



ANNUAL ENVIRONMENTAL REPORT 2008

| | |
|-------------------------|--|
| License Register Number | P0826-01 |
| License | COOLEY DISTILLERY PLC |
| Location | CASTLETOWN COOLEY RIVERSTOWN DUNDALK COUNTY LOUTH |
| Report (for year) | 2008 |

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1.0 Introduction

Cooley Distillery Plc. Was issued an IPPC license by EPA on the 10th July 2008 (License Register Number P0826-01). The activity is located at Castletown Cooley, Riverstown, Dundalk, Co. Louth.

The installation is involved in the production of malt and grain whiskey using raw materials, malted barley and IP (identity preserved) Maize. The manufacturing process comprises the following main elements:

- A malt whiskey distillery with 4 fermenters & 2 stills; annual capacity 850,000 litres alcohol;
- A grain whiskey still with 4 fermenters & 2 stills; annual capacity 2.8 million litres alcohol;
- Bulk spirits warehousing & cask filling;
- Whiskey warehousing; capacity 33,000 casks;
- Bottling capacity of 2.4 million bottles per annum, and
- Services including steam boiler, cooling water system, waste water treatment plant, laboratory and offices.

The distillery employs 43 staff and is operational for approximately 48 weeks of the year. The normal hours of operation are 8.00 a.m. Monday to 8.00 a.m. Saturday. Production is continuous during this period.

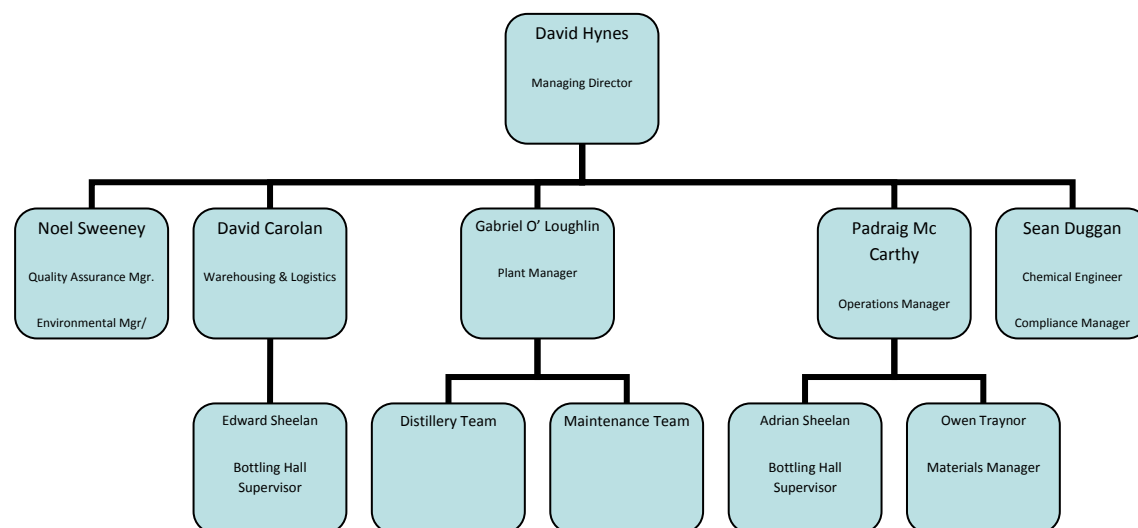
Occasionally, bottling operation, in particular, may be extended to 9.00 pm. on Saturdays due to seasonal demand. The waste water treatment plant operates on a continual basis.

Company Environmental Policy

Cooley Distillery Plc. considers Environmental matters to be of paramount importance and is totally committed to ensuring their activities do not adversely affect the Environment. To this end the company is committed to:

1. Comply with or exceed relevant legislative standards particularly in the areas of
 - i. Recycling
 - ii. Effluent Treatment
2. Provide safe working conditions for employees
3. Measure and strive to continually improve the Environmental Impact caused by our products and activities
4. Encourage and train employees and suppliers to recognise their environmental responsibilities and the benefits available to them by implementing sound environmental, health and safety policies.
5. Communicate our Policy and achievements widely and where appropriate to freely share the techniques with others to generate improvements

Company Organisation Chart for Environmental Management



2.0 Summary Information

The summary information provided below relates to the period 1st January 2008 to 31st December 2008. It should be noted that prior to the 10th July 2008 this facility was not yet regulated by the EPA. As a consequence, data prior to 10th July 2008 relates to the requirements under the company's Effluent Discharge License to Surface Water as administered by Louth County Council.

2.1. Emissions to Waters

The wastewaters from the process are organic in nature deriving as they do from cereals. Following treatment these organic wastewaters are discharged to the sea in Dundalk Bay, which is approximately 1 kilometre away. (Grid reference: 317333E, 306042N.)

The discharge is via a Cooley distillery owned long sea outfall pipe. The discharge contains residual organic biodegradable contaminants at a concentration of up to a license limit of 100 mg/l B.O.D.. An extensive dispersion and biological study has been carried out at the long sea outfall discharge point, which clearly demonstrates that the wastewater is quickly dispersed to background levels and that no adverse biological impacts are occurring.

Cooling water discharge to the Piedmont River has no notable effects on the water quality. A portion of the cooling water is discharged to the sea outfall in order to maintain sufficient flow velocity in the pipeline to prevent seawater ingress. Note that all references to treated process water volumes and composition in this application are the values prior to any dilution with cooling water.

Domestic sewage from the employees is discharged to a percolation area via a small biological treatment plant. No operating problems have been associated with this unit that could give regard as having any environmental significance.

