

**Kerry Ingredients (Ireland) Ltd.
Listowel, Co. Kerry
(IPCL Reg. No. 393)**

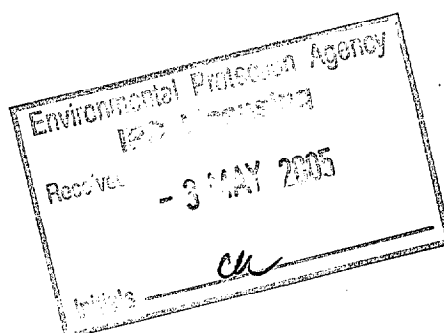
Revised IPPC Licence Application

April 2005

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1.0 Introduction

Kerry Ingredients (Ireland) Ltd submitted a formal request to the EPA on 25th November 2003 to apply for a review of their current IPC Licence (Licence Register Number 393).

The following report summarises the proposed revisions to the site IPC Licence and reflects changes that have occurred at the Listowel plant since the original licence application was submitted to the Agency in 1998.

In addition, the licence review addresses inconsistencies in the original licence application, which have adversely affected the Company's ability to comply fully with the current IPC Licence, specifically with respect to emissions to atmosphere (Schedule 1).

2.0 Summary of Proposed Changes

The proposed changes to the licence are as follows:

(a) Alterations to the Activity

Construction of cheese plant; installation of temporary (prefabricated) R&D building adjacent to the administration; construction of a pallet store/wash area; installation of a temporary structure to house the occupational health centre; extension of the carton store area in the butter/spreads department.

(b) Emissions to Atmosphere

Changes due to incorrect volumetric flowrates submitted on the original licence application; improvements to abatement systems on process emission points along with burner upgrades on the oil fired boilers.

(c) Emissions to Water

Increased daily flow, chloride, sulphate and Ortho-P concentration in effluent discharge to the River Feale. Revision of parameters to be measured and frequency of testing.

(d) Monitoring of lands used for landspreading

Reduce frequency of testing soil from every 2 years to every 3 years on the basis of best practice and accepted guidelines issued by Teagasc.

(e) Updated waste management information

3.0 Description of Alterations to the Activity

A new cheese plant was constructed at the site in 2000. This plant manufacture's industrial and mozzarella cheese by reconstituting casein, fat, starch and emulsifying salts with water. This cheese is then cooked and filled into boxes, etc which are then placed in cold storage.

The emissions associated with this activity are minor and comprise of steam from the cheese cookers, which is extracted from the plant by rooftop fans.

This cheese plant also has its own Cleaning In Place (CIP) facility utilising water, caustic and acid rinsing to clean all equipment routinely.

The total area of this new plant is approximately 1681m² and its location is highlighted in the attached map showing the site layout. (Attachment A Drawing D1).

Temporary buildings (prefabs) were installed in 1999 (R&D) and in 2003 (Occupational Health Office). Emissions and discharges associated with both areas are minor and comprise of air, wash water from wash hand basins and sinks and small quantities of solid waste (packaging, paper, food samples).

Kerry Ingredients constructed an off site sludge storage facility at Causeway, Co. Kerry during 2002. Here sludge from the wastewater treatment plant is stored during winter months and periods not suitable for landspreading.

The sludge is transported via vacuum tanker by licensed waste contractors (SolWM) to the sludge storage facility. Here sludge is pumped into one of two no. 3,000 t lined and covered storage bunds, where it is stored during the winter no spread period. Each bund is covered with a heavy gauge polyethylene cover to prevent the ingress of rainwater and thereby prevent any volume changes.

On commencement of landspreading operations in March and after approval of the NMP by the EPA stored sludge is pumped from the storage bunds into vacuum tankers for transportation to the landspread area and subsequent landspreading.

Regular inspections of the sludge storage facility at Causeway are carried out by Kerry Ingredients Maintenance Personnel, along with the Environmental Manager and the Wastewater Treatment Plant Manager.

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4.0 Emissions to Atmosphere

4.1 Alteration to Emissions to Atmosphere

The operation of the new cheese manufacturing plant has not resulted in a significant change to emission characteristics from the site.

Emissions from cheese manufacture typically comprise fugitive emissions associated with vents from the cooking ovens in the cheese plant.

For compilation of this licence review an assessment was carried out to identify all sources of emissions to atmosphere associated with the facility. Results of this investigation show that at present there are a total of 191 emission points from this facility categorised as follows:

Reference No.	Emission Category	No.
A1-1 to A1-9	Boiler Emissions	9
A2-1 to A2-13 (Excl A2-5, A2-6)	Process Emissions	13
A3-1 to A3-26	Minor Emissions	26
A4-1 to A4-127	Fugitive Emissions	127
A5-1 to A5-4	Potential Emissions	4
A6-1 to A6-12	Potential / Emergency Emissions	12

4.2 Boiler Emissions

There are nine licensed combustion emission sources currently in operation at the Kerry Ingredients facility in Listowel (A1-1 to A1-9). These emission sources comprise of five dual-fuel fired steam boilers (A1-1 to A1-5), one solid fuel (coal, peat) steam boiler (A1-6) and three gas-oil fired heaters (Niro and Casein burners, A1-7 to A1-9).

New burners were installed in 2003 on four HFO boilers (A1-1, A1-2, A1-3 and A1-5) to improve combustion efficiency. This upgrade included the provision for dual fuel firing (heavy fuel oil and light fuel oil) capability on boilers A1-1, A1-2, A1-3 and A1-5. In addition a new boiler management system (BMS) has been installed, which has allowed for improved control over firing and burning operation on all boilers

A second casein burner has also been installed at the plant. Emissions from this new casein burner are discharged via the same stack as the original casein burner (A1-9).

Emissions data, particularly volumetric flow rates from atmospheric emission points were provided for the original IPC Licence application, based on a series of measurements available at that time.

Subsequent compliance monitoring between (2001 and 2004) has indicated variability in peak flows, which were not originally envisaged.

Accordingly, volumetric flow information supplied as part of the original application represented a considerable understating of actual flow rates, and the plant has had non-compliances (against maximum permitted flow) on numerous occasions.

The Agency, informed of this issue, have been notified that this review process is intended to update the licence and remove the original inconsistencies.

REC Ltd. were commissioned in June 2004 to undertake a study of peak flow rates at all combustion sources and maximum actual flows are set out in the proposed changes to the licence

4.3 Process Emissions

There are currently eleven process emission points to atmosphere (A2-1 to A2-13, excluding A2-5 and A2-6). These emission sources are comprised of product driers (A2-1, A2-2, A2-3, A2-4, A2-7, A2-8 & A2-9), along with fluidised beds, (A2-10, A2-11) and two casein mills (A2-12, A2-13).

Since the original licence application a new baghouse filter has been installed and commissioned on Niro 1 (A2-1).

The stack was removed from Niro 1 VF Exhaust (A2-2) and redirected to flow through the baghouse filter at A2-1, hence making A2-2 redundant.

Currently, the Lactose Main Drier, (Niro 3, A2-4) is no longer in use. However, this Drier may be used in the future and Kerry Ingredients propose to retain this emission point in the Licence.

Since the issue of the IPC licence, scheduled monitoring of process emissions has indicated that volumetric flow rates have exceeded licence limit values on a number of occasions.

This review proposes revisions to Schedule 1(i) Process emissions to update and correct the licence limit values.

4.4 Ambient Air Monitoring

The position of the ambient air quality monitors was based on the modelled predictions where a monitor was placed within the zone of expected highest ground level concentrations (GLC) as determined by modelling (99305E, 132525N). The second monitor was placed on lands owned by Kerry Ingredients between the plant and Listowel town (99368E, 133217N).

4.5 Impact Assessment

Monitoring of emissions to atmosphere is undertaken in accordance with the requirements of Schedule 1(iii) of the IPC Licence.

A review of the results of monitoring has shown that emissions to atmosphere, expressed as hourly mass emissions, are generally within the permitted levels. On occasion however, exceedances in hourly flow values have resulted in mass emissions above those permitted.

Non-compliances due to emissions to atmosphere reported to the Agency are typically associated with volumetric flow rates found to exceed the licensed limits.

Kerry Ingredients commissioned Project Management to conduct a boiler emissions study in 2002 to ascertain the potential impact the boilers and burners at the site have on the existing environment through the use of modelling (See attached report).

The PM report concluded a number of preferred options for the Kerry Ingredients plant. Some of these recommendations included the following:

- Install a new 35m high stack with five separate flues inside to cater for emissions A1-1 to A1-5.
- A combination of HFO and gas oil is to be used over the year depending on operational requirements.

Subsequent review of ambient air quality monitoring at 2 No. off-site locations have indicated that actual air quality is good and significantly below both current and proposed National Air Quality Standards (NAQS) for Sulphur dioxide (SO₂) and Nitrogen dioxide (NO₂) and predicted (or modelled) ground level concentrations.

Arising from a review of actual air quality data, PM were commissioned to review the original proposal for stack height increase, which would have resulted in all boiler emission points being raised to 35m (AGL).

The PM Report, submitted as part of this application, indicated that worst case conservative modelling predicted ground level concentrations, which far exceeded any results obtained through active ambient air quality sampling.

The Report concludes that the case for increasing stack heights or restriction of Boilers 3 and 5 simultaneous operation was not supported by long term monitoring, and accordingly should be removed from the licence.

As part of the current review of the IPC Licence, UK based air-monitoring specialist REC Ltd., were commissioned to undertake a programme of monitoring of boiler emissions from the site in order to confirm peak volumetric flow rates from these emission points.

The output of this study has been used to revise volumetric flow information and is incorporated as proposed changes to Schedule 1(i).

Actual flow rates as measured by REC Ltd., were found to be higher than those used in the original PM model (2002). Accordingly, the model was re-run, primarily for the purpose of confirming the suitability of off-site ambient air quality monitoring locations. As these locations were based on the peak off-site ground level concentrations (GLC's), but generated using out dated emissions data, the model was re-run to determine if updated (actual)

emission characteristics would lead to a significant shift in off-site peak GLC's.

The 2004 model re-run indicated that while there were some changes in GLC's at specific receptor locations, the overall dispersion pattern did not change significantly.

Accordingly, the rationale for the siting of off-site ambient air quality monitors remains valid.

The AWN Reports between on ambient air monitoring carried out between January 2003 and March 2005 show that on all occasions measured off-site GLC's are well within the recommended limits outlined by the air quality standards.

4.6 Requested changes to existing IPC Licence

The application for a revised IPC licence takes account of changes to the installation since 1998 and requests that the following conditions be revised and or removed as appropriate.

5.10 The licensee shall submit a proposal to the Agency, within nine months of date of grant of this licence, for the use of CHP (Combined Heat and Power) at the site.

Kerry Ingredients request that this condition is omitted from the new licence.

A report has been submitted to the Agency on the feasibility of CHP.

The actual applicability of CHP at the site is directly related to the availability of natural gas supply, in order to create the necessary efficiencies (thermal and electrical).

A natural gas supply is not available at present. Kerry Ingredients will however review the applicability of CHP should natural gas become available in the future.

5.11 The licensee shall increase the stack heights of emission points A1-3 and A1-5 to 30 meters above ground level and emission points A1-1, A1-2, and A1-4 to 28 meters above ground level before the 31 January 2003.

5.13 Boiler 3 (Emission point A1-3) and boiler 5 (Emission point A1-5) shall not be operated simultaneously until the stack heights have been increased in accordance with Condition 5.11 of this licence.

Results of ambient air quality monitoring undertaken at off-site locations, indicate that emissions from the plant are not having a negative impact on the environment in the vicinity of the plant. The results of monitoring indicate that ambient air quality in the vicinity of the plant, including at sensitive receptor locations to the east of the plant, is generally good and complies fully with the relevant NAQS. With results recorded between January and November 2004

showing average NO₂ concentrations at the offsite locations at most 20% of the annual NAQS limit value of 40µg/m³. During this period average SO₂ levels were found to reach 16% of the annual NAQS limit value for the protection of ecosystems of 20µg/m³.

