

# **Review of the Storage and Spreading of Sewage Sludge on Land in Scotland (The Sludge Review)**

## **Final Recommendations**

**February 2016**

## **Review Of The Storage and Spreading Of Sewage Sludge on Land In Scotland (The Sludge Review): Final Recommendations**

### **Background**

1. A number of public complaints were made in 2013 and 2014 to the authorities, principally the Scottish Environment Protection Agency (SEPA) and local authorities, regarding incidents associated with the use of sewage sludge (“sludge”) on land. The main concern was about odour attributed to the storage and spreading of sludge.

2. In light of these incidents, the Cabinet Secretary for Rural Affairs, Food and the Environment instructed officials to undertake a review of the legislation and guidance relevant to the storage and spreading of sludge to land. Mr Lochhead announced the Review on 19 January 2015.

### **Policy Context**

3. In recent years, there has been an increasing recognition, both in Scotland and internationally that our resources are finite, and there therefore these resources need to be better managed and conserved so that the maximum value can be derived from them.

4. The Scottish Government held a consultation, called Making Things Last, and this closed in October 2015. The consultation is intended to feed into a new Circular Economy strategy to be launched in early 2016.

5. The strategy is intended to maintain Scotland’s early leader advantage on the Circular Economy and start to shape the next steps in this area. One of the key actions identified in the consultation document was “Maximise the value of biological resources”

6. Around 50 million tonnes of animal manure / slurry is spread on land each each year, whilst other organic material (including digestate and sewage sludge) amounts to only around 200,000 tonnes (with about 70,000 tonnes of that being sewage sludge)

7. The spreading of such material on land is a long established practice, and is an effective way of recovering value and avoiding waste. As such it is consistent it is consistent with current and proposed Scottish Government policy

8. Sewage sludge is a by-product of the waste-water treatment process which can be useful in agriculture and in land reclamation. It is produced by Scottish Water (20%), and Public Finance Initiative (PFI) contractors (80%), on a daily basis from sewage treatment works throughout Scotland, and has several valuable properties:

- it is a readily available alternative soil-building material
- it contains nutrients and valuable trace elements essential to animals and plants

- it is a more efficient and sustainable alternative to inorganic fertilisers and mineral.
- fertilisers - such as phosphate
- provides a source of slow-release nitrogen ideal for use in land restoration
- it is a good substitute for peat in land-reclamation projects thus conserving valuable natural peatland

9. In common with manure / slurry, sewage sludge has been the subject of some complaints due to odour. However, when managed properly, such odours should not become problematic, and there are no proven health risks associated with the spreading of this material.

10. The aim of the recommendations in this document is to improve practice, guidance and legislation so that the general public is not inconvenienced by the spreading of sewage sludge on land, and that all those involved in the recycling of these valuable materials maintain the highest standards.

### **The Sludge Review Group**

11. The Scottish Government was assisted by SEPA and Scottish Water in carrying out the Sludge Review. The Review Group has sought views from stakeholders, including communities, and considered all relevant issues relating to the use of sewage sludge on land (See Annex A).

12. Following investigations and discussions with stakeholders over the past few months, the Sludge Review has identified those issues that are of most concern in relation to the use of sewage sludge on land, and we have recommended actions which we consider would alleviate or mitigate these issues:

### **Scottish Water Remedial Actions**

13. Scottish Water has in recent months taken action to address the issues raised during the Review, specifically:

- Complete embargo by Scottish Water of all sludge/organic materials (inc food digestate from Deerdykes facility operated by Scottish Water Horizons) being recycled in the Falkirk area (since February 2015)
- Increased auditing of contractors' activities including spot checks by Scottish Water
- Review of duty of care documentation & process for completion
- Two Scottish Water sludge treatment centres in Falkirk & Stirling now have new de-watering (centrifuges) installed, improving product quality
- Increased data/monitoring of stockpiles and information flow from Scottish Water contractors
- Biosolids Assurance Scheme pilot audit by Northumbrian Water Limited on Scottish Water treatment facility (Kinneil Kerse)
- Community Councils in the area have direct access to Scottish Water waste managers if any issues/concerns arise

- Working closely with SEPA in terms of data provision and resolving any issues/problems if they arise
- CAMBI (thermal hydrolysis) plant at Seafield PFI site is now operational. Some raw cake material from this works would have gone to the Falkirk area in the past. This is not now happening.
- Future Improvements – A new tender process for Scottish Water sludge & waste services has commenced. A review of some strategies is included within this.

## **Sludge Review: Key Recommendations**

### **Spreading Practice – use of Sewage Sludge**

14. As long as it is well managed, the use of sewage sludge allows us to recycle valuable materials in a way that is safe and environmentally beneficial. It should cause no nuisance or inconvenience to the general public.