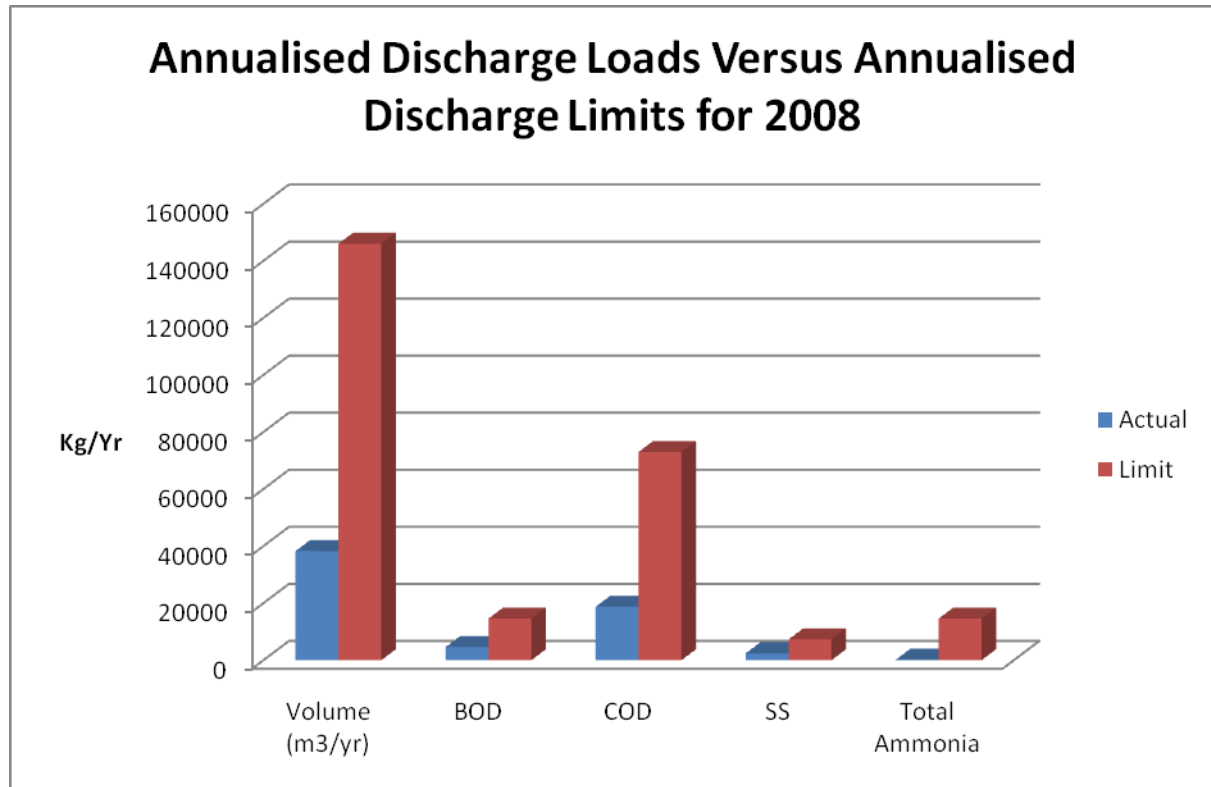
The annualised mass emissions of treated process effluent discharged to sea compared with those given as the licensed Emission Limit Values (ELVs) are presented in the table below.

| Parameter | Mass Emissions (Kg) (Previous Year) | Mass Emissions (Kg) (Present Year) | Licensed Mass Emissions (Kg/yr) |
|--------------------------|--|---------------------------------------|------------------------------------|
| Volume (m ³) | N/A* | 38264 | 146000m ³ |
| BOD | N/A | 4598 | 14600 |
| COD | N/A | 18748 | 73000 |
| Suspended Solids | N/A | 2431 | 7300 |
| Total Ammonia (as N) | N/A | 180 | 14600 |
| Copper | N/A | 0.0314 | 73 |
| Lead | N/A | 0.0003 | 29.2 |
| Zinc | N/A | 0.0009 | 29.2 |
| Mineral Oil | N/A | - | 146 |

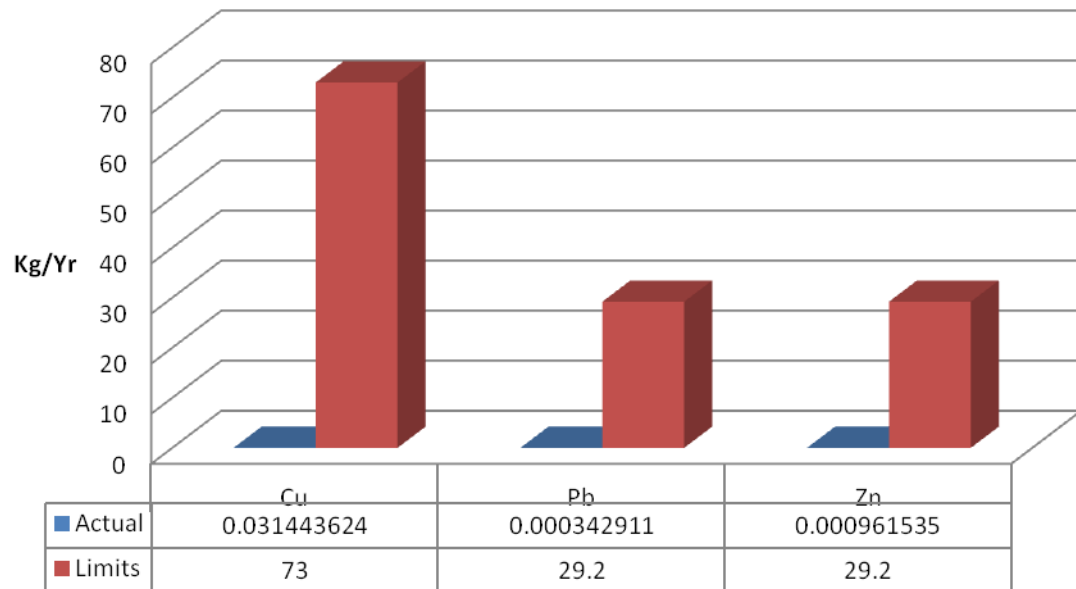
Table 1: Summary Emissions to Water

*N/A = Not Applicable, predates IPPC License

The above values (BOD, COD, volume etc) relate to known production values (units of distilled alcohol produced) for 2008. This will allow the company to track emission trends per unit of production in all future AERs.



Annualised Metals Discharged Versus Annualised Metals Limits



2.2. Emissions to Atmosphere

The principal sources and characteristics of emissions to atmosphere are CO₂ from the four malt and four grain fermenters and flue gas from the main oil fired process steam boiler.

