



**OFFICE OF
LICENSING &
GUIDANCE**

M E M O R A N D U M

TO:	Each Board Member
FROM:	Patrick Byrne
DATE:	7 th April 2005
RE:	Application for review of licence Reg. No. 41 from Dublin Products Limited, Tornant Lower, Dunlavin, County Wicklow, Reg. No. 709

Application Details	
Class of activity:	7.7.1 The disposal or recycling of animal carcasses and animal waste with a treatment capacity exceeding 10 tonnes per day. <i>Note: Previously licensed under Class 7.7 "The rendering of animal by-products" of First Schedule of EPA Act 1992</i>
Section 85(1)b notice sent:	06/05/04
Information under Section 85(1)(b) received:	04/06/04
Notices under Article 17(2) issued:	05/07/04
Information under Article 17(2) received:	08/10/04, 11/01/05
Clarification sought under Article 17(3):	17/02/05
Response to Article 17(3):	23/02/05
Notice under Sections 82(8) and 83(5) issued:	09/09/04
Information under Sections 82(8) and 83(5) received:	11/01/05, 04/03/05
Submissions received:	None
Site visits:	18/06/04

Company

Dublin Products was granted its original licence on the 23/07/1997 (Reg. No. 41). The activity is located in a rural area approximately 700 metres south west of the village of Dunlavin. The activity is engaged in the rendering of animal by-products. The activity was commenced at the current site in 1973 and currently provides employment for c.50 people and operates 24 hours a day 6 days a week. The company have undertaken a number of developments on-site since the grant of licence reg. no. 41, only the construction of the air emission stack associated with the thermal oxidiser (TO) required planning permission (planning reference 9136/98).

The company prior to the grant of Licence Reg. No. 41 and for sometime after grant of the licence was the cause of considerable local complaint as a result of odours emitted from the facility. Odour complaints associated with operation of the activity have reduced significantly over the past number of years, however there continues to be occasional odour nuisance reported. The company installed biofilters to treat the odourous gases and more recently (2001) installed a Thermal Oxidiser (TO) to treat the most odourous gases. The company undertook an expansion project in 2000 and 2001 which saw an increase in processing capacity and major improvements in pollution abatement systems and cessation of effluent discharges to surface water. The company currently have capacity to process c. 125,000 tonnes of raw product, the inspectors report for Licence Reg. No. 41 stated that they had a capacity to process 2000 tonnes of raw material per week i.e. 104,000 tonnes per year.

Reason for review

The Agency agreed to a request from Dublin Products Ltd. to have their Licence (Reg. No. 41) reviewed for the following reasons; the change in raw material processed as a result of Dublin Products Ltd. application to the Department of Agriculture Food & Rural Development to have the facility designated as a Category 1 plant (as defined by EU Regulation 1774/2002); and the changes in the licensing legislation as provided for in the Protection of the Environment Act, 2003.

Process Description

The activity receives two types of animal by-products, (a) soft offal and (b) fat and bone, the two types of waste are handled through two separate process lines referred to as Wicklow Proteins and Dublin Products respectively. The two separate process lines operate in parallel and each line follows the following stages. The raw material is delivered to the activity in covered lorries, skips, wheelie bins and a small quantity is delivered in plastic bags (from butchers etc) which must be emptied prior to processing. The raw material is crushed in the raw material building and transferred to the continuous cookers (2 associated with each line) and cooked by the transfer of heat by steam. The cooked material exits the cookers and is transferred to a screw press (3 associated with each process line) which separates the tallow from the greaves (meat and bonemeal). The tallow undergoes centrifugation and sterilisation before being pumped to dedicated storage tanks within a bunded tank farm. The greaves are discharged from the press to temporary storage after which the material is sterilised, cooled and milled. Milled meat and

bonemeal (MBM) is loaded within a dedicated building into trailers for transport off site. There is limited MBM storage available on-site.

The odourous air arising on site is directed to the TO or to one of the 3 bio-filters. Since the installation of the TO the company have reduced their loading to the waste water treatment plant (WWTP) and the company have been able to recycle all effluent from the WWTP to the biofilters and elsewhere on-site as wash water. The majority of the organic wastes arising on-site are returned to the raw material intake buildings and reprocessed.

