

**Kepak Clonee**

**IPPC No P0167-02**



**Annual Environmental Report**

**2011**

## ANNUAL ENVIRONMENTAL REPORT SIGNOFF SHEET

### Declaration:

All the data and information presented in this report has been checked and certified as being accurate.  
The quality of the information is assured to meet licence requirements.



31/03/2012

\_\_\_\_\_  
Date

\_\_\_\_\_  
Kepak Clonee

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**Appendix 1      Pollutant Release and Transfer Register**

## 1. Company Details

Company Name:	Kepak (Clonee)
Licence Register Number:	P0167-02
Address:	Clonee Co. Meath
Sector:	Slaughter of Beef Animals
Site Manager	Michael Kelly
Operations Manager	Carmel Bracken
Technical Manager	Brian Robinson
Environmental Officer	Owen Cahill

## 2. The Environmental Policy of Kepak (Clonee) Ltd

### Principles

Kepak Clonee recognises that environmental management forms an integral part of our business.

Responsible environmental management enhances our business and activities.

We are committed to the protection of the environment and the well being of the community in which we operate.

We will use clean and efficient processes at all stages of our production, continually monitor energy costs, minimise waste and reduce impact on the environment.

We will continually seek to improve our environmental performance.

### Actions

We have developed and will strive to improve our Environmental Management System so that all activities on the site are managed and controlled in an environmentally responsible manner.

We will make available to the public and customers, information on our environmental performance including information to and from the Environmental Protection Agency and Local Authorities.

We will train and develop our staff and contractors in the best environmental and health and safety practices.

We will comply with all environmental regulations as laid down by the EPA in the Acts of 1992 and 2003, directive 96/61 EC and other regulatory bodies, and co-operate fully with such bodies.

All new activities, products and processes shall be assessed to identify and eliminate possible environmental impacts.

Site response procedures are established to prevent accidental emissions of materials or energy on the site. In addition, corrective action procedures are established in the event of detection of non compliance with this policy.

Recycling of waste will be carried out wherever possible to aid us in our efforts to minimise and reduce waste.



Brian Robinson (Technical Manager)

### 3. Overview

This is the company's 11th Annual Environmental Report. This report relates to the environmental performance of the company for the year ending 31<sup>st</sup> December 2011. It has been compiled as per the EPA's revised Guidance Notes for Annual Environmental Reports.

The company is located on the N3 at Clonee, Co. Meath. The IPPC licence was granted on the 10<sup>th</sup> October 2007 under section 90(2) of the Environmental Protection Agency Acts, 1992 and 2003.

During 2011, the company continued to improve compliance with conditions in its IPPC licence.

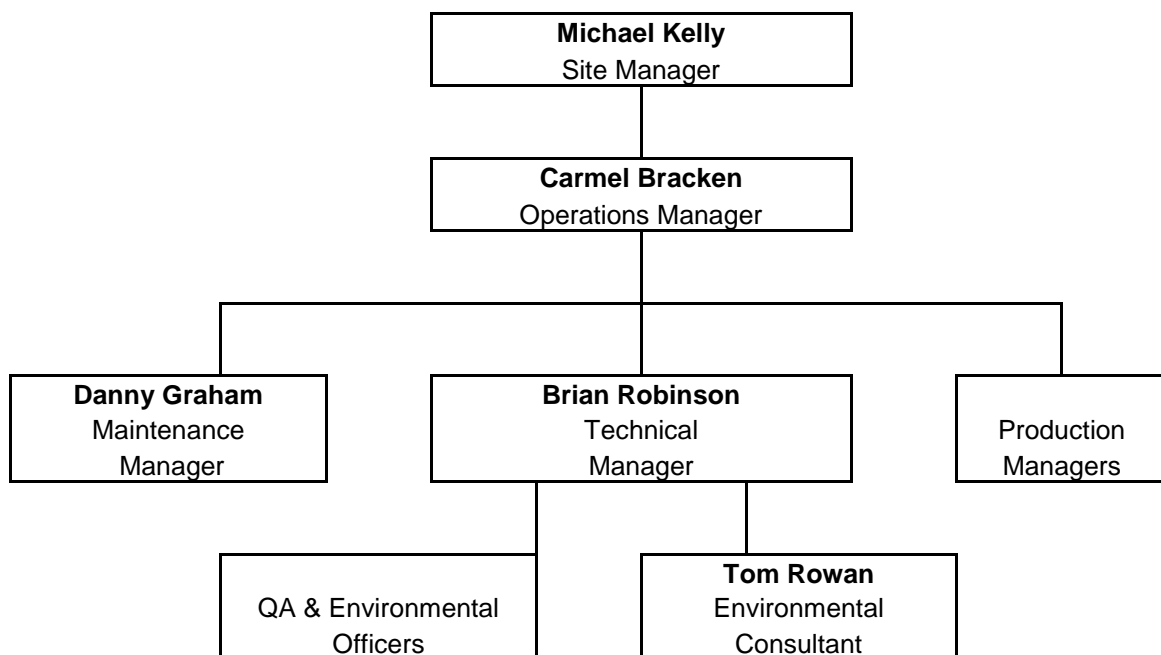
### 4. Environmental Management

The Site Manager is responsible for the implementation of the Environmental Policy, overall environmental management of the site and allocation of resources.

The Environmental Officer is responsible for the day-to-day environmental operations and monitoring of the site, and the management of the IPPC licence.

The Maintenance Supervisor is responsible for the day-to-day plant operation of the wastewater treatment plant and other abatement systems on the site.

Environmental Management Chart:



## 5. Schedule of Objectives and Targets

### Five Year Objectives & Targets

Licence Objectives	Date	Licensee targets
WWTP performance parameters to adhere to IPPC license	2007-2012	<p>Consistent IPPC adherence by means of</p> <ul style="list-style-type: none"> <li>○ Daily verbal communications between Environmental Officer and WWTP operators.</li> <li>○ Good operating procedures using the WWTP Manual</li> <li>○ Regular consultation with R.E.C</li> <li>○ Environmental Officer continues to analyse and review daily sample analysis and lab results.</li> </ul>
Control of Fugitive odorous emissions to air	2007-2012	<p>Close communication with neighbours. The Environmental Officer has been designated to liaise with the local community. Environmental Officer is responsible to ensure odours from the site are controlled.</p>
Reduction in water consumption	2007-2012	<p>Water intake values were on par with 2010, This is mainly due to increase in overall de-boning of beef at the site, as one of our 'sister' plants was being developed during 2011. There is a continued focus on the following:</p> <ul style="list-style-type: none"> <li>○ Monitoring water consumption per unit per department daily.</li> <li>○ Maintenance to reduce water wastage through leaks.</li> <li>○ Production to reduce water wastage through processes.</li> <li>○ Monthly continuous improvement meetings which include water reduction projects.</li> </ul>
Stability in Electricity Consumption	2007-2012	<p>Electricity usage in 2011 increased slightly, but overall usage remained similar to 2010 values The increase is mainly due to an increase in overall production and working hours due to increased sales volume and de-boning of beef at the plant.</p> <p>2007-2012. To reduce consumption by 1% p.a., relative to production levels.</p> <p>The monitoring &amp; targeting system is installed. It enables monitoring of individual areas of consumption of electricity in each department.</p> <p>Carry out energy audits to identify area of improvements.</p>
Increase Recycling Quantities & Reduce landfill waste	2007-2012	<p>During 2011 there was a continued focus to increase the amount of recycling</p> <ul style="list-style-type: none"> <li>○ To increase use of usable plastic trays</li> <li>○ To increase the amount of cardboard being recycled</li> <li>○ To increase the amount of plastic being recycled</li> <li>○ To increase amount of Dry Recycled Goods being recycled</li> </ul>
Environmental Incidents	2007-2012	<p>During 2011 there were no environmental incidents.</p> <ul style="list-style-type: none"> <li>○ Target to maintain zero environmental incidents year on year.</li> </ul>
Environmental Reporting	2007-2012	<p>Submit all environmental reports in a timely manner.</p>

## 6. Environmental Management Programme (EMP 2011 Report)

Kepak Clonee is committed to the responsible environmental management and the operation of its business activities in an environmentally responsible manner.