The license does not stipulate Controls for any of these emissions to air. The main oil fired boiler is required to be monitored annually for NO_x and SO_x, no mass emission limits apply.

| Parameter | Mass Emissions (Kg/hr) (Previous year) | Mass Emissions (Kg/Annum) (Previous year) | Mass Emissions (Kg/hr) (Present year) | Mass Emissions (Kg/Annum) (Present year) |
|-----------------|--|---|---|--|
| NO _x | N/A | N/A | 7.5 | 43,200 |
| SO _x | N/A | N/A | 5 | 28,800 |

Table 2: Summary Table for Emissions to Atmosphere

*Note: The IPPC license only came into being in the latter half of 2008. In the interests of providing a 2008 baseline value and against which future trends can be tracked, the values provided above are “best estimates” for that year. The annualised values assume boiler operating at maximum output. The sampling was carried out at that time as part of boiler monitoring undertaken by the company’s agent.

2.3. Waste Management

| EWC Code ^[1] | HAZ ^[1] (y/n) | Description of waste ^[2] | Quantity ^[3] (Tonnes/annum) | Method of Disposal/Recovery ^[4] | Location of Disposal/Recovery ^[5] |
|--------------------------------|------------------------------------|---|--|---|---|
| 200101 | N | Cardboard from bottling | 21 | R5 | (b) Armagh, Guy Recycling |
| 200301 | N | Plastic from bottling | 4 | R5 | (b) Armagh, Guy Recycling |
| 200102 | N | Glass from bottling | 3.05 | R5 | (b) Dundalk, V&W Recycling |
| 200136 | N | Electronic and Electronic equipment from plant maintenance | 0.5 | R4&R5 | (b) Dundalk, V&W Recycling |
| 200135 | N | Waste Cartridges from office printers | 0.05 | R0 | (b) Dundalk, Cartridge World |
| 200108 | N | Biodegradable kitchen and canteen waste | 10 | D1 | (b) Dundalk, Landfill Bambi bins |
| 200303 | N | Street Cleaning Residues | 5 | D1 | (b) Dundalk, Landfill Bambi bins |
| 200301 | N | Mixed Municipal Waste from office and plant | 35 | D1 | (b) Dundalk, Landfill Bambi bins |
| 200138 | N | Wood from broken pallets | 20 | R1&D1 | (b) Repair, Warrenpoint Blackbird Timber Products & Landfill Bambi Bins |
| 200101 | N | Paper from office | 1 | R5 | (b) Dundalk, V&W Recycling |
| 190812 | N | Sludge from waste water treatment plant | 1197 | R10 | - |
| 170107 | N | Construction and demolition from plant modifications | 0 | | - |
| 200121 | Y | Fluorescent tubes from lighting | 0.015 | R4&R5 | (b) Dundalk, V&W Recycling |
| 160601 | Y | Lead batteries from forklifts | 0 | | - |
| 130113 | Y | Hydraulic oils from forklifts hoists centrifuge | 0 | | - |
| 130208 | Y | Engine, gear and lubricating oils from forklift air compressors | 0.1299 | R1 | (b) McElroy forklifts, Atlas Copco, Team |
| 130899 | Y | Other Oil Wastes from plant machinery | 0 | | - |
| 020799 | N | Filter cake and sheets | 5 | D1 | (b) Dundalk, Landfill Bambi bins |
| 200202 | N | Soil and stones | 5 | D1 | (b) Dundalk, Landfill Bambi bins |
| 200201 | N | Grass, branches, pines | 5 | D1 | (b) Dundalk, Landfill Bambi bins |

Table 3. Waste: Nature, Quantity and Means of Disposal

2.4. Agency Monitoring and Enforcement

As the Cooley Distillery operation has only been recently issued with an IPPC license, EPA monitoring was confined to effluent monitoring in the latter half of 2008.

A number of the treated waste water monitoring results exceeded the IPPC limits (B.O.D. / C.O.D. and S.S.). Correspondence between the licensee and the EPA took place with a view to resolving these exceedances.

2.5. Energy Consumption

The main energy users on site are the Process Steam Boiler, which is fuelled with Medium Fuel Oil. A new boiler has recently been installed and is regularly maintained by outside contractors. During the production process the main process water stream is raised to as high as 150°C during cooking, cooled to 63°C for mashing/conversion, cooled to 25°C for fermenting and heated up to 100°C during distillation. As much as is economic the energy required for heating up this stream is obtained from the cooling down phases in the process. For example the flash steam produced in Flash Tank 1 (See Unit Operation No. 3 Attachment D) is used to help heat the maize slurry stream up to its cooking temperature of 150°C.

The second most significant use of Energy is the electricity driven fan on the MVR Evaporator. In the Evaporator 95% of the waste stream is evaporated off. In a traditional multiple effect evaporator this would require some 20% of the latent heat of evaporation. The MVR Evaporator uses about one quarter of this because the evaporate itself is raised in temperature by the fan and its latent heat of condensation can then be used to evaporate additional incoming spent wash.

The annual oil consumption for 2008 was 1,458m³.

The annual electricity consumption for 2008 was 1,716,100 kW.

The values for electricity and oil consumption relate to known production values (units of distilled alcohol produced) for 2008. This allows for the future AER data to track energy efficiency trends as units of energy per unit production. It is proposed to graph these trends in all future AERs.

2.6. Water Consumption

Water usage at the site is used for process, cooling and minor miscellaneous use such as domestic supply. The majority of the process water is sourced from public supply. Cooling water is sourced from the nearby Piedmont river.

| Source | (m ³ /annum) (Previous Year) | (m ³ /annum) (Present year) |
|-----------------------|--|---|
| On-site surface water | N/A | 572,716 |
| Municipal supply | N/A | 2,322 |

Table 4 : Water Consumption Summary

2.7. Environmental Incidents and Complaints

2.7.1. Environmental Incidents

No incidents (e.g. accidental release, spillages etc.) occurred during the year. However, since the license came into force on the 10th July 2008, there have been occasional breaches in respect of C.O.D. /B.O.D. and S.S. It should be noted that these breaches relate to non-toxic readily biodegradable aspects of the waste water. As such no adverse, or long-term, environmental impacts would have resulted. The primary cause of these elevated values has been determined to be fluctuations in the consistency of the raw waste water forward feed to the waste water treatment plant. As part of its ongoing program for environmental improvement, Cooley Distillery is implementing a number of measures to ensure this does not recur. Specifically, process control measures are proposed which includes the installation of a single 200,000L Beer Well (or wash column feed tank). This will provide a more uniform materials feed to the wash column which will in turn result in a more uniform wastewater arising from this process step which of itself is a significant proportion of the wastewater forward feed.

