

A STRATEGIC APPROACH TO RISK BASED REGULATION BY THE EPA, IRELAND

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1. SUMMARY

Ireland faces difficult challenges in meeting many of its environmental protection obligations under European legislation in the face of the reduced resources available. Since the establishment in 1992 of the Environmental Protection Agency (EPA) in Ireland¹, the functions assigned to the Agency have grown dramatically. This paper sets out the strategic approach of the EPA to implementing environmental regulations in a credible and transparent fashion and in particular describes how environmental outcomes were achieved by balancing the use of risk based approaches, better regulation and the increased use of sophisticated Geographical Information Systems.

2. ROLE OF THE ENVIRONMENTAL PROTECTION AGENCY, IRELAND

Since 1992, the Environmental Protection Agency in Ireland has been dedicated to the protection and improvement of the environment as a valuable asset for the people of Ireland. It does this by:

- implementing effective regulation and environmental compliance;
- Providing high quality, targeted and timely environmental data to inform decision making;
- Working with others to advocate for a clean, productive and well protected environment.

Specific functions laid down by the EPA Act 1992 included:

- a) Licensing of all significant industrial activities;
- b) Control of activities engaged in the use of genetically modified organisms;
- c) Preparation of national reports on drinking water quality, urban wastewater treatment and landfill management;
- d) Operation of a national air and water monitoring programmes; and
- e) Overseeing the performance of statutory environmental protection functions by local authorities and environmental monitoring activities of public authorities.

However, a wide range of additional functions have been assigned to the EPA, through *inter alia*, the Waste Management Act, 1996¹, the Protection of the Environment Act, 2003², various

¹ S.I. No. 10/1996: WASTE MANAGEMENT ACT, 1996

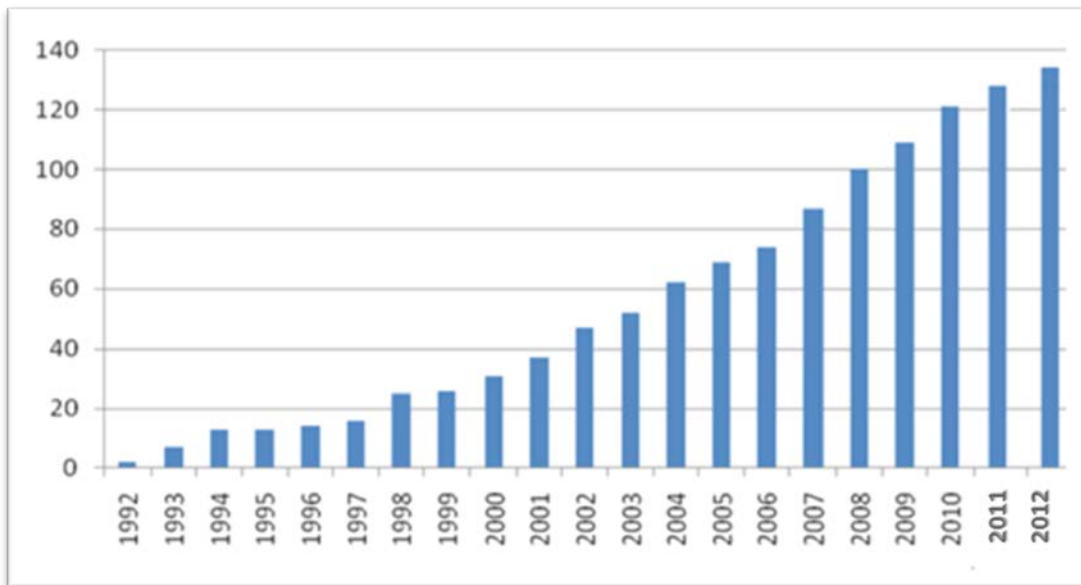
² S.I. No. 27 of 2003 PROTECTION OF THE ENVIRONMENT ACT 2003

national regulations and by the designation of the EPA as the “Competent Authority” (CA) for a series of EU environmental directives. These include the following roles and responsibilities:

