

This report has been cleared for
 submission to the Director by the
 Programme Manager Frank Clinton
 Signed A. Colver Date 8/3/12



**OFFICE OF CLIMATE, LICENSING
& RESOURCE USE**

INSPECTORS REPORT ON A LICENCE APPLICATION

To:	Directors	
From:	Ewa Babiarczyk and Michael Owens	- Licensing Unit
Date:	7 TH MARCH 2012	
RE:	REVIEW OF AN IPPC LICENCE – IRISH CEMENT LIMITED, LICENCE REGISTER P0029-03	

Application Details

Licensee:	Irish Cement Limited
Location of Installation:	Castlemungret, County Limerick
Class of activity:	10.1 The production of cement 11.1 The recovery or disposal of waste in a facility, within the meaning of the Waste Management Act, 1996, which facility is connected or associated with another activity specified in this Schedule in respect of which a licence or revised licence under Part IV is in force or in respect of which a licence under the said Part is or will be required
Category of Activity under IPPC Directive (2008/1/EC)	3.1; inert landfills are not included as categories of industrial activities referred to in Article 1 of the IPPC Directive
Section 87(1)b notice sent:	30/06/2011
Review form received:	12/09/2011
Notices under Article 90(7) issued:	21/12/2011
Information under Article 90(7) received:	1/2/2012
Supplementary material submitted by applicant:	28/10/2011 (Letter re review fee)
Submissions received:	Two submissions rec'd on 4/11/2011

1.0 Reason for Licence Review

On 30th June 2011, the Environmental Protection Agency initiated a review of the IPPC licence held by Irish Cement Limited for the installation located at Castlemungret, County Limerick, IPPC licence register number P0029-02. The review was initiated by writing to the licensee and placing a newspaper notice in the Irish Independent. The reasons for initiating the review are in light of the following:

Requirements under the following Regulations:

- (1) The European Communities Environmental Objectives (Surface Waters) Regulations 2009
- (2) The European Communities Environmental Objectives (Groundwater) Regulations 2010
- (3) The Waste Management (Management of Waste from the Extractive Industries) Regulations 2009

The installation was granted a licence by the Agency on 15/05/1996 and a revised licence on 28/04/2009. A request for a technical amendment was received on 22/01/2010. This request has been addressed as part of this review and its details are outlined in *Section 4.0: Updating the exiting licence* of this report.

2.0 Emissions to Surface Waters

The process effluent from the installation discharges to the Bunlicky Clayfield Pond (Bunicky Pond) via surface water emission points SW1 and SW2. The Bunlicky Pond is included within the site boundary and acts as the installation's inert landfill (see Figure 1). The pond is not designated as a waterbody for the purposes of the Water Framework Directive. The pond discharges to the adjacent Limerick Dock (IE_SH_060_0900) - River Shannon. The review form states that the surface waters and drainage from other sources not owned or controlled by the licensee also drain to the pond, including nearby farmlands, buildings and road networks.

The pond is underlined with alluvial sediments consisting of clay and peat between 3 and 5 m in thickness. This material forms a natural geological barrier with permeability in the order of the 1×10^{-9} m/s, which meets the requirements of the Council Directive 1999/31/EC of 26 April 1999 on the landfill of waste for inert landfills. The licence conditions requiring compliance with the said Directive have been applied in the existing licence Reg. No. P0029-02. The Bunlicky Pond is divided into two parts by the Limerick Southern Ring Road, however the pond remains hydraulically linked across the road by culvert. The water level in the pond is controlled by a sluice gate, which prevents flood water from the Shannon River entering the pond during high tides. The water level is maintained at 0mOD by a spillway. Consequently, even at low tide, there may be no water flow from the pond to the Limerick Dock waterbody.

Surface water runoff from the factory site and plant process cooling water is discharged to Bunlicky Pond via SW1. Firewater will run into the Bunlicky Pond in case of a fire on site. Excess outflow from the sump pump in the limestone quarry is pumped to Bunlicky Pond via SW2. The review form states that there has been a change in operating procedures whereby quarry water is used as cooling water in the plant. Therefore, there is less water pumped to SW2.

