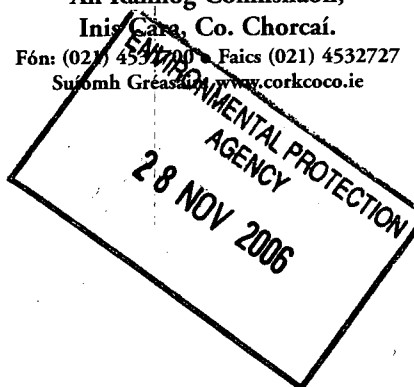


# Comhairle Contae Chorcaí Cork County Council

Lisa McGuire,  
Licencing Unit  
Office of Licencing and Guidance  
Environmental Protection Agency  
Johnstown Castle Estate  
County Wexford  
Ireland

Environmental Department,  
Inniscarra, Co. Cork.  
Tel: (021) 4532700 • Fax (021) 4532727  
Web: [www.corkcoco.ie](http://www.corkcoco.ie)  
An Rannóg Comhshaoil,  
Inis Cara, Co. Chorcaí.  
Fón: (021) 4532700 • Faics (021) 4532727  
Suíomh Gréasaí: [www.corkcoco.ie](http://www.corkcoco.ie)



Subject :IPC Reg. No. P0017-02 Cara Partners ,Little Island Industrial Estate ,Little Island Co. Cork

24<sup>th</sup> November 2006

Dear Ms McGuire ,

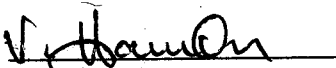
I wish to acknowledge receipt of the correspondence regarding the sanitary Authority response to Section 99 regarding a consent to discharge in relation to the above named premises.

The completed section 99 with respect to IPPC Reg No.P0017-02 is attached to this letter. Cork County Council are agreeable to discharge limits as set out in the attached Section 99 request.

Should you have any queries or clarification my contact details are supplied below

Phone no. 021-4532700  
E mail [valerie.hannon@corkcoco.ie](mailto:valerie.hannon@corkcoco.ie)

Yours Sincerely

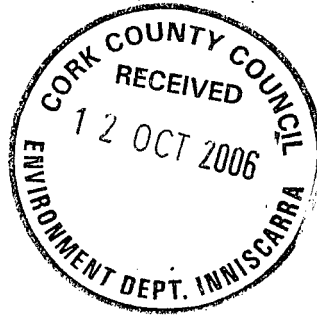
  
Valerie Hannon,  
Executive Scientist  
Wastewater Laboratory





Environmental Protection Agency  
An Ghníomhaireacht um Chaoimhnú Comhshaoil

Ms Patricia Power  
Director of Environment  
Cork County Council  
Inniscara  
Cork



Headquarters, PO Box 3000  
Johnstown Castle Estate  
County Wexford, Ireland

Ceanncheathrú, Bosca Poist 3000  
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Contae Loch Garman, Éire

T: +353 53 916 0600  
F: +353 53 916 0699  
E: [info@epa.ie](mailto:info@epa.ie)  
W: [www.epa.ie](http://www.epa.ie)

LoCall: 1890 33 55 99

**Attention: Director of Services (with responsibility for Sanitary Services Section)**

11 October 2006

Reg No: P0017-02

Dear Ms Power

I am to advise you that the Agency has received an application from Cara Partners, Little Island Industrial Estate, County Cork for an Integrated Pollution Prevention and Control (IPPC) licence.

The applicant proposes as part of his application to provide for the discharge of process effluent to the sanitary authority's sewer. Process effluent includes trade effluent and other matter (other than domestic sewage or storm water). Details of the proposed emissions to the sanitary authority's sewer are contained in the application form.

I would appreciate it if you could confirm whether or not an Order under Section 22 of the Local Government (Water Pollution) (Amendment) Act 1990, was made and confirmed by your Council, and if so, could you please furnish the Agency with a copy of same.

This being the case and in accordance with Section 99E of the Environmental Protection Agency Acts 1992 and 2003, I am to request your consent to the proposed discharge. To this end, I enclose the relevant section of the application form. I should also add that in accordance with the requirements of the EPA Acts, your consent may be subject to such conditions as the authority considers appropriate. Your attention is drawn to paragraph (4) of the attached copy of the relevant section of the Act, as amended. For your convenience please find attached a reply form including a list of draft conditions compiled by the Agency.