Based on these results Kerry Ingredients request the removal of these conditions from the IPC Licence.

The following tables outline the proposed revisions to Schedule 1 of the licence.

Schedule 1(i) Boiler Emissions to Atmosphere:

Current IPC Licence

Schedule 1 (i) Emissions to Atmosphere					
Boiler Emissions					
Emission Point Reference No.	Grid Ref.	Max. Vol. Emitted per hour (m³)	Minimum discharge height above ground (m)	Parameter	Emission Limit Value (mg/m³)
A1-1 (Oil Boiler 1)	988811E 132737N	5000	16 (until June 30, 2003) 28 (from July 1, 2003)	Sulphur Dioxide (as SO ₂) Nitrogen Dioxide (as NO ₂) Particulates	1700 900 200
A1-2 (Oil Boiler 2)	98879E 132741N	4900	16 (until June 30, 2003) 28 (from July 1, 2003)	Sulphur Dioxide (as SO ₂) Nitrogen Dioxide (as NO ₂) Particulates	1700 900 200
A1-3 (Oil Boiler 3)	98879E 132750N	11800	16 (until June 30, 2003) 28 (from July 1, 2003)	Sulphur Dioxide (as SO ₂) Nitrogen Dioxide (as NO ₂) Particulates	1700 900 200
A1-4 (Oil Boiler 4)	98872E 132751N	8400	16 (until June 30, 2003) 28 (from July 1, 2003)	Sulphur Dioxide (as SO ₂) Nitrogen Dioxide (as NO ₂) Particulates	1700 900 200
A1-5 (Oil Boiler 5)	98868E 132757N	11000	16 (until June 30, 2003) 28 (from July 1, 2003)	Sulphur Dioxide (as SO ₂) Nitrogen Dioxide (as NO ₂) Particulates	1700 900 200
A1-6 (Solid Fuel Boiler)	98896E 133026N	48000	35	Sulphur Dioxide (as SO ₂) Nitrogen Dioxide (as NO ₂) Particulates	700 250 150 (Until March, 2002) 50 (From 1 April, 2002)
A1-7 (Niro 1 Burner)	98945E 132826N	1200	34	Sulphur Dioxide (as SO ₂) Nitrogen Dioxide (as NO ₂) Particulates	50 350 150
A1-8 (Niro 2 Burner)	98945E 132824N	1000	34	Sulphur Dioxide (as SO ₂) Nitrogen Dioxide (as NO ₂) Particulates	50 350 150
A1-9 (Casein Burner)	98953E 132748N	1200	10	Sulphur Dioxide (as SO ₂) Nitrogen Dioxide (as NO ₂) Particulates	50 350 150

Proposed changes to Schedule 1(i) Boiler Emissions

Schedule 1 (i) Emissions to Atmosphere					
Boiler Emissions					
Emission Point Reference No.	Grid Ref.	Max. Vol. Emitted per hour (m ³)	Minimum discharge height above ground (m)	Parameter	Emission Limit Value (mg/m ³)
A1-1 (Oil Boiler 1)	98879E, 132736N	18,000	16.8	Sulphur Dioxide (as SO ₂) Nitrogen Dioxide (as NO ₂) Particulates	1,700 900 200
A1-2 (Oil Boiler 2)	98876E, 132740N	18,000	16.3	Sulphur Dioxide (as SO ₂) Nitrogen Dioxide (as NO ₂) Particulates	1,700 900 200
A1-3 (Oil Boiler 3)	98876E, 132749N	25,000	15.6	Sulphur Dioxide (as SO ₂) Nitrogen Dioxide (as NO ₂) Particulates	1,700 900 200
A1-4 (Oil Boiler 4)	98865E, 132755N	22,500	16.8	Sulphur Dioxide (as SO ₂) Nitrogen Dioxide (as NO ₂) Particulates	1,700 900 200
A1-5 (Oil Boiler 5)	98857E, 132757N	25,000	17.2	Sulphur Dioxide (as SO ₂) Nitrogen Dioxide (as NO ₂) Particulates	1,700 900 200
A1-6 (Solid Fuel Boiler)	98687E, 133026N	103,000	35.5	Sulphur Dioxide (as SO ₂) Nitrogen Dioxide (as NO ₂) Particulates	700 250 50
A1-7 (Niro 1 Burner)	98937E, 132823N	4,000	41.9	Sulphur Dioxide (as SO ₂) Nitrogen Dioxide (as NO ₂) Particulates	50 350 150
A1-8 (Niro 2 Burner)	98938E, 132822N	4,000	41.9	Sulphur Dioxide (as SO ₂) Nitrogen Dioxide (as NO ₂) Particulates	50 350 150
A1-9 (Casein Burner)	98951E, 132749N	8,000	12.6	Sulphur Dioxide (as SO ₂) Nitrogen Dioxide (as NO ₂) Particulates	50 350 150

Reason for Change

The proposed changes to Schedule 1(i) are as follows:

- Minor revision of NGR Co-ordinates of a number of emission points after confirmatory survey.
- Revision of maximum volumetric flow rates to reflect actual performance as determined through measurement and survey since issue of original IPC Licence.
- Revision of a number of boiler and burner stack heights after confirmatory survey work.

Schedule 1(i) Process Emissions to Atmosphere:

Current IPC License

Schedule 1 (i) Emissions to Atmosphere					
Other Emissions					
Emission Point Reference No.	Grid Ref.	Max Vol. Emitted per hour (m³)	Minimum discharge height above ground (m)	Parameter	Emission Limit Value (mg/m³)
A2-1 (Niro 1 Main Drier)	98968E 132825N	72000	31	Particulates	600 (until 31 December, 2002) 50 (from 1 January, 2003)
A2-2 (Niro 1 VF Exhaust)	98973E 132830N	14000	31	Particulates	1800 (until 31 December, 2002) 50 (from 1 January, 2003)
A2-3 (Niro 2 Drier)	98964E 132831N	80000	32	Particulates	50
A2-4 (Lactose Main Drier)	98956E 132877N	19000	32	Particulates	200 (until 31 December, 2002) 50 (from 1 January, 2003)
A2-7 (Casein Drier 1)	98864E 132764N	18500	13	Particulates	50
A2-8 (Casein Drier 2)	98967E 132760N	19000	13	Particulates	50
A2-9 (Casein Drier 3)	98968E 132757N	21000	13	Particulates	50
A2-10 (Casein Fluid Bed 1)	98938E 132761N	7300	15	Particulates	50
A2-11 (Casein Fluid Bed 2)	98939E 132760N	7600	15	Particulates	50
A2-12 (Casein Mill 1)	98931E 132753N	6500	15	Particulates	50
A2-13 (Casein Mill 2)	98932E 132756N	6500	15	Particulates	50

Proposed Changes to Schedule 1(i)

Schedule 1 (i) Emissions to Atmosphere

Other Emissions

Emission Point Reference No.	Grid Ref	Max Vol. Emitted per hour (m ³)	Minimum discharge height above ground (m)	Parameter	Emission Limit Value (mg/m ³)
A2-1 (Niro 1 Main Drier)	98965E 132825N	130,000	34.8	Particulates	50
A2-3 (Niro 2 Drier)	98955E 132838N	92,000	33.6	Particulates	50
A2-4 (Lactose Main Drier)	98949E 132834N	25,000	32	Particulates	50
A2-7 (Casein Drier 1)	98961E 132764N	24,000	11.0	Particulates	50
A2-8 (Casein Drier 2)	98963E 132761N	24,000	11.0	Particulates	50
A2-9 (Casein Drier 3)	98965E 132758N	24,000	11.1	Particulates	50
A2-10 (Casein Fluid Bed 1)	98935E 132761N	9,000	10.6	Particulates	50
A2-11 (Casein Fluid Bed 2)	98937E 132759N	9,000	10.6	Particulates	50
A2-12 (Casein Mill 1)	98929E 132753N	16,500	16.2	Particulates	50
A2-13 (Casein Mill 2)	98929E 132756N	16,500	16.1	Particulates	50

Reasons for Change

The proposed revision to Schedule 1(i) Process Emissions relates to:

- Updated positional information (as NGR).
- Updated volumetric flows based on actual measurements over intervening period.
- Confirmation of stack heights following survey in July 2004.

5.0 Emissions to Water

Kerry Ingredients has one licensed discharge (SW-1) to the River Feale. All surface water drains at the plant are connected to the effluent treatment plant.

Sources of waste water at the plant comprise liquid wastes from milk production, large quantities of water from Clean In Place (CIP) operations, wash water from road tankers, reverse osmosis, demineralisation, cooling water, boiler condensate and blow down; and water treatment discharges.

In addition, scrubbers on acid storage tanks, effluent treatment plant and the powder plant give rise to small volumes of contaminated wash down, which are discharged to the wastewater treatment plant.

Only treated effluent is discharged from the plant at SW-1. There are no other discharge points for the site.

It is noted that waste water arisings and discharges at the plant are significantly influenced by the following factors.

Hygiene

Kerry Ingredients operate a food plant to high standards of hygiene which are imposed through Department of Agriculture Certification and customer specification.

As with any food plant, hygiene directly translates to washing, with enormous emphasis on the effective cleaning of process vessels, pipe work, tanks and equipment.

Any measures for water conservation in a dairy must ultimately take place within the context of efficient and effective washing and cleaning regimes, which meet and exceed regulatory and customer requirements.

Process

Kerry Ingredients are involved in the manufacture of a range of semi dry and powdered products from incoming raw milk.

Fresh whole milk is predominantly water (88%) together with smaller properties of fat (3.5%) carbohydrate (4.5%) and protein (3.2%).

The conversion of the raw material to semi dry (butter, spreads, cheese) or dry (powder) products involves driving off considerable quantities of water.

At Kerry Ingredients this is achieved through a series of water removal stages involving membrane technology, evaporation and drying. The introduction of membrane technologies, largely since 1998, has supplemented the water removal process by providing an additional primary step prior to evaporation.

Although less energy intensive (as heat) than evaporation, membrane technology creates an additional effluent stream through cleaning steps. In addition, new drying technologies have resulted in an increase in the solids content of the input stream to the driers, thereby resulting in higher drying efficiencies.

The overall effect of the application of additional moisture removal technologies as permeate and condensate, is to lead to an increase in the efficiency of powdered product manufacture. However, the resultant water demand has similarly increased (makeup water, cleaning water etc.) thereby giving rise to higher effluent flows.

Site Specific Characteristics

The Listowel site is drained in its entirety to the wastewater treatment plant.

There are no direct surface water discharges to the River from the plant.

This arrangement, while affording a high degree of protection to the receiving environment, leads to significant variability in overall volumes of treated effluent to be discharged, as surface water volumes will vary considerably due to rainfall.

5.2 Requested changes to Existing IPC Licence

The application for a revised IPC licence takes account of changes to the installation since 1998 and requests that the following conditions be revised and or removed as appropriate.

6.5 The acute toxicity of the undiluted final effluent to at least four aquatic species from different trophic levels shall be determined by standardised and internationally accepted procedures and carried out by a competent laboratory. The name of the laboratory and the scope of testing to be undertaken shall be submitted, in writing to the Agency, within three months of the date of grant of this licence. Once the testing laboratory and the scope of the testing has been agreed by the Agency, the Agency shall decide when this testing is to be carried out and copies of the complete reports shall be submitted by the licensee to the Agency within six weeks of completion of the testing.

Condition 6.5 has been addressed through the identification of the two most sensitive species.

Currently all toxicity testing (for treated final effluent) is carried out in accordance with Condition 6.6.

Accordingly, it is requested that Condition 6.5 is removed.

