



18th May 2016

EPA Response to Consultation on Irish Water’s Draft National Waste Water Sludge Management Plan (NWSMP) and associated SEA Environmental Report and Natura Impact Statement

The Environmental Protection Agency (EPA) welcomes the opportunity to provide comment on Irish Water’s Draft National Waste Water Sludge Management Plan (NWSMP) and associated SEA Environmental Report and Natura Impact Statement. It is noted that the EPA has previously inputted into the preparation of these documents.

In general the EPA welcomes the direction of the NWSMP which addresses the key issues for the management of wastewater sludge in the country.

The high level strategic objectives of the NWSMP include the following:

- avoiding adverse human health or environmental effects
- maximising wastewater sludge benefits as a soil conditioner and nutrient source
- governance compliance
- establishing sustainable disposal routes and outlets
- cost effective and efficient treatment and disposal techniques
- reducing potential for nuisance from sludge transport and sludge facilities
- improving operational efficiencies
- seeking to extract energy and other resources where economically feasible

Having regard to the waste management hierarchy, Irish Water (IW) should strive over the lifetime of the NWSMP to recover the nutrient and energy potential of wastewater sludges to their maximum. The term recovery should be incorporated into the high level strategic objectives of the plan.

Landspreading on agricultural soils is currently the recovery option for treated wastewater sludge’s but this outlet may come under increasing pressure in the future. IW should:

- Seek to improve a consistent treatment of wastewater sludges through the use of advanced anaerobic digestion and implement robust quality control procedures to ensure consistency of material for landspreading.
- Undertake sufficient tracking and monitoring of treated wastewater sludge applied to agricultural land to ensure that it is environmentally and agronomically safe and appropriate to do so and at levels which ensure that the nutrients can be effectively used for plant growth or assimilated into the soil. While the EPA acknowledges the inclusion of aspects relating to POPs within the draft NWSMP, the plan should address minimising the potential for bio-accumulation of substances in soils from the landspreading of treated wastewater sludge. The plan should incorporate a programme for monitoring POPs and other contaminants of emerging concern in the context of protecting the environment and securing food safety.



- Investigate alternative crops such as energy crops and forestry for the recovery of treated wastewater sludges that may not have negative consumer sentiment.

As part of the plan IW should promote the concept of energy recovery at treatment hubs from processes such as anaerobic digestion and aim for each hub to become energy self-sufficient as a long term sustainable target. This will improve the overall environmental performance of the facility and have additional benefits such as improved business resilience.

The EPA welcomes the adoption of our recommendation that IW plan for the reception of Domestic Waste Water Treatment System (DWWTS) sludge. A clear national strategy for the management of DWWTS sludge is required and collaboration with other relevant parties (statutory agencies and permitted contractors) should be considered in this regard.

With regard to the “Sludge Hub Centre and Satellite Site” system and proposed upgrades, the provision of sludge management facilities should be prioritised and directed towards waste water treatment plants that are breaching authorisation limits due to the lack of sludge management infrastructure. In addition desludging at waste water treatment plants should be carried out at appropriate frequencies and volumes to prevent breaches of authorisation limits. The strategy needs to ensure that the deficiency in sludge management facilities in the west of Ireland is addressed.

The NWSMP should include a separate section on *Governance and Implementation* with provisions for robust and transparent mechanisms to oversee the implementation of the Plan actions and commitments.

Specific comments on the documents are provided in the attachment to this correspondence under the following headings:

- *Specific Comments on NWSMP*
- *Integration of the SEA Environmental Report into the Plan*
- *Specific Comments on the SEA Environmental Report*

On behalf of the EPA, I trust this submission is of assistance in finalising the NWSMP and associated documents.

Sincerely,

A handwritten signature in blue ink, which appears to read 'Donal Howley', is positioned above the typed name.

Donal Howley,
Office of Environmental Enforcement,
Environmental Protection Agency

Attachment 1

Specific Comments on NWSMP

Section 1.5 – Key Objectives

Having regard to the waste management hierarchy, Irish Water (IW) should strive over the lifetime of the NWSMP to recover the nutrient and energy potential of wastewater sludges to their maximum. The term recovery should be incorporated into the high level strategic objectives of the plan.

As part of the plan IW should promote the concept of energy recovery at treatment hubs from processes such as anaerobic digestion and aim for each hub to become energy self-sufficient as a long term sustainable target. This will improve the overall environmental performance of the facility and have additional benefits such as improved business resilience.