Targets were outlined in the EMP 2011 (AER 2010) to improve the environmental performance of the company. The EMP details the environmental improvements which the company propose to implement in the coming 12 months with the Agencies approval.

The progress of these targets was as follows:

### **WWTP Performance to adhere with IPPC license**

**Target:** To ensure that the final effluent discharge is in full compliance with the IPPC Licence.

**Achievement:** Effluent discharge to sewer in full compliance with Licence limits.

### **Reduction in Water Consumption**

**Target:** Reduction of water consumption.

**Achievement:** There has been a 3% reduction in water consumption. This is a further reduction from the 2.4% achieved in 2010 and 12.7% achieved in 2009 but we believe that this will be sustained through the energy management system.

A dedicated person carries out daily monitoring on water meters as part of continuous improvement projects to reduce water consumption. A monitoring system is also used to track consumption and identify where water usage can be reduced. Consultation with Managers and Supervisors occurs in areas of high water usage to identify and minimise water wastage.

### **Reduction in Electricity Consumption**

**Target:** Reduction of Electricity Consumption

**Achievement:** Although there was an increase in electricity usage, the increase can clearly be linked to additional working hours, whereby there was additional volume of beef deboned during 2011, as one of our sister plants, Kepak Longford, was being refurbished during 2011.

Kepak Clonee de-boned an additional 8% beef during the 5 month period of this refurbishment program.

### **Reduction in Recycling**

**Target:** Reduction in waste offsite.

**Achievement:** Increase in use of re-usable plastic trays instead of cardboard boxes resulted in similar recycling patterns of 2009 & 2010 – Recycling of cardboard and plastic maintained. Recycling of dry recyclables materials increased.



**Projects that were continued during 2011****Energy Monitoring System  
(Reducing resources)**

**Target:** Improvement of energy management system to improve monitoring of usage of electricity, oil and water.

**Achievement:** The monitoring system is currently available online, providing energy readings for each department in Kepak Clonee. The system is used to provide daily departmental consumption reports to area supervisors and managers.

A sizeable reduction was achieved during 2011 as a result of closely monitoring the energy usage and improvement projects.

**Water Meters  
(Energy Monitoring System)**

**Target:** Improve Energy Monitoring System by installing replacement water meters.

**Achieved:** Water meters were replaced in the factory to increase accuracy of readings received from the energy monitoring system.

**Install sensors on abattoir sinks  
(Water & oil usage):**

**Target:** Reduction of Water/oil Consumption.

**Achieved:** Sensors were installed on the abattoir sinks in order to better control water usage.

**New Water Efficient Sterilizers and Control Valves  
(Reduction in oil, water and effluent)**

**Target:** To design a more efficient sterilizer and sterilizer water flow control system.

**Achieved:** Kepak successfully designed and installed a more efficient sterilizer during 2009-2011. This was extended to other parts of the factory where more efficient alarmed systems were installed to monitor temperature.

**Refrigeration  
(Reduction in Electricity)**

**Target:** Carry out a detailed investigation into the running of the refrigeration in order to identify where energy can be saved. The Environmental Officer is to work alongside the maintenance manager and investigate the energy usage patterns in order to determine the optimum setting for efficient running of the plant.

**Achieved:** Numerous changes have been made to the running of the refrigeration plant, which accounted for the further electrical savings that were made in 2011. This is an ongoing process which is continuously monitored and also included shut down of refrigeration units not in use at weekends due to improved production planning and stock controls

**Effluent  
(Reduction in Suspended Solids and Improved the running of the WWTP)**

**Target:** Continue to achieve a reduction in suspended solids, before flocculation. Baskets that were installed in 2009 are emptied weekly. Further internal drain covers were installed in the factory to reduce solids entering the balance tanks.

**Achieved:** The result was a reduction in suspended solids and the pipelines are less likely to get blocked due to solids build up.

**Installation of Proximity Sensors on lighting  
(Reduction in Electricity)**

**Target:** To identify additional areas for the reduction of electricity consumption through the use of proximity sensors on lighting through out the site.

**Achieved:** Additional areas were identified throughout the site to install proximity sensors. Electrical usage has been reduced in the areas proximity sensors have been installed on site – including office and amenity areas.

**Installation of Inverters on Condenser Fans  
(Reduction in Electricity)**

**Target:** Reduction of electrical cost and air leakage by reducing the load on air compressors.

**Achieved:** Inverter valves were places on condenser fans throughout the site which reduced the load on the compressors, reducing the cost of running the compressors.

**Shutdown of Boiler at weekend  
(Reduction in Electricity, Oil)**

**Target:** Boiler operation is reduced at non-peak weekend hours to reduce oil and energy costs.

**Achieved:** The boiler operating time at weekend non-peak hours has resulted in substantial reductions throughout 2011 and is closely monitoring using the energy usage on the monitoring system. Heat exchangers in the boiler room were altered to only heat power hose water at night-time. This water is routed to a separate storage tank. Water is not heated to 85°C, only 55°C resulting in an energy saving being achieved.

**Timed Shut Down of Water Pumps  
(Reduction in Electricity and Water)**

**Target:** Reduction of water usage by timed shutdown to reduce night time and weekend use.

**Achieved:** The installation of timed shutdown on water pumps has resulted in reduced water use.

## 7. Environmental Management Programme (EMP 2012)

Kepak Clonee is aware of its responsibility to protect the environment. As a result we are committed to fulfilling its environmental obligations to preventing pollution to our environment according to the Best Available Techniques (BAT) regulations. The company is committed to fulfilling its environmental obligations and being responsible to the community in which it operates. Kepak Clonee believes that responsible environmental management is good business practice.

We will use the Kepak Clonee EMP to ensure waste minimisation, IPPC adherence and to minimise the adverse effect on the environment of our activities.

This document outlines the different areas being addressed, setting targets, the means and time within which they will be achieved and designating responsibility to achieving these targets.

The following reports shall be forwarded quarterly to the EPA:

- **Monitoring of Emissions to water**
- **Monitoring of Emissions to air**
- **Surface Water discharge monitoring**
- **Complaints**
- **Organic Waste Register**

### List of targets for the year 2012.

#### **Increase in Waste Recycling**

**Target:** Increase amount of dry recycled goods diverted from landfill by increasing recycling rate through additional wheelie bins onsite.