In accordance with paragraph (2) of this section of the Act, you are requested to forward your response within 5 weeks of the date of this letter. Please note that any decision given after the expiry period shall be invalid and in those circumstances the Agency may proceed to grant the licence concerned as if consent was obtained. Marie O'Connor is dealing with this matter and can be contacted at the Licensing Unit of the Agency, Tel. No. 021 4875540 if you have any queries.

Again, your co-operation in this matter is appreciated.

Yours sincerely

Lisa McGuire  
Office of Licensing & Guidance

*Maie Dara  
for attention  
Please  
(please call to  
me re EPA letters)*



S99E-22.dot

## SANITARY AUTHORITY RESPONSE

**Name of Sanitary Authority:** *Cork County Council*

**Address:** *Inniscara  
Cork*

**Name of Facility:** *Cara Partners*

**IPC Reg. No:** *P0017-02*

**Address:** *Little Island Industrial Estate  
Co Cork*

**Consent:** Indicate Yes to one of the following statements:

Consent granted subject to the consent conditions outlined below.	<i>yes</i>
Consent granted without conditions.	
Consent refused <small>Note 1</small>	

**Note 1** Where it is proposed to refuse permission the reasons for the refusal should be clearly outlined in the response.

GENERAL CONSENT CONDITIONS	Condition to be Included (Yes/No)
1. No specified emission from the installation shall exceed the emission limit value set out in Schedule B: Emissions Limits to Sewer. There shall be no other emission to sewer of environmental significance.	<i>yes</i>
2. The licensee shall carry out such sampling, analyses, measurements, examinations, maintenance and calibrations as out in Schedule C.	<i>yes</i>
3. Monitoring and analyses equipment shall be operated and maintained as necessary so that monitoring accurately reflects the emission or discharge.	<i>yes</i>
4. The licensee shall permit authorised persons, of the Agency and Sanitary Authority, to inspect, examine and test, at all reasonable times, any works and apparatus installed in connection with the process effluent and to take samples of the process effluent.	<i>yes</i>
5. All automatic monitors and samplers shall be functioning at all times (except during maintenance and calibration) when the activity is being carried on unless alternative sampling or monitoring has been agreed in writing by the Agency for a limited period. In the event of the malfunction of any continuous monitor, the licensee shall contact the Agency as soon as practicable, and alternative sampling and monitoring facilities shall be put in place. Prior written agreement for the use of alternative equipment, other than in emergency situations, shall be obtained from the Agency.	<i>yes</i>
6. The licensee shall record all sampling, analyses, measurements, examinations, calibrations and maintenance carried out in accordance with the requirements of this licence.	<i>yes</i>
7. The licensee shall provide safe and permanent access to all on-site sampling and monitoring points and off-site points as required by the Agency	<i>yes</i>
8. The licensee shall at no time discharge or permit to be discharged into the sewer any liquid matter or thing that is or may be liable to set or congeal at average sewer temperature or is capable of giving off any inflammable or explosive gas or any acid, alkali or other substance in sufficient concentration to cause corrosion to sewer pipes, penstock and sewer fittings or the general integrity of the sewer.	<i>yes</i>
9. In the event of any incident which relates to discharges to sewer, having taken place, the licensee shall notify the Agency, Local Authority and Sanitary Authority as soon as practicable after the incident.	<i>yes</i>

**ADDITIONAL GENERAL CONSENT CONDITIONS**

**In respect of discharges or emissions to sewers, in accordance with Section 99E  
of the Environmental Protection Agency Acts 1992 and 2003  
(Specify, if required)**

Charging for Effluent Treatment +  
mechanisms for charging are subject to  
Review when final decisions on  
charging are agreed by Cork Co. Council  
with respect to Carrigrohane WWTP.

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# Limit Values for Process Effluent to Sewer

## Schedule B: Emission Limits

Emission point reference no: DP001

Emission to (sewer description): On Site

Volume to be emitted : Maximum in any one day : 240 m<sup>3</sup>  
Maximum rate per hour : 17 m<sup>3</sup>

Parameter (delete parameters which are not applicable)	Emission Limit Value	
	Daily Mean Concentration (mg/l)	Daily Mean Loading (kg/day)
BOD	400	66
COD	800	130
Suspended Solids	600	60
pH	6.0 to 9.0	
Temperature	30°C	
ADDITIONAL PARAMETERS (if required)		
Ammonia as Nitrogen	40 mg/l	
Sulphate	1000 mg/l	
Total Phosphate as P	50 mg/l	
Total Nitrogen as N	200 mg/l	
Detergents	10 mg/l	
Fats, Oil, Grease	20 mg/l	