The results of the final effluent monitoring conducted in 2010 and 2011, submitted as part of the review form, show that out of the 19 monitoring events in total for SW1 the maximum levels for Temperature, BOD and Mineral oil were recorded at 11.4°C, 8 mg/l and 0.1 mg/l respectively, and pH was within the range of 6.6 and 8.9. The monitoring results also show that, out of 12 monitoring events for SW2, the maximum levels for BOD, Suspended Solids and Mineral oil were recorded at 4 mg/l, 21 mg/l and 0.1 mg/l respectively, and pH was within the range of 6.9 and 8.2. Summarising, the monitoring results indicate that the process effluent emissions are in compliance with their existing licence limits.

The current licence does not set out emission limit values for parameters which classify as priority substances in the European Communities Environmental Objectives (Surface Waters) Regulations 2009.

For the purposes of the assessment of the impact of the installation's discharges on the Limerick Dock waterbody, the outlet from the Bunlicky Pond to this waterbody has been assigned as emission point reference number SW3. The existing licence requires this discharge point to be monitored but does not specify any emission limit values.

At the time of processing of the existing licence application there were four operational septic tanks on site. In a response to the audit in 2009, Irish Cement stated that all sewage including minor quantities of septic tank sludge at the plant is diverted to a public sewer serving the Limerick Waste Water Treatment plant adjacent to the Limerick Cement Works.

2.1. Receiving waters and impact

The following table summarises the main considerations in relation to the Limerick Dock waterbody downstream of the process effluent discharges.

Table 1.0 Receiving waters

Characteristic	Information	Comment
Receiving water name and code	Limerick Dock waterbody (IE_SH_060_0900)	Transitional water. Flows into Upper Shannon Estuary (IE_SH_060_0800).
Trophic status	Unpolluted (2007-2009)	
WFD Status	Good (2011)	
WFD Risk	1a – at risk (2008)	Objective is to protect.
WFD Protected Areas	Lower River Shannon SAC (002165) River Shannon and River Fergus Estuaries SPA (004077)	Water depended habitat site. The Bunlicky Pond discharges directly into this SAC. Covers a significant portion of the Bunlicky Pond.
WMU Action plan	Shannon RBD Transitional and Coastal Waters Action Programme Maigne Water Management Unit Action Plan	The Limerick Dock waterbody identified in 2008 as 'at risk' or 'probably at risk' from combined sewer overflows and treatment plant overflows. Installation identified as a point pressure but not causing a risk to the receiving waterbody.

Table 2.0 considers the contribution from the discharges having regard to the water quality standards.

Even though the Limerick Dock waterbody is a transitional water, having regard to the fact that that Bunlicky Pond only discharges during ebb tide, the figures in Table 2.0 are based on the mass balance calculation formula for rivers. Accordingly, the calculations take into account the following:

- the combined maximum volume of emissions from SW1 and SW2 (0.35 m³/s);
- mean background concentrations of Biological Oxygen Demand (BOD) measured at EPA Station No. Station No. 25S012600 approximately 8 km upstream of the installation;
- the 95%ile flow rate in the Shannon River measured at the Parteen Weir hydrometric station No. 25075 approximately 26 km upstream of the installation (10 m³/s); and,
- the proposed emission limit values (ELVs) for BOD.

Table 2.0: Mass Balance for SW3

Parameter	Background Concentration (mg/l) ^{Note 1}	Proposed ELVs (mg/l)	Contribution from the discharge ^{Note 2} (mg/l)	Predicted downstream concentration (mg/l)	95%ile standard (mg/l) ^{Note 3}
BOD	1.3	10	0.3	1.6	≤2.6

Note 1: Agency's report 'Water Quality in Ireland 2007 – 2009'.

Note 2: Based on proposed ELVs.

Note 3: Good status for river waterbodies as prescribed in the European Communities Environmental Objectives (Surface Waters) Regulations 2009.

The calculations in Table 2.0 show that predicted downstream concentration of BOD in a discharge from SW3 is within the relevant standard for this parameter as prescribed in the European Communities Environmental Objectives (Surface Waters) Regulations 2009. The calculation results indicate that the combined impact of the discharges from the installation in respect of BOD will have a negligible effect on the water quality in the Limerick Dock waterbody. The monitoring results from the pond's outlet show that out of the five monitoring events the maximum concentration of BOD was 5 mg/l. The monitoring results indicate that the proposed ELV for BOD of 10 mg/l can be met at SW3.