**Time:** January - December 2012

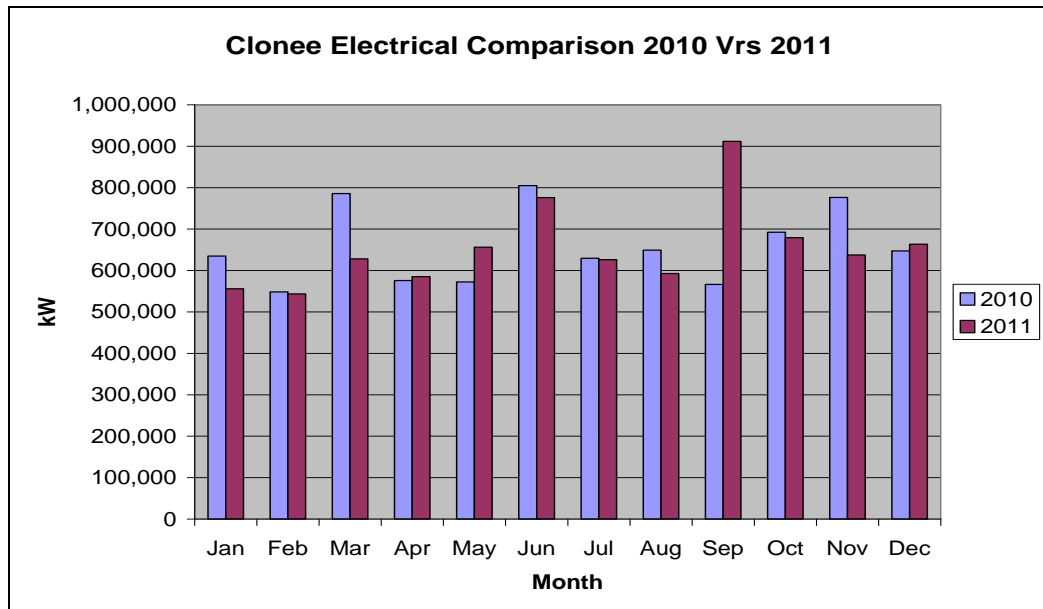
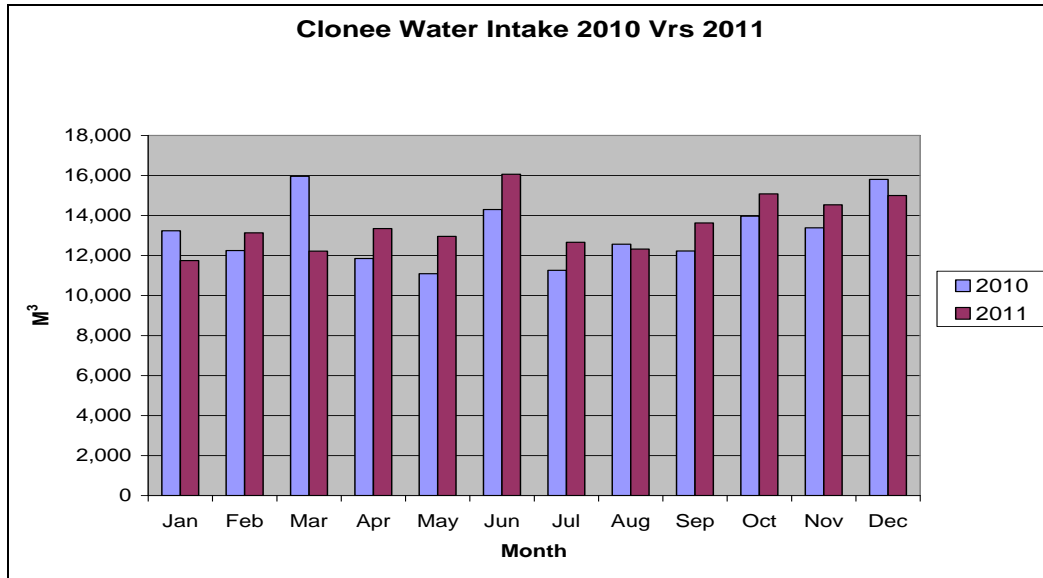
#### **Energy Monitoring System**

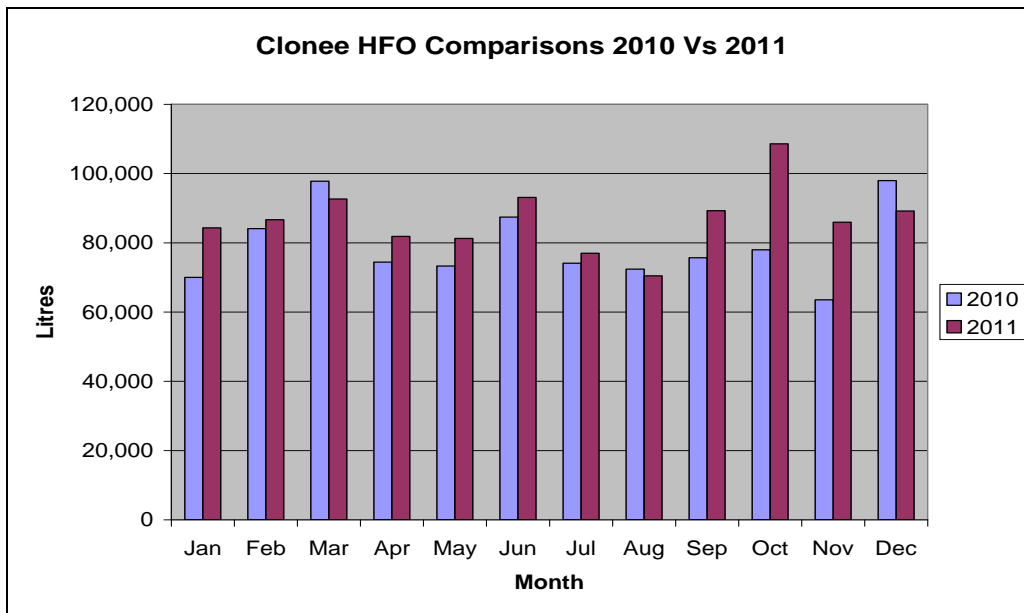
**Target:** Proposal to investigate potential cost savings by the installation of additional metering to the monitoring system to identify potential reductions in resource consumption.

**Time:** December 2012.

### 8. Resource Consumption Summary

Energy	2011	2010	2009	2008	2007	2006
Electricity (GW)	7.92	7.88	8.74	9.82	10.36	10.32
Heavy Fuel Oil (Litres)	1,064,611	948,451	966,845	1,160,967	1,132,103	972,000
Esso UL 95 (Litres)	4,020	4,611	10,000	5,000	7,000	17,000
Auto Diesel (Litres)	29,898	15,700	50,808	35,000	50,000	48,000
GAS Oil (Litres)	159,227	81,023	123,015	150,000	243,465	117,632





## 9. Emissions to Sewer CE-1 – Fingal County Council Sewer

### Licence and Emission Limit Values

The following table is a list of the discharge emission limit values granted in the IPPC licence:

Parameter	Emission Limits from 1st May 2010	Quantity/Time period
Flow	1,300 m <sup>3</sup> /Day	100 m <sup>3</sup> /Hour
BOD	1,500 mg/Litre	1,950 kg/Day
COD	3,000 mg/Litre	3,900 kg/Day
Suspended Solids	1,125 mg/Litre	1,462.5 kg/Day
Sulphates	300 mg/Litre	390 kg/Day
Detergents	100 mg/Litre	130 kg/Day
Phosphates	100 mg/Litre	130 Kg/Day
Fats, Oils and Grease	100 mg/Litre	130 kg/Day
pH Limits	6 -10	6 - 10
Maximum Temperature	42°C	42°C

### Volume

During 2011 a total volume of 144,942 m<sup>3</sup> of waste water was treated. This is a further reduction from the 2010 volume of 148,255 m<sup>3</sup>.

The amount of waste water sent for treatment during 2011 has been reduced further by approx. 3%, with further reductions achieved in 2010 of 14%, when in 2009, 172,557 m<sup>3</sup> was treated.

This is in additional reduction to the 32.7% reduction in effluent production achieved during 2008.

There has been a significant reduction in water usage in the facility since the water usage reduction programme began in 1999, in which 310,328 m<sup>3</sup> was treated.

However, changes to customer specifications and requirements will offer further challenges in the future.