2.7.2 Environmental Complaints

No third party Complaints were received.

2.7.3. Environmental Liabilities

The potential environmental liabilities associated with the Cooley Distillery operation are essentially confined to accidental releases of pollutants to the environment. Due to the nature of the activity there is no potential for release of materials to land air or water in quantities that could be regarded as hazardous, toxic or persistent. Such materials that could be accidentally released include releases from bulk tanks (e.g. oil storage), inappropriate storage and disposal of wastes such as wastewater treatment plant (WWTP) sludges and wastewater treatment plant failure. The risk of accidental releases and the associated consequences of any such release are low because:

As noted, the nature of the materials stored on-site is such that all are biodegradable in the medium to long term. For example the bulk of the materials stored consist of grain, grain based sludges/slurries/mash and alcohol. These materials will rapidly degrade in the environment and have no implications as regards persistence or bioaccumulation or of acute toxicity. Medium fuel oil is biodegradable in the medium term.

The company are in the process of upgrading its bulk storage arrangements to ensure that in the event of accidental release from storage vessels the released material will be captured and retained for recovery by means of appropriate secondary containment.

No hazardous wastes arise. WWTP sludges are landspread under recorded, controlled conditions.

Potential releases to air are confined to temporary boiler malfunction and dust from materials handling (e.g. grain) neither of which could be regarded as posing any potential liability of note.

The treated wastewater discharges to sea via a sea outfall. The receiving water at this location has been independently demonstrated by Aquafact to be readily capable of accommodating, without adverse impact wastewater discharges greatly in excess of that generated. Consequently in the event of WWTP failure no long term adverse impact on the receiving water could arise.

Cooley Distillery has environmental pollution cover for 6.25 million with Hibernian Insurance.

3. Energy

3.1. Fuel Oil

The company examined the feasibility of converting the existing medium fuel oil fired boiler to light oil. Where it was indicated by the boiler agent that such a conversion could be made this would be at a cost both in terms of adaptation and in subsequent running costs associated with higher fuel costs.

In an industrial context fuel usage at the site is comparatively modest (1458 m³/yr) and consequently any environmental benefit that might be achieved by the use of lighter fuel would be equally modest. Most importantly, the measured emissions from the process boiler at the distillery are consistently within the required emission limits and it has already been demonstrated through the results of the EPA specified air dispersion modelling exercise (that was performed as part of the IPPC licence application) that this level of emission causes no adverse environmental impact on local air quality. As the production of low emission fuels comes at an energy and emissions cost (both incurred at the refinery) the use of such fuel can only be justified in the context of resolving local air quality problems. In the demonstrated absence of any such local air quality problems at Cooley it was concluded that there is no environmental justification for altering the current boiler configuration.

3.2. Energy Efficiency

The principal energy source is the (medium fuel) oil fired boiler, this has a boiler rating of 13,600kg/hr of steam. The company are in the course of commissioning an energy audit of their facility by external energy consultants. Based on the findings of that audit it is intended that any energy savings measures identified will be assessed and implemented where justified.

4. Environmental Management Programme

4.1. Environmental Management Programme – 2007 Report

As previously stated, prior to the 10th July 2008 this facility was not yet regulated by the EPA. Consequently, an Environmental Management Programme for 2007 was not undertaken.

4.2. Proposal for Environmental Management Programme – Current Year

Environmental Management Programme – Proposal for current year

| | | | | |
|---|--|--------------------|------------|-------------|
| Objective No 1 | Optimise Process Operation and Control | | | |
| Target | Action | Responsibility | Start Date | Finish Date |
| Optimise usage of process raw materials . | Assess the efficiency of the use of raw materials. | Compliance Manager | Ongoing | Ongoing |
| | Track key performance indicators (KPI'S) which relate raw materials usage and waste generated to units of production | Compliance Manager | Ongoing | Ongoing |

| | | | | |
|---|--|--------------------|------------|---------------------------------|
| Objective No 2 | Improve Waste Management | | | |
| Target | Action | Responsibility | Start Date | Finish Date |
| Management and containment of onsite waste | Commission consultant to investigate historic waste burial onsite | Compliance Manager | Aug-09 | Nov-09 (pre-agreement with EPA) |
| Improve landspread waste management | Establish waste tracking programme within the draft EMS | Compliance Manager | Aug-08 | Ongoing |
| Reduce the quantity of general office and factory waste arising | Ensure adequate waste segregation and collection facilities are available throughout the plant | Compliance Manager | Aug-08 | Ongoing |
| | Raise staff awareness of the need for waste reduction | Compliance Manager | Aug-08 | Ongoing |

| Objective No 3 | | Minimise emissions to the environment | | |
|---|--|---------------------------------------|------------|-------------|
| Target | Action | Responsibility | Start Date | Finish Date |
| Improve the management of waste water treatment | Commission sand filter for final effluent polishing | Compliance Manager | Aug-09 | Oct-09 |
| Improve the management of waste water treatment | Daily C.O.D. monitoring | Compliance Manager | May-09 | Ongoing |
| Ensure the integrity of bunded areas | Upgrade existing bunding, construct new additional bunding | Compliance Manager | Nov-08 | Aug-09 |
| Ensure the integrity of bunded areas | Conduct integrity tests of all tank bunds | Compliance Manager | Jul-09 | Sep-09 |
| Ensure appropriate disposal of bund content | Confirm bund content are uncontaminated before disposal | Compliance Manager | Ongoing | Ongoing |
| Contain any spillages from loading/unloading areas. | Investigate drainage arrangements and containment options at loading/unloading areas | Compliance Manager | Jul-09 | Dec-09 |
| Ensure no leakages from pipes and valves | Weekly visual inspection | Compliance Manager | Aug-08 | Ongoing |
| Minimise medium fuel oil boiler emissions to atmosphere | Continue boiler efficiency monitoring regime | Compliance Manager | Continuing | Continuing |
| Reduce noise emissions from the site | Carry out annual noise surveys and address issues which arise from the noise surveys | Compliance Manager | Aug-08 | Ongoing |
| Undertake a comprehensive hydrogeological investigation of the site | Appoint an appropriate external consultant | Compliance Manager | Aug-09 | Dec-09 |
| Ensure no risk of water pollution from fire-water | Undertake fire-water retention study | Compliance Manager | Aug-09 | Dec-09 |
| | Establish a risk management programme (based on outcome of above) | Compliance Manager | Aug-09 | Jan-10 |