It is noted that a submission from the Department of Arts, Heritage and the Gaeltacht (for more details see *Section 7.0: Submissions* of this IR) raised the issue of Suspended Solids and the lack of an ELV for this parameter in the discharge from SW1. The monitoring results submitted in the review form show that the concentrations of Suspended Solids in discharges from SW1 can be very high. The results show that even though, out of the nineteen results provided the average concentration is 23 mg/l, the highest concentration recorded is at 213 mg/l. However, SW1 discharges to Bunlicky pond which acts a settlement pond and water quality monitoring results from the pond's outlet (SW3) show that out of the five monitoring events, which took place in 2009, 2010 and 2011, the maximum concentration of Suspended solids was less than 10 mg/l.

Even though the said monitoring results show that the concentration of Suspended Solids in the discharge from SW3 can be as low as 10 mg/l, the five monitoring results are considered to be an insufficient number of samples to set an ELV for this parameter at 10 mg/l.

Therefore, in accordance with Best Available Techniques (BAT) Guidance Note for the Cement Sector *Schedule B.2: Emissions to Water* of the RD sets emission limit value for Suspended Solids in the discharge from the Bunlicky Pond to the Limerick Dock waterbody at 35 mg/l. At this limit there shall be no significant pollution in the receiving transitional water.

The ELVs imposed in *Schedule B.2* together with the monitoring requirements listed in *Schedule C.2.2: Monitoring of Emissions to Water* will help to protect the water quality in the Limerick Dock waterbody.

There is no parameter specified in the European Communities Environmental Objectives (Surface Waters) Regulations 2009 that is associated with Mineral Oil. Therefore, no change to the existing ELVs of this parameter is proposed as part of this review.

Specific pollutants and Priority substances

This installation carries out cement production and quarry activity and therefore priority substances are not a characteristic of emissions to water.

2.2 Specific Standards or Objectives for Protected Areas

In considering the application regard was had to the requirements of standards or objectives laid down for protected areas specifically the following:

Habitats and Species of European Sites directly dependant on water

The Limerick Dock waterbody is part of the Lower River Shannon SAC (002165). The Bunlicky Pond discharges directly into this SAC. The objectives for the SAC are to maintain or restore the favourable conservation condition of the Annex I habitats and Annex II species for which the SAC has been selected.

This review is for the purposes of assessing existing discharges in the context of new environmental quality standards and objectives and does not consider any further increase in the ELVs for emissions to waters. The Agency has examined the scope of the European Communities (Birds and Natural Habitats) Regulations 2011 and within the limited scope of this review, the Agency is satisfied that the discharge will not likely have a significant effect on the Lower River Shannon SAC. With respect to water quality, the ELVs in the Recommended Determination (RD) aim to protect and restore the water quality in the Limerick Dock waterbody, and hence, will contribute to the favourable conservation objectives for the area.

2.3 Emission controls and environmental quality standards

The ELVs specified in the RD have been established according to the combined approach whereby the stricter of the requirements which would result from the application of limits which aim to achieve the quality standards and the application of limits based on BAT.

The ELVs specified in the RD aim to achieve the environmental objectives and standards established in the European Communities Environmental Objectives (Surface Waters) Regulations 2009.

3.0 Emissions to Groundwater

The Bunlicky Pond is an inert landfill and is considered to represent a potential point source of pollutant input to groundwater. The Bunlicky pond is clay-lined which limits connectivity between pond water and groundwater.

Condition 6.13 requires carrying out a risk screening and where necessary a technical assessment in accordance with the Agency Guidance on the Authorisation of Discharges to Groundwater. *Condition 6.13* also requires a report on the outcome of the screening and where relevant the recommendations of the technical assessment in relation to the setting of groundwater compliance points and values. *Condition 6.9* requires testing and demonstration of integrity and water tightness of all underground pipes, tanks, bunding structures and containers and their resistance to penetration by water or other materials carried or stored therein. Furthermore, *Schedule C.6: Ambient Monitoring - Groundwater Monitoring* of the RD requires monitoring of the quarry groundwater extraction well and at least one groundwater monitoring well in the inflow region and two groundwater monitoring wells in the outflow region to the landfill.

Also, the on-site septic tanks addressed in Section 2.0 of this IR are considered as potential point sources of pollutant input to groundwater. *Condition 3.12* requires that the sanitary effluent not discharging to the Local Authority sewer shall be treated in a waste water treatment system and refers to the relevant Code of Practice any waste water treatment system and percolation area for the treatment of sanitary effluent shall be compliant with.