Water usage can be approximately split into three main areas:

- Kill Line 38%
- Ancillary Process 37%
- Wash Down 25%

There have been further improvements made in certain areas, such as:

Staff awareness and training of water usage, in addition to a zero tolerance on water wastage will help reduce volumes further.

Reduction in water usage on yard area washing, by utilising steam condensate/vapour

Continuous improvement projects are continuously being implemented in order to reduce usage.

## 10. Sewer Emissions from the Installation

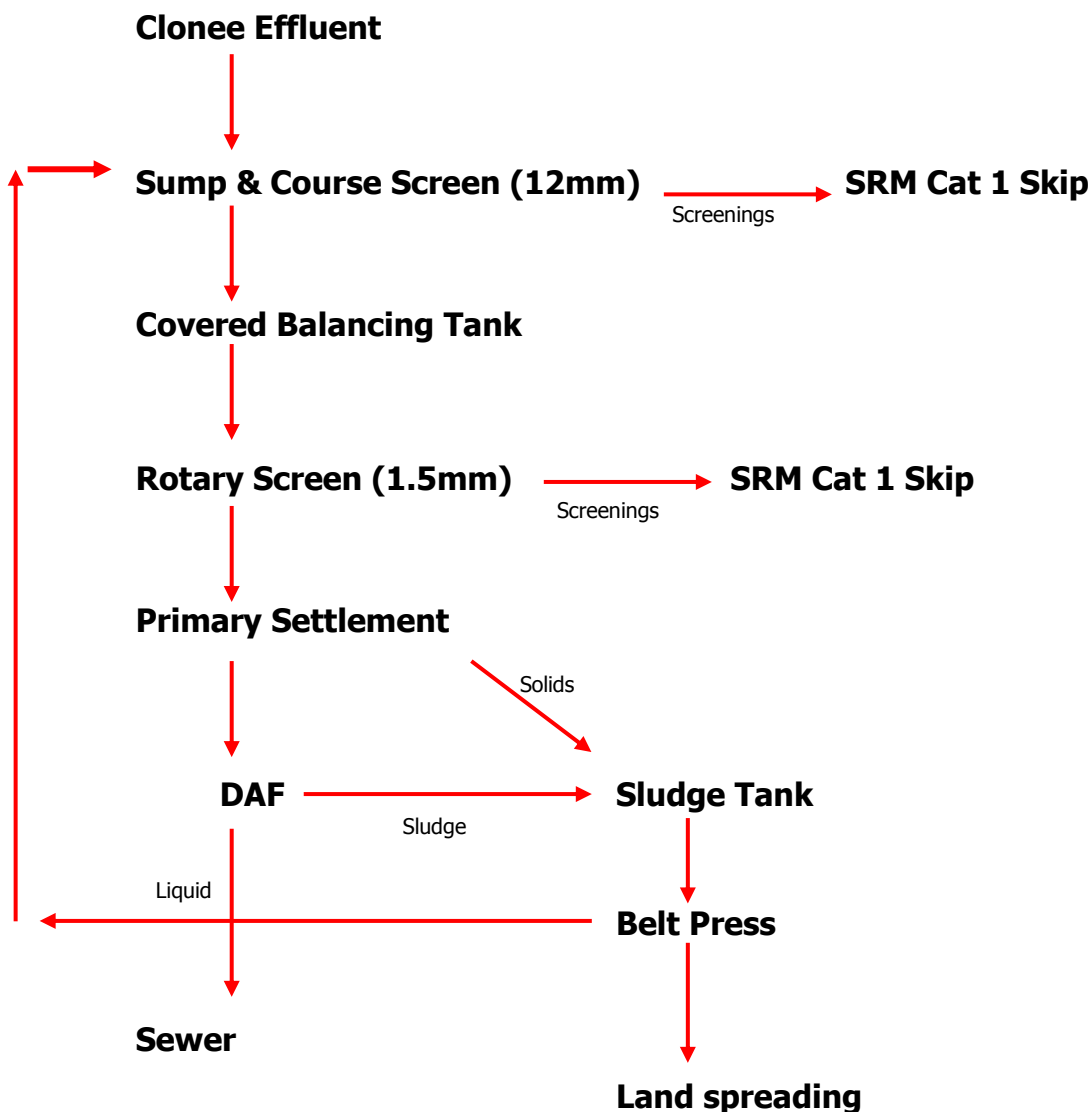
### Quality of Final Effluent.

In accordance with IPPC licence requirements, effluent analysis was carried out on a monthly basis by an external independent laboratory.

The quality of final effluent has been within license limits during the year. Kepak Clonee utilise AMS Laboratories, Clonmel for all external analysis.

Spot check samples were carried out by the EPA and Fingal County Council during the period.

The wastewater treatment process at Clonee involves the following processes:





## Summary of Effluent Results for 2011

pH results were within licence limits for the year 2011 – pH range from 6.5 – 7.8 – as per results submitted on quarterly reports

BOD results were within licence limits for the year 2011 – as submitted with the quarterly reports – all <1500 limit values

COD results were within licence limits for the year 2011 – see data submitted with quarterly reports – all <3000 limit value

Suspended Solid results were within licence limits for the year 2011 – see data submitted on quarterly reports – all <1125 limit values

Sulphate results were within licence limits for the year 2011 – see data submitted on quarterly reports – all <300 limit values

The Phosphate results were within licence limits for the year 2011 – all values tested were <100 license limit values as submitted with the quarterly reports

Oils, Fats and Grease results were within licence limits for the year 2011 – all values were within license limit values as per quarterly reports – all values were < 100 limit values

Detergent results were within licence limits for the year 2011 – all <100 limit values

## 11. Emissions to Air

### Boiler Emissions

The air from boiler A1-1 is monitored in this report as per licence schedule B.1. The air is released from the boilers which use boiling water to create steam to heat the heat exchangers which then supply the energy and heat to all water systems throughout the plant. Steam is released from the boilers and this is then assessed by monitoring contractors bi-annually. The air is analysed for the parameters as cited in Schedule C.1.2 of the IPPC licence.

The first Boiler Monitoring for 2011 was carried out by TMS in April 2011

First Half Monitoring Boiler 1 (A1-1)		Analysis Date:	April 2011
		Report	
Parameter	Units	Emission Limit Value mg/Nm <sup>3</sup>	Result
CO	mg/Nm <sup>3</sup>	N/A	3.6
NO <sub>x</sub>	mg/Nm <sup>3</sup>	600	748
SO <sub>2</sub>	mg/Nm <sup>3</sup>	1700	1361
Particulates	mg/Nm <sup>3</sup>	N/A	28

The second Boiler Monitoring for 2011 was carried out by Odour Monitoring Ireland in December 2011. Results as follows:

Second Half Monitoring Boiler 1 (A1-1)		Analysis Date:	December 2011
		Report no:	201214
Parameter	Units	Emission Limit Value mg/Nm <sup>3</sup>	Result
CO	mg/Nm <sup>3</sup>	N/A	4.4
NO <sub>x</sub>	mg/Nm <sup>3</sup>	600	789
SO <sub>2</sub>	mg/Nm <sup>3</sup>	1700	1568
Particulates	mg/Nm <sup>3</sup>	N/A	124

NO<sub>x</sub> levels were outside licence limits for both emissions testing which was carried out during 2011

Ongoing boiler servicing and controls are in place to try and reduce NO<sub>x</sub> values while maintaining open discussion with the EPA regarding NO<sub>x</sub> emissions.

Overall the NO<sub>x</sub> emissions for the site are within the license limits, as the overall volume has decreased to approx. 16 tonnes for 2011, while the maximum licence emissions limits for NO<sub>x</sub> is 48.17 tonnes per annum.