| | | | | |
|--|---|--------------------|------------|-------------|
| Objective No 4 | Optimise energy efficiency and utility usage | | | |
| Target | Action | Responsibility | Start Date | Finish Date |
| Optimise process and cooling water usage | Investigate Installation of water meters on river abstraction | Compliance Manager | Jul-09 | Sept-09 |
| Reduce energy consumption | Commission an energy audit of the site | Compliance Manager | Jul-09 | Dec-09 |

| | | | | |
|--|--|---------------------|-------------------|-------------|
| Objective No 5 | Improve the Environmental Management of the Site | | | |
| Target | Action | Responsibility | Start Date | Finish Date |
| Install a Formal Environmental Management System | Appoint an external EMS consultant | Compliance Manager | Oct-08 | Oct-09 |
| Ensure appropriate (environmental) data management | Appoint an external EMS consultant | Compliance Manager | Oct-08 | Oct-09 |
| Label all sampling points | Identify and suitably label all sampling points | Compliance Manager | Aug-08 | Sept-09 |
| Label all tanks and drum | Identify and suitably label all tanks and drums (incl. Whiskey warehouse) | Compliance Manager | Oct-08 | Ongoing |
| Facilitate efficient emergency response | Install and maintain wind sock | Compliance Manager | Aug-08 | Completed |
| Ensure accuracy of monitoring data | Source and use certified laboratories | Compliance Manager | Ongoing | Ongoing |
| Ensure accuracy of flow discharge values | Recalibration and maintenance of process water and cooling water discharge flow meters | Maintenance Manager | Ongoing | Ongoing |
| Protection of the marine environment | Source suitable supplier for marine monitoring | Compliance Manager | Completed | 10/7/2013 |
| Protection of the marine environment | Submit proposal to EPA on toxicity testing | Compliance Manager | Completed in 2008 | |

| | | | | |
|--|--|--------------------|------------|-------------|
| Objective No 6 | Risk Management | | | |
| Target | Action | Responsibility | Start Date | Finish Date |
| Reduce risk of environmental legacies | Establish a Decommissioning Plan framework | Compliance Manager | Oct-09 | Dec-09 |
| Manage accident response | Establish documented emergency response | Compliance Manager | Sept-09 | Dec-09 |
| Meet costs of any future environmental liabilities | Establish Environmental Liabilities cover | Financial Manager | Jul-09 | Dec-09 |

5. Pollutant Release and Transfer Register (PRTR)

5.1 Pollutant Release and Transfer Register – 2007 Report

As previously stated, prior to the 10th July 2008 this facility was not yet regulated by the EPA. Consequently, a PRTR for 2007 was not undertaken.

5.2 Pollutant Release and Transfer Register – 2008 Report

| Summary Of Emissions | | | | | |
|-------------------------|-----------------------------------|--------------------------|-------------------|-------------|-------------|
| Company | Cooley Distillery PLC | | | | |
| Location Address | Riverstown, Dundalk, County Louth | | | | |
| Contact Name | Mr. David Hynes | | | | |
| Telephone | 0429376102 | | | | |
| e-mail | GPS CO-ordinates | | | | |
| Register Number | | | NACE CODES | | |
| Activity details | IPC Class | IPPC Class | NOSE-P Code | Section | |
| | | | | Sub-Section | |
| | | | | Division | |
| | | | | Group | |
| | | | | Class | |
| Emissions to: | Freshwater | Sewer | Sea | | |
| Parameter | Unit | Licensed Emission | 2006 | 2007 | 2008 |
| Volume | M ³ | 146000 | N/A | N/A | 38264 |
| Suspended Solids | Kg | 7300 | N/A | N/A | 2431 |
| BOD | Kg | 14600 | N/A | N/A | 4598 |
| COD | Kg | 73000 | N/A | N/A | 18748 |
| Total Dissolved Soilds | Kg | | | | |
| Total Nitrogen | Kg | None | N/A | N/A | 36 |
| Phosphate | Kg | None | N/A | N/A | 263 |
| Toxicity | TU | | | | |
| Hg | Kg | | | | |
| Cd | Kg | | | | |
| Pb | Kg | 29.2 | N/A | N/A | 0.0003 |
| Cr | Kg | | | | |
| As | Kg | | | | |
| Zn | Kg | 29.2 | N/A | N/A | 0.0009 |
| Cu | Kg | 73 | N/A | N/A | 0.0314 |
| Ni | Kg | | | | |
| % Compliance | % | | N/A | N/A | |
| Number of Samples | | | N/A | N/A | |
| Emissions to air | | | | | |
| Parameter | Unit | Licensed emission | 2006 | 2007 | 2008 |
| Particulars | Kg | | | | |