Overall, the requirements specified in the RD aim to achieve the environmental objectives and standards set out in the European Communities Environmental Objectives (Ground Water) Regulations 2010.

4.0 Updating the existing licence

The RD has transposed all relevant existing licence conditions from licence Reg. No. P0029-02 into the Agency's current licence format. Consequently the RD specifies amendments and additional requirements.

Table 3.0 summarises the amendments made to the existing licence as a result of the following;

- Requirements specified in the existing licence having been achieved;
- Statutory and format updates of conditions;
- The European Communities Environmental Objectives (Surface Waters) Regulations 2009;
- The European Communities Environmental Objectives (Groundwater) Regulations 2010;
- Extractive Waste regulations (S.I. 566 of 2009); and,
- A request for a Technical Amendment to the existing licence.

The following existing conditions have been completed and, as recommended by the Office of Environmental Enforcement (OEE), have been removed from the existing licence:

- *Condition 3.6.3* – Requirement for a risk assessment to determine the necessity for a facility for the secure containment of storm water in the event of contamination;

- *Condition 6.1* – Requirement for a test programme for emission abatement equipment; and,
- *Condition 6.14.1* – Requirement for groundwater monitoring trigger levels (the agreed trigger levels are included in the RD).

Also, the timeframe requirements that are no longer relevant have been removed from the following schedules:

- *Schedule B.1: Emissions to Air* – Table for emission point A2-01
- *Schedule B.1* – Table for emission point A2-02
- *Schedule B.1* – Table for emission points A2-03, A2-04, A2-05, A2-06 and A2-07
- *Schedule C.1.2* – Table for emission point A2-02
- *Schedule C.6: Ambient Monitoring - Air Monitoring*

Toxicity has been moved from the lists of parameters with set ELVs for emission points SW1 and SW2 to the list of the limited parameters for emission point SW3 in *Schedule B.2: Emissions to Water*.

The following amendments have been made to the existing terms in the Glossary: Biannually, BOD, HFO, Incident, List I, List II and Quarterly.

The following definitions have been added to the Glossary as a result of the new or amended conditions and schedules (see Table 3.0 below).

- Compliance Point and Compliance Value
- Extractive Waste
- Shut-down and Start-up
- Waste facility

Prior to initiation of this licence review, the licensee requested a technical amendment to *Condition 4.1.1* of the existing licence. That condition requires, in relation to continuous monitoring of stack emissions, that "no 30 minute mean value shall exceed twice the emission limit value."

Irish Cement Limited points out that during start-up and shutdown periods, NOx emissions from the cement kiln can exceed twice the emission limit value. The problem arose following reduction of the NOx emission limit value to 800 mg/m³ during the last licence review. It was not a problem with the old limit value of 1,800 mg/m³. The licensee states that the high NOx emissions are unavoidable and are a function of the need at start-up, for safety and operational reasons, to ramp up air, fuel and feed in a particular sequence and at particular rates. This ramping up of material feed results in unsteady state operation and exceedences in NOx. A document provided from the German cement industry umbrella group quotes German law that provides for and allows for these exceedences.

The licensee has proposed an amendment to *Condition 4.1.1(iii)* of the existing licence to add a clause that the limitation on the emission limit value excludes start-up and shutdown periods for NOx emissions. This amendment is proposed in *Condition 4.1.1(iii)* of the RD. New definitions for shutdown and startup of the cement kiln are required and these are proposed in the glossary in the RD. The OEE agree with the amendment as proposed.

Accordingly the following is recommended in the RD:

(i) Insertion of two new definitions in Glossary:

Shut-down Shut-down is that period of time during which the cement kiln is allowed to cool from operating temperature to a lower temperature.

Start-up Start-up is that period of time during which the cement kiln is heated to operating temperature from a lower temperature.

(ii) Amendment of *Condition 4.1.1(iii)* which currently reads:

"No 30 minute mean value shall exceed twice the emission limit value".

To read as:

"No 30 minute mean value shall exceed twice the emission limit value except during start-up and shutdown periods for NOx emissions".