The reason for the low emissions is that although the NO<sub>x</sub> content per m<sup>3</sup> is above the limit, the flue gas flow rate is low due to high efficiency boilers and a closely watched energy monitoring system.

Before the current licence was introduced in October 2007, Kepak appealed the reduction limits on the grounds that the application for licence review contained incorrect information. The previous licence contained licence limits which were appropriate for heavy fuel oil emissions with a maximum of 1% Sulphur.

As advised by Mr. Patrick Kenny, Kepak Clonee are currently preparing analysis data with a view to requesting a technical amendment to the licence on the current NO<sub>x</sub> license limits. The grounds for the appeal are that the original limits suggested by Kepak to the agency were an error on Kepak's behalf, due to inaccurate testing carried out by an external laboratory.

The atmospheric dispersion modelling survey was carried out by environmental contractors in late 2011.

Formal notification of the findings will be presented to the EPA in early 2012, once all relevant information is compiled and Kepak Clonee will work closely with the EPA to obtain a satisfactory outcome.

Kepak Clonee carries out daily environmental checks and preventative maintenance on equipment to ensure that potential fugitive emissions are identified onsite and controlled.

Bio-filter

The bio-filter from the DAF shed was monitored for the parameters as cited in Schedule C.1.1 of the IPPC licence.

<b>Biofilter 1st Quarter Monitoring – March 2011</b>					
<b>Parameter</b>	<b>Units</b>	<b>Result</b>	<b>Emission Limit Value mg/m<sup>3</sup></b>	<b>Mass Threshold g/hr</b>	<b>Emission Limit Value g/hr</b>
Amines	mg/Nm <sup>3</sup>	1.20	5	<0.29	-
Negative Pressure		Negative pressure	-	-	-
Amides	mg/Nm <sup>3</sup>	1.20			
Flow	Nm <sup>3</sup> /hr	2614	1,730	-	-
pH		7.5	-	-	-
Moisture	%	29	-	-	-
Ammonia	mg/Nm <sup>3</sup>	2.8	30	<0.072	150
Total Hydrogen Sulphides	mg/Nm <sup>3</sup>	1.18	3	<0.29	15
Mercaptans	mg/Nm <sup>3</sup>	1.18	3	<0.072	15

Damper was fully opened to allow maximum flow rate, however all values were within license limits – also discussed with EPA during audit in November 2011

<b>Biofilter 2nd Quarter Monitoring – May 2011</b>					
<b>Parameter</b>	<b>Units</b>	<b>Result</b>	<b>Emission Limit Value mg/m<sup>3</sup></b>	<b>Mass Threshold g/hr</b>	<b>Emission Limit Value g/hr</b>
Amines	mg/Nm <sup>3</sup>	0.80	5	<0.29	-
Negative Pressure		Negative pressure	-	-	-
Amides	mg/Nm <sup>3</sup>	0.80			
Flow	Nm <sup>3</sup> /hr	1690	1,730	-	-
pH		7.0	-	-	-
Moisture	%	34	-	-	-
Ammonia	mg/Nm <sup>3</sup>	4.39	30	<0.072	150
Total Hydrogen Sulphides	mg/Nm <sup>3</sup>	2.28	3	<0.29	15
Mercaptans	mg/Nm <sup>3</sup>	2.28	3	<0.072	15

Biofilter 3rd Quarter Monitoring – Sept 2011					
Parameter	Units	Result	Emission Limit Value mg/m <sup>3</sup>	Mass Threshold g/hr	Emission Limit Value g/hr
Amines	mg/Nm <sup>3</sup>	0.48	5	<0.29	-
Negative Pressure		Negative pressure	-	-	-
Amides	mg/Nm <sup>3</sup>	0.48			
Flow	Nm <sup>3</sup> /hr	1480	1,730	-	-
pH		7.2	-	-	-
Moisture	%	32	-	-	-
Ammonia	mg/Nm <sup>3</sup>	1.20	30	<0.072	150
Total Hydrogen Sulphides	mg/Nm <sup>3</sup>	0.12	3	<0.29	15
Mercaptans	mg/Nm <sup>3</sup>	0.12	3	<0.072	15

Biofilter 4th Quarter Monitoring – Dec 2011					
Parameter	Units	Result	Emission Limit Value mg/m <sup>3</sup>	Mass Threshold g/hr	Emission Limit Value g/hr
Amines	mg/Nm <sup>3</sup>	0.22	5	<0.29	-
Negative Pressure		Negative pressure	-	-	-
Amides	mg/Nm <sup>3</sup>	0.22			
Flow	Nm <sup>3</sup> /hr	1390	1,730	-	-
pH		7.2	-	-	-
Moisture	%	30	-	-	-
Ammonia	mg/Nm <sup>3</sup>	0.85	30	<0.072	150
Total Hydrogen Sulphides	mg/Nm <sup>3</sup>	0.08	3	<0.29	15
Mercaptans	mg/Nm <sup>3</sup>	0.08	3	<0.072	15

## 12. Surface Water Monitoring

SW1, SW2 and SW3 surface water emission points are discharged to the Tolka river. It is a licence requirement that it be laboratory tested on a monthly basis. However there may not always be flow from certain SW drain outlets – this will be listed as 'No flow' on the tables below

The following table is a summary of results for SW1, 2011:

Period	Report No	Date	pH	COD	Ammonia	Total Nitrogen	Conductivity
1st Quarter	WAT33951	11/01/2011	7.5	18	0.02	1.4	1080
2nd Quarter	WAT34458	14/02/2011	7.7	12	0.03	1.4	829
	WAT36394	06/05/2011	7.5	10	0.05	1.2	645
	WAT37814	16/06/2011	7.1	56	0.31	3	205
3rd Quarter	WAT38397	07/07/2011	8.4	64	0.17	4	92.1
	No flow						
4th Quarter	WAT 41384	14/10/2011	7.6	25	0.15	<5	460
	WAT 41967	04/11/2011	7.7	30	<0.03	<5	445

SW1 only flows when there is very heavy rain at the time of sampling. It takes the run off water from the driveway leading up to the group offices and the driveway leading into the factory (relatively small catchments area). The following table is a summary of results for SW2, 2011:

Period	Report No	Date	pH	COD	Ammonia	Total Nitrogen	Conductivity
1st Quarter	WAT33952	11/01/2011	7.5	17	0.31	1.4	1065
	WAT34459	04/02/2011	7.7	10	0.03	1.4	828
	WAT35294	09/03/2011	7.7	11	0.03	2	780
2nd Quarter	No flow						
	WAT36393	06/05/2011	7.6	10	0.04	1	587
	WAT37725	13/06/2011	7.1	52	3.48	8	786
3rd Quarter	WAT38398	07/07/2011	7.1	34	0.18	1.4	2010
	WAT39971	31/08/2011	7.3	<10	<0.03	<1.4	1860
	No flow						
4th Quarter	No flow						
	WAT 41162	07/10/2011	7.3	12	0.05	<5	1750
	WAT 41968	04/11/2011	7.7	14	<0.03	<5	447

SW2 drains water from agricultural lands to the rear of the factory. It also drains the area outside the factory dry goods store at the front of the site.

Laboratory test results for SW3 2011 were as follows:

Period	Report No	Date	pH	COD	Ammonia	Total Nitrogen	Conductivity
1st Quarter	WAT33953	11/01/2011	7.5	18	0.2	1.4	1074
	WAT35413	14/02/2011	7.7	10	0.37	2.7	648
2nd Quarter	No flow						
	WAT36392	06/05/2011	7.7	20	1.0	1	420
	WAT37726	13/06/2011	7.9	10	0.05	5	886
3rd Quarter	WAT38399	07/07/2011	7.7	20	0.11	3	544
	WAT39187	05/08/2011	7.8	12	0.12	15	463
	No flow						
4th Quarter	WAT39972	02/09/2011	7.8	<10	<0.03	<1.4	425
	WAT41163	07/10/2011	7.8	16	<0.03	<5	452
	WAT41969	04/11/2011	7.8	20	<0.03	<5	462

SW3 drains the concreted outside at the right and front of the factory, and some of the roof areas.