6.9 The licensee shall report, within twelve months of the date of grant of this licence, on the adequacy of the outfall to ensure that the location and extent of the mixing zone is compatible with protection of the receiving water. The study shall include an analysis of the dispersion characteristics of the outfall location. The licensee shall carryout any work necessary subsequent to this report.

After receipt of the IPC licence, Kerry Ingredients undertook a survey of the existing outfall and a programme of engineering upgrade at the outfall

location. This work is fully completed and was reported to the agency. Accordingly it is requested that Condition 6.9 is removed from the licence.

Schedule 2 (i) Emissions to Water

Current IPC Licence No. 393

Schedule 2 (i) Emissions to Water		
Emission Point Reference No.:	SW1 (Final effluent from WWTP prior to combining with storm water overflow and ultimate discharge to the River Feale)	
Name of Receiving Waters:	River Feale	
Volume to be emitted:	Maximum in any one day: 10 000 m ³ Maximum rate per hour: 416 m ³	
Parameter	Emission Limit Value	
Temperature	25°C (max)	
pH	6-9	
Toxicity	1 TU	
	mg/l Kg/day	
BOD	20 190	
COD	125 1190	
Suspended Solids	30 270	
Nitrate (as N)	20 190	
Ammonia (as N)	1 9.5	
Total Phosphorus (as P)	4 (until December 31 2001) 2 (from January 2002)	38 (until December 31 2001) 19 (from January 1 2002)
Ortho-Phosphate (as P)	2 (until December 31 2001) 1 (from January 2002)	19 (until December 31 2001) 9.5 (from January 1 2002)
Oils, fats & greases	10 90	
Sulphate (as SO ₄)	100 900	
Detergents (as MBAS)	0.2 1.8	
Chloride (as Cl)	250 2250	

Proposed Changes to Schedule 2(i):

Schedule 2 (i) Emissions to Water		
Emission Point Reference No.:	SW1	
Name of Receiving Waters:	River Feale	
Volume to be emitted:	Maximum in any one day:	12,000 m ³
	Maximum rate per hour:	600m ³
Parameter	Emission Limit Value	
Temperature	27°C (max)	
pH	6-9	
Toxicity	1 TU	
	mg/l	Kg/day
BOD	20	240
COD	125	1500
Suspended Solids	30	360
Nitrate (as N)	20	240
Ammonia (as N)	1	12
Total Phosphorus (as P)	2	24
Ortho-Phosphate (as P)	1.4	16.8
Oils, fats & greases	10	120
Sulphate (as SO₄)	750	9000
Detergents (as MBAS)	0.2	2.4
Chloride (as Cl)	2000	24,000

Reason for Changes:

Schedule 2 (i) Emissions to Water

Volume to be emitted

The proposed revision to Condition 5 and Schedule 2(i) primarily relates to an increase in daily discharge volumes to be permitted. The current flow limit is 10,000m³ per day (416m³/hr) and there have been a number of occasions where this limit value was close to being reached. It is noted that a number of these occasions coincided with no or low rainfall periods when, accordingly, surface water contributions would have been low.

Daily discharges exceeded 90% of permitted daily maximum with the following frequency:

Year	No. of Times	% Occurrence	Reached Limit (No. of times)
2002	13	3.6%	0
2003	11	3.1%	0
2004	166	45%	2

The limit value was reached on two occasions during 2004.

The increases in effluent volume are a function of both increasing production at the plant, and changes in the relative proportion of products outputted during the year.

The product mix is one of continuous change and is dictated by market conditions and efficiency of production. Market demand for value added protein products produced in Listowel have also led to an increase in the volume of water generated in the last two seasons. Given the Prospectus Report and current outlook for the Irish Dairy Industry, Kerry Ingredients must maximise the potential for this product.

In addition, improvements in process technology have increased the efficiency of water removal from liquid milk, leading to increased liquid condensate and permeate generation.

The movement to membrane filtration technologies has led to significant increases in water removal (as liquid) and consequent reductions in energy demand (as heat) in downstream process (evaporation). The resultant improvements have increased the solids content of products introduced to driers by up to 14% over older technology. This has a significant positive impact on energy efficiency as significantly less energy is utilised in "drying" off moisture in powder production. The nett effect of this improvement in drying efficiency (and concurrent reduction in heat energy requirements) is an increase in the liquid eluate portion requiring discharge to the wastewater treatment plant.

Work undertaken on improving efficiency has increased the number of effluent streams being discharged to the WWTP. In the past, condensate from evaporation was used as make up water for boiler feed water (solid fuel boiler). Variability in the characteristics of the condensate, particularly dissolved and total solids, resulted in scaling and operational difficulties and consequently problematic boiler performance. It is noted that the solid fuel boiler, owing to size, design and operational characteristics, operates most efficiently under continuous steady state conditions.

The above changes in product mix and improvements in overall energy efficiency have resulted in an increase in waste water generation, which is particularly evident in the data for 2004, where the plant operated within 10% of daily flow limit on 166 occasions. This represents a significant change over 2002 and 2003 figures, where annualised emissions have increased by between 19% and 23% (as annual discharge).

Sulphate

Effluent monitoring results have shown recurring exceedences of sulphate ELVs at the plant. Sulphate emissions were primarily in the past associated with the use of aluminium sulphate for phosphorus removal at the tertiary treatment. The use of aluminium sulphate for phosphorus removal was phased out and replaced by aluminium chloride in late 2003.

It is noted that the base level of sulphate in the plant water is 44mg/l, which along with inputs of sulphate from other sources in the plant contributes to exceedences in the sulphate concentration of the final effluent.

Kerry Ingredients commissioned the Aquatic Services Unit (ASU) at UCC to carry out an assessment of the impact of increased effluent sulphate concentrations from the plant to the River Feale increased to 750mg/l.

Results of this study showed that it would be possible to increase the effluent concentration without causing adverse effects on the river receiving water quality and accordingly, an increase to 750mg/l sulphate (SO₄) is requested.

Chloride

Effluent monitoring results have also shown a recurring number of exceedences of chloride concentration in the effluent above the licensed ELVs. Sources of chloride at the plant include the use of hydrochloric acid (HCl) to regenerate the ion exchange columns at the whey demineralisation plant, the use of aluminium chloride in phosphorus removal at the wastewater treatment plant, water softener regeneration, process water chlorination, and from scrubbers using chlorus.

As chloride is not removed during effluent treatment at the plant Kerry Ingredients wish to increase the concentration of chloride in the discharge effluent to 2000mg/l.

Impact Assessment

Impact Assessment

The primary changes to emissions to waters requested as part of the IPC Licence review relate to the following parameters:

- Increased Flow
- Increased Sulphate concentration
- Increased Chloride concentration
- Increased Ortho Phosphorus concentration
- Increased temperature

Changes to Daily Volumetric Flows

The Licence review requests an increase in daily flow from 10,000m³ to 12,000m³, with corresponding increase in hourly flow rates.

The current flow limit is 10,000m³ per day (416m³/hr) and there have been a number of occasions where this limit value was close to being reached.

The daily average flow in 2004, notwithstanding increases in the frequency of high flows, was 7,166m³/d. The accumulated total annual effluent flow (2,529,764m³) amounted to 69% of the total permitted flow.

Although average daily and combined annual volumes are significantly less than permitted, the underlying reason for the requested increase relates to increased pressure at the limit value due to certain production activities. This,

together with rainfall contributions means that the plant is operating close to or at ELV at particular times of the year.

Accordingly, an increase in daily flow of 2,000m³ is requested to facilitate plant processing activities during peak periods.

The impact of increased flows on the river, in terms of increased discharged of licensed parameters is tabulated below. With the exception of Chloride and Sulphate, for which revised emission limit values are requested, the proposed volume increase results in incremental increases in river concentrations during low flow periods (i.e. 95%-ile flow) (Chloride and Sulphate requested increases are dealt with in the following sections). Proposed changes in Ortho-P and temperature ELV's have only incremental changes in predicted resultant in-river concentrations and can be regarded as not significant.

There are no changes requested to the ELV's of any of the other parameters.

Table I.2.4 shows a summary of the impact of the proposed flow increase on mass emission of other licensed parameters at ELV and under peak discharge conditions. The resultant increase in the in river concentration for each parameter is calculated for the 95%-ile flow condition in the Feale at a point adjacent to the Kerry Ingredients facility.

It is noted that the 95%-ile flow condition at in the river – 1.38m³/sec – is significantly lower than the average flow as determined on the basis of long term records – 21.1m³/sec. In the case of average or near average flows, the changes in concentration as tabulated below will be reduced further, and by up to an order of magnitude.

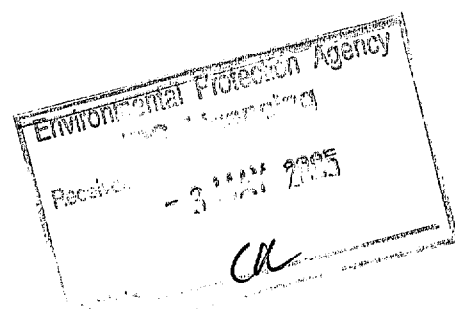


Table I.2.4 Summary of Changes due to Increased Daily Volume

Parameter	Current		Proposed		Change (kgs/d)	Increase in River concentrations due to change (as mg/l) (Worst Case)
	Current SW1		Revised SW1			
Flow (m ³)/day	10,000		12,000		2000 (m ³)	
PH	6-9		6-9		-	
Temp (°C)	25	250	27	324	74	0.540
BOD (mg/l)	20	200	20	240	40	0.280
COD (mg/l)	125	1250	125	1500	250	1.760
Suspended Solids (mg/l)	30	300	30	360	60	0.420
Nitrate (mg/l)	20	200	20	240	40	0.280
Ammonia (mg/l)	1	10	1	12	2	0.011
Total Phosphorus (mg/l)	2	20	2	24	4	0.033
Ortho Phosphate (mg/l)	1	10	1.4	17	7	0.021
Oils, Fats & Grease (mg/l)	10	100	10	120	20	0.144
Detergents (mg/l)	0.2	2	0.2	2.4	0.4	0.003
Sulphate (mg/l)	100	1000	750	9000	8000	60.000
Chloride (mg/l)	250	2500	2000	24000	21500	163.000

95% ile Flow = 0.139m³/s

The above table shows the predicted increase in river concentration for licensed parameters arising from an increase of 2,000m³ per day in discharge volume.

The predicted increase is based on emissions at ELV and at maximum flow. The flow condition in the river is the 95%-ile, although actual and average flows tend to be significantly higher (an order of magnitude).

Typical treated wastewater discharge volumes and parameter concentrations are however generally lower.

Although peak flows were experienced in 2004, which were almost at ELV on an increasing number of occasions (166 days), the average daily flow was 7,166m³ (The accumulated total annual effluent flow (2,529,764m³) amounted to 69% of the total permitted flow in 2004).

Similarly, the mass concentrations for all parameters (excepting Chloride and Sulphate) were generally within ELV. (Table I.2.5)

In the case of temperature, the expected losses due to pumping from the final wastewater sump over a distance of approximately 1,500m to the final discharge point (SW-1) are of the order of 1°C. Predicted in river increases arising from the proposed change (i.e. 1°C after in pipe losses) are likely to be negligible and would correspond to < 0.5°C in the worst-case condition.

Accordingly, the use of the maximum (ELV) concentrations under the peak flow condition and 95%-ile river flow represents a worst-case scenario.

In the context of the incremental change in this worst case scenario, together with the observed similarities between upstream and downstream physico-chemical concentrations in the River, the potential for adverse impact on the river arising from the proposed daily volumetric flow increase is negligible and can be regarded as not significant.

It is noted that the performance of Kerry Ingredients in meeting licence conditions in 2004 was high, with only four non-compliances recorded for parameters other than sulphate and chloride (2 exceedances on ammonia and suspended solids respectively).