- a) Licensing and enforcement of all significant waste disposal and recovery operations (1996);
- b) Licensing and enforcement of all urban waste water discharges by local authorities (2007);
- c) Supervision of the provision of drinking water by public authorities(2007);
- d) CA for Emissions Trading Scheme for greenhouse gases;
- e) Supervision of producer responsibility initiatives for solvents (2002), waste from electrical and electronic equipment (2006), restriction of hazardous substances (2006), the control of decorative paints (2007) and batteries (2008);

This Growth in Regulatory Functions is presented in Figure 1.

Figure 1: statutory functions assigned to the EPA



3. THE CHALLENGE FACING REGULATORS

The Challenge that regulators face on a day to day basis in Ireland and elsewhere was articulated by the National Audit Office in the UK² when it stated that regulators must:

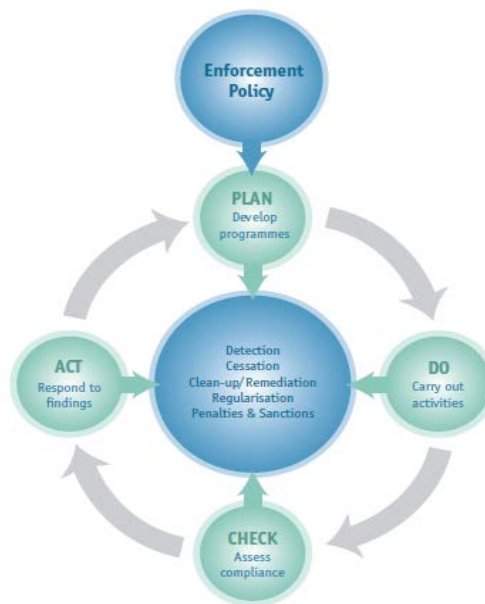
- Deliver the objectives and **outcomes** set down in statute,
- Develop a comprehensive **risk assessment** system which can deal with a **wider range of risks** both high level and facility specific so as to inform judgements about **the application of resources** to different areas of risk, and

- Understand the **effectiveness** of their activities – to strike the right balance between enforcement activity and other means of achieving compliance.

This is certainly different from the traditional approach to enforcement, depicted in Figure 2 where the focus of activities was on the following actions:

- The detection and cessation of illegal activities,
- The remediation of contamination,
- The regularisation of unpermitted facilities, and
- The application of penalties and sanction.

Figure 2 Traditional Approach to Enforcement



4. DEVELOPMENT OF REGULATORY STRATEGY IN THE EPA

In developing its strategic approach to regulation, the EPA sought to include a combination of regulatory tools to maximise compliance with environmental legislation and deliver outcomes for the environment. This approach is in line with the principles of “Better Regulation”, which are a key focus of environmental agencies across the EU particularly since the publication of the 2005 report, *Reducing administrative burdens: effective inspection and enforcement*, by Peter Hampton.³ The tools aim to put the environment first and encourage individuals and businesses to integrate good environmental practices into normal working methods by seeking to prevent environmental pollution before it has a chance to occur.

The types of activities that deliver intermediate outcomes for the Environment are set out in the following table:

Table 1 Regulatory Tools

Influencing Industry	Advice and Guidance	Regulatory Design	Inspections	Sanctions
Working With Industry Representatives	Written Guidance	Innovative legislation and Licensing	Risk Based Inspection	Prosecution Policy
Sectoral Enforcement Plans	Ad. Campaigns	Performance Based Charging	Outcome Driven Approaches	Administrative, Civil And Criminal Sanctions

The remainder of this paper examines how risk based regulation delivers environmental outcomes in regulating:
Industrial Facilities, Wastewater treatment facilities and On site wastewater treatment systems