Laboratory test results for SW4 2011 were as follows:

Period	Report No:	Date	pH	COD	Ammonia	Total Nitrogen	Conductivity
1st Quarter	WAT34304	31/01/2011	7.6	10	0.06	1.4	859
2nd Quarter	WAT35414	14/03/2011	7.6	10	0.34	1.4	639
	WAT36385	06/05/2011	7.7	10	0.3	1	658
	WAT37727	13/06/2011	6.6	31	2.88	6	75.3
3rd Quarter	WAT38400	07/07/2011	6.3	34	0.29	5	46.5
	No flow						
4th Quarter	WAT41164	14/10/2011	7.1	47	0.68	<5	90.8
	WAT41970	04/11/2011	7.8	21	<0.03	<5	479

SW4 flows into a surface water drain beside the lairage. The catchment area of SW4 is the lairage roof.

Ground Water (Well Water) analysis was carried out by AMS as an annual requirement. Results as follows:

	Result 23.02.2011	Result 23.02.2011	
Parameter	Well 1	Well 2	Units
Nitrate	<4.0	6.2	mg/L
pH	7.7	7.6	pH units
Conductivity	718	750	uS/cm
Ammonia	0.03	0.06	mg/L N
COD	<10	<10	mg/L N
Total Nitrogen	<1.4	<1.4	mg/L N
Total Coliforms	0	0	cfu/per 100ml
Eschericha	<1	<1	cfu/per 100ml

As can be seen, all parameters are within EU Groundwater Water Regulations

### 13. Reporting

All quarterly reports and external correspondence were submitted to the agency in full, as required by the license.

A Nutrient Management Plan was compiled for lands owned by Ben Dillon, Girley, Co. Meath, for the proposed landspreading of organic waste and submitted to the agency in February 2011

Air, ground water, surface water and effluent analysis was carried out and submitted in the Quarterly Environmental Reports.

### 14. Energy Efficiency Audit Report Summary

An energy efficiency audit was carried out during 2008 and improvements for energy savings identified during that audit were implemented resulting in the reduction in electrical consumption through projects implemented to target energy reduction. Energy monitoring is carried out through the energy management system to closely monitor resource consumption on site and identify areas of improvement. Energy efficient equipment and motors are sourced and used where possible to reduce electrical loading on site.

Continuous improvement projects are utilized to identify and estimate savings and energy reductions achievable prior to projects being implemented.



## 15. Waste Management Record

Kepak Clonee utilised the following waste handling companies for off-site waste in 2011:

Product	Destination	Destination Licence No.	Transporter	EWC Code
Bellygrass	B. Dillon	N/A	M. Murtagh	02 02 99
Sludge	B. Dillon	N/A	M. Murtagh	02 02 04
SRM	College Proteins	R911	O' Donohue	02 02 02
Bones	College Proteins	R911	O' Donohue	02 02 02
Offal	College Proteins	R911	O' Donohue	02 02 02
Waste Blood	College Proteins	R911	Brian Keogh	02 02 03
Bovine Blood	APC Technologies	REN/241/89	APC Technologies	02 02 99
Waste oil for recycling	Enva Oil	W0184-01	Enva	13 02 05
Recycled Cardboard	Panther waste	IRE/G/105/08	Panther waste	15 01 01
Recycled Plastic - Hard	Panther waste	IRE/G/105/08	Panther waste	15 01 02
- Soft	Panther waste	IRE/G/105/08	Panther waste	15 01 02
General Waste	Panda Waste	140-2	Panda Waste	02 02 03
Wood	David Burlington	131-2	Midland Waste	20 01 38
Metal	Panda Waste	140-2	Panda Waste	17 04 05
Electrical waste	Panda Waste	140-2	Panda Waste	16 02 13
Dry Goods Recycling	Panda Waste	140-2	Panda Waste	20 03 01
Pulped Recycled Paper	Pulp Recycling	WCP-DC-09-1188-01	Pulp Recycling	15 01 01
Ink Cartridges Collections	Folamh Ltd	WFP-10-OY-0181-01	Folamh Ltd	08 03 13

There were no rejected wastes. All wastes were disposed of by approved and licensed contractors. Waste collection permits, data and licences are kept on file in the technical department.

## 16. Complaints Summary

Kepak received one odour complaint during 2011, however the source of the odour was identified as a land spreading areas on the outskirts of Clonee village. The incident & findings were reported to the EPA and the issue was formally closed

Kepak Clonee received no complaints from Fingal County Council during 2011 regarding final emissions from CE-1.  
Results are held on file for all external analysis

## 17. Noise Monitoring Report Summary

The night-time levels at all locations do not exceed the EPA Guideline levels for noise sensitive receivers when the ambient noise levels are stripped out.

The day-time levels at all locations do not exceed the EPA Guideline levels for noise sensitive receivers when the ambient noise levels are stripped out.

Presently Kepak Clonee does not present a noise issue in the surrounding environment in regard to  $L_{Aeq}$  daytime or night time readings.  
No noise complaints have been received by Kepak Clonee during 2011

## 18. Ambient Monitoring Summary

Odour checks are carried out daily as part of the daily environmental monitoring programme. Odour monitoring points are located at (i) the front gate, (ii) behind the treatment plant and the side of the Lairage,  
No odours have been detected outside the perimeter.

## 19. Tank and Pipeline Testing and Inspection Report

Underground CCTV pipe survey was carried out by Panda Waste Services, Navan, Co. Meath in 2008. During this survey it was noted that some cracks were evident. Repairs were carried out to the affected line. Survey report and DVDs are kept on file in Technical Office at Kepak Clonee.  
Further CCTV checks are due to be completed during 2012 and any necessary corrective actions will be implemented.

Integrity testing of bunds was carried out in 2009 by Danny Graham, Maintenance Manager, Kepak Clonee. There were also monthly planned preventative maintenance pipework audits carried out by the maintenance department.

Integrity tests were also completed on further bunds during 2011 and results are held on file.

## 20. Reported Incidents Summary

An environmental incident log is maintained in the Technical Office at Kepak Clonee. There were no environmental incidents associated with the Kepak Clonee site during 2011.

## 21. Proposed Energy Saving Projects

- Continue to update the current chill monitoring system in order to closely monitor chilling performance and energy consumption patterns. This is an area where it may be possible to save substantial amounts of electricity by simply changing the chilling regimes. It could also highlight inefficiencies in the system, allowing for changes to be made to the gas pressure or highlighting the potential to upgrade processes and any potential improvements that could be made to the energy monitoring system.
- Investigate the possibility of installing a heat exchanger into the fat plant to heat water from waste steam generated from the process.
- Progress an employee initiative program, whereby employees of the site will be rewarded for identifying new ideas of energy savings that are progressed

## 22. Efficiency of Use of Raw Materials in Processes and the Reduction in Waste Generated

During 2010 & 2011 a number of trials were undertaken to reduce amounts of vac-pac packaging and waste.

Smaller sized suitable packaging is currently in use where it is appropriate on all vac-packed products.

The amount of wrap used for pallet wrapping was reduced use of the pallet wrapping machine which pre stretches the plastic as the pallet is being wrapped.