15. However stakeholder feedback indicates that there is a need for greater consistency, and greater public confidence, in the way sewage sludge is handled and used. The Safe Sludge Matrix<sup>1</sup> is a UK level voluntary agreement on standards of practice, which was made in 1998 between Water UK (representing the 14 UK Water and Sewage Operators) and the British Retail Consortium (BRC) representing the major retailers. This agreement affects all applications of sewage sludge to agricultural land. It was originally intended that the provisions of the agreement would be incorporated into legislation in the Sludge (Use in Agriculture) Regulations and into the Code of Practice for Agricultural Use of Sewage Sludge, but to date this has not happened. The British Biosolids Assurance Scheme is currently in development, and Scottish Water is a committed partner in this scheme, but this, too, is voluntary. **We therefore recommend that:**

- the requirements of the Safe Sludge Matrix should be incorporated into law in Scotland. We acknowledge that some discussions with the UK Government are likely to be necessary, and that the Safe Sludge Matrix itself will first require updating.

### **Complaints & Reporting of Incidents**

16. Many stakeholders had expressed a desire for just one regulating authority, to avoid confusion when reporting incidents / making complaints, and that this should be SEPA. SEPA indicated that it also considered that such an arrangement would be sensible. **We therefore recommend that:**

- SEPA should be the lead agency for incidents and complaints relating specifically to sewage sludge, with a single point of contact, but continued co-operation between SEPA and local authorities. Data on these complaints should continue to be collected by SEPA. This can be achieved without any changes to legislation, via non-statutory guidance to SEPA and local authorities.

---

<sup>1</sup> Safe Sludge matrix available at: <http://adlib.everysite.co.uk/resources/000/094/727/SSMatrix.pdf>

## Regulation of Operators

### Agricultural Spreading

17. A common theme amongst discussions with stakeholders, including the general public and operators (companies who manage and spread sludge), was the need for a “fit and proper persons” test to help ensure that high standards of practice are maintained. Operators themselves agreed that they should be subject to licencing arrangements before being allowed to undertake handling, storage, transportation and spreading of material for both agricultural and land restoration purposes. **We therefore recommend that:**

- an operator’s licence including a “fit and proper person” test should be introduced for all operators who are involved in the handling, storage, transportation and spreading of material on agricultural land. We recommend that “whole project life” licences for long-term site restoration projects also incorporate a fit and proper person test.

### Non-Agricultural Spreading

18. Before sewage sludge can be spread on land, an operator must first register with SEPA an exemption under the Waste Management Licensing (Scotland) Regulations 2011. With particular reference to land restoration projects (which can run for 3 years or more), it became clear during the Review that these exemptions, which operators have to re-register each year, do not work well. From the perspective of the operator, it makes it harder to plan for the whole life cycle of the project, and progress can be delayed during the annual exemption registration process. From the perspective of the regulator, it is more resource intensive and less efficient than a single project licence would be. Also, local community feedback indicated a desire for tighter regulation of these projects, and “whole project life” licences would provide a framework that would allow SEPA to do that. **We therefore recommend that:**

- “Whole project life” licences for long-term site restoration projects (replacing the current exemptions) should be introduced, to enable effective long-term planning of projects and tighter, closer, more resource-efficient regulation of these projects. SEPA can recover costs through its regulatory charging scheme.

### **Power to Stop Problematic or Offensive Activity**

19. Under the terms of the exemption conferred by Paragraph 8(1) of the Waste Management Licensing (Scotland) Regulations 2011, sludge can be stored pending use for up to 6 months. Breaching the relevant objectives<sup>2</sup> by causing nuisance

---

<sup>2</sup> **Waste Management Licensing Regulations (Scotland) 2011:** Under regulation 17 (7), an exemption can only apply if the type and quantity of waste and the method of disposal or recovery are consistent with attainment of the objectives in para 6(1)(a) of Part I of Schedule 4, and in this case 6(1)(a)(ii) is relevant: “causing nuisance through noise or odours”.

through odours means that the terms of the exemption are breached and SEPA can take enforcement action .

20. In the event of substantiated complaints in relation to, eg, offensive odour, SEPA can serve notice removing the exemptions from the register of exempt activities and can also issue notices in terms of Section 59 of the Environmental Protection Act 1990.

21. Upon the issue of such a notice, the recipient has 21 days in which to appeal, during which SEPA cannot take action. Whilst it is true that that removal of material can result in the problem being moved elsewhere, the producer of the material still has a legal duty of care, and is therefore responsible for ensuring that the material goes to an appropriate destination.

22. Therefore in light of significant stakeholder feedback highlighting this issue, and confirmed incidents where SEPA had been unable to deal quickly with long-term odour issues, **we recommend that:**

- SEPA should have the power to have an “exempt” activity, such as storage of sewage sludge, stopped immediately and the sludge removed, whilst ensuring that an operator’s “right of appeal” is not lost.