Domestic Waste Water Treatment Sludge

The EPA welcomes the adoption of our recommendation that IW plan for the reception of Domestic Waste Water Treatment System sludge. Treatment system owners are required, under the Water Services Acts 2007 and 2012 (Domestic Waste Water Treatment Systems) Regulations 2012 (S.I. No. 223 of 2012), to de-sludge their systems. Suitable cost effective sludge treatment and acceptance facilities catering for this sludge stream are required to ensure that the de-sludging of systems is not prohibitively expensive for homeowners.

Permitted waste collectors are responsible for collection of the sludges from DWWT systems and transferring the sludge to these facilities. The volumes collected and reported by permitted waste collectors have increased by 46% between 2012 and 2014, with approximately 30% (145,000) of the estimated DWWTS sludge load waste collected in 2014. It is assumed that these sludge volumes collected will continue to increase in future years.

The strategy states in section 2.5 that the number and size of facilities to cater for sludge from DWWTS will be based on commercial demand and if so, it is imperative that Irish Water engage with permitted contractors in order to provide clarity as to the acceptance criteria, reliable acceptance hubs and proposed charges. There appears to be a lack of readily available information currently for contractors as to whether or not an existing IW facility will accept DWWTS sludge. Also, there seems to be interest by some contractors to invest in de-watering tankers, which will allow greater distances to be travelled; however there appears to be difficulty in finding an acceptance facility for sludge with a low water content. A clear national strategy (in conjunction with other stakeholder organisations) for the acceptance and management of DWWTS sludge is required.

Sludge Transport Strategy / Sludge Satellite and Hub Infrastructure (including Sections 6.4 & 7.5)

IW needs to ensure that sludge is managed at individual waste water treatment plants (WWTPs) such that desludging occurs at the appropriate frequency and sufficient volume is removed to ensure that breaches of the discharge authorisations do not occur due to inadequate desludging. Desludging schedules should be appropriate for the specific WWTPs and while generic schedules are a welcome starting position these may need to be adapted for specific local circumstances.

Installation of sludge management facilities should be prioritised and directed towards plants that are breaching authorisation limits due to the lack of sludge management infrastructure. IW should quantify the number of sites which have been determined to have inadequate infrastructure and then develop a plan to address these deficiencies.

Section 7.5 outlines the current and proposed infrastructure for sludge management facilities. The strategy needs to ensure that the deficiency in sludge management facilities in the west of Ireland is addressed and that proposed new facilities are developed at locations suitable for collection from remote plants and also in a location where there is proximity to outlets or transport routes for the end product.

Section 9.12 – Risk of Landspreading & Section 10.8 – Monitoring of Impacts of Sludge Disposal [Persistent Organic Pollutants, REACH Regulation controlled substances and Contaminants of Emerging Concern]

Landspreading on agricultural soils is currently the recovery option for treated wastewater sludge's but this outlet may come under increasing pressure in the future. IW should:

- Seek to improve a consistent treatment of wastewater sludges through the use of advanced anaerobic digestion and implement robust quality control procedures to ensure consistency of material for landspreading.
- Undertake sufficient tracking and monitoring of treated wastewater sludge applied to agricultural land to ensure that it is environmentally and agronomically safe and appropriate to do so and at levels which ensure that the nutrients can be effectively used for plant growth or assimilated into the soil.
- Investigate alternative crops such as energy crops and forestry for the recovery of treated wastewater sludges that may not have negative consumer sentiment.

Persistent organic pollutants (POPs) are toxic substances that persist in the environment and bio-accumulate through the food web. The Stockholm Convention on POPs, to which Ireland is a Party, has as its objectives the reduction and where feasible, elimination of the risks posed by these substances to human health and the environment. These substances



include chemicals such as pesticides, industrial chemicals (such as polychlorinated biphenyls (PCBs)) and unintentional by-products of certain processes (such as dioxins and furans). There is concern over some POPs, e.g. persistent pesticide compounds (particularly organochlorines), in sewage sludge due to potential soil accumulation and long-term impacts on the environment¹.

Soil plays an important role in the fate and distribution of POPs and can act as a sink or a source. There remain uncertainties surrounding POP distribution, degradation and circulation between air and soil². The presence of these chemicals in wastewater sludge, when landspread, has the potential if not managed correctly, to impact negatively both on human health and the environment. Other chemicals of emerging concern, some of which have been used in personal care products, have been detected in wastewater sludge. Many of these substances are being evaluated for bio-accumulative, persistent and toxic properties. The extent of the movement and fate of these substances through soil is not yet fully understood. The EPA is currently carrying out investigations into the presence of such substances in wastewater sludge and this work is planned to be completed by the end of 2016.