The Kerry Ingredients wastewater treatment plant operates at a peak to trough ratio of approximately 27:1, based on the range of measured daily flow volumes.

Accordingly, although the actual performance of the plant, when evaluated on an annual basis, is high, it is evident that the plant is operating under some pressure during peak processing periods. Accordingly, although the proposed addition of 2,000m³ of effluent will not result in a continual increase in mass emissions from the plant, there are periods associated with peak milk and whey processing activity, where the additional discharge capacity is required.

The results of monitoring indicate that, although coming under pressure from additional wastewater volumes associated with increased processing activity, together with the move toward more water intensive, added value products, the wastewater treatment plant is capable of operating to meet existing emission limit values under the increased flow condition.

In addition, the results of monitoring over the peak processing period show that, although the plant operates the emission limit value on occasions, the average mass emissions are well within the permitted levels

Impact of Increased Sulphate and Chloride

Operational issues at the waste water treatment plant in the area of phosphorus removal, together with relatively high sulphate levels in incoming river water have resulted in on-going exceedances in chloride and sulphate concentrations at Kerry Ingredients.

These issues have been well documented and reported to the Agency on an ongoing basis through reports on monitoring and in annual environmental reports.

Arising from the request to specifically increase the emission limit values of both these parameters, Kerry Ingredients commissioned the Aquatic Services Unit (ASU) of NUI-Cork to carry out two independent studies.

These studies were designed to determine the impact of increased concentrations of both sulphate and chloride. These studies were reviewed in April 2005 to take account of the requested increase in volumetric discharge of 2,000m³ of effluent per day.

Chloride

The chloride study was undertaken to study the potential impact on aquatic biota in the River Feale arising from an increase in the chloride ELV to 2,000 mg/l.

This study involved a literature review of chloride toxicity, relevant standards along with a prediction of increased chloride values in the Feale associated with the elevated discharge of chloride.

This calculation used long-term flow data for the River Feale was collected by the OPW over the period 1976-2001.

The report concluded that "Based on the average and maximum chloride values predicted using recent historical flow data for the River Feale at Listowel and a projected effluent concentration of 2000 mg/l and an effluent flow of 12,000m³, little adverse impact on the aquatic flora and fauna of the river Feale would be expected to arise."

It is noted that the River Feale is tidal from Finuge Bridge, some 2000m downstream of the Kerry Ingredients discharge and therefore will be subject to marine influence and increasing variable salt (chlorides), suspended solids, turbidity and colour, temperature and conductivity ranges to reflect the

movement of freshwater riverine discharges into the highly variable estuarine environment.

Sulphate

A sulphate study was undertaken to assess the effects of elevated sulphate levels on freshwater aquatic life in the river Feale due to an increase in the effluent sulphate ELV to 750 mg/l.

This study also involved the review of scientific literature to assess the toxic effects of elevated sulphate concentrations on freshwater life, and relevant standards, along with a prediction of increased sulphate values in the Feale associated with the elevated discharge of sulphate.

Flow data used for the prediction of resultant sulphate increases was obtained from OPW flow data over the period 1976-2001 and used a maximum effluent sulphate concentration of 750 mg/l.

The ASU report concluded that "an effluent sulphate concentration not exceeding 750 mg/l combined with an effluent discharge volume of 12,000m³ is considered acceptable, on the condition that average annual in-stream concentrations do not exceed 100mg/l and no 4-day average concentration exceed 250mg/l SO₄."

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**Schedule 2 (ii) Effluent Treatment Control
 Current IPC Licence No. 393**

Schedule 2 (ii) Effluent Treatment Control

Emission Point Reference No.: SW1
Description of Treatment: Waste Water Treatment Plant

Monitoring:

Monitoring to be Carried Out	Monitoring Frequency	Monitoring Equipment/Method
Raw Waste Sump		
BOD	Daily	Standard Methods
COD	Daily	Standard Methods
pH	Daily	pH meter and recorder
Flow	Continuous	Flow meter
Balance Tank		
COD	Daily	Standard Methods
Suspended Solids	Daily	Standard Methods
pH	Daily	Standard Methods
Ammonia	Daily	Standard Methods
Total P	Daily	pH meter and recorder
Flow	Continuous	Flow meter
Anaerobic Digester		
COD	Daily	Standard Methods
Total alkalinity	Daily	Standard Methods
Volatile fatty Acids	Daily	Standard Methods
Suspended Solids	Daily	Standard Methods
Ammonia	Daily	Standard Methods
Phosphorus	Daily	Standard Methods
Biotower (Influent)		
COD	Daily	Standard Methods
Ammonia	Daily	Standard Methods
Phosphorus	Daily	Standard Methods
pH	Daily	Standard Methods
Suspended Solids	Daily	Standard Methods
Flow	Daily	Standard Methods
Biotower effluent/Activated sludge influent		
COD	Daily	Standard Methods
Suspended Solids	Daily	Standard Methods
pH	Daily	pH probe and recorder
Ammonia	Daily	Standard Methods
Phosphorus	Daily	Standard Methods
Flow	Continuous	Flow meter
Activated sludge plant		
DO	Daily in tanks A,B & C	DO meter
Suspended Solids	Daily in tanks A,B & C	Standard Methods
pH (in tank)	Daily	pH meter
Phosphorus	Daily	Standard Methods
SSV	Daily	WRC Apparatus
F/M Ratio	Daily	Calculation
Sludge Age	Weekly	
Nitrate	Daily	Standard Methods
Sand Filters		
Suspended Solids (influent and effluent)	Daily	Standard Methods
Phosphorus (influent and effluent)	Daily	Standard Methods
Sludge Dewatering Press		
% Dry Solids (influent & effluent sludge)	Weekly	Standard Methods
Suspended Solids in effluent	Weekly	Standard Methods

Proposed Changes to Schedule 2(ii)

Schedule 2 (ii) Effluent Treatment Control

Emission Point Reference No.:

SW1

Description of Treatment:

Waste Water Treatment Plant

Monitoring:

Monitoring to be Carried Out	Monitoring Frequency	Monitoring Equipment/Method
Raw Waste Sump		
BOD	Weekly	Standard Methods
COD	Daily	Standard Methods
pH	Daily	pH meter and recorder
Flow	Continuous	Flow meter
Balance Tank		
COD	Daily	Standard Methods
Suspended Solids	Daily	Standard Methods
pH	Daily	pH meter and recorder
Ammonia	Daily	Standard Methods
Total P	Daily	Standard Methods
Flow	Continuous	Flow meter
Anaerobic Digester		
COD	Daily	Standard Methods
Total alkalinity	Weekly	Standard Methods
Volatile fatty Acids	Weekly	Standard Methods
Suspended Solids	Daily	Standard Methods
Ammonia	Daily	Standard Methods
Phosphorus	Daily	Standard Methods
Biotower (Influent)		
COD	Daily	Standard Methods
Ammonia	Daily	Standard Methods
Phosphorus	Daily	Standard Methods
pH	Daily	pH meter and recorder
Suspended Solids	Daily	Standard Methods
Flow	Daily	Flow meter
Biotower effluent/Activated sludge influent		
COD	Daily	Standard Methods
Suspended Solids	Daily	Standard Methods
pH	Daily	pH probe and recorder
Ammonia	Daily	Standard Methods
Phosphorus	Daily	Standard Methods
Flow	Daily	Flow meter
Activated sludge plant		
DO	Daily in tanks A,B & C	DO meter
Suspended Solids	Daily in tanks A,B & C	Standard Methods
pH (in tank)	Daily	pH meter
Phosphorus	Daily	Standard Methods
SSVI	Daily	WRC Apparatus
F/M Ratio	Daily	Calculation
Sludge Age	Weekly	
Nitrate	Daily	Standard Methods
Sand Filters		
Suspended Solids (influent and effluent)	Daily	Standard Methods
Phosphorus (influent and effluent)	Daily	Standard Methods
Sludge Dewatering Press		
% Dry Solids (Influent & effluent sludge)	Weekly	Standard Methods
Suspended Solids in effluent	Weekly	Standard Methods

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Reason for Changes:

Raw Waste Sump

The current IPC licence requires daily testing of BOD at the raw waste sump. As the test for BOD is a 5-day test and is irrelevant for the operation of an anaerobic digester, Kerry Ingredients requests that daily testing be reviewed to weekly testing.

Anaerobic Digester

Testing for total alkalinity and volatile fatty acids is required daily under the original IPC licence. Kerry Ingredients request that this monitoring is reduced to weekly as COD and pH measurements ex-digester are sufficient indicators of digester performance and stability.

Schedule 2(iii) Monitoring of Emissions to Water

Current IPC licence Schedule 2(iii)

Schedule 2 (iii) Monitoring of Emissions to Water		
Emission Point Reference No. SW1		
Parameter	Monitoring Frequency	Analysis Method/Technique
Flow	Continuous	On-line flow meter with recorder
pH	Continuous	pH electrode/meter with recorder
TOC	Continuous	On-line TOC meter with recorder
Temperature	Continuous	Temperature probe with recorder
Chemical Oxygen Demand	Daily	Standard Methods
Biochemical Oxygen Demand	Daily	Standard Methods
COD/TOC ratio	Daily	Calculation
Suspended Solids	Daily	Standard Methods
Total Nitrogen	Daily	Standard Methods
Nitrates (as N)	Daily	Standard Methods
Ammonia (as N)	Daily	Standard Methods
Orthophosphate (as P)	Daily	Standard Methods
Total Phosphorus (as P)	Daily	Standard Methods
Oils, fats & greases	Weekly	Standard Methods
Sulphate (as SO ₄)	Monthly	Standard Methods
Detergents (as MBAS)	Monthly	Standard Methods
Chloride (as Cl)	Monthly	Standard Methods
Residual Chlorine (as Cl)	Monthly	Standard Methods
Toxicity	Annually	To be agreed with the Agency

Note 1: To be installed within six months of date of grant of this licence.
 Note 2: Samples to be taken on a 24 hour flow proportional composite sampling basis.
 Note 3: The number of toxic units (Tu) = 100x hour EC/LC₅₀ in percentage vol/vol so that higher Tu values reflect greater levels of toxicity. For test regimes where species death is not easily detected, immobilisation is equivalent to death.

Proposed Changes to Schedule 2(iii)

Schedule 2 (iii) Monitoring of Emissions to Water		
Emission Point Reference No.: SW1		
Parameter	Monitoring Frequency	Analysis Method/Technique
Flow	Continuous	On-line flow meter with recorder
pH	Continuous	pH electrode/meter with recorder
TOC	Continuous ^{Note 1}	On-line TOC meter with recorder
Temperature	Continuous	Temperature probe with recorder
Chemical Oxygen Demand	Daily ^{Note 2}	Standard Methods
Biochemical Oxygen Demand	Weekly ^{Note 2}	Standard Methods
Suspended Solids	Daily ^{Note 2}	Standard Methods
Nitrates (as N)	Daily ^{Note 2}	Standard Methods
Ammonia (as N)	Daily ^{Note 2}	Standard Methods
Orthophosphate (as P)	Daily ^{Note 2}	Standard Methods
Total Phosphorus (as P)	Daily ^{Note 2}	Standard Methods
Oils, fats & greases	Weekly ^{Note 2}	Standard Methods
Sulphate (as SO ₄)	Monthly ^{Note 2}	Standard Methods
Detergents (as MBAS)	Monthly ^{Note 2}	Standard Methods
Chloride (as Cl)	Monthly ^{Note 2}	Standard Methods
Residual Chlorine (as Cl)	Monthly ^{Note 2}	Standard Methods
Toxicity ^{Note 3}	Annually ^{Note 2}	To be agreed with the Agency

Note 1: To be installed within six months of date of grant of this licence.
 Note 2: Samples to be taken on a 24 hour flow proportional composite sampling basis.
 Note 3: The number of toxic units (Tu) = 100/hour EC/LC₅₀ in percentage vol/vol so that higher Tu values reflect greater levels of toxicity. For test regimes where species death is not easily detected, immobilisation is equivalent to death.