5. INDUSTRIAL FACILITIES

Large industry in Ireland is regulated by the *Integrated Pollution and Prevention Control Directive* (IPPC), a European Union Directive that aims to:

- **Improve the standard** of environmental protection within the whole of the EU,
- "Achieve **integrated** prevention and control of pollution"
- "**Prevent or... reduce emissions** in the air, land and water," and
- "Achieve a high level of **protection of the environment** taken as a whole." ⁴,

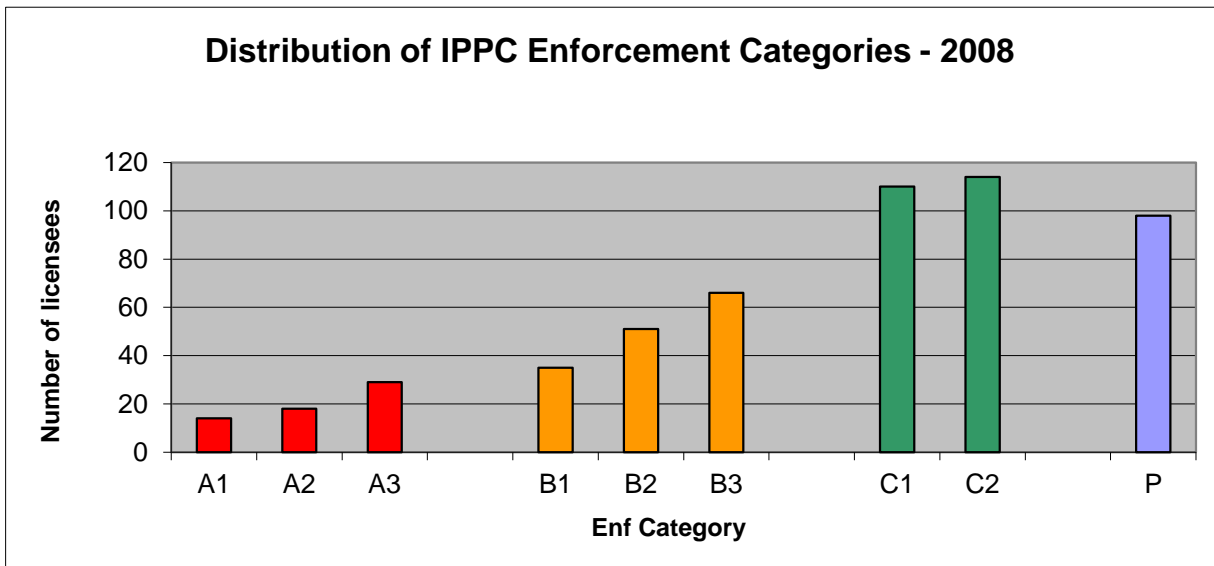
The *Environmental Protection Agency Act*⁵ enacted in 1992 allowed for the licensing of industry by the EPA and to date 1005⁶ applications have been processed. There was a wide range of sectors and industries to be licensed and enforced. The sectors included intensive pig and poultry production units, up to complex pharmaceutical facilities and everything in between. As the regulator, the EPA develop an effective system of environmental regulation that focuses resources on the areas where the risks are highest, that is consistent, tangible and that provides a transparent rationale for the level of enforcement that can be communicated to a wider community. Developing a risk based approach to licence enforcement made sense as it provided such a system.

The EPA commenced the development of a methodology for assessing the environmental risk of waste and IPPC licensed facilities in 2005. The methodology was compiled based on international best practices, in particular practices in England, Scotland, Norway and the Netherlands. It comprises five key attributions, namely:

- The complexity of activities based on the IPPC category,
- The location based on the proximity to sensitive receptors such as rivers,
- The emissions based on the Pollution Release and Transfer Register (PRTR),
- The environmental performance based on environmental management system in place, and
- The compliance history, based on prosecutions taken or enforcement notices served.