The REACH Regulation aims, among other things, to reduce the risks to human health and the environment posed by substances through controlled use of chemicals. Irish Water should note that some substances which have been detected in wastewater sludge are under investigation for potential addition to REACH Regulation Annex XIV (substances requiring authorisation for use) and/or REACH Annex XVII (substances subject to restriction(s)) and the outcome of these investigations may have implications for the recovery/disposal of waste water sludges.

Other contaminants such as pharmaceuticals, hormones and endocrine disrupting chemicals have been detected in wastewater sludge^{3, 4}. The fate and effects of such substances in environmental compartments are largely uncertain. In Section 9.12.4 it is noted that monitoring of sludges for pharmaceuticals and personal care products is not normally undertaken in Ireland. The EPA recommends, based on a precautionary approach, that sampling and analysis is conducted of sludges (and the receiving soils) from wastewater treatment plants servicing population equivalents of >100,000.

¹ Bowen E, Comber S, Makropoulos C, Rautiu R, Ross D, Rule K and Thornton A 2003. Priority Hazardous Substances, Trace Organics and Diffuse Pollution (Water Framework Directive): Screening Study and Literature Review of Quantities in Sewage, Sludge and Effluent. Report Ref No. 03/WW/17/2. UKWIR, London.

² Gioia J.K, Moeckel R. et al. (2012). Has the Burden and Distribution of PCBs and PBDEs Changed in European Background Soils between 1998 and 2008, Implications for Sources and Processes, Environmental Science and Technology as cited by European Commission DG ENV, Issue 268, p. 1.

³ Targeted National Sewage Sludge Survey Sampling and Analysis Technical Report 2009, U.S. EPA.

⁴ Wastewater Treatment Plants as Chemical Observatories to Forecast Ecological and Human Health Risks of Manmade Chemicals, 2014, A.K. Venkatesan & R.U. Halden, University of Arizona.

The Plan should incorporate:

1. A programme for monitoring, recording and publication of monitoring data on POPs, substances controlled under the REACH Regulation and other contaminants of emerging concern in both wastewater sludge and receiving soils; and
2. Where elevated concentrations of the substances concerned are observed, particularly in receiving soils, contingency plans for risk mitigation should be provided, e.g. alternative sludge management options.

Integration of the SEA Environmental Report into the Plan

The Plan includes the application of wastewater sludge management hierarchy principles, as a Tier 2 plan under the Water Services Strategic Plan. It considers the various key aspects of wastewater sludge management (including current practices and proposed additional infrastructure or upgrading existing facilities, treatment methods and alternatives, capacity and loads, location, transport, balanced and sustainable infrastructure, co-operation with other stakeholders in wastewater management and also environmental protection aspects.

While the Plan relates to the management of wastewater sludges within the remit of Irish Water, it also provides an assessment of the estimated sludge load per county from domestic wastewater treatment and disposal systems.

The high level strategic objectives of the Plan in relation to the following:

- avoiding adverse human health or environmental effects
- maximising wastewater sludge benefits as a soil conditioner and nutrient source
- governance compliance
- establishing sustainable disposal routes and outlets
- cost effective and efficient treatment and disposal techniques
- reducing potential for nuisance from sludge transport and sludge facilities
- improving operational efficiencies
- seeking to extract energy and other resources where economically feasible

In implementing the Plan, it is through these strategic objectives that the Plan should promote the protection and integration of environmental sensitivities/vulnerabilities.

The Plan should include a separate section on *Governance and Implementation*. Provisions should be included for robust and transparent mechanisms to oversee the implementation of the Plan actions and commitments. In addition the Plan actions and any associated sub-actions including their implementation, should not conflict with relevant environmental protection obligations. These include in particular climate change mitigation/adaptation, human health, water quality, biodiversity, air quality and landscape considerations.



Chapter 6 – Sludge Transport Strategy

Where sludge treatment methods for smaller more remote treatment plants may involve the use of sludge reed beds instead of transportation related options to other treatment facilities, it would be useful to describe at what point these reed beds fail to be efficient in terms of sludge management. This should be taken into account in terms of projected settlement growth in these rural areas, in collaboration with the relevant local authorities, with a view to ensuring sustainable development is promoted.