As the biochemical oxygen demand (BOD) test is a 5-day test it is requested that the monitoring frequency for this parameter is changed from daily to weekly.

Due to the variable nature of wastewater at Kerry Ingredients it has been found that there is no consistency in the ratio of COD to TOC. For this reason it is requested that the requirement to calculate the COD/TOC ratio is removed in the revised IPC licence.

The measurement of total Nitrogen is also requested to be removed in the revised IPC licence due to the nature of the biological treatment employed at the plant. Kerry Ingredients feel that daily measurements of nitrates and ammonia are appropriate indicators of nitrogen concentrations in the effluent.

5.4 Alterations to Effluent Treatment

Significant work has been undertaken on the wastewater treatment plant post issue of the IPC Licence to improve the plant performance in meeting emission limit values for licensed parameters.

A cooling tower has been installed to decrease the temperature of the effluent discharged from the treatment plant. Kerry Ingredients has in the past reported non-compliances for temperature cooling tower mixing zone.

Aluminium sulphate was replaced by aluminium chloride for use in phosphorus removal at the tertiary treatment plant in late 2003, thereby

reducing the sulphate concentration in the discharge effluent and increasing the chloride concentration.

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6.0 Waste Management

Proposed changes to IPC licence

Condition 7 and Schedule 3 (i) Hazardous Wastes for Disposal/Recovery and Schedule 3 (ii) Other Wastes for Disposal/Recovery of the current IPC licence details requirements for waste management at the plant.

A number of changes are required for the purpose of the new IPC as follows

- Schedule 3 (iv) Monitoring of Lands used for Landspreading

Current IPC Licence

Schedule 3 (iv) Monitoring of Lands used for Landspreading		
Monitoring Point Reference No.: All lands included in the landbank ^{Note 1}		
Conditions	Monitoring Frequency ^{Note 2}	Analysis Method/Technique ^{Note 3}
Where no soil test available	Within 12 months of date of grant of licence	Morgan's P test
Where soil test $\leq 10\text{mg P l}^{-1}$	Every two years	Morgan's P test
Where soil test $> 10\text{mg P l}^{-1}$ but $\leq 15\text{mg P l}^{-1}$	Annually	Morgan's P test

Note 1: Each sample should be representative of a maximum area of 4ha except where uniform cropping and land use has been in place for the previous 5 years or more. In the latter situation a sample of 12ha is acceptable.

Note 2: For lands which have been agreed with the Agency as suitable for landspreading

Note 3: Peach, M and English, L (1944) 'Rapid micro-chemical test'. Soil Science 57:167

Proposed Changes to Schedule 3(iv)

Schedule 3 (iv) Monitoring of Lands used for Landspreading		
Monitoring Point Reference No.: All lands included in the landbank ^{Note 1}		
Conditions	Monitoring Frequency ^{Note 2}	Analysis Method/Technique ^{Note 3}
Where no soil test available	Within 12 months of date of grant of licence	Morgan's P test
Where soil test $\leq 10\text{mg P l}^{-1}$	Every three years	Morgan's P test
Where soil test $> 10\text{mg P l}^{-1}$ but $\leq 15\text{mg P l}^{-1}$	Every two years	Morgan's P test

Note 1: Each sample should be representative of a maximum area of 4ha except where uniform cropping and land use has been in place for the previous 5 years or more. In the latter situation a sample of 12ha is acceptable.

Note 2: For lands which have been agreed with the Agency as suitable for landspreading.

Note 3: Peach, M and English, L (1944) 'Rapid micro-chemical test'. Soil Science 57:167

Reasons for changes:

Where soil test ≤ 10 mg P/l Teagasc guidelines recommends monitoring to be carried out every three years. Teagasc guidelines recommends monitoring of soils to be carried out every two years where soil test > 10 mg P/l but ≤ 15 mgP/l.

Impact Assessment

A vulnerability assessment of the landbank in Counties Kerry and Limerick which was carried out by O'Neill Ground Water Engineering on behalf of Kerry Ingredients during 2003.

In October 2003 Cyril Browne, Agricultural Consultant on behalf of Kerry Ingredients prepared a report titled 'Comparison of phosphorus levels in nutrient management plans taken in 1999/2000 and 2001/2002 by Kerry Ingredients for spreading of sludge'. This report was based on a comparison of 161 samples of soil index 3 and under, which received sludge from Kerry Ingredients under the landbank management programmes 1999/2000 and 2001/2002. Of the 161 samples 45% (72 samples) had no change in index, 34% (55 samples) had a decrease in index and only 21% (34 samples) had an increase in index. The net result of this comparison showed that overall there was a decrease in phosphorus observed (24 index points) between the 1999/2000 management programme and the 2001/2002 landbank management programme.

An additional assessment of phosphorus indices in soil samples was carried out by Newfield Agricultural Consultants based on soils sampled between 1998 and 2002. A total of 316 soils were sampled and results of the assessment showed that phosphorus indices have been reduced over time in 122 of the samples, 112 soil samples showed no change, while 82 samples showed an increase in soil indices. These results indicate that in over 74% of soils sampled there has not been any increase in phosphate levels as a result of land spreading of sludge at correct flow rates.

Results of assessments carried out by both Cyril Browne and Newfield indicate that it is not necessary to carry out soil sampling any more frequently than the required monitoring periods outlined by Teagasc; of every two years for soils greater than 10mg/l P but less than 15 mg/l P, and every three years for soils less than 10 mg/l P.

Ongoing monitoring of the landbank is carried out on a regular basis by Kerry Ingredients in compliance with the current IPC licence the plant submits a Nutrient Management Plan (NMP) to the Agency for the landbank annually. This NMP outlines the total area of the landbank including any new farms that are added.

The 2005 NMP comprises a landbank of 24,715m³. This incorporates 174 farms with a spreadable area of 4,627.42 ha. The total amount of sludge generated during 2004 was 21,500 tonnes.

Landspreading is regulated through the Nutrient Management Plan agreed with the Agency and also approved spreading specifications, which takes account of best practice, buffer zones, weather conditions, etc.

Contractors involved in organic waste landspreading are trained and audited. In addition, contractors maintain extensive procedures and records relating to control of organic waste landspreading.

Sludge from the wastewater treatment plant is stored during winter months and periods not suitable for landspreading, at a Kerry Ingredients off-site storage facility at Causeway, Co. Kerry.

On commencement of landspreading operations and after approval of the NMP by the EPA stored sludge is pumped from the storage lagoons into vacuum tankers for transportation to the landspread area and subsequent landspreading.

Regular inspections of the sludge storage facility at Causeway are carried out by Kerry Ingredients Maintenance Personnel, along with the Environmental Manager and the Wastewater Treatment Plant Manager.

Non –Process Water

Surface Water

Condition 9.1 refers to surface water contamination at the site and what should be done in the event of contamination. All surface water onsite is diverted to the Waste water treatment plant prior to discharge from the site hence condition 9.1 in the original IPC licence is no longer relevant.

Firewater Retention

Arising from a requirement of Condition 9 of the IPC Licence, a firewater risk assessment was undertaken at the installation in 2001.

The findings of this assessment concluded that, based on risk of fire, provision for containing fire fighting water runoff was required at the site. Further design work indicated the potential fire fighting water volumes and indicative surface water runoff contribution during a fire event and concluded that a dedicated firewater containment facility was required.

In 2004, Kerry Ingredients commissioned an additional engineering assessment of the installation sprinkler system, to address a number of changes particularly in buildings and material storage areas, together with changes to the range of materials stored on site.

The changes that were taken into account in the 2004 report, resulted in a revision to the firewater risk assessment, particularly relating to the potential volumes of potentially contaminated material which would be required to be retained on the site in an emergency.

Based on 2004 assessment, the volumes of containment potentially required for the site were reduced from the original 2001 estimates, to a level where a comprehensive Risk Management Programme, involving maximum use of available on site storage capacity, will ensure that the required fire fighting water runoff volumes can be contained safely within the site.

The basis for the Risk Management Programme is the availability of a minimum volume (500m³) at the wastewater treatment plant (balance tank), which can be used to accommodate the runoff from a potential fire in the Milk Powder Store.

In order to achieve this, a number of modifications to the drainage system are proposed, which will ensure more effective transport of runoff from the store to the wastewater treatment plant.

In addition, an upgrade to the WWTP automation and control system is proposed in order to ensure that level controls maintain a 500m³ reserve capacity at all times.

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Kerry Ingredients (IRL) Ltd, 87(1)(b) info rec. 3/5/05(original)
Air Dispersion Modelling Files was submitted as part of this licence application.

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Reg. No: 749 (P0393-02)
Kerry Ingredients (IRL) Ltd
87(1)(b) info rec. 3/5/05(original)
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Integrated Pollution Prevention and Control Licensing

Application Form

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Environmental Protection Agency
P.O. Box 3000, Johnstown Castle Estate, Co. Wexford
Telephone : 053-60600 Fax : 053-60699

INTRODUCTION

A valid application must contain the information prescribed in the Environmental Protection Agency (Licensing) Regulations, 1994 to 2004. **The applicant is strongly advised to read the *Application Guidance Notes for Integrated Pollution Prevention and Control Licensing*, available from the EPA.**

The applicant must conform to the format set out in the guidance notes for applications (available from the EPA). Each page of the completed application form must be numbered, e.g. *page 5 of 45*, etc. Also duplicated pages from the application form should be uniquely numbered, e.g. *page 5(i) of 45*, etc. **The basic information should for the most part be supplied in the spaces given in application form** and any supporting documentation should be supplied as attachments, as specified. Consistent measurement units must be used throughout.

The applicant should note that the application form has been structured so that it requires information to be presented in an order of progressive detail.

When it is found necessary, additional information may be provided on supplementary attachments which should be clearly cross referenced with the relevant sections in the main document.

While all sections in the application form may not be relevant to the activity concerned, the applicant should look carefully through all aspects of the form and provide the required information, in the greatest possible detail.

Information supplied in this application, including supporting documentation will be put on public display and open to inspection by any person. Should the applicant consider information to be confidential, this information should be submitted in a separate enclosure bearing the legend "In the event that this information is deemed not to be held as confidential, it must be returned to". In the event that information is considered to be of a confidential nature, then the nature of this information, and the reasons why it is considered confidential (with reference to the "Access to Information on the Environment" Regulations of 1993) should be stated in the Application Form, where relevant.

CHECK LIST FOR ARTICLE 10 COMPLIANCE

Article 10 of the Environmental Protection Agency (Licensing) Regulations, 1994 to 2004 sets out the statutory requirements for information to accompany a licence application. The application form is designed in such a way as to set out these questions in a structured manner and not necessarily in the order presented in Article 10. In order to ensure a legally valid application in respect of Article 10 requirements please complete the following checklist.