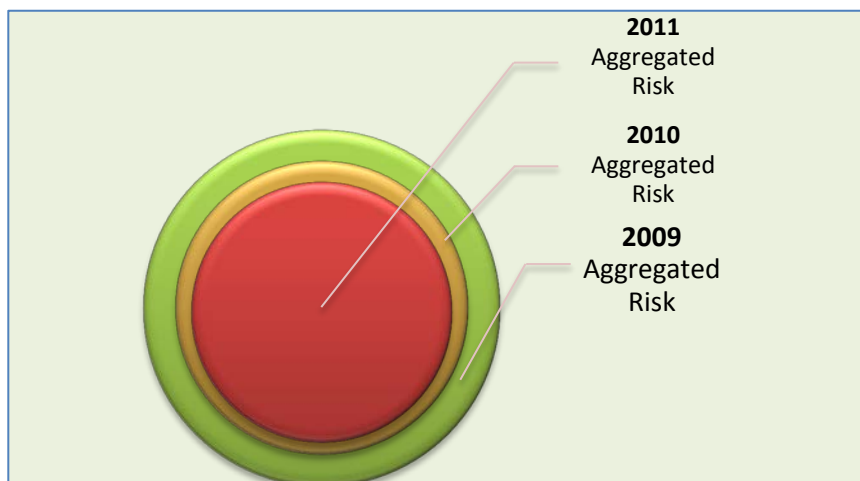
For each facility, an assessment is conducted of each of the attributes and a score is obtained. In the case of the emissions attribute, there are separate assessments for emissions to air, water, sewer and waste management. Depending on the assessment score obtained, the attribute is classified as a high, medium or low risk. The risk assessment is conducted on an annual basis for all licensed facilities. The EPA uses the overall risk classification to allocate resources for the annual inspection programme and other enforcement activities. The annual enforcement levy is also based on the risk classification⁷. Figure 3 shows the distribution of risk class across all the IPPC licensed sites for the 2008 period.

Figure 3 Distribution of Risk Class in IPPC Licensed Sites in 2008



Since the implementation of this risk based approach to enforcement, the OEE has seen the intermediate outcome of a reduced aggregated risk across the IPPC activities it regulates. There was a net reduction in overall aggregated enforcement risk amongst IPPC facilities of approximately 5% between 2009 and 2011 (See Figure 4).

Figure 4 Reduction in Aggregated Enforcement Risk 2009-2011



6. URBAN WASTEWATER TREATMENT

In March 2007, the EPA was given new regulatory powers⁸ to licence approximately 1,000 urban wastewater treatment facilities operated by Local Authorities. The primary purpose of the regulation is to prevent and reduce the pollution of waters by waste water discharges. The regulations give effect to the *EU Dangerous Substances Directive*⁹, which specifies emission standards for discharges of dangerous substances and requires them to be subjected to licensing. The licensing authorisation process was introduced in phases commencing in December 2007. To deal with this challenge, the EPA has developed a Dynamic Risk Enforcement Assessment Methodology (DREAM) to harness the significant environmental data at its disposal to determine, in a dynamic way, how the environment is receptive to the changes in performance of a waste water treatment system. The risk based approach involves the development of a decision making tool to prioritise waste water discharge agglomerations and allocate resources with a view to improve compliance and water quality.

