1. Do you agree with the criteria we propose to use to determine whether groundwater has future resource potential?
2. Do you agree that the standards to assess pollution of future groundwater should be based on an area of impacted groundwater rather than the current distance based approach?
3. Do you agree that we should take into account any existing contamination present in the groundwater when making an assessment of pollution?

Groundwater Status Standards

4. Do you agree that the trigger for determining that a groundwater body is considered to be at poor status should be based on a 20ha plume of hazardous substances rather than a 200ha plume of any contaminants?
5. Do you agree that when assessing if a groundwater body is at poor status we should only consider impacts on nationally important groundwater dependant wetlands?

Hazardous substances standards

6. Do you agree that we should update our list of hazardous substances in line with the JAGDAG recommendations?
7. Do you agree that we should introduce standards for hazardous substances which identify the point at which there is a risk of groundwater deterioration, in order to ensure consistency and certainty?

8. Do you agree that our proposed hazardous substance standards should be based on drinking water standards and surface water environmental standards?

9. Do you agree that issues of taste and odour should be taken into account in determining hazardous substance standards, in order to protect the future use of groundwater?

Changes and clarifications to our approach to land contamination and the water environment

10. Do you agree with our proposal to keep a record of any residual land contamination, where an exemption from the relevant groundwater standards has been applied to remediation work? How do you think this should be done, via legislation or by partnership working?

11. Do you agree we should raise the bar at which significant pollution is considered to occur in relation to the future groundwater resource?

12. Do you agree that we should change the criteria for defining “special sites” from one impacting on a Devonian or Permian aquifer to one that is causing a water body to be less than good status or is posing a risk of deterioration in status?