| | | | | | |
|--|----------------|--------------------------|-------------|-------------|-------------|
| SOx | Kg | None | N/A | N/A | 28800 |
| NOx | Kg | None | N/A | N/A | 43200 |
| CO ₂ | Kg | None | N/A | N/A | 6210 |
| TA Luft Class I | Kg | | | | |
| TA Luft Class II | Kg | | | | |
| TA Luft Class III | Kg | | | | |
| Total Organic (as C) | Kg | | | | |
| Non-Methane VOC | Kg | | | | |
| Ammonia | Kg | | | | |
| Total Heavy Metals | Kg | | | | |
| % Compliance | % | | N/A | N/A | 100 |
| Number of Samples | | | N/A | N/A | |
| Boiler Emissions to air | | | | | |
| Parameter | Unit | Licensed emission | 2006 | 2007 | 2008 |
| Dust | Kg | | | | |
| SOx | Kg | None | N/A | N/A | 28800 |
| NOx | Kg | None | N/A | N/A | 43200 |
| CO ₂ | Kg | None | N/A | N/A | 6210 |
| CO | Kg | None | N/A | N/A | 0 |
| Sulphur Content | | | | | |
| Energy Consumption | Unit | 2006 | 2007 | 2008 | |
| Heavy Fuel Oil | M ³ | 0.01 | N/A | N/A | 1239 |
| Light Fuel Oil | M ³ | 0.01 | N/A | N/A | 219 |
| Coal | Kg | | N/A | N/A | 0 |
| Electricity | MW | | N/A | N/A | 1716 |
| Natural Gas | M ³ | | N/A | N/A | 0 |
| Waste | | | | | |
| Total quantity of waste produced in calendar year (Tonnes) | | 2006 | 2007 | 2008 | |
| . total quantity of waste disposed of on-site | | N/A | N/A | 0 | |
| . total quantity of waste disposed of off-site | | N/A | N/A | 1311.7 | |
| . total quantity of waste recovered on-site | | N/A | N/A | 0 | |
| . total quantity of waste recovered off-site | | N/A | N/A | 0 | |
| Quantity of non-hazardous waste produced in calendar year(Tonnes) | | 2006 | 2007 | 2008 | |
| . Quantity of non-hazardous waste disposed of on-site | | N/A | N/A | 0 | |
| . Quantity of non-hazardous waste disposed of off-site | | N/A | N/A | 65 | |
| . Quantity of non-hazardous waste recovered on-site | | N/A | N/A | 0 | |
| . Quantity of non-hazardous waste recovered off-site | | N/A | N/A | 1246.75 | |
| Quantity of non-hazardous waste produced in calendar year(Tonnes) | | 2006 | 2007 | 2008 | |
| . Quantity of hazardous waste disposed of on-site | | N/A | N/A | 0 | |

| | | | | |
|--|----------------|-------------|-------------|-------------|
| . Quantity of hazardous waste disposed of off-site | | N/A | N/A | 0 |
| . Quantity of hazardous waste recovered on-site | | N/A | N/A | 0 |
| . Quantity of hazardous waste recovered off-site | | N/A | N/A | 0.145 |
| Water Consumption | Unit | 2006 | 2007 | 2008 |
| On-site groundwater use | M ³ | N/A | N/A | 0 |
| On-site surface water use | M ³ | N/A | N/A | 572716 |
| Municipal water use | M ³ | N/A | N/A | 2322 |
| Environmental Complaints | | 2006 | 2007 | 2008 |
| Complaints received | | N/A | N/A | 0 |
| Complaints requiring corrective action | | N/A | N/A | 0 |
| Catagories of complaint | | | | |
| Odour | | N/A | N/A | 0 |
| Noise | | N/A | N/A | 0 |
| Water | | N/A | N/A | 0 |
| Air | | N/A | N/A | 0 |
| Procedural | | N/A | N/A | 0 |
| Miscellaneous | | N/A | N/A | 0 |
| Accreditation | | | | |
| EMAS | | | | |
| ISO 14000 | | | | |

6. Pollution Emission Register – Proposal

Cooley Distillery's IPPC licence requires that they prepare a proposal for a Pollution Emission Register (PER). The list of substances to be included in a PER is specified by the EPA in their AER Guidance Note. Cooley Distillery has compared the materials emitted from the facility with that EPA PER materials candidate list. Based on that comparison the materials considered relevant for inclusion in the annual PER returns are the following:

Total Nitrogen, Total Phosphorus and CO₂ under the heading of "Environmental Themes" and Copper under the heading of "Heavy Metals".

Both the Total Nitrogen (N) and Total Phosphorus (P) and are derived from the primary raw material (grain). The vast majority of the N and P arises as an emission within the sludge generated by the wastewater treatment plant and in the treated wastewater discharge. The treated wastewater is discharged to sea and the excess wastewater sludge is landspread as a fertilizer.

Carbon Dioxide (CO₂) arises from the fermentation process that converts sugars to ethanol. The CO₂ arising is vented to atmosphere. As the CO₂ is derived from the cereals grown for the alcohol production it is, from a climate change perspective, carbon neutral in that the CO₂ release from the production process equals that absorbed from the atmosphere by the cereal grown to meet the facilities raw material requirements. CO₂ also arises from the main process boiler.

Copper is derived from the leaching of low levels of copper from the distillation units and is discharged to sea as a minor contaminant within the treated wastewater, some small residual copper may be accounted for in the wastewater treatment plant sludge.

| PARAMETER | Output (per annum) | Air | Land | Water (Sea) |
|------------------|-----------------------|-----|------|-------------|
| CO ₂ | | ++ | - | - |
| Total Nitrogen | | - | ++ | + |
| Total Phosphorus | | - | ++ | + |
| Copper | | | + | ++ |

Example PER table

Materials Requiring Full PER

Given the very low quantities of copper and the low and the non-persistent nature of the N, P and CO₂ it is not proposed to carry out a full PER in respect of any of these emissions. The proposed timeframe for each is twelve months.

Proposed Methodology

With the exception of CO₂ the PER for each parameter will be based on measured concentration values and the corresponding recorded annual volumes/tonnages. CO₂ is derived from fermentation and the burning of oil and can be calculated as follows:

In the case of fermentation, CO₂ and ethanol are produced in equimolar quantities and the quantity of CO₂ relative to ethanol is the same as the ratio of their molecular weights (44:46). Therefore knowing the annual production of ethanol the corresponding CO₂ value can be reliably derived. In the case of the boiler the CO₂ emissions can be calculated from the carbon content of the known quantity of fuel consumed in any given year.

Summary

A review of the criteria set by the EPA for PER indicates that the materials to be recorded annually at Cooley Distillery are:

Total N, Total P, Copper, and CO₂

7.0 License-Specific Reports

7.1. Noise

No noise monitoring survey was commissioned for 2008. A noise survey is being commissioned for 2009 (Table X(Proposed EMP about commissioning a noise survey). In the absence of available 2008 data, suitable 2007 data is provided below. The survey was carried out by JD Acoustics.

No significant changes in plant and equipment or process activities have occurred on site since the 2007 survey was carried out.