Article 10(2)(a) give the name, address and telephone number of the applicant and, if different, any address to which correspondence relating to the application should be sent and, if the applicant is a body corporate, the address of its registered or principal office,

LOCATION	B.1	
CHECKED	Applicant <input checked="" type="checkbox"/>	Official <input type="checkbox"/>

(b) give -

- (i) in the case of an established activity, the number of employees and other persons working or engaged in connection with the activity on the date after which a licence is required and during normal levels of operation, or
- (ii) in any other case, the gross capital cost of the activity to which the application relates,

LOCATION		
CHECKED	Applicant <input checked="" type="checkbox"/>	Official <input type="checkbox"/>

(c) give the name of the planning authority in whose functional area the activity is or will be carried on,

LOCATION		
CHECKED	Applicant <input checked="" type="checkbox"/>	Official <input type="checkbox"/>

(d) in the case of a discharge of any trade effluent or other matter (other than domestic sewage or storm water) to a sewer of a sanitary authority, give the name of the sanitary authority in which the sewer is vested or by which it is controlled,

LOCATION		
CHECKED	Applicant <input type="checkbox"/>	Official <input type="checkbox"/>

- (e) give the location or postal address (including where appropriate, the name of the relevant townland or townlands) and the National Grid reference of the premises to which the activity relates,

LOCATION		
CHECKED	Applicant <input type="checkbox"/>	Official <input type="checkbox"/>

- (f) specify the relevant class or classes in the First Schedule to the Act to which the activity relates,

LOCATION		
CHECKED	Applicant <input type="checkbox"/>	Official <input type="checkbox"/>

- (g) specify the raw and ancillary materials, substances, preparations, fuels and energy which will be produced by or utilised in the activity,

LOCATION		
CHECKED	Applicant <input type="checkbox"/>	Official <input type="checkbox"/>

- (h) describe the plant, methods, processes, ancillary processes, abatement, recovery and treatment systems, and operating procedures for the activity,

LOCATION		
CHECKED	Applicant <input type="checkbox"/>	Official <input type="checkbox"/>

- (i) indicate how the requirements of section 83(5)(a)(i) to (v) and (vii) to (x) of the Act shall be met, having regard, where appropriate, to any relevant specification issued by the Agency under section 5(3) of the Act and the reasons for the selection of the arrangements proposed,

LOCATION		
CHECKED	Applicant <input type="checkbox"/>	Official <input type="checkbox"/>

- (j) give particulars of the source, nature, composition, temperature, volume, level, rate, method of treatment and location of emissions, and the period or periods during which the emissions are made or are to be made,

LOCATION		
CHECKED	Applicant <input type="checkbox"/>	Official <input type="checkbox"/>

- (k) describe the arrangements for the prevention or minimisation of waste and, where waste is produced, the on and of site

arrangements for the recovery or disposal of solid and liquid wastes,

LOCATION		
CHECKED	Applicant <input type="checkbox"/>	Official <input type="checkbox"/>

- (l) specify, by reference to the relevant European Waste Catalogue codes as prescribed by Commission Decision 2000/532/EC of 03 May 2000, the quantity and nature of the waste or wastes produced or to be produced by the activity,

LOCATION		
CHECKED	Applicant <input type="checkbox"/>	Official <input type="checkbox"/>

- (m) provide:
- (i) details, and an assessment, of the impacts of any existing or proposed emissions on the environment, including on an environmental medium other than that or those into which the emissions are or are to be made, and
- (ii) details of the proposed measures to prevent or eliminate, or where that is not practicable, to limit, reduce or abate emissions,

LOCATION		
CHECKED	Applicant <input type="checkbox"/>	Official <input type="checkbox"/>

- (n) identify monitoring and sampling points and outline proposals for monitoring emissions and the environmental consequences of any such emissions,

LOCATION		
CHECKED	Applicant <input type="checkbox"/>	Official <input type="checkbox"/>

- (o) describe the condition of the site of the installation,

LOCATION		
CHECKED	Applicant <input type="checkbox"/>	Official <input type="checkbox"/>

- (p) describe in outline the main alternatives, if any, to the proposals contained in the application which were studied by the applicant,

LOCATION		
CHECKED	Applicant <input type="checkbox"/>	Official <input type="checkbox"/>

- (q) specify the measures to be taken to comply with an environmental quality standard where such a standard requires stricter conditions to be attached to a licence than would

otherwise be determined by reference to best available techniques,

LOCATION		
CHECKED	Applicant <input type="checkbox"/>	Official <input type="checkbox"/>

- (r) describe the measures to be taken for minimising pollution over long distances or in the territory of other states,

LOCATION		
CHECKED	Applicant <input type="checkbox"/>	Official <input type="checkbox"/>

- (s) describe the measures to be taken under abnormal operating conditions, including start-up, shutdown, leaks, malfunctions, breakdowns and momentary stoppages,

LOCATION		
CHECKED	Applicant <input type="checkbox"/>	Official <input type="checkbox"/>

- (t) describe the measures to be taken on and following the permanent cessation of the activity or part of the activity to avoid any risk of environmental pollution and to return the site of the activity to a satisfactory state,

LOCATION		
CHECKED	Applicant <input type="checkbox"/>	Official <input type="checkbox"/>

- (u) describe, in the case of an activity which gives, or could give rise, to an emission containing a hazardous substance which is discharged to an aquifer and is specified in the Annex to Council Directive 80/68/EEC of 17 December 1979 on the protection of groundwater against pollution caused by certain dangerous substances, the arrangements necessary to comply with said Council Directive,

LOCATION		
CHECKED	Applicant <input type="checkbox"/>	Official <input type="checkbox"/>

- (v) include any other information required under Article 6(1) of Council Directive 96/61/EC of 24 September 1996 concerning integrated pollution prevention and control,

LOCATION		
CHECKED	Applicant <input type="checkbox"/>	Official <input type="checkbox"/>

- (w) include a non-technical summary of information provided in relation to the matters specified in paragraphs (f) to (v) above,

LOCATION		
CHECKED	Applicant <input type="checkbox"/>	Official <input type="checkbox"/>

- (x) state whether the activity consists of, comprises, or is for the purposes an establishment to which the European Communities (Control of Major Accident Hazards involving Dangerous Substances) Regulations, 2000 apply,

LOCATION		
CHECKED	Applicant <input type="checkbox"/>	Official <input type="checkbox"/>

Article 10(3) Without prejudice to Article 12(1), an application for a licence shall be accompanied by -

- (a) a copy of the relevant page of the newspaper in which the notice in accordance with article 6 has been published,

LOCATION		
CHECKED	Applicant <input type="checkbox"/>	Official <input type="checkbox"/>

- (b) a copy of the text of the site notice erected or fixed on the land or structure in accordance with article 7,

LOCATION		
CHECKED	Applicant <input type="checkbox"/>	Official <input type="checkbox"/>

- (c) a copy of the notice given to the planning authority under section 85(1)(a) of the Act,

LOCATION		
CHECKED	Applicant <input type="checkbox"/>	Official <input type="checkbox"/>

- (d) a copy of such plans, including a site plan and location map, and such other particulars, reports and supporting documentation as are necessary to identify and describe -

- (i) the activity

LOCATION		
CHECKED	Applicant <input type="checkbox"/>	Official <input type="checkbox"/>

- (ii) the position of the site notice in accordance with article 7,

LOCATION		
CHECKED	Applicant <input type="checkbox"/>	Official <input type="checkbox"/>

- (iii) the point or points from which emissions are made or are to be made, and

LOCATION		
CHECKED	Applicant <input type="checkbox"/>	Official <input type="checkbox"/>

(iv) Monitoring and sampling points, and

LOCATION		
CHECKED	Applicant <input type="checkbox"/>	Official <input type="checkbox"/>

(e) a fee specified in accordance with section 94 of the Act.

LOCATION		
CHECKED	Applicant <input type="checkbox"/>	Official <input type="checkbox"/>

Article 10(4)(a) A signed original and 5 copies of the application and the accompanying documents and particulars as required under sub-articles (1) and (2)(a) to (d) shall be submitted to the headquarters of the Agency.

LOCATION		
CHECKED	Applicant <input type="checkbox"/>	Official <input type="checkbox"/>

[In cases where an E.I.S. is required to be submitted to the Agency, in support of the application, 15 copies are to accompany the application.]

Article 10(4)(b) Notwithstanding the requirements of paragraph (a) all or part of the 5 copies of the said application and accompanying documents and particulars may be submitted to the Agency in a computer or other non-legible format where such format has been specified by the Agency.

CD version PROVIDED Y/N		
CHECKED	Applicant <input type="checkbox"/>	Official <input type="checkbox"/>

SECTION B GENERAL**B.1. Owner/Operator*** Applicants Name: Kerry Ingredients (Ireland) LtdAddress: Tralee RoadListowelCo. KerryTelephone N^o: (068) 50100 Fax N^o: (068) 21562e-mail : padraig.sayers@kerry.ie

* This should be the name of the applicant on the date the Application is lodged with the Agency. This should be the name of the legal entity (which can be a limited company or a sole trader). A trading/business name is not acceptable.

Address for correspondence: As above
(if different from above)Address of Body Corporate: Kerry Group plc
(if applicable)Prince's StreetTraleeCo. Kerrye-mail : info@kerry.ie

The applicant must also supply the following:

- (a) Certified Copy of Certificate of Incorporation
- (b) Company's Number in Company's Registration Office and
- (c) Particulars of Registered Office of the Company

Name and address of the proprietor(s) of the Land on which the Activity is situated (if different from applicant named above).

Proprietor's Name: As above

Address: _____

Name and address of the owner(s) of the building and ancillary plant in which the activity is situated (if different from applicant named above).

Name: As above

Address: _____

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Attachment No. B.1 contains:

- (a) Certified Copy of Certificate of incorporation**
- (b) Company's Name in company's Registration Office**
- (c) Particulars of Registered Office of the Company**

B.2. Location of Activity

Name: Kerry Ingredients (Ireland) Ltd

Full Address: Islandmacloughry

Tralee Road

Listowel

Co. Kerry

Telephone N^o: (068)50100

Fax N^o: (068) 21562

Contact Name(s): Mr. Pádraig Sayers

Position(s): Operations Manager

e-mail : padraig.sayers@kerry.ie

National Grid Reference (12 digit-6E,6N) 098900E, 132660N

Attachment No. B.2 contains a site location map with grid references.

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B.3. Class of Activity

The activity relates to the following scheduled activities in the First Schedule of the PoE Act 2003:

Schedule	Class	Description ^{Note 1}
1	2.1	The operation of combustion installation with a rated thermal input equal to or greater than 50MW
1	7.2.2	The manufacturer of dairy products where the processing capacity exceeds 50 million gallons of milk equivalent per year.
1	11.1	The recovery or disposal of waste in a facility within the meaning of the Act of 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.

Note 1: To give a precise identification, only those words from the descriptions of the classes that best describes the nature of the activity for which the licence is being applied for have been used.

B.4. Employees/ Capital Cost

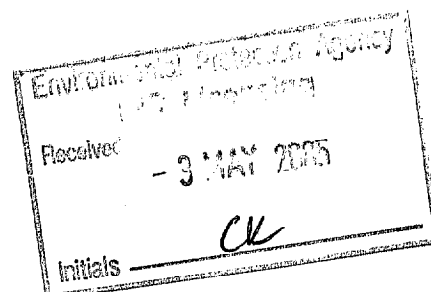
Give-

(i) In the case of an established activity, the number of employees and other persons, working or engaged in connection with the activity on the date after which a licence is required and during normal levels of operation, or

(ii) In any other case, the gross capital cost of the activity to which the application relates.

Number of Employees (existing facilities): 550

Gross Capital Cost (new proposals) (€): Not Applicable



B.5. Relevant Planning Authority

Give the name of the planning authority in whose functional area the activity is or will be carried out.

Name: Listowel Town Council

Address: Áras an Phiarsaigh

Charles Street

Listowel

Co. Kerry

Telephone N^o: (068) 21245

Planning Permission for this project :-

Obtained Is being processed Not applied for

Local Authority Planning File Reference N^o: Not Applicable

Attachment N^o B.5 should contain all planning permissions including a copy of all conditions. For existing activities, **Attachment N^o B.5** should also contain all licences and permits past and present in force at the time of submission.

Attachment No. B.5 contains:

- (1) All new planning permissions including a copy of all conditions obtained since the original IPC licence application was submitted in 1998
- (2) A list of all planning permissions and permits past and present in force at the time of submission of this application.

B.6. Relevant Sanitary Authority.