Table 3.0: List of new or amended conditions proposed in the RD

Condition or Schedule No.	Reason for change	Description
Condition 3.14	Better management and control of the operation	Implementation of the asbestos removal and land remediation
Condition 8.10		Import and export of waste
Condition 8.11 ^{Note 1}		Extractive Waste Management Plan
Condition 8.12 ^{Note 1}		Excavation voids
Condition 8.13 ^{Note 1}		Overburden mound waste facility
Condition 12.2.4		Revision of the cost of closure, restoration and aftercare
Schedule A - Point (ii) ^{Note 1}		Deposition of extractive waste at the overburden mound
Schedule A.2.2		Remaining capacity - update
Schedule B.2 - Table for emission point SW3	Better protection of the receiving water	Emission limit values on the outlet from the Bunlicky Pond to the Limerick Dock waterbody
Condition 3.12.1	Better protection of groundwater	Requirement for treatment of the sanitary effluent that does not discharge to the Local Authority sewer
Condition 6.13 and the related point of Schedule D		Risk screening and technical assessment
Schedule B.8		Groundwater trigger levels
Condition 4.1.1(iii) ^{Note 2}	Better control and monitoring of emissions to atmosphere	Continuous monitoring of emissions to air
Condition 6.12.3		Maintenance of the monitoring programme for Minor Bag Filter emission points
Schedule C.1.1 - Table for emission points A2-01 and A2-02		Monitoring parameters relating to the Selective non-catalytic reduction (SNCR) system
Schedule C.1.2 - Table for emission points A2-03, A2-04, A2-05, A2-06 and A2-07		Requirement for monitoring Particulates at emission points - see a comment in the first paragraph below Table 3.0
Condition 6.14.2	Better control and monitoring of noise emissions	Maintenance of the noise mitigation and control programme

Note 1: Conditions/schedules inserted in order to reflect the requirements of the Waste Management (Management of Waste from the Extractive Industries) Regulations 2009.

Note 2: Condition inserted in order to reflect the request for Technical Amendment to the existing licence Reg. No. P0029-02.

It has been noted that the proposed new table with the monitoring requirements for Particulates at emission points A2-03, A2-04, A2-05, A2-06 and A2-07 in *Schedule C.1.2: Monitoring of Emissions to Air* had been originally included in the Proposed Determination for the existing licence Reg. No. P0029-02. The table was however omitted in error from the final licence at the Technical Committee stage. The RD includes the requirement for monitoring of Particulates from these emission points. However, the RD amends the original monitoring frequency from continuous and quarterly to annual as per recommendation from the OEE.

The last two tables of *Schedule C.1.2: Monitoring of Emissions to Air* of the existing licence for monitoring particulates at emission points A3-01 to A3-28, A3-30 to A3-36, A3-39 to A3-40, A3-42 to A3-51, A3-58 to A3-63 have been merged into one table which is now the last table of *Schedule C.1.2* of the RD and reflects the requirements of *Condition 6.12.3*.

5.0 Cross Office Liaison

Mr. John Doheny, Inspector of the Office of Environmental Enforcement (OEE) advised in relation to licensee's actions/documents which have been agreed/reviewed since the issue of the existing licence Reg. No. P0029-02.

Mr. Shane O'Boyle of the Aquatic Environment provided the chemical monitoring data for the receiving water.

Mr. Brian Meaney, Senior Inspector of the Environmental Licensing Programme (ELP), contributed to addressing the request for a Technical Amendment.

6.0 Extractive Waste regulations (S.I. 566 of 2009)

The Waste Management (Management of Waste from the Extractive Industries) Regulations (hereafter 'the regulations') came into force on the 31/12/09 thereby transposing Directive 2006/21/EC on the 'Management of Waste from the Extractive Industries' (known commonly as the 'Mine Waste Directive') into national legislation.

The regulations set out a range of requirements in relation to the management of certain wastes from the extractive industries (e.g. mines, quarries, peat extraction sites etc.). These wastes are known as 'extractive wastes' and can include materials such as overburden and waste rock. Activities at the site fall within the scope of the regulations. It is a requirement of the regulations that all licensed sites that are producing and/or managing extractive waste are in compliance with the requirements of the regulations by 01/05/12.

The licensee extracts limestone at a quarry within the licence boundary. Overburden is produced when quarrying moves into a new area and is disposed of in the form of a heap in a designated area of the site. This designated area is known on site as the overburden mound. The mound falls within the definition of a 'waste facility' as set out in the regulations. It has been determined that the waste facility is not a category A waste facility.