Chapter 7 – Sludge Satellite and Hub Infrastructure

In terms of the requirements for sludge management satellite sites, the existing network of sites / hubs and any proposed additional necessary infrastructure should assess the potential implications of flood risk vulnerability, where appropriate. The Plan should take into account the requirements of the *Flood Risk Management Guidelines* (DEHLG/ OPW, 2009). It should also refer to and commit to incorporating the relevant aspects of the National CFRAMS Programme, in terms of assessing the vulnerability to significant flooding of existing infrastructure and potential implications and requirements for upgrading facilities or providing additional Plan-related infrastructure.

Chapter 8 - Sludge Outlet Options

We note that the Plan acknowledges that agricultural use of wastewater sludge may be further restricted by proximity to Natura 2000 sites, high groundwater vulnerability areas, and areas which may be impacted by flooding.

Chapter 9 - Options Assessment and Alternatives

We acknowledge that *Section 9.10 Potential Impacts and Mitigation Measures* summarises the potential impact on receptors to sludge management in relation to sludge management activities. While the Plan considers the risk to Natura 2000 sites, a stronger link is also needed which focuses on ensuring the protection of water quality of surface waters (and groundwater) under the Water Framework Directive is needed. In this regard, we recommend that a specific commitment is included in the Plan, to incorporate the requirements of the Water Framework Directive as relevant to the siting, design, operation of wastewater related infrastructure and in conducting wastewater sludge management and related activities at those sites. A specific commitment should also be included to integrate the second round of River Basin Management Plans and associated Programme(s) of Measures upon their adoption within the lifetime of the Plan.

Section 9.11 - Risk Assessment of Current Sludge Outlet - the risk to water quality should be considered as a key aspect. Given that the second cycle of river basin management planning is currently underway, the Plan should support the implementation of these RBMPs and the associated Programme(s) of Measures.

Specific Comments on the SEA Environmental Report (ER)

The sludge management objectives in the Plan represent a proactive and integrated approach to coordinating and establishing wastewater sludge management in Ireland at a national level. While the Plan focuses on the wastewater sludges falling within its remit, the Plan also recognises the need to consider the management of domestic WWT sludges in terms of both capacity and infrastructure planning.

SEA ER

Section 2.2 Wastewater Management in Ireland

The ER should consider including a summary table describing the environmental risks identified for each specific stage of the sludge management process. This may allow appropriate measures be implemented at the appropriate sludge management stage and timescale with associated monitoring provided for. This could be represented as a summary of the various processes involved and the key associated environmental effects across the relevant topics and expanded upon in relation to proposed mitigation and monitoring aspects.

Chapter 5 - Review of Relevant Plans, Policies and Programmes

The Plan should consider including information on relevant plans and programmes including transboundary considerations. The following additional plans should also be taken into consideration, which will be finalised over the lifetime of the Plan – Forestry and Freshwater Pearl Mussel Plan (DAFM), National Planning Framework (DECLG), Regional Spatial and Economic Strategies. The *EPA Bathing Water Report for the Year 2015* (EPA, 2016) should also be considered.

Chapter 6 - Relevant Aspects of the Current State of the Environment (Baseline)

We welcome the inclusion of the section on *EPA Challenges and Relationship to the Plan*, which sets out how the relevant aspects of the Plan take into account the key environmental challenges identified in the EPA's 2012 State of the Environment Report. The EPA is currently preparing the next State of the Environment Report, which is due for completion in September 2016.

In terms of biodiversity aspects, we welcome the consideration of the need to protect designated sites, protected habitats and species, sites listed on the Water Framework Directive Register of Protected Areas (which include Shellfish Growing Areas, Freshwater Pearl Mussel waters and Salmonid waters). We also note that the control and management of invasive alien species is considered in the SEA ER.

It is worth considering combining the “*key issues*” summaries for each environmental criteria and checking against the relevant areas of the Plan. Including this as a specific section in the Plan, with supporting proposed mitigation and monitoring summary information would be beneficial. It could also be used to inform the preparation and implementation of the Standard Operating Procedures for wastewater sludge management activities, as relevant and appropriate.

In subsection 6.2.3.3 Population and Economic Forecasts – *Table 6.5 Estimated Wastewater Sludge Loads* (and similar tables) does not include South Dublin County Council. The Plan should clarify whether any wastewater infrastructure within the remit of Irish Water is present in South Dublin County Council or whether it is managed through other adjacent Local Authority wastewater infrastructure.