Use of Resources

Fuel

The activity requires the generation of significant quantities of steam, the steam is generated by the combustion of either medium fuel oil (MFO) or tallow oil in the TO and one of the three boilers on-site. There are three boilers on-site however the licensee only requires operation of one boiler to supplement the steam generated by the TO. The use of MFO or tallow has been based on the relative cost/value of the MFO and tallow. The company have a program of improvements to reduce fuel usage.

Diesel oil is used on site to fuel trucks, tractors, forklifts and space heating.

Electricity

Electricity usage on-site is primarily to operate pumps, augers, lighting etc. The company aim to reduce electric consumption by installation of capacitors, assessment of current production methods, installation of correctly sized motors and use of the most efficient lighting.

Water

The water supply to the activity is from two on-site wells. The average consumption is c. 24,000m³/yr. Waste water from the WWTP is recycling where possible to reduce the quantity of fresh water required.

While the company have made efforts to reduce energy and raw material usage the RD includes a condition which requires the licensee to undertake an energy efficiency audit of the activity within twelve months of the date of grant of licence. The audit shall be repeated at intervals as required by the Agency.

IPPC Directive

This installation falls within the scope of category 6.5 “*Installations for the disposal or recycling of animal carcasses and animal waste with a treatment capacity exceeding 10 tonnes per day*” of Annex I of Council Directive 96/61/EC concerning integrated pollution prevention and control.

The Recommended Determination (RD) as drafted takes account of the requirements of the Directive. In particular, Condition 7 *Resource Use and Energy Efficiency* provides conditions dealing with water, energy and raw materials use, reduction and efficiency on site. Condition 10 *Decommissioning and Residuals*

Management provides for decommissioning of the site following cessation of the activity.

BAT

A final Bref document for this sector was completed in November 2003. BAT is taken to be represented by the operation of a TO for the treatment of the most odourous gases.

European Communities (Control of Major Accident Hazards involving Dangerous Substances) Regulations, 2000 (SI 476 of 2000)

The activity is not covered by the Seveso regulations.

Directive 2000/76/EC of the European Parliament and of the Council of 4 December 2000 on the Incineration of Waste:

Dublin Products have, like most rendering activities used tallow oil as a substitute fuel to operate their boilers and thermal oxidisers. Tallow oil had been regarded as a substitute fuel and therefore used to replace MFO. Animal waste regulated by Council Directive 90/667/EEC (laying down the veterinary rules for the disposal and processing of animal waste, for its placing on the market and for the prevention of pathogens in feedstuffs of animal or fish origin) was excluded from the scope of Directive 2000/76/EC (Waste Incineration Directive (WID)). However EC Regulation 1774/2002 (laying down health rules concerning animal by-products not intended for human consumption) which amends 90/667/EEC specifies that Directive 2000/76/EC (WID) does not apply to incineration plants if the waste treated consists solely of animal carcasses. Dublin Products incinerates tallow oil, which is a by-product of animal carcasses therefore the WID does apply.

Dublin Products are required to comply with the requirements of WID as from 28 December 2005 in relation to the incineration of tallow oil. Dublin Products have confirmed that their TO and boilers will not be capable of complying with the requirements of the WID, i.e. retention time of 2 seconds etc. therefore it is proposed in the RD to require the licensee to cease the use of tallow oil as an alternative fuel source in the TO and boilers by the 28 December 2005 unless otherwise agreed with the Agency.

The RD includes conditions which control the operation, monitoring and control of the TO and boilers while operating on tallow oil and/or medium fuel oil. In particular the operation of the TO shall achieve a minimum temperature of 850°C and a retention time of at least 0.8 seconds, prior to treatment of odourous air streams.

Recommended Determination

Raw Material Acceptance and Handling:

The RD includes a number of conditions in relation to the acceptance and handling of raw materials delivered to the facility for processing. The conditions aim to ensure there is no loss of raw materials to the environment and also to minimise

odourous emissions. The licensee has informed the Agency that they have applied to the Department of Agriculture to be allowed process Category 1 material, as defined under EC Regulation 1774/2002. The licensee has stated that all measures required to process Category 1 material in accordance with Annex V of EC Regulation 1774/2002 are currently in place. The RD requires the licensee to satisfy the Agency one month prior to the commencement of processing of Category 1 material that it has obtained the written consent of the Department of Agriculture and Food.