In the case of a discharge of any trade effluent or other matter to a sewer of a sanitary authority, give the name of the sanitary authority in which the sewer is vested or by which it is controlled.

Name: Not Applicable

Address: _____

Telephone N^o: _____

In the case of a discharge of any trade effluent or other matter to a sewer not vested by a sanitary authority, the applicant must supply as **Attachment N^o B.6**; (a) the name and address of the owner(s) of the sewer and the waste water treatment plant to which the sewer discharges and who are responsible for the quality of the treated effluent discharging to waters and (b) a copy of the effluent regulations and the agreement between the applicant and the aforementioned.

Name: Not Applicable

Address: _____

Telephone N^o: _____

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B.7. Relevant Health Board Region

The applicant should indicate the Health Board Region where the activity is or will be located.

Name: Southern Health Board

Address: 18/20 Denny Street,

Tralee,

Co. Kerry

Telephone N^o: (066) 7121566

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B.8. Site Notice, Newspaper Advertisement and Planning Authority Notice.

Give the position of the site notice in accordance with article 7 of the Regulations.

Attachment N° B.8 should contain a copy of the text of the site notice, a map showing its location on site and a copy of the newspaper advertisement . A copy of the notice given to the Planning Authority should also be included.

Attachment No. B.8 contains:

- (a) Copy of the text of the site notice*
- (b) Map showing the location of the site notice*
- (c) Newspaper advertisement*
- (d) Copy of notice given to the planning authority*

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B.9 Seveso II Regulations

State whether the activity is an establishment to which the EC (Control of Major Accident Hazards involving Dangerous Substances) Regulations, 2000 (S.I. No. 476 of 2000) apply.

If yes, outline how the process comes under these regulations.

Supporting information should be included in **Attachment N^o B.9**.

Based on a review of the activity at Kerry Ingredients Listowel, the site does not fall under the EC (Control of Major Accident Hazards involving Dangerous Substances) Regulations, 2000 (SEVESO II) Regulations.

Kerry Ingredients maintain a watching brief on SEVESO Legislation and review the applicability of any changes to the site.

Attachment No. B.9 is not included as Seveso II regulations do not apply.

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B.10 IPPC Directive

Specify whether the facility is a category of industrial activity referred to in Annex I of the IPPC Directive (96/61/EC) and if yes specify the category.

Supporting information should be included in **Attachment N° B.10**.

Under Annex I of the IPPC directive (96/61/EC) the facility is categorised under:

1.1 Combustion Installations with a rated thermal input exceeding 50MW

6.4 (c) "Treatment and processing of milk, the quantity of milk received being greater than 200 tonnes per day (average value on an annual basis)".

Attachment No. B.10 contains supporting information regarding the category of the facility under Annex I of the IPPC directive (96/61/EC).

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SECTION C MANAGEMENT OF THE INSTALLATION

C.1 Site Management & Control

Details should be provided on the management structures for the activity. Organisational charts, and all relevant environmental management policy statements, including provisions for on-going assessment of environmental performance are required.

Indicate whether an Environmental Management System has been developed for the installation.

If yes, specify which standard and include a copy of the accreditation certificate.

This information should form **Attachment N° C**.

Attachment No. C contains details on site management and control.

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SECTION D INFRASTRUCTURE & OPERATION

D.1. Operational Information Requirements

Describe the plant, methods, processes, ancillary processes, abatement, recovery and treatment systems, and operating procedures for the activity, to include a copy of such plans, drawings or maps, (site plans and location maps, process flow diagrams), and such other particulars, reports and supporting documentation as are necessary describe all aspects of the activity.

A development and operational history of the site should be included here.

Attachment N^o D should contain a list of all unit operations (process) to be carried out, including a flow diagrams of each with any relevant additional information.

Attachment No. D contains a list of all unit operations (process) carried out, including flow diagrams with relevant additional information.

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SECTION E EMISSIONS

E.1. Emissions to Atmosphere

E.1.A. Details of all point emissions to atmosphere

Details of all point emissions to atmosphere should be supplied. Table E.1(i) (for Boiler emissions) must be completed for boilers over 20MW thermal input. Complete Table E.1(ii) and E.1(iii) for all other main emission points. Complete Table E.1(iv) for minor emission points.

A summary list of the emission points, together with maps, drawings, and supporting documentation should be included as **Attachment N^o E**. Plans of emission elevations, relevant roof heights, etc., should also be included, as should detailed descriptions and schematics of all abatement systems.

The applicant should address in particular any emission point where the substances listed in Schedule of S.I. 394 of 2004 are emitted.

For emissions outside the BAT guidance limit, a full evaluation of the existing abatement/treatment system must be provided. A planned programme of improvement towards meeting upgraded standards is required. This should highlight specific goals and a time scale, together with options for modification, upgrading or replacement as required to bring the emissions within the limits as set out in the BAT guidance note(s).

Attachment No. E.1.A contains:

- (a) Summary list of emission points**
- (b) Map showing emission points**
- (c) Supporting documentation**
- (d) Plans of emission elevations, relevant roof heights etc**
- (e) Detailed descriptions and schematics of all abatement systems**
- (f) BAT evaluation**

E.1.B. Fugitive and Potential emissions.

Give summary details of fugitive and potential emissions in Table E.1(v).

In relation to activities listed in the Schedule of Council Directive 1999/13/EC on the limitation of emissions of volatile organic compounds due to the use of organic solvents in certain activities and installations;

- specify the relevant category of activity in the Schedule
- specify how the requirements in relation to fugitive emissions will be met.

Full details and any supporting information should form **Attachment E.1.B**

Attachment E.1.B contains details and supporting information on fugitive and potential emissions

E.2 Emissions to Surface Waters

Tables E.2 (i) and E.2 (ii) must be completed.

A summary list of the emission points, together with maps, drawings and supporting documentation should be included as **Attachment N^o E.2**.

The applicant should address in particular any emission point where the substances listed in the Schedule of S.I. No. 394 of 2004 are emitted.

Details of all List I and List II substances listed in the Annex to EU Directive 76/464/EEC (as amended), contained in any emission must be presented. All surface water runoff and storm water drains discharging to surface water bodies must be included. A National Grid References (10 digit, 5E, 5N) must be given for all discharge points. The identity and type of receiving water (river, ditch, estuary, lake, etc.) must be stated.

For emissions outside the BAT guidance limit, a full evaluation of the existing abatement/treatment system must be provided. A planned programme of improvement towards meeting upgraded standards is required. This should highlight specific goals and a time scale, together with options for modification, upgrading or replacement as required to bring the emissions within the limits as set out in the BATNEEC guidance note(s).

Attachment No. E.2 contains:

- (a) Summary list of emission points**
- (b) Map showing emission points**
- (c) Supporting documentation**
- (d) BAT evaluation**

E.3 Emissions to Sewer

Tables E.3 (i) and E.3 (ii) should be completed.

A summary list of the emission points, together with maps, drawings and supporting documentation should be included as **Attachment N^o E.3**. Details of all List I and List II substances listed in the Annex to EU Directive 76/464/EEC (as amended), contained in any emission must be presented. All relevant information on the receiving sewer, including any effluent treatment/abatement systems, not already described, with schematics as appropriate should also be included in **Attachment N^o E.3**.

For emissions outside BAT guidance limit (where given), a full evaluation of the existing abatement/treatment system must be provided. A planned programme of improvement towards meeting upgraded standards is required. This should highlight specific goals and a time scale, together with options for modification, upgrading or replacement as required to bring the emissions within any limits set out in the BAT guidance note(s).

Not applicable as there are no emissions to sewer.

E.4. Emissions to Ground

Describe the existing or proposed arrangements necessary to give effect to Articles 3,4,5,6, and 7 of Council Directive 80/68/EEC of 17 December 1979 on the protection of groundwater against pollution by certain dangerous substances.

The applicant should supply details of the nature and quality of the substance (agricultural and non-agricultural waste) to be landspread (slurry, effluent, ash, sludges etc) as well as the proposed application rates, periods of application and mode of application (e.g., pipe discharge, tanker).

For emissions outside the BAT guidance limit, a full evaluation of the existing abatement/treatment system must be provided. A planned programme of improvement towards meeting upgraded standards is required. This should highlight specific goals and a time scale, together with options for modification, upgrading or replacement as required to bring the emissions within the limits as set out in the BAT guidance note(s).

Attachment No. E.4 contains supporting information on landspreading activities.

E.5 Noise Emissions

Give particulars of the source, location, nature, level, and the period or periods during which the noise emissions are made or are to be made.

Table E.5 (i) should be completed, as relevant, for each source.

Supporting information should form **Attachment N^o E.5**

For emissions outside the EPA Noise Guidance Note limit, a full evaluation of the existing abatement/treatment system must be provided. A planned programme of improvement towards meeting upgraded standards is required. This should highlight specific goals and a time scale, together with options for modification, upgrading or replacement as required bringing the emissions within the limits as set out in the guidance note.

Attachment No. E.5 contains supporting information on noise monitoring at the site including a BAT evaluation.

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SECTION F CONTROL & MONITORING

Describe the proposed technology and other techniques for preventing or, where this is not possible, reducing emissions from the installation/facility.

F.1: Treatment, Abatement and Control Systems

Details of treatment/abatement systems (air and effluent emissions) should be included, together with schematics as appropriate.

For each Emission Point identified complete Table F.1(i) and include detailed descriptions and schematics of all abatement systems.

Attachment N^o F.1 should contain any supporting information.

Attachment No. F contains information that is not included in Table F.1 (i) for all emissions.

F.2: EMISSIONS MONITORING AND SAMPLING POINTS

Identify monitoring and sampling points and outline proposals for monitoring **emissions**. Table F.2(i) should be completed (where relevant) for air emissions, for emissions to surface waters, for emissions to sewers, for emissions to ground, and for waste emissions. Where **ambient** environment monitoring is carried out or proposed, Table F.2(ii) should be completed as relevant for each environmental medium.

Include details of monitoring/sampling locations and methods.

Attachment N^o F.2 should contain any supporting information.

Attachment No. F2 contains supporting information relating to table F 2(i) and Table F2 (ii).

SECTION G RESOURCE USE AND ENERGY EFFICIENCY

G.1 Give a list of the raw and ancillary materials, substances, preparations, fuels and energy which will be produced by or utilised in the activity.

The list(s) given should be very comprehensive, all materials used, fuels, intermediates, laboratory chemicals and product should be included.

Particular attention should be paid to materials and product consisting of, or containing, dangerous substances as described in the EU (Classification, Packaging, Labelling and Notification of Dangerous Substances) Regulations 1994 [SI 77/94]. The list must classify these materials in accordance with Article 2 of these Regulations, and must specify the designated Risk Phrases (R-Phrases) of each substance in accordance with Schedule 2 of the Regulations

Tables G.1(i) and G.1(ii) must be completed.

Supporting information should be given in **Attachment N^o G**

Attachment No. G contains:

- (a) Description of the energy used in or generated by the activity.**
- (b) Measures taken to ensure energy is used efficiently.**

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SECTION H MATERIALS HANDLING**H.1 Raw Materials, Intermediates and Product Handling**

All materials are listed in Tables G.1(i) and G.(ii) of **Section G**.

Details of the storage conditions, location within the site, segregation system used and transport systems within the site should be outlined here. In addition, information relating to the integrity, impermeability and recent testing of pipes, tanks and bund areas should be outlined.

Attachment No. H.1 contains details of plant storage, transportation and distribution systems, together with information on testing of bunds, tanks and pipelines.

H.2 Describe the arrangements for the recovery or disposal of solid and liquid wastes accepted into or generated by the installation/facility.