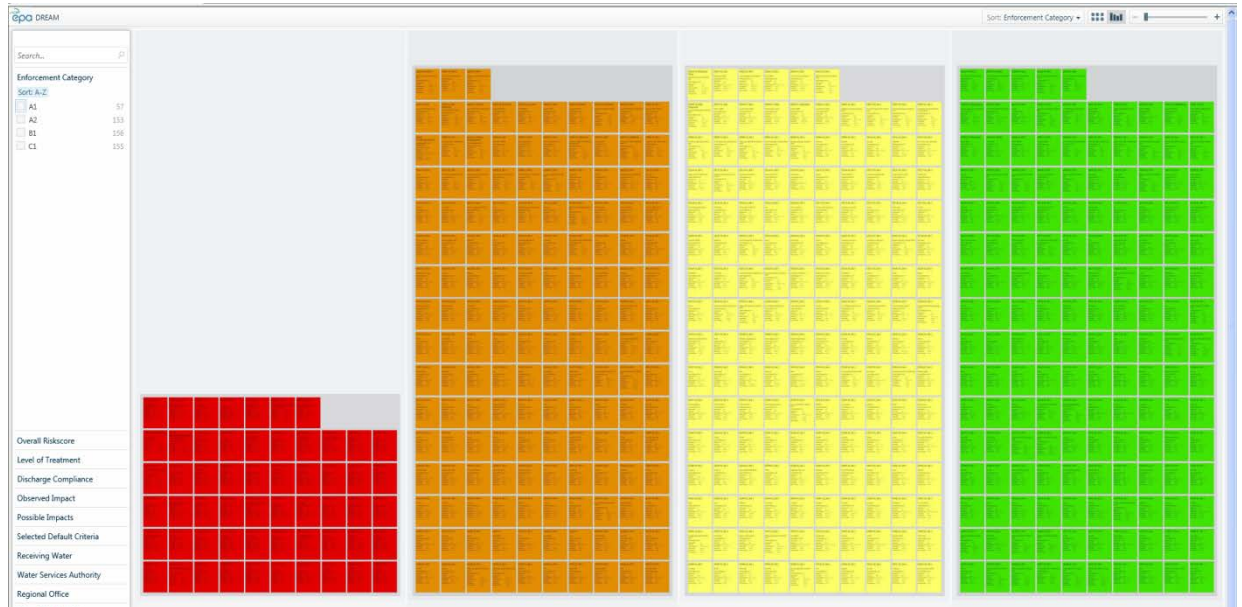
Similar to the methodology developed for industrial facilities, DREAM allocates risk classification to waste water agglomerations on the basis of five environmental attributes:

1. Level of Treatment (Complexity).
2. Observed Impacts.
3. Possible Impact (Location).
4. Discharge Compliance (Emissions).
5. Enforcement Record.

The rationale for developing this risk based approach to enforcement was to focus on discharges that were having an observed or possible impact on the environment. The observed impact attribute is determined from live and up-to-date field data on environmental quality collected by EPA staff and captured on EPA databases. Consequently, regular changes and updates in environmental data automatically update the risk category, i.e. it is dynamic. The inclusion of observed impacts attribute in DREAM provides a mechanism for tracking intermediate outcomes in the receiving water environment. For example, changes in the ecological status of the receiving water, measured as water quality (Q) values for rivers and bathing water quality values, will be tracked with consequent changes to the enforcement category recorded as an intermediate outcome.

The possible Impact attribute reflects the risk associated with the distance to sensitive receptors such as beaches or drinking water supplies. A screen shot of the resulting assessment is given in Figure 6. There are 4 bands of risk with Red signifying the highest Risk and Green signifying the lowest risk. Each square when clicked will expand to show all the data that makes up the risk score for the facility including ortho-photography for the site and ordinance survey mapping.

Figure 6: Screen Shot of DREAM



7. RESEARCH ON REGULATING LOWER RISK SITES

As the EPA devoted more of its resources to regulating the highest risk activities under its remit, it also sought to respond to the growing concern that as regulators channel their resources to those issues which pose the greatest risk, lower risk sites will receive less and less attention potentially leading to problems that go undetected or gradually deteriorate over time. This led in 2011 to the commissioning of research funded by the EPA that resulted in the ‘Good Practice Framework for lower-risk sites’ (SNIFFER, 2011)¹⁰. This research was completed by Professor Baldwin and Professor Black of the, Centre for analysis of Risk and Regulation, Law Department, London School of Economics and Political Science. Prior to this study Black (2008) and others (OECD, 2010) have argued that risk-based frameworks are increasingly becoming a necessary attribute of better regulation and that “in their narrowest form, risk based frameworks are used to allocate inspections resources”. But there was an increasing recognition that risk based frameworks can structure choices across a range of intervention activities, including education and advice. The Good Practice Framework for lower-risk sites sought to capture this range of intervention activities including inspections.