Air:

Odourous air emissions to atmosphere have traditionally resulted in a large number of complainants against the rendering sector including the licensee. This activity, similar to other rendering facilities in Ireland, have installed biofilters (three installed on-site) to treat the odourous air from the process buildings and a TO to treat the most odourous air from the cooking process and process buildings.

Prior to the installation of the TO the evaporated air stream from the cookers were directed to condensers associated with each of the two process line. In the condensers the condensable gases were converted to liquid and directed to the WWTP. This liquid was typically highly odourous as well as having high organic and ammonia concentrations. The non-condensable gases which were typically the most odourous air stream arising in the process were directed from the condensers to the biofilters. This air stream could contain peaks of odourous components which may pass through the treatment medium without any significant reduction or may be inhibitory to the biological activity in the biofilter medium. The condensers have been retained as a back-up to the TO.

The installation of the TO resulted in the activity being able to thermally oxidise gaseous streams arising from the cooking process. The system thermally oxidises moisture laden vapours which arise from the cooking process (condensable and non-condensable gases) and some of the odourous air from the processing buildings. The TO performs the dual function of thermal oxidation of odourous air streams and the generation of steam to heat the cookers and other systems on-site. The installation of the TO reduces the odourous air load on the biofilters and reduces the condensable liquid load to the WWTP.

The TO on-site has to date been fired on either MFO or tallow oil, as discussed above the TO will not be capable of achieving the requirements of the WID and therefore the use of tallow oil will cease by 28 December 2005. The system thermally destructs odours when the following parameters are maintained: temperature of at least 850°C; a retention time of at least 0.8 seconds; and sufficient turbulence to promote adequate mixing of the process gases to be combusted. The general operating temperature is c. 900°C. Down stream of the combustion chamber a waste heat recovery boiler is installed which is designed to raise steam for the rendering process. The exhaust gas is cooled to c. 380°C before passing to atmosphere.

Steam consumption on-site generally runs at c. 40,000lbs/hr, the TO is capable of generating c.34,390lbs/hr. The shortfall in steam generation capacity and process start up steam is supplied by one of the 3 boilers. Only one boiler is operated at any one time to supplement the TO, the 3 boilers are retained to provide back-up steam should the TO boiler be out of commission. The RD requires that only one boiler

may be operated at the same time as the TO, and the RD requires the licensee to establish a log of TO and boiler usage (on/off times), including fuel and tallow oil usage.

Odourous Air Emissions:

Treatment of Process Gases on-site is between the TO and the three biofilters, the following is a summary of the processing capacity of each and the source of the odourous air streams.

The TO treats odourous air emissions from the cookers (18,000kg/hr) and air streams from the process areas (20,885kg/hr);

Biofilter 1 treats odourous air from the Dublin Products (fat and bone processing) Building (c.28,450 m³/hr)

Biofilter 2 treats odourous air from the Wicklow (soft offal) and Dublin Products intake buildings and the Wicklow proteins processing building (c. 80,000 m³/hr).

Biofilter 3 treats odourous air from the sterilisation and milling building (c. 83,250m³/hr).

The licensee has undertaken a dispersion model of the odourous emissions from the facility in 2001 after the installation of the TO. The results of the assessment identified that the nearest dwelling house (c. 5 meters from the boundary of the site) would be between 5-10 odour units. The dwelling houses to the south west of the facility would be between 2-5 odour units, the dwelling houses to the north east of the facility would be between 1-2 odour units. The dwelling houses on the outskirts of Dunlavin village would be exposed to less than 1 odour unit. As an existing activity the licensee is required to undertake measures on-site to achieve an emission limit value (ELV) for odour measured at the nearest odour sensitive receptors of $\leq 5.0 \text{ ou}_E/\text{m}^3$ – 98-percentile of –hourly average concentration, above that of recorded background concentrations¹. Therefore the RD requires the licensee to assess further odour abatement measures as part of the objectives and targets, in addition the RD includes conditions to control and minimise odour emissions.