OVERVIEW

Cooley distillery is located in a largely rural location on a substantial site without dwelling houses in close proximity. This report is requested to form an application for an I.P.P.C. license

TEST CONDITIONS

These tests were conducted on the 27 March 2007 in cool and low wind speed conditions. A series of measurements of L_{eq} and octave bands were taken.

OTHER NOISE FACTORS

The cluster of trees at the entrance to the site is the location of a large rookery and the noise from nesting activities is substantial. The Gate monitoring position is dominated by this noise source. Road noise is very low with infrequent traffic passing this site.

MEASUREMENT POSITIONS

| Noise Point | Location Name | Northing | Easting |
|-------------|------------------------|----------|---------|
| N.P 1 | Front Gate | 306763 | 316782 |
| N.P 2 | Green Shed/ boundary | 306835 | 316670 |
| N.P 3 | Gate to the pump-house | 306774 | 316627 |
| N.P 4 | New Warehouse | 306643 | 316710 |

Front Gate (P1)-position is dominated the rookery on both sides of the entrance road.

Green Shed / boundary (P2)-the measurement position is on the raised bank approximately 1.2 meters above the site level at the chain-link boundary fence. There is one dwelling house beyond this position.

New Warehouse (P4)- this corner of the boundary fence is the measurement position for the noise associated with this storage facility.

RESULTS

The results are given in the appended tables. The infrequent running of the evaporator as recorded in these measurements greatly increased the boundary noise. The monitoring position was approximately 25 meters from this source. The single NSR being more than 100 meters from this position will receive a loss of 6 dB with each doubling of distance. This dual loss will accumulate to a level reduced by at least 12 dB.

$L_{eq} 63 - 12 = 51 \text{ dB (A)}$.

NEAREST SOURCE RECEIVERS

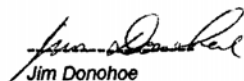
Directly across the road from the entrance are located a series of five houses ranging from bungalows to double-storey dwelling houses. One other dwelling is located on the northern boundary. No noise complaints have been received.

Target levels

The widely accepted norm set by the W.H.O. (world health organisation) by "Criteria of Noise 1980" and "Guidelines: Community Noise 1999" and used in Ireland by E.P.A. via the IPC licence 1993. This standard is used in BS 4142 -Method for Rating Industrial noise affecting mixed Residential and Industrial areas. These authorities define the noise level at the façade of a dwelling house during daytime at L_{eq} of 55 dB (A). This produces a level indoors via an open window of 45 dB (A). The night time level reduces to 45 dB (A) at the façade resulting in 35 dB (A) indoors.

The noise attributable to on-site activities should not generally exceed a free-field L_{Ar} , T value of 55 dB (A) by daytime (08:00 – 22:00), at any noise sensitive location.

During night-time (22:00 – 08:00), the noise attributable to on-site activities should not exceed a free-field L_{Aeq} , T value of 45 dB (A)



Jim Donohoe

Measurement Methods

JIM DONOHOE

A "Competent person" as defined by the regulations carried out these tests using a:

Type 1

Cirrus Research 821 A sound level meter.

Serial no. B14950FE

This unit is laboratory tested and certified.

Certificate No: 113290

Before and after testing the unit was checked with an acoustic calibrator (**Certificate No: 113291**) to ensure calibration compliance.

The logging meter was mounted on a tripod at a height of 1.2 meters. The duration of each measurement period was adjusted to the prevailing conditions. A 15- minute interval being the norm .

Terminology.

dB (A) = Decibel, the unit of noise measurement.

The "A" refers to an applied filter response that simulates the human ears sensitivity to frequency (relatively low response to low frequency).

"A" weighted =Simulated Ear Response.

Leq, T = The equivalent continuous sound pressure level over the time period "T". (A statistical average)

N.S.R. = noise sensitive receivers (nearest neighbours).

Table E.5(i): NOISE EMISSIONS - Noise sources summary sheet

| Source | Emission point Ref. No | Equipment Ref. No | Sound Pressure ¹ dBA at reference distance | Octave bands (Hz) Sound Pressure ¹ Levels dB(unweighted) per band | | | | | | | | | | Impulsive or tonal qualities | Periods of Emission |
|--------------|------------------------|-------------------|---|---|----|-----|-----|-----|----|----|----|----|------|------------------------------|---------------------|
| | | | | 31.5 | 63 | 125 | 250 | 500 | 1K | 2K | 4K | 8K | | | |
| | | | | 62 | 62 | 55 | 48 | 45 | 52 | 53 | 43 | 36 | | | |
| MAIN GATE | | | | 72 | 78 | 62 | 64 | 64 | 62 | 58 | 51 | 40 | none | 20 mins evaporator | |
| GREEN SHED | evaporato | | | 60 | 64 | 63 | 58 | 59 | 56 | 55 | 54 | 48 | none | | |
| GATE TO PUMP | | | | 72 | 72 | 56 | 44 | 40 | 47 | 47 | 35 | 29 | none | | |
| WAREHOUSE | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |

1. For items of plant sound power levels may be used.

Table I.7(i): AMBIENT NOISE ASSESSMENT

Third Octave analysis for noise emissions should be used to determine tonal noises

| 1. SITE BOUNDARY | National Grid Reference | Sound Pressure Levels | | | |
|---------------------------|-------------------------|-----------------------|--------------------|--------------------|--------------------|
| | | (6N, 6E) | L(A) _{eq} | L(A) ₁₀ | L(A) ₉₀ |
| 2. | | | | | |
| Location 1: MAIN GATE | 306763-316782 | | 58 | 62 | 51 |
| Location 2: GREEN SHED * | 306835-316670 | | 63 | 72 | 58 |
| Location 3: GATE TO PUMP | 306774-316627 | | 57 | 61 | 52 |
| Location 4: WAREHOUSE | 306643-316710 | | 49 | 53 | 44 |
| NOISE SENSITIVE LOCATIONS | not measured | | | | |
| Location 1: | | | | | |
| Location 2: | | | | | |
| Location 3: | | | | | |
| Location 4: | | | | | |