Some parts of the regulations do not apply to facilities for the management of unpolluted soils. It is however recognised that a 'heap'¹ of unpolluted soil can have an environmental impact in terms of environmental emissions and risk of collapse. In that context, the following are the principal requirements proposed for the revised licence on foot of the Extractive Waste Regulations:

¹ 'Heap' is defined in the Extractive Waste Regulations as an engineered facility for the deposit of solid waste on the surface.

- prepare an extractive waste management plan for the minimisation, treatment, recovery and disposal of extractive waste (*Condition 8.11*) to be reviewed at least once every five years;
- Controls in relation to the deposition of extractive waste in excavation voids (*Condition 8.12*);
- Controls in relation to operations at the overburden mound waste facility (*Condition 8.13*).

7.0 Submissions

Two submissions were received.

A. Submission received from Department of Arts, Heritage and the Gaeltacht (DAHG) on 4/11/2011.

The Department of Arts, Heritage and the Gaeltacht expresses its concerns that the licence will authorise discharges to the Lower River Shannon SAC (site code: 002165) and the River Shannon and River Fergus Estuaries SPA (site code: 004077). The submission states that the Agency must ensure that there is no potential impact on the designated sites as a result of the proposal and there is no potential for the lowering of water quality in the SAC or SPA. The Department states that the particular attention should be given to the following:

- (i) discharges to Bunlicky Pond and the Limerick Dock waterbody, particularly Suspended Solids and the lack of ELV for this parameter for the emission point SW1.

Comment: The issue of Suspended Solids being emitted from emission point SW1 was dealt with in Section 2.1 of this IR. The Bunlicky Pond is considered a landfill and acts as a large settlement pond for the discharged Suspended Solids. Having regard to the distance from SW1 and SW2 to the outlet from the Bunlicky Pond to the Limerick Dock waterbody (SW3), the available dilution in the pond for the discharged parameters, and the good waterbody status of the Limerick Dock waterbody it is considered that the discharges from the installation have a negligible effect on water quality in the Limerick Dock waterbody and Lower River Shannon SAC (site code: 002165), and the River Shannon and River Fergus Estuaries SPA (site code: 004077). *Schedule B.2: Emissions to Water* includes an ELV for suspended solids for the outfall from the Bunlicky Pond and *Schedule C.2.2: Monitoring of Emissions to Water* requires monitoring of this outfall (SW3).

- (ii) ensure that the monitoring is adequate to detect any potential water quality issues.

Comment: The ELVs imposed in *Schedule B.2: Emissions to Water* together with the monitoring requirements listed in *Schedule C.2.2: Monitoring of Emissions to Water* are considered adequate in order to detect and prevent any water quality issues associated with the discharges from the installation.

- (iii) The Department also states that as the discharge is to the designated Natura 2000 sites, an Appropriate Assessment screening of the proposed licence to discharge and the potential impacts on the designated sites is required.

Comment: This review is for the purposes of assessing existing discharges in the context of new environmental quality standards and objectives and does not consider any increase in the ELVs for emissions to waters. Consequently, within the limited scope of this review, the Agency is satisfied that the discharge will not likely have a significant effect on the Lower River Shannon SAC (002165) or River Shannon and River Fergus Estuaries SPA (004077), and therefore the requirements regarding Appropriate Assessment set out in Part 5 of the European Communities (Birds and Natural Habitats) Regulations 2011 do not apply.

- B. Submission received from Health Services Executive (HSE) West, Ashbourne Hall, Ashbourne Business Park, Dock Road, Limerick on 4/11/2011.

The submission states that having reviewed the licence application and spoken with Mr. Brendan Russell, the Environmental Manager of the installation, the HSE has no comment to make from a public health perspective.

Charges

The charge specified in RD of **€15,057.22** is to be invoiced by OEE for 2012.

Recommendation

I recommend that a Proposed Determination be issued subject to the conditions and for the reasons as drafted in the RD.

Signed



Ewa Babiarczyk
Environmental Licensing Programme
Office of Climate, Licensing and Resource Use

Procedural Note

In the event that no objections are received to the Proposed Determination of the application, a licence will be granted in accordance with Section 87(4) of the Environmental Protection Agency Acts 1992 and 2011 as soon as may be after the expiration of the appropriate period.

Figure 1: Site boundary and surface water emission points