The RD requires that: *“All off gases arising from the on-site cookers shall be diverted to the thermal oxidiser for treatment. Off gases shall only be directed to alternative treatment options temporarily with the prior agreement of the Agency.”*

The licensee was required to have the integrity of all buildings assessed, this was completed in July 2004, the report identified only minor structural repairs as been necessary. The RD requires that the integrity of all buildings be maintained and an assessment of building integrity undertaken every twelve months, recommendations implemented and reported in the AER. The RD requires the licensee to propose and install an air lock system at the entry to the intake buildings to avoid the loss of odourous air when raw material is delivered to the activity. The RD requires the licensee to fully investigate and report on all complainants made by local residents.

Emissions to Atmosphere:

The applicant has undertaken air dispersion modelling, using AERMOD, of the air emissions from the TO and the operation of one of the boilers to provide

¹ BAT Guidance Note On Best Available Techniques for the Slaughtering Sector, October 2004

supplementary steam. The model assumes operation of the TO is for 18hrs/day and the boiler 2.5hrs/day. The emissions used in the model are based on the maximum measured emissions from the TO and boiler. The model was run a number of times to establish the impact associated with operation of the TO and boiler on tallow or MFO, the four scenarios are:

- Thermal oxidiser running on tallow oil and boiler running on tallow oil;
- Thermal oxidiser running on MFO and the boiler running on MFO;
- Thermal oxidiser running on tallow oil and the boiler running on MFO; and
- Thermal oxidiser running on MFO and the boiler running on tallow oil.

Operation on tallow oil generates slightly less emissions of SO₂ and NO₂ but more CO than operation on MFO. The worst case air dispersion model results, based on the applicants air dispersion modelling are presented in the table below along with relevant air quality standards.

Table: Ground level concentrations based on operation of TO (18hrs/day) and one boiler (2.5hrs/day)

Parameter	Modelled Impact	Predicted Ground Level concentration	National Air Quality Standards
Sulphur Dioxide	99.7%ile hourly	34µg/m ³	350µg/m ³
	Maximum 24 hour average	56µg/m ³	125µg/m ³
	Annual Average	2.24µg/m ³	20µg/m ³ (For protection of ecosystems)
Nitrogen Oxides (as NO ₂)	99.8%ile hourly	102µg/m ³	200µg/m ³ Note 1
	Annual Average	2.56µg/m ³	30-40µg/m ³ Note 2

Note 1: Air Quality Standards Regulations (SI No. 271 of 2002) reducing standard to be fully achieved by 2010

Note 2: Limit value of 40 µg/m³ applies to NO₂ for the protection of human health and the limit value of 30 µg/m³ applies to NO_x for the protection of vegetation

The above results indicated that the operation of the TO on tallow and the boiler on MFO will not result in a breach of any air quality standards. Operation of the TO and boiler on MFO will result in lower emissions and therefore lower ground level concentration based on the modelling provided. The RD limits the licensee to the operation of the TO and only one boiler at any one time unless agreed in writing with the Agency. The modelled maximum emission rates are included as the emission limit values in the RD from both the TO and boilers.

Operation of the TO and boiler on tallow oil is limited to the 28 December 2005 as the plant on site are not capable of meeting the requirements of the WID which are

applicable for this activity if they are incinerating tallow oil from that date.

Water:

Effluent Emissions to Waters:

As a result of the installation of the TO the activity generates significant less waste water. The current waste water feed to the WWTP is from wash water and contaminated surface waters (storm water) which is collected in an underground sump at the centre of the site. The quantity of water collected is dependant on rainfall and the licensee estimates that maximum load amounts to c. 120m³/day. Following collection the waste water passes through the WWTP. The WWTP on-site was designed to accept a significantly greater loading i.e. when condensable effluent from the cookers required treatment.

The WWTP process includes dissolved air floatation, effluent balancing, activated sludge, nutrient removal (anoxic zone and precipitation of phosphorus) and final clarification. The effluent following treatment in the WWTP is stored on-site and re-used to water the bio filters, as wash water and may, if available, be used as boiler feed water (following pre-treatment). The licensee has not had to discharge waste water from the WWTP to surface water since the TO became fully operational. All sludges generated/removed from the WWTP are returned to the raw material intake and reprocessed.