The responsibility for the removal of sludge will continue to rest with the operator / contractor who transported the material to the site. Any additional responsibilities that may fall to SEPA as a result of this recommendation or any of the other recommendations in this document will be recovered via SEPA’s regulatory charging scheme.

### **Agricultural Land – On-Site Storage**

23. During the Review, on-site storage emerged as a significant issue, with sludge being stored on farms for long periods, with proximity to households also raised as an issue. The current arrangements exist for 2 main reasons. Firstly, spreading is only possible at certain times of the year, and this can be further restricted by weather conditions. Secondly, sewage treatment facilities produce sludge at a steady rate, and do not have space or facilities to store the material for long periods onsite. However, there is a need to find a way to mitigate this problem.

**We therefore recommend that:**

- SG officials and SEPA should investigate the practicalities of reducing the on-site agricultural use storage time limit for sewage sludge from 6 months, with a view to introducing risk-based case by case variance of time limits. The issue of material (sewage sludge) quality should be part of any such risk-based case, with proximity to dwellings also being taken into account where this is an issue.

## **More Frequent Monitoring Of Activity**

24. There is a perception amongst stakeholders that the spreading of sewage sludge on land is not adequately monitored and regulated, and in some cases problems are not identified until complaints are made. **We therefore recommend that:**

- there should be tighter monitoring of operator practice by SEPA, allowing them to intervene where necessary, subject to cost recovery via charging.

## **Sewage Sludge - Material Quality**

25. Throughout the course of the review, stakeholders consistently reported material from some sources was more odorous than that from others, with one sewage treatment facility being linked with a number of incidents. **We therefore recommend that:**

- Scottish Water or the relevant operator should ensure that material is checked by staff at the sludge processing facility before it leaves, and material that is considered particularly odorous will not be spread near dwellings, and will be dug into the soil immediately after spreading.
- Scottish Water or the relevant operator should undertake analysis-based review to understand the composition of sludges from its sewage treatment facilities, to identify the reasons for the greater problems associated with some facilities.
- SEPA should review its guidance to staff to ensure consistency in the way regulations are enforced.

## **Implementation of Recommendations**

26. In order to ensure that the recommendation from the Sludge Review are implemented as quickly and efficiently as possible, **we recommend that:**

- the Sludge Review Group should continue to meet until the Review's recommendations have been delivered.

## **Additional Recommendations**

### **Communication, Co-ordination and Information Management**

27. Feedback received during the Review suggests that the availability and sharing of information on sludge, spreading, and incidents needs to be better in order that a clear picture can be provided on what is happening around the country.

28. In addition, communication between all those involved in the material supply chain needs to be improved to ensure better management of the process, and also more transparency so that the general public know what is happening, why it is happening, and who they can speak to about it. **We therefore recommend that:**

- SEPA and SG should develop guidance to cover respective roles of all those in the sludge supply chain, to include communication between all links in the chain. This guidance should also link / refer to other guidance as well as relevant regulation.
- Operators should have procedures in place to deal with enquiries, incidents etc, including contact points for local people, and clear, understandable information material to assist with responses to queries. Where relevant this should also include proactive community engagement, eg around timings. To be addressed via guidance.
- management of data on sludge movement, management and incidents at SEPA and Scottish Water should be improved and data from local authorities should be collected.
- Scottish Water and SEPA should improve communication with all contractors handling sewage sludge in relation to transportation, storage and spreading of sewage sludge to ensure that all operators maintain optimum standards of practice.

### Improving Legislation

29. A number of stakeholders, have expressed the view that legislation governing the management and spreading of sewage sludge needs to be updated, with some complaining that it is confusing, not least because there are different systems governing a) agricultural spreading, and b) use in restoration projects (such as former opencast coal mines).

30. As part of our Better Environmental Regulation Programme, the Scottish Government and SEPA are working jointly to deliver a new environmental enforcement framework for Scotland, including a range of new proportionate enforcement measures for SEPA. The time therefore seems to be right to update some of the legislation relating to sewage sludge. **We recommend the following actions** for the Scottish Government in relation to legislation:

- As part of the Better Environmental Regulation Programme, establish one regulatory system for organic waste to land, including the agricultural and non-agricultural application of sludge.
- Review land type definitions of “use in agriculture” and “non-agricultural land”, in order to clarify the legal duties of landowners, farmers and operators in relation to the use of sewage sludge on different types of land.
- Consider introducing a requirement to demonstrate that “ecological improvement” and / or (where relevant) ‘benefit to agriculture’ have been achieved in line with original restoration project proposal, and possibly require a bond similar to that of landfill sites to ensure restoration sites are not just left.
- As part of the Better Environmental Regulation Programme, consider the most appropriate means of regulating lime treatment of sewage sludge as currently undertaken through waste mobile plant licencing.