During 2011 packaging used in the process was reviewed to identify possibly reductions achievable through reducing the weight and size of the bag being used in product packaging.

The bag micron size from changed from 50 gauge to 40 gauges on certain vac-packed bags for beef primals

## Energy Usage

### Water Consumption

Source	Unit	2011	2010	2009	2008	2007	2006
On-site ground water Well 1 +2	m <sup>3</sup>	162,666	157,866	161,787	185,410	197,755	216,809

Although there was a slight increase in the water intake, this is mainly due to changes in customer product specification, whereby, additional water washing is now completed on green offal product

### Electricity Usage

During 2011 further improvements were made on electricity usage in the facility. This was reflected in a reduction in electricity usage. The electricity consumption was reduced by 9.8% in one year.

The annual electricity consumption for 2011 was 7.85GW compared to 7.88GW in 2010 and compared to 8.73GW in 2009. It is thought that further reductions are possible in the coming year.

## 23. Report on Progress Made and Proposals Being Developed to Minimise Electricity Demand

### Proposed Water, Oil and Electricity Saving Projects

Over the course of 2012 Kepak will strive to reduce energy consumption. Kepak's energy system will identify key areas of energy usage and help to find areas where energy can be saved. Our target reduction in overall energy for 2012 usage is 2%. The total energy reduction achieved during 2011 was 3%. The main area to target with regards to electrical usage is the refrigeration compressors. By closely monitoring chilling temperatures and coolant pressure Kepak hope to reduce the electrical load on the compressors, and hence reduce the overall electricity usage.

## 24. Review of Residuals Management Plan

In the event of Kepak Clonee ceases its production a decommissioning plan has been identified. This plan is in accordance with Environmental Liabilities Risk Assessment and is kept on file in the technical office.

### Equipment & Machinery

Equipment and Machinery from the factory will be sent to other Kepak sites as required. Any equipment or machinery not used in other Kepak sites will be sold at auction.

**Building Materials**

Concrete will be crushed and re-used in the construction industry.

Metal will be collected by approved haulier and recycled by licensed metal recycling company.

Panels will be re-used in other Kepak sites or sold at auction.

**Oils and Chemicals**

Unused oils and chemicals will be collection by approved haulier and disposal of by licensed waste management company.

All items will be decommissioned and removed in accordance with Health and Safety Regulations.

A final evaluation report will be carried out by a structural engineer.

## 25. Statement of Measures in Relation to Prevention of Environmental Damage and Remedial Actions (Environmental Liabilities)

A comprehensive Environmental Management System is in place to prevent potential damage to the environment. Remedial actions have been documented and measures put in place. This will be updated in accordance with the ELRA.

The ELRA / CRAMP reports were finalised by Rowan Engineering Consultants and submitted during May 2009. The documents have been reviewed as per condition 10.2.2 and No amendments are to be made to the proposal.

## 26. Report on progress made and proposals being developed to minimise water demand and the volume of trade effluent discharge.

A substantial reduction in water usage has been made by Kepak Clonee on reduction of water demand and volume of trade effluent being discharged to Fingal County Council.

Since the monitoring programme was introduced in 1999 a 52.2% reduction has been achieved in water being discharged to sewer. During 2011 a further reduction of 6% was achieved from the 14.1% achieved in 2010 and from the 32.7% reduction in 2009.

An overall reduction was achieved in reducing well water intake. Since receiving its IPPC licence in 2007 well water consumption has been reduced by 20.2%.

In order to reduce this figure further it is proposed to introduce further water saving initiatives through good work practice and daily monitoring of water consumption in each department.

# APPENDIX 1



IPRTB : P01671 Facility Name : Kepak Clonee File Name : PRTR P0167\_2011.annual Return Year : 2011

Guidance to completing the PRTR workbook

## AER Returns Workbook

Version 1.1.13

<b>REFERENCE YEAR</b>	2011
<b>1. FACILITY IDENTIFICATION</b>	
Parent Company Name	Kepak Clonee
Facility Name	Kepak Clonee
PRTR Identification Number	P0167
Licence Number	P0167-02
Waste or IPPC Classes of Activity	
<b>N</b>	<b>class_name</b>
7.4.1	The operation of slaughterhouses with a carcass production capacity greater than 50 tonnes per day
Address 1	Clonee
Address 2	County Meath
Address 3	
Address 4	
	Meath
Country	Ireland
Coordinates of Location	-6.433664531 53.41210264
River Basin District	IEEA
NACE Code	1011
Main Economic Activity	Processing and preserving of meat
<b>AER Returns Contact Name</b>	Brian Robinson
<b>AER Returns Contact Email Address</b>	brian.robinson@kepak.com
<b>AER Returns Contact Position</b>	Technical Manager
<b>AER Returns Contact Telephone Number</b>	01 8013000
<b>AER Returns Contact Mobile Phone Number</b>	01 8013056
<b>AER Returns Contact Fax Number</b>	01 8013001
<b>Production Volume</b>	26000.0
<b>Production Volume Units</b>	70,000 cattle
<b>Number of Installations</b>	1
<b>Number of Operating Hours in Year</b>	5530
<b>Number of Employees</b>	300
<b>User Feedback/Comments</b>	
<b>Web Address</b>	
<b>2. PRTR CLASS ACTIVITIES</b>	
<b>Activity Number</b>	<b>Activity Name</b>
8(a)	Slaughterhouses
<b>3. SOLVENTS REGULATIONS (S.I. No. 543 of 2002)</b>	
Is it applicable?	Yes
Have you been granted an exemption?	No
If applicable which activity class applies (as per Schedule 2 of the regulations)?	
Is the reduction scheme compliance route being used?	

RELEASES TO AIR									
POLLUTANT		METHOD			Please enter all quantities in this section in KGs				
No. Annex II	Name	M/C/E	Method Code	Designation or Description	ADD EMISSION POINT	QUANTITY			
					Emission Point 1	T (Total) KG/Year	A (Accidental)	F (Fugitive)	
11	Sulphur oxides (SO <sub>2</sub> /SO <sub>2</sub> )	M	EN 14791:2005		26128.0	26128.0		0.0	
06	Ammonia (NH <sub>3</sub> )	M	OTH	VDI 3641	0.0	0.0		0.0	
08	Nitrogen oxides (NO <sub>x</sub> /NO <sub>2</sub> )	M	EN 14792:2005		21023.0	21023.0		0.0	
02	Carbon monoxide (CO)	M	EN 15058:2004		36.0	36.0		0.0	
86	Particulate matter (PM10)	M	OTH	ISO 9036	28.0	28.0		0.0	
ADD NEW ROW   DELETE ROW * * Select a row by double-clicking on the Pollutant Name (Column B) then click the delete button									
SECTION B : REMAINING PRTR POLLUTANTS									
RELEASES TO AIR									
POLLUTANT		METHOD			Please enter all quantities in this section in KGs				
No. Annex II	Name	M/C/E	Method Code	Designation or Description	ADD EMISSION POINT	QUANTITY			
					Emission Point 1	T (Total) KG/Year	A (Accidental)	F (Fugitive)	
						0.0	0.0		0.0
ADD NEW ROW   DELETE ROW * * Select a row by double-clicking on the Pollutant Name (Column B) then click the delete button									
SECTION C : REMAINING POLLUTANT EMISSIONS (As required in your Licence)									
RELEASES TO AIR									
POLLUTANT		METHOD			Please enter all quantities in this section in KGs				
Pollutant No.	Name	M/C/E	Method Code	Designation or Description	ADD EMISSION POINT	QUANTITY			
					Emission Point 1	T (Total) KG/Year	A (Accidental)	F (Fugitive)	
						0.0	0.0		0.0
ADD NEW ROW   DELETE ROW * * Select a row by double-clicking on the Pollutant Name (Column B) then click the delete button									
Additional Data Requested from Landfill operators									
For the purposes of the National Inventory on Greenhouse Gases, landfill operators are requested to provide summary data on landfill gas (Methane) flared or utilised on their facilities to accompany the figures for total methane generated. Operators should only report their Net methane (CH <sub>4</sub> ) emission to the environment under T (total) KG/yr for Section A: Sector specific PRTR pollutants above. Please complete the table below:									
Landfill: Please enter summary data on the quantities of methane flared and / or utilised									
Kepak Clonee									
T (Total) kg/Year		M/C/E	Method Code	Designation or Description	Facility Total Capacity m3 per				
Total estimated methane generation (as per site model)		0.0			N/A				
Methane flared		0.0			0.0 (Total Flaring Capacity)				
Methane utilised		0.0			0.0 (Total Utilisation Capacity)				