The licensee requests that the provision to discharge waste water to the surface water be maintained in the revised licence to provide for situations where the TO may not be operational for an extended period of time. The adjoining river into which the effluent previously discharged is a tributary of the River Greese. The licensee submitted a copy of a report on the assimilative capacity of the River Greese, dated June 1996. This report identified that two local authority waste water treatment plants discharge to the receiving water and that the combined loading from these two plants consume in excess of 1.5 times the available waste assimilative capacity (BOD loading) in the Greese River. The EPA publication, *The Biological Survey of River Quality 2000* states that “the Greese River was again seriously polluted by suspected sewage and industrial discharges in the Dunlavin area and it was in a highly eutrophic condition at each of the other seven locations surveyed in late August 2000”. The Quality (Q) Ratings for the river in 2000 awards a rating of 3 upstream of the Dunlavin local authority discharge and a Q rating of 2 immediately downstream of the discharge. The Q rating further downstream recovers to 3 and 3-4. Biological monitoring of the Greese River was repeated in September 2003 and the results of this monitoring indicate some improvement in the upper reaches of the Greese River, improvement from Q 2 to Q3. The report notes that serious pollution had abated in the upper reaches, however the river remains nowhere near satisfactory. It is noted that the Greese River is a hardwater river and therefore is sensitive to changes in water quality.

Based on the assessment of assimilative capacity and the biological surveys of the river it is highly commendable that the licensee has ceased to discharge to the river since January 2001. A resumption of effluent discharge to the river from Dublin Products Ltd would have a negative impact on the Greese River. Therefore the discharge of effluent to the Greese River shall only occur in exceptional circumstances and for limited periods, following agreement with the Agency. Any

agreed discharge shall be subject to the emission limit values specified in the RD.

Surface Water Emissions:

There is one surface water discharge from the activity, the water discharged arises from building roofs, concreted lorry and skip holding yard at the rear of the site and underground site drainage of the rear of the site. The surface water discharge is unlikely to be contaminated from activities on-site as most movement of lorries is within yard areas where the surface water is collected and directed to the WWTP. The RD requires the licensee to visually examine the surface water discharge daily and monitor it monthly. The surface water discharge is to the field drain adjoining the site which is a tributary of the Greese River.

All tallow oil is stored within a bunded tank farm, MFO is stored within a dedicated bunded area and chemicals are stored on mobile spill pallets which are generally stored in a locked chemical storage building. The RD includes the standard condition in relation to the bunding requirements for all tanks and drums.

A Firewater retention study has been completed by the licensee under existing IPC Licence Reg. No. 41, the recommendations of this study have been implemented on-site.

Emissions to groundwater:

There are no emission to ground water associated with the activity. All processes are to be undertaken within the buildings on-site and all vehicular movement takes place on concrete yards. There are two deep wells on-site which are the supply wells for the activity.

Monitoring conducted under the requirements of Licence Reg. No. 41 since 2001 indicate that nitrate levels in the groundwater have increased slightly to 12mg/l in 2004 from c.9mg/l in 2001. This is assumed by the licensee to be due to agricultural practices. The TOC results since 2001 have also indicated a slight increase from <5mg/l to 13 –28mg/l in the two wells in 2004.

The RD requires the groundwater extracted from these two deep wells to be monitored bi-annually for pH, TOC, Nitrate, Total ammonia, Total nitrogen and conductivity. In addition the water usage (flow rate) shall be monitored daily and recorded on-site.

Waste:

Organic wastes, other than meat and bonemeal or tallow, arising on-site are returned to the raw material intake building and passed through the rendering process. The organic wastes which are re-processed include greaves, sludges, partly processed material, contaminated tallow, skip wash down water etc.

Hazardous and non-hazardous wastes are sent off-site for disposal or recovery by licensed/permitted contractors. The RD requires the licensee to agree any changes to the contractors used for the disposal/recovery of waste with the Agency.

Tallow generated as part of the process is currently is used on-site as a replacement for MFO for the TO and boilers. Tallow oil not used in the TO or boilers is transported off site under the supervision of the Department of Agriculture. An increased quantity of tallow oil will be transferred off-site. The meat and bonemeal generated on-site is transported off site under the supervision of the Department of Agriculture.

Noise:

Noise monitoring was undertaken on the 1st and 2nd of March 2004 under the requirements of Licence Reg. No. 41. The monitoring was undertaken at three locations, at the nearest dwelling house (5m from the site boundary), second nearest dwelling house (200m south of the factory entrance) and at the nearest house to the north of the site (500m north at the edge of the village). The noise monitoring results indicate compliance with the emission limit values (55/45dBA daytime/night time) at the nearest residence. The emission limit values are exceeded at the other two monitoring points however the source of noise is noted to be predominantly road traffic noise. No tonal or impulsive noises were noted.