For each waste material, give full particulars of:

- (a) Name
- (b) Description & nature of waste
- (c) Source
- (d) Where stored and integrity/impermeability of storage areas
- (e) Amount (m³) and tonnage
- (f) Period or Periods of generation
- (g) Analysis (include test methods and Q.C.)
- (h) European Waste Catalogue Code
- (i) Waste Category per EC Reg 1774/2002/EC where relevant

Where any waste would be classified as Hazardous Waste as defined in the Waste Management Acts, 1996 to 2003, this should be made clear in the information provided.

Summary Tables H.1 (i) and H.1 (ii) should also be completed, as appropriate, for each waste. The licence/permit register number of the waste collection agent or

disposal/recovery operator should be supplied as well as the expiry date of the relevant permits

Supporting information should form **Attachment N° H.2**

Attachment No. H.2 contains a description of waste management practices and procedures at the plant, including details of the collection, storage, transportation and recovery or disposal of all wastes generated by the Activity

H.2 Waste disposal by on-site landfilling.

For wastes to be disposed of by landfilling on-site, full details of the disposal site should be submitted (to include *inter alia*, site selection procedures, location maps, geology, hydrogeology, operational plan, containment, gas and leachate management, post-closure care).

Supporting information should form **Attachment N° H.3.**

Attachment H.3 provides a description of the disposal of inert waste ash from the solid fuel energy system at the waste ash disposal site.

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SECTION I EXISTING ENVIRONMENT & IMPACT OF THE ACTIVITY

Describe the conditions of the site of the installation

Provide an assessment of the effects of any emissions on the environment, including on an environmental medium other than that into which the emissions are made.

Describe, where appropriate, measures for minimising pollution over long distances or in the territory of other states.

I.1. Assessment of atmospheric emissions

Describe the existing environment in terms of air quality with particular reference to ambient air quality standards.

Provide a statement whether or not emissions of main polluting substances (as defined in the Schedule of S.I. 394 of 2004) to the atmosphere are likely to impair the environment.

Give summary details and an assessment of the impacts of any existing or proposed emissions on the environment, including environmental media other than those into which the emissions are to be made.

Attachment N^o I.1 should also contain full details of any dispersion modelling of atmospheric emissions from the activity, where required.

Attachment No. I.1 contains the following:

***Information on the receiving environment, including results of ambient monitoring
Output of air dispersion modelling (ADM)
Assessment of the impact of significant emissions to atmosphere***

I.2. Assessment of Impact on Receiving Surface Water

Describe the existing environment in terms of water quality with particular reference to environmental quality standards or other legislative standards. Table I.2 (i) should be completed

Provide a statement whether or not emissions of main polluting substances (as defined in the Schedule of S.I. 394 of 2004) to water are likely to impair the environment.

Give summary details and an assessment of the impacts of any existing or proposed emissions on the environment, including environmental media other than those into which the emissions are to be made.

Full details of the assessment and any other relevant information on the receiving environment should be submitted as **Attachment N^o I.2.**

Attachment No. I.2 contains the following:

Information on the receiving waters

Assessment of the impacts of emissions on the receiving environment

I.3. Assessment of Impact of Sewage Discharge.

Give summary details and an assessment of the impacts of any existing or proposed emissions on the environment, including environmental media other than those into which the emissions are to be made.

Full details of the assessment and any other supporting information should form **Attachment N^o I.3**

Attachment No. I.3 is not applicable as there are no emissions to sewer.

I.4 Assessment of impact of ground/groundwater emissions

Describe the existing groundwater quality. Tables I.4(i) should be completed.

Give summary details and an assessment of the impacts of any existing or proposed emissions on the ground (aquifers, soils, sub-soils and rock environment), including any impact on environmental media other than those into which the emissions are to be made. This includes landspreading, land injection etc.

Full details of the assessment as well as a hydrogeological report (to include meteorological data and water quality, and aquifer classification, vulnerability, source and resource identification and zonation should be included in **Attachment N^o I.4**. A soils survey must also be included where emissions are directly onto or into soils. All vulnerable (as a result of ground emissions) surface water bodies must be identified.

Landspreading of Agricultural/Non Agricultural Wastes

Tables I.4(ii) and I.4.(iii) should be complete where applicable. Further information is available in the Application Guidance Document.

Attachment No. I.4 contains:

Summary details and description of landspreading activities associated with the Activity

I.5 Ground and/or groundwater contamination

Summary details of known ground and/or groundwater contamination, historical or current, on or under the site must be given.

Full details including all relevant investigative studies, assessments, or reports, monitoring results, location and design of monitoring installations, plans, drawings, documentation, including containment engineering, remedial works, and any other supporting information should be included in **Attachment N° I.5**.

Attachment No. I.5 contains information on the groundwater quality at the Activity.

I.6 Assessment of the environmental impact of on-site waste recovery and/or disposal.

Describe the arrangements for the prevention and recovery of waste generated by the activity.

Give details, and an assessment of the impact of any existing or proposed on-site waste recovery/disposal on the environment, including environmental media other than those into which the emissions are to be made.

This information should form **Attachment N° I.6**.

Attachment No. I.6 contains:

- (a) Arrangements for the prevention and recovery of waste generated by the Activity.*
- (b) Details, and an assessment of the impact of on-site waste recovery/disposal on the environment.*

I.7 Noise Impact.

Give details and an assessment of the impacts of any existing or proposed emissions on the environment, including environmental media other than those into which the emissions are to be made.

Ambient noise measurements

Complete Table I.7(i) in relation to the information required below:

- (i) State the maximum Sound Pressure Levels which will be experienced at typical points on the boundary of the operation. (State sampling interval and duration)
- (ii) State the maximum Sound Pressure Levels which will be experienced at typical noise sensitive locations, outside the boundary of the operation.

- (iii) Give details of the background noise levels experienced at the site in the absence of noise from this operation.

Prediction models, maps, diagrams and supporting documents, including details of noise attenuation and noise proposed control measures to be employed, should form **Attachment N^o I.7.**

Attachment No. E.5 contains prediction models, maps, diagrams and supporting documents, including details of noise attenuation and noise control measures to be implemented at the Activity.

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I.8 Environmental Considerations and BAT

Describe in outline the main alternatives, if any, to the proposals contained in the application.

Describe any environmental considerations which have been made with respect to the use of cleaner technologies, waste minimisation and raw material substitution.

Describe the measures proposed or in place to ensure that:

- (a) The best available techniques are or will be used to prevent or eliminate or, where that is not practicable, generally reduce an emission from the activity;
- (b) no significant pollution is caused;
- (c) waste production is avoided in accordance with Council Directive 75/442/EEC of 15 July 1975 on waste; where waste is produced, it is recovered or, where that is technically and economically impossible, it is disposed of while avoiding or reducing any impact on the environment;
- (d) energy is used efficiently;
- (e) the necessary measures are taken to prevent accidents and limit their consequences;
- (f) the necessary measures are taken upon definitive cessation of activities to avoid any pollution risk and return the site of operation to a satisfactory state.

Supporting information should form **Attachment N° I.8.**

Attachment No. I.8 contains:

(a) Environmental considerations, which have been made with respect to the use of cleaner technologies, waste minimisation and raw material substitution.

(b) Application of BAT in selecting technologies and in particular the following:

- **Use of low-waste technology**
- **Use of less hazardous substances**
- **Furthering of recovery and recycling of substances generated and used in the process and of waste where appropriate.**
- **Comparable processes, facilities or methods of operation, which have been tried with success on an industrial scale.**
- **Technological advances and changes in scientific knowledge and understanding.**
- **Nature, effects and volume of the emissions concerned.**
- **Commissioning dates for new or existing facilities.**
- **Length of time needed to introduce BAT**
- **Consumption and nature of raw materials (including water) used in the process and their energy efficiency.**
- **Need to prevent or reduce to a minimum the overall impact of the emissions on the environment and the risks to it.**
- **Need to prevent accidents and to minimise the consequences for the environment.**

SECTION J ACCIDENT PREVENTION & EMERGENCY RESPONSE

Describe the existing or proposed measures, including emergency procedures, to minimise the impact on the environment of an accidental emission or spillage.

Also outline what provisions have been made for response to emergency situations outside of normal working hours, i.e. during night-time, weekends and holiday periods.

Describe the arrangements for abnormal operating conditions including start-up, leaks, malfunctions or momentary stoppages.

Supporting information should form **Attachment N° J**.

Attachment J contains:

- (a) Measures, including emergency procedures, to minimise the impact on the environment of an accidental emission or spillage*
- (b) Description of provisions that have been made for response to emergency situations outside of normal working hours.*
- (c) Description of the arrangements for abnormal operating conditions including start-up, leaks, malfunctions or momentary stoppages.*
- (d) Information on pollution prevention measures*
- (e) Copies of insurance certificates included with the application showing that a suitable level of Public Liability insurance including cover for Environmental Impairment, or an agreed alternative, for an amount appropriate to the risks posed by the site should be purchased and maintained by the applicant.*
- (f) Detailed procedural statements and plans to deal with the management of accidental emissions.*

SECTION K REMEDIATION, DECOMMISSIONING, RESTORATION & AFTERCARE

Describe the existing or proposed measures to minimise the impact on the environment after the activity or part of the activity ceases operation, including provision for post-closure care of any potentially polluting residuals.

Supporting information should be included as **Attachment No. K**.

Attachment No. K contains:

- (a) *Residuals management plan (RMP) outlining details on the provisions to decommission and render safe or remove all materials, waste, ground, plant or equipment contained on or in the site that may result in environmental pollution.*

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Environmental Protection Agency
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SECTION L STATUTORY REQUIREMENTS

Indicate how the requirements of Section 83(5)(a)(i) to (v) and (vii) to (x) of the EPA Act's, 1992 and 2003 shall be met, having regard, where appropriate, to any relevant specification issued by the Agency under section 5 (3) of the Act and the reasons for the selection of the arrangements proposed.

Indicate whether or not the activity is carried out on, or may be carried out on, or is located such that it is liable to have an adverse effect on -

- (a) a site placed on a list in accordance with Chapter 1 of SI 94 of 1997, or
- (b) a site where consultation has been initiated in accordance with Article 5 of the EU Habitats Directive (92/43/EEC), or

Indicate whether or not the activity is liable to have an adverse effect on water quality in light of S.I. No. 258 of 1998 (Local Government (Water Pollution) Act, 1977 (Water Quality Standards for Phosphorus) Regulations, 1998).

Indicate whether any of the substances specified in the Schedule of the EPA (Licensing)(amendment) 2004 are discharged by the activity to the relevant medium.

Fit and Proper Person

The PoE Act in Section 83(5)(xi) specifies that the Agency shall not grant a licence unless it is satisfied that the applicant or licensee or transferee as the case may be is a fit and proper person. Section 84(4) of the PoE Act specifies the information required to enable a determination to be made by the Agency.

- Indicate whether the applicant or other relevant person has been convicted under the PoE Act, the Waste Management Act 1996, the Local Government (Water pollution) Acts 1977 and 1990 or the Air Pollution Act 1987.
- Provide details of the applicant's technical knowledge and/or qualifications, along with that of other relevant employees.
- Provide information to show that the person is likely to be in a position to meet any financial commitments or liabilities that may have been or will be entered into or incurred in carrying on the activity to which the application relates or in consequence of ceasing to carry out that activity.

Supporting information should be included as **Attachment N^o L** with reference to where the information can be found in the application.

Attachment No. L contains details on the Statutory Requirements that are met under the relevant environmental legislation covered by IPPC.

SECTION M DECLARATION

Declaration

I hereby make application for a revised licence, pursuant to the provisions of the Environmental Protection Agency Act, 1992 and 2003 and Regulations made thereunder.

I certify that the information given in this application is truthful, accurate and complete.

I have no objection to the provision by the Agency or local authority of a copy of the application or parts thereof to any person.

Signed by : Padraig Savers Date : 26/04/05
(on behalf of the organisation)

Print signature name: Padraig Savers

Position in organisation : Operations Manager

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