## Planning Guidance

- Guidance on the aspects of planning regulation that are relevant to land restoration projects should be reviewed in order to ensure clarity on the level of restoration required, and how it is ascertained when that restoration has been achieved

## **Research**

31. A “SNIFFER” report in 2008<sup>3</sup> looked at human health and the environmental impacts of the use of sewage sludge in land restoration and forestry, and found no proven health risks. The report also stated that incineration potentially presented “a higher risk to workers and the public.” However the Review team considers that, in light of concerns expressed by the general public, and during the recent parliamentary members’ debate on sewage sludge spreading, it would be useful to update the evidence base relating to the impacts of the spreading of sewage sludge on land. **Accordingly, we recommend that:**

- an updated version of this study should be commissioned as soon as possible, and published by winter 2016.

## **Scottish Water: Further Actions**

In addition to work already taken forward by Scottish Water for assets that it owns, maintains and operates (see above, paragraph 3), the following actions will be undertaken:

- Implement the Biosolids Assurance Scheme (BAS) standard which will provide greater assurance to stakeholders on use of sludge on agricultural land.
- Review stockpile risk assessment processes and procedures to consider sensitive receptors.
- Implement a short-term, targeted study of malodorous sludges to try to identify possible reasons for high odour.
- Review options in the contracting model for increasing Scottish Water’s direct management of sludge recycling activities.
- Continue to work with SEPA to implement revised procedures to ensure sufficient communication and tracking across recycling activities to support regulatory oversight (e.g. notification and tracking of sludge recycling activities, including stockpiling).

---

<sup>3</sup> Sniffer is a registered charity delivering knowledge-based solutions to resilience and sustainability issues. Report written in 2008 is entitled “Human health and the Environmental Impacts of using sewage sludge on Forestry and for Restoration of Derelict land.”

**Review Of The Storage and Spreading Of Sewage Sludge on Land In Scotland  
(The Sludge Review)**

**Scope of the Review**

The Sludge Review investigated and considered the following issues relating to the use of sewage sludge on land:

- a) Treatment of non-agricultural land for the purposes of restoration – rates, methods and guidance and legislation for such activities.
- b) Land classification, including the circumstances when land under restoration becomes ready for use in agriculture or forestry
- c) Licensing Requirements:
  - Criteria for exemptions under Waste Management Licensing (Scotland) Regulations 2011.
  - Role of licensing in relation to land restoration projects.
  - Options for a “fit and proper person” test and registration scheme.
  - Minimum distance of sludge storage and spreading from dwellings
  - Role of planning system.
  - Approach to identifying ‘ecological improvement’ and ‘benefit to agriculture’
- d) Roles, responsibilities and parameters related to treatment and testing sludge, including the legal requirements around treatment and storage of sewage sludge.
- e) Links with other legislation, statutory management and planning requirements and voluntary schemes.
- f) Communication, consultation and notification: neighbours, landowners and other stakeholders
- g) Nuisance issues such as odour, and noise during unsocial hours.
- h) Reporting and data collection – quantities of sludge used, locations, materials and regulatory controls etc.
- i) Improvements to regulation and guidance, including legal definitions.
- j) Improvements to liaison between all delivery partners.

The Review Team approached the following stakeholders groups to seek their views on storage and use of sewage sludge on land:

- Forestry Commission Scotland
- Scottish Natural Heritage
- local authorities
- site operators
- members of the public (particularly those located near restoration and agricultural sites)
- farming and rural land interests including National Farmers Union of Scotland and Scottish Land and Estates
- Health Protection Scotland
- The Hutton Institute
- Scottish Agricultural College



© Crown copyright 2016

**OGL**

This publication is licensed under the terms of the Open Government Licence v3.0 except where otherwise stated. To view this licence, visit [nationalarchives.gov.uk/doc/open-government-licence/version/3](http://nationalarchives.gov.uk/doc/open-government-licence/version/3) or write to the Information Policy Team, The National Archives, Kew, London TW9 4DU, or email: [psi@nationalarchives.gsi.gov.uk](mailto:psi@nationalarchives.gsi.gov.uk).

Where we have identified any third party copyright information you will need to obtain permission from the copyright holders concerned.

This publication is available at [www.gov.scot](http://www.gov.scot)

Any enquiries regarding this publication should be sent to us at  
The Scottish Government  
St Andrew's House  
Edinburgh  
EH1 3DG

ISBN: 978-1-78652-011-1 (web only)

Published by The Scottish Government, February 2016

Produced for The Scottish Government by APS Group Scotland, 21 Tennant Street, Edinburgh EH6 5NA  
PPDAS65293 (02/16)

W W W . G O V . S C O T