The standard noise emission limit values are maintained in the RD and the licensee is required to undertake an annual noise monitoring survey which shall include proposals to reduce noise, where necessary.

Habitats

The installation site is located in a rural area in west Wicklow close to the village of Dunlavin. The licensee has identified Dunlavin Marches (north east of the installation) which is classified as a proposed National Heritage Area as the closest habitat to the installation. In addition Wicklow County Council's development plan identifies trees for preservation, architectural conservation areas, protected structures and areas of archaeological potential/importance within 10 km of the facility. None of the sites will be impacted by the continued operation of the activity.

Compliance Record:

The OEE undertook an audit of Dublin Products Ltd. on the 08/06/04 against their existing IPC Licence Reg. No. 41. The audit raised four non compliances and fourteen observations. The audit non compliances were in respect of the following:

- The licensee did not notify the Agency of a substantial spill of oil to the oil tank bund;
- The underground tank and pipeline assessment did not address the integrity of the underground tanks and pipelines associated with the biofilters;
- The integrity and water tightness of all banded structures and their resistance to penetration by water or other materials stored therein was not tested and demonstrated to the satisfaction of the Agency; and
- The shipment of asbestos waste taken from the site on C1 form was not approved by the Agency.

The observations noted as part of the audit related to the following: extent of changes on-site since grant of Licence Reg. No. 41; programme for public information is not satisfactory; tallow tank and IBCs not banded; complaints record was not satisfactory; the Emergency Response Procedure should be amended; all abatement equipment should be labelled; install a protective barrier around the effluent tank and pipework; noise surveys should take into account additional factors; pungent odour noted at Aeration Tank 2; summary waste records should be maintained; integrity of buildings report was unavailable; the AER should contain an organisational chart; completed objectives and targets should be removed from

the EMP; and the air extraction system and floor in the meal transfer building was in poor condition.

The licensee has submitted a response to the OEE in relation to the audit report dated the 31/01/05, the OEE have not confirmed that this letter addresses all the points raised in the audit report.

Fit and Proper Person

The licensing provisions of the Protection of the Environment Act, 2003 have been brought into effect by way of S.I. No. 393 of 2004. In addition, amendments to the licensing regulations have been made by way of S.I. No. 394 of 2004. These statutory instruments outline the changes to the licensing process with effect from 12 July 2004. All applications not finally determined on 12 July 2004 come within the scope of these changes. This includes the application for a review by Dublin Products Ltd.

On 09/09/04 a notice under Section 82(8) and 83(5) of the EPA Acts 1992 and 2003 was issued to Dublin Products Ltd. A response was received from the licensee on 01/01/05. Dublin Products have been licensed by the Agency under Licence Reg. No. 41 since 1997, during this time the company have invested c. 8 million euro to meet the requirements of the licence and those of the Department of Agriculture. Dublin Products have achieved ISO14001 and EMAS accreditation. The company have an emergency response procedure which sets out steps to be taken in the event of an environmental incident. Dublin Products Ltd. provided a summary of it's staff technical knowledge and qualifications. Dublin Products Ltd have confirmed in a letter, received by the Agency 04/03/05, that they were convicted under the EPA Act 1992 for breaches of their Licence Reg. No. 41 on the 23/06/99. Further prosecutions have not been taken by the Agency against the company. The Fit and Proper Person criteria have been fulfilled by Dublin Products Ltd.

Complaints:

Odour complainants historically were very significant, more recently the number and frequency of complaints has reduced. There is still a level of odour complainants, and the company must continue to assess their activity and minimise odourous emissions to the atmosphere.

Submissions:

None received.

Charges:

The annual charge for 2004 was €10,738, the OEE have proposed an annual charge of €12,728 for 2005. The RD includes the charge as proposed by the OEE which is adequate to take account of the enforcement necessary.

Recommendation:

I recommend that the Recommended Determination be issued subject to the conditions and for the reasons as drafted.

Signed

Patrick Byrne

Procedural Note

In the event that no objections are received to the Proposed Determination of the review application, a revised licence will be granted in accordance with Section 87(4) of the Environmental Protection Agency Acts 1992 and 2003 as soon as may be.