8. ON-SITE WASTEWATER TREATMENT SYSTEMS

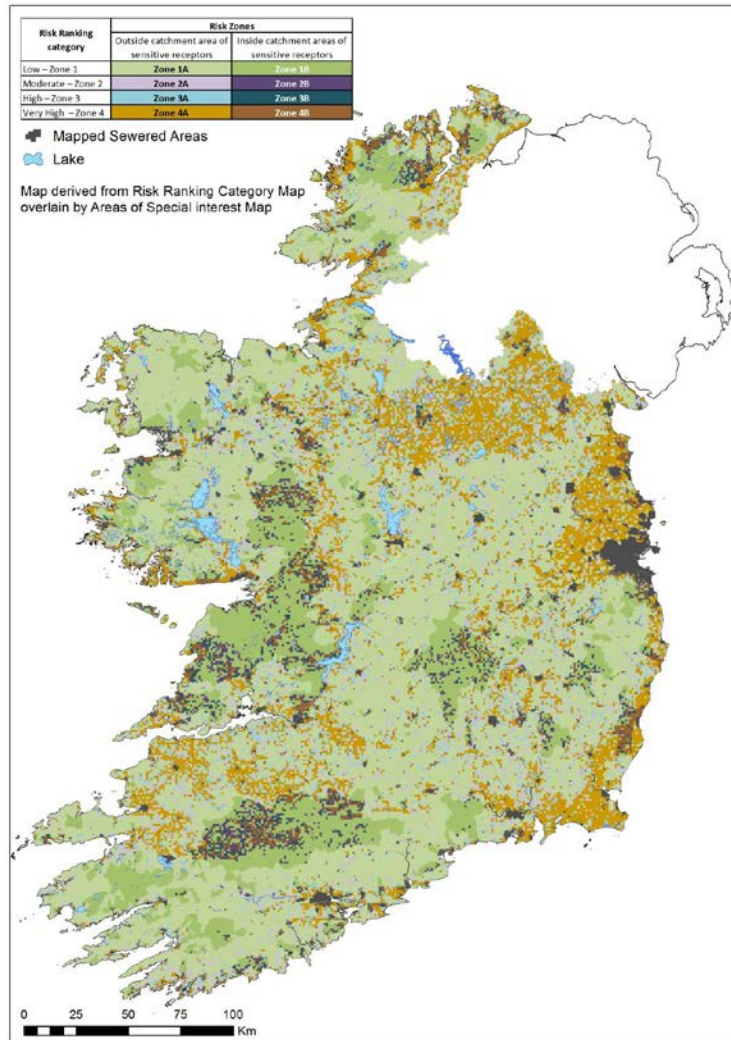
In assessing the appropriate regulatory system for the regulation of on-site wastewater treatment systems, which was the subject of an adverse ruling by the European Court of Justice against Ireland¹¹, the EPA turned to the Research by Baldwin and Black commissioned by the EPA. The Good Regulatory Intervention Design (GRID) developed by Baldwin and Black depends on two factors a) the characteristics of the parties to be regulated and b) the kinds of low-risk sites or activities at issue. The characteristics of the Parties to be regulated are defined based on their Motivation (low/high) and their Capacity to comply (low/high). The kinds of the lower risk

site/activity at issue are categorised depending on the inherent low risk, the net low risk (i.e. Risk is managed well) and the stability of the risk (i.e. Will the risk change over time).

On-site wastewater treatment systems are considered low risk as compared to agricultural sources and discharges from urban wastewater treatment systems and the EPA modified the approach described in the Good Regulatory Intervention Design (GRID) framework to focus on the inherent risk of a domestic waste water treatment system related to its environmental setting(see Figure 7). In this case the potential intervention strategies are selected on the basis of two factors:

1. the characteristics of the parties to be regulated (registered/not registered)
2. the sensitivity of the location.