* Evaporator running at this time

Noise Measurement Report

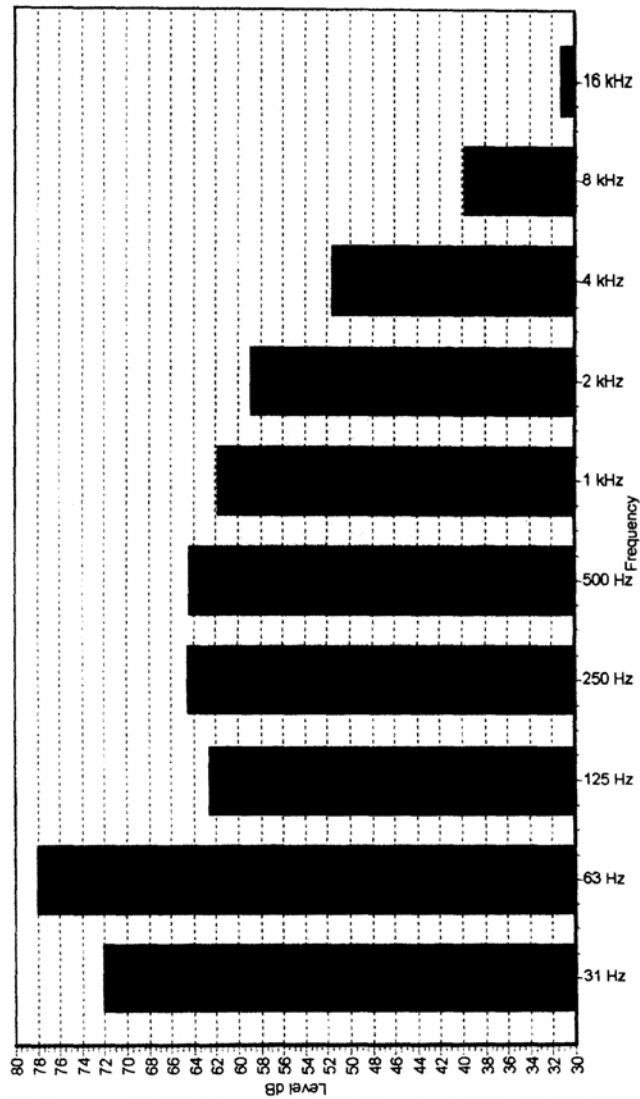
Date: 27/03/07 Time: 12:28:12

Run Time: 00:13:45

Range: 50-110 dB

Spectrum "Z" weighted

| | | | | | | | | | | | | | |
|--------------|-------|-------|--------|--------|--------|-------|-------|-------|-------|--------|-------|-------|-------|
| Measurement | 31 Hz | 63 Hz | 125 Hz | 250 Hz | 500 Hz | 1 kHz | 2 kHz | 4 kHz | 8 kHz | 16 kHz | L Aeq | L Ceq | L Zeq |
| Level (dB) | 72.0 | 78.0 | 62.5 | 64.5 | 64.4 | 61.8 | 58.8 | 51.6 | 39.7 | 31.1 | 63.0 | 76.0 | 66 |
| Duration (s) | 69 | 69 | 69 | 69 | 69 | 69 | 69 | 69 | 69 | 69 | 69 | 69 | 66 |



Notes: M158/ Green Shed - Boundary @ evap. run

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Noise Measurement Report

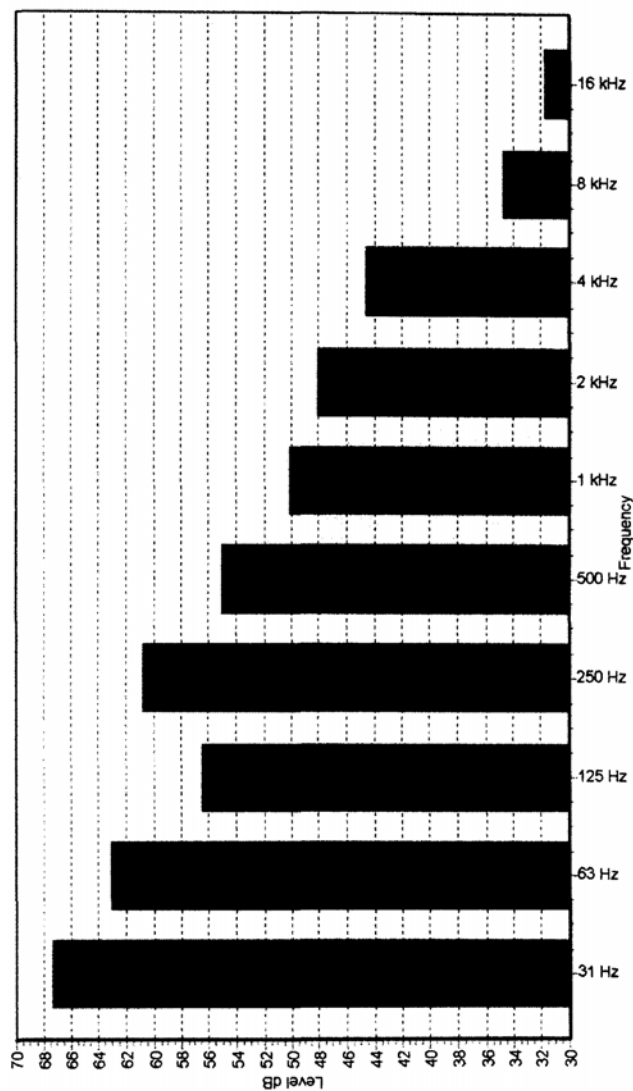
Date: 27/03/07 Time: 13:11:56

Run Time: 00:14:57

Range: 50-110 dB

Spectrum "Z" weighted

| Measurement | 31 Hz | 63 Hz | 125 Hz | 250 Hz | 500 Hz | 1 kHz | 2 kHz | 4 kHz | 8 kHz | 16 kHz | L _{Aeq} | L _{Ceq} | L _{Zeq} |
|--------------|-------|-------|--------|--------|--------|-------|-------|-------|-------|--------|------------------|------------------|------------------|
| Level (dB) | 67.3 | 63.0 | 56.5 | 60.8 | 55.0 | 50.1 | 48.0 | 44.6 | 34.7 | 31.7 | 57.0 | 72.0 | 75.6 |
| Duration (s) | 69 | 69 | 69 | 69 | 69 | 69 | 69 | 69 | 69 | 69 | 69 | 69 | 69 |



Notes: M162/ NP3 Gate to pump-house

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