6.2.4 Food Production and Safety

We note the food quality related concerns relating to use of wastewater sludges in agricultural land spreading (which represents 98% of the outlet for these sludges). We also note in *Subsection 6.2.4.4*, that it is Irish Water Policy to treat all wastewater sludges prior to use in agriculture. With the potential for a reduced outlet of land spreading arising from increased demand for food quality standards favouring less land-spreading, we note that the Plan includes provisions to look at alternative treatment and disposal technologies. In this context, the potential environmental effects which may arise from using alternative treatment and disposal technologies should be considered prior to their implementation.

While we note the general consideration given to landscape issues, in *Subsection 6.2.10.3*, the SEA should consider describing the potential impacts on landscape which may arise in implementing the Plan. The proposed mitigation measures which take visual amenity / landscape character into account should also be considered. Where these aspects will be addressed via an environmental management plan for particular activities, this should be described.

Chapter 7 - EPOs and SEA Framework

Under the heading '*Population and Human Health*', there is merit in amending the wording of this objective to include reference to '*sludge management practices*'

Chapter 8 – Alternatives

The tiered approach taken in considering wastewater sludge management options, including the strategic alternatives and management alternatives is acknowledged. It provides a consistent and coordinated methodology to identifying and recommending the preferred options which should result in a more robust plan.

Chapter 9 - Assessment of Preferred Strategy

The Plan should include a commitment that ensures that temporary effects associated with implementing the Strategy are considered and mitigated for, in lower level plans/projects as appropriate. In addition, the SEA should consider describing the potential for cumulative effects in greater detail.

Where possible, the implications of climate change should be described in more detail. The SEA should consider describing how potential effects such as sea level rise, increased frequency of storms and heavy rainfall periods have been considered, in terms of implications for existing infrastructure, siting of new facilities and transport related aspects for example.

In *Section 9.2.1 Integration of SEA and AA with the draft NWSMP*, including a summary of the key potential significant effects and how the Plan provides for their protection would be useful. The influence of the SEA ER in the preparation of the Plan actions would be a useful method of describing this.

In *Section 9.3.2*, we note the challenges/findings of the audit carried out, relating to *a)* possible over application of P with thermally dried wastewater sludges on soils and over applying P with lime stabilised wastewater sludges on ‘P3 soil’ and *b)* differences between the Code Of Good Practice and National Regulations. The Plan should consider what it is intending to do to address these aspects, as appropriate.

In the subsection on *Compliance of Contractors with Irish Water Contract Requirements*, the audit findings are also noted. It would again be useful to describe how these will be addressed in implementing the Plan.

Section 9.4 – Assessment of Policy Actions describes the actions included in the Plan. These cover the areas of *Policy, Administrative, Infrastructure Planning, Research and Protection of Human Health and the Environment*. The Plan could strengthen Administrative Action 3 and Protection Action 5 by amending the text of each action to refer to “*suitably qualified contractor*” instead of “*contractor*”.

In relation to the Research and Review Actions, where possible, the inclusion of a proposed timeframe to achieve these aims would be beneficial, where possible. Including an additional research action for assessing the potential for cumulative environmental affects and transboundary considerations in relation to wastewater sludge management activities would also be useful.

While we welcome the inclusion of Infrastructure Planning Actions committing to requiring AA screening be carried out, as appropriate, it is also useful to consider a similar commitment relating to EIA and FRA.

Chapter 10- Mitigation and Monitoring

We note that the mitigation measures proposed in *Section 10.2 Mitigation Measures* comprise alternatives assessments and also include specific actions in the Plan. We acknowledge the additional criteria required to be considered in relation to siting of new or upgraded wastewater facilities, where issues like protection/provision of buffer zones, flood risk management, protection of river habitats and water quality, transport, invasive species management etc. need to be taken into account. Including these as a series of commitments in the Plan would also be beneficial.

The Plan should consider including a commitment to establishing environmental management plan(s) for proposed additional wastewater related infrastructure (or upgrades to existing facilities), where potential exists to significantly impact negatively on environmental vulnerabilities/sensitivities.

In *Section 10.3 – Monitoring*, we note the monitoring programme for the Plan. We also acknowledge that reporting on monitoring for the Plan will be aligned as far as possible with the Water Services Strategic Plan. Where possible, it would however, be useful to describe which section within Irish Water would be responsible for monitoring the relevant environmental criteria.

We also recommend linking, where possible, the Plan-monitoring and reporting and SEA related monitoring aspects, to protect and coordinate monitoring of environmental receptors in implementing the Plan.