**SECTION A : SECTOR SPECIFIC PRTR POLLUTANTS** 20

Pollutant monitoring of storm surface water or groundwater, conducted as part of your license requirements, should NOT be submitted under AER / PRTR Reporting or this

POLLUTANT		Method Used		ADD EMISSION POINT				QUANTITY		
No. Annex II	Name	Method Code	Designation or Description	Emission Point 1	Emission Point 2	Emission Point 3	Emission Point 4	T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year
12	Total nitrogen	EN ISO 11905		3.0	2.9	4.3	3.5	13.7	0.0	0.0
76	Total organic carbon (TOC) (as total C or COD/2)	EN 1484:1997		10.2	6.2	5.03	7.76	29.19	0.0	0.0

**SECTION B : REMAINING PRTR POLLUTANTS**

POLLUTANT		Method Used		ADD EMISSION POINT			QUANTITY	
No. Annex II	Name	Method Code	Designation or Description	Emission Point 1	T (Total)	A (Accidental)	F (Fugitive)	
				0.0	0.0	0.0	0.0	

**SECTION C : REMAINING POLLUTANT EMISSIONS (as required in your License)**

POLLUTANT		Method Used		ADD EMISSION POINT				QUANTITY		
Pollutant No.	Name	Method Code	Designation or Description	Emission Point 1	Emission Point 2	Emission Point 3	Emission Point 4	T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year
238	Ammonia (as N)	OTH	VCI 3641	0.1	0.44	0.19	0.65	1.38	0.0	0.0

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Facility ID & Activities | Releases to Air | **Releases to Waters** | Releases to Wastewater or Sewer | Releases to Land | Treatment & Transfers of Waste | Ref |

SECTION A : PRTR POLLUTANTS						
OFFSITE TRANSFER OF POLLUTANTS DESTINED FOR WASTE-WATER TREATMENT				Please enter all quantities in this section in KGs		
POLLUTANT		ID	ADD EMISSION POINT	QUANTITY		
No. Annex II	Name	Code Used Designation or Descriptor	Emission Point 1	T (Total) KG/Year	A (Accidental)	F (Fugitive)
12	Total nitrogen		8522.58	8522.58	0.0	0.0
13	Total phosphorus		1637.84	1637.84	0.0	0.0
76	Total organic carbon (TOC) (as total C or COD/3)		0.0	0.0	0.0	0.0
ADD NEW ROW		DELETE ROW *				
* Select a row by double-clicking on the Pollutant Name (Column B) then click the delete button						
SECTION B : REMAINING POLLUTANT EMISSIONS (as required in your Licence)						
OFFSITE TRANSFER OF POLLUTANTS DESTINED FOR WASTE-WATER TREATMENT				Please enter all quantities in this section in KGs		
POLLUTANT		ID	ADD EMISSION POINT	QUANTITY		
Pollutant No.	Name	Code Used Designation or Descriptor	Emission Point 1	T (Total) KG/Year	A (Accidental)	F (Fugitive)
306	COD	APTHA 4500	97328.55	97328.55	0.0	0.0
303	BOD	APTHA 5210	57759.38	57759.38	0.0	0.0
314	Fats, Oils and Greases	APTHA 5220B	2652.44	2652.44	0.0	0.0
240	Suspended Solids	APTHA 2540D	16233.5	16233.5	0.0	0.0
ADD NEW ROW		DELETE ROW *				
* Select a row by double-clicking on the Pollutant Name (Column B) then click the delete button						
<div style="border: 1px solid gray; padding: 5px; width: fit-content; margin-bottom: 5px;">PRINT THIS SHEET</div> <div style="border: 1px solid gray; padding: 5px; width: fit-content; margin-bottom: 5px;">HELP</div> <div style="border: 1px solid black; width: 80px; height: 20px; margin: 20px auto;"></div>						

5. ONSITE TREATMENT & OFFSITE TRANSFERS OF WASTE (PRTR#: P0167) Facility Name: Kepak Clonee | Filename: P0167\_2011.xls | Return Year: 2011

Please enter all quantities on this sheet in Tonnes

Transfer Destination	European Waste Code	Hazardous	Quantity (Tonnes per Year)	Description of Waste	Waste Treatment Operation	Method Used		Location of Treatment	Has Waste: Name and Licence/Permit No of Next Destination Facility	Has Waste: Address of Next Destination Facility	Name and License / Permit No. and Address of Final Recoverer / Disposer (HAZARDOUS WASTE ONLY)	Actual Final Destination Disposal Site
						M/C/E	Method Used		Non-Has Waste: Name and Licence/Permit No of Recoverer/Disposer	Non-Has Waste: Address of Recoverer/Disposer		
Within the Country			3890.14	SRM	D1	M	Weighed	Offsite in Ireland	College Proteins ,R311	Nobber, Co. Meath, ,Ireland		
Within the Country			1517.3	Sludge	D10	M	Weighed	Offsite in Ireland	Murtagh,WCP/IMH/2002/4	Fordstown, ,Co Meath ,Ireland		
Within the Country			3912.27	Bones	D10	M	Weighed	Offsite in Ireland	College Proteins ,R311	Meath, ,Ireland		
Within the Country			2301.2	Offal	D10	M	Weighed	Offsite in Ireland	College Proteins ,R311	Meath, ,Ireland		
Within the Country			1184.16	Bovine Blood	R3	M	Weighed	Offsite in Ireland	241/89	Regal Processing,REN		
Within the Country			1776.84	Bellygrass	D1	M	Weighed	Offsite in Ireland	01	Armagh, ,Ireland		
Within the Country			2562.2	Tallow	R3	M	Weighed	Offsite in Ireland	01	Murtagh,WCP/IMH/2002/4	Fordstown, ,Co Meath ,Ireland	
Within the Country			48.2	Recycable cardboard	R5	M	Weighed	Offsite in Ireland	Walko Foods,800319	Waterford, ,Ireland		
Within the Country			16.2	Recycable plastics	R5	M	Weighed	Offsite in Ireland	8	Environmental,IRE/G105/0	Carlow, ,Ireland	
Within the Country			88.0	Compactor disposal	D1	M	Weighed	Offsite in Ireland	8	Panther		
										Environmental,IRE/G105/0	Carlow, ,Ireland	
										Panda Waste	Rathdrainagh, ,Co. Meath ,Ireland	
										Services,WCP/IMH/2003/3	Meath ,Ireland	

ADD NEW ROW    DELETE ROW\*    \* Select a row by double-clicking the Description of Waste then click the delete button

[Link to previous years waste data](#)  
[Link to previous years waste summary data & percentage change](#)

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Facility ID & Activities    Releases to Air    Releases to Waters    Releases to Wastewater or Sewer    Releases to Land    Treatment & Transfers of Waste    Rele