# Frequency of Monitoring Process Effluent to Sewer

## Schedule C

Emission point reference no: DP001

Parameter (delete parameters which are not applicable)	Monitoring Frequency (e.g. monthly, quarterly, annually)	Sample Type (grab, composite)
Flow to sewer	Daily	—
Temperature	Weekly	Comp
pH	Daily	Comp
BOD	Monthly	Comp
COD	Weekly	Comp
Suspended Solids	Weekly	Comp
ADDITIONAL PARAMETERS (if required)		
Ammonia - N	Monthly	Comp
Sulphate	Monthly	Comp
Total Phosphate - P	Quarterly	Comp
Total Nitrogen - N	Monthly	Comp
Detergents	Annually	Comp
Fats, oil, Grease	Quarterly	Comp
V. OC.	Monthly	Comp

(note: no. ELV value set for VOC)

Signed on behalf of Sanitary Authority:

V. Hannon  
Exec Scientist

Annual Monitoring Costs. £500 / year.

Treatment charges to be set as per polluter pays

Principle of Water Services CCC.

Treatment charges to be tested by C.C.C.

## Section 99E of the Environmental Protection Agency Acts 1992 and 2003

**99E.-** (1) Where the Agency proposes to grant a licence (including a revised licence) which involves a discharge of any trade effluent or other matter (other than domestic sewage or storm water) to a sewer, it shall obtain the consent of the sanitary authority in which the sewer is vested, or by which the sewer is controlled, to such a discharge being made.

(2) Where consent is sought in accordance with subsection (1), the Agency may specify a period (which period shall not in any case be less than 4 weeks from the date on which the consent is sought) within which the consent may be granted subject to, or without, conditions or refused; any consent purporting to be granted (whether subject to or without conditions) after the expiry of that period, or any decision given purporting to refuse consent after that expiry, shall be invalid and in those circumstances the Agency may proceed to grant the licence concerned as if the requirements of subsection (1) had been satisfied.

(3) Subject to subsection (4), a consent under subsection (1) may be granted subject to or without conditions and if it is granted subject to conditions the Agency shall include in the licence or revised licence concerned conditions corresponding to them or, as the Agency may think appropriate, conditions more strict than them.

(4) The conditions that may be attached to a consent by a sanitary authority under this section are the following and no other conditions, namely conditions-

(a) relating to-

(i) the nature, composition, temperature, volume, level, rate, and location of the discharge concerned and the period during which the discharge may, or may not, be made,

(ii) the provision, operation, maintenance and supervision of meters, gauges, manholes, inspection chambers and other apparatus and other means for monitoring the nature, extent and effect of emissions,

(iii) the taking and analysis of samples, the keeping of records and furnishing of information to the sanitary authority,

(b) specifying a date not later than which any conditions attached under this section shall be complied with,

(c) relating to, providing for or specifying such other matter as may be prescribed.

(5) A sanitary authority may request the Agency to review a licence or revised licence to which this section relates-

(a) at intervals of not less than 3 years from the date on which the licence or the revised licence is granted, or

(b) at any time with the consent, or on the application, of the person making, causing or permitting the discharge, or

(c) at any time if-

(i) the sanitary authority has reasonable grounds for believing that the discharge authorised by the licence or revised licence is, or is likely to be, injurious to public health or is likely to render the waters to which the sewer concerned discharges unfit for use for domestic, commercial, industrial, fishery (including fish-farming), agricultural or recreational uses or is, or is likely to be otherwise, a serious risk to the quality of the waters,

(ii) there has been a material change in the nature or volume of the discharge,



(iii) there has been a material change in relation to the waters to which the sewer concerned discharges, or

(iv) further information has become available since the date on which the licence or revised licence was granted relating to polluting matter present in the discharge concerned or relating to the effects of such matter,

and the Agency shall consider and may comply with such request and shall have regard to any submission on the matter received from the sanitary authority.

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## **Attachment No. D.3.A**

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### **D.3.A Emissions to Sewer**

The nature of emissions to sewer has not changed since Cara Partners original application to the EPA for an IPC licence. However Cara Partners has requested from in a letter to Cork County Council dated 31 July 2006a change in Licence Emission Limit Values for Total Ammonia (as N) and Suspended Solids and monitoring frequency of