Figure 7: Risk ranking map combined with Areas of Special Interest Map giving eight risk zones



The regulatory interventions defined using this methodology formed the basis of the National Implementation Plan and were divided into three categories:

1. Screening and rule-based strategies
2. Inspection / monitoring programmes
3. Engagement and incentive strategies

The plan was published¹² and presented to the Commission and on February 19th, 2013 the EU commission issued a press statement¹³ in closing out the daily fines of €12,000 per day imposed against Ireland for non-compliance with the Waste Framework Directive that included the following text:

“The Commission welcomes the adoption of the National Inspection Plan by the EPA earlier this year. These measures relate to rulings by the European Court of Justice that Ireland was in breach of EU waste legislation in relation to septic tanks and imposing fines. The Commission notes that the recent measures will mean Ireland meets the requirements of the Court of Justice judgments and the fines will stop.

The number of septic tanks (close to 500 000 households) in Ireland may cause significant harm to the environment and put human health at risk by polluting surface waters, groundwater and drinking water sources. The Commission trusts that the new system as established by the 2012 legislation and the National Inspection Plan will allow the risk to be properly addressed.”

8. CONCLUSIONS

Ireland faces difficult challenges in meeting many of its environmental protection obligations under European legislation in the face of reduced resources available to regulators. It must avoid the major financial penalties that may be imposed by the European Court of Justice for non-compliance with European law. There are challenging commitments in the following areas:

- Preventing deterioration of water quality, under the *Water Framework Directive*,
- Ensuring that drinking water is clean and wholesome and that it achieves a high standard of quality, and
- Ensuring that municipal waste water is treated and disposed of in accordance with National and European legislation and that it does not lead to water pollution.

These regulatory requirements will continue to be a significant driver in the delivery of positive environmental outcomes. However, the use of risk based approaches to enforcement, better regulation and a drive for positive intermediate outcomes for the environment will be important tools to achieve the final environmental outcomes desired in a transparent manner.

9. REFERENCES

¹ The EPA website is available at www.epa.ie.

² UK National Audit Office, *Regulatory quality: How regulators are implementing the Hampton Vision*, (2008), available at http://www.nao.org.uk/publications/0708/hampton_regulatory_quality.aspx.

³ Hampton, P., *Reducing administrative burdens: Effective Inspection and Enforcement*, (March 2005), available at <http://www.hm-treasury.gov.uk/d/bud05hamptonv1.pdf>.

⁴ Council Directive 96/61/EC of 24 September 1996 concerning integrated pollution prevention and control 1996 **OJ** (L 257/26)

⁵ The Environmental Protection Agency Act, (1992), available at <http://www.epa.ie/downloads/legislation/licensing/name,14037,en.html>.

⁶ As of November 2010.

⁷ Ireland Environmental Protection Agency, *The Environmental Protection Agency Licensing and Enforcement Charging Policy*, (2011), available at <http://www.epa.ie/downloads/pubs/enforcement/name,30673,en.html>

⁸ Irish Government S.I. No. 684 of 2007 Waste Water Discharge (Authorisation) Regulations 2007 (Iris Oifigiúil 9th October, 2007)

⁹ [Directive 2006/11/EC of the European Parliament and of the Council of 15 February 2006 on pollution caused by certain dangerous substances discharged into the aquatic environment of the community.](#)
2006 O.J. (L64/52)

¹⁰ http://www.sniffer.org.uk/files/3613/4183/7993/ER13_Project_report_Oct11.pdf

¹¹ Case C-188/08 Commission Vs Ireland

¹² <http://www.epa.ie/newsandevents/news/previous/2013/february/name,51290,en.html>

¹³ http://ec.europa.eu/ireland/press_office/media_centre/feb2013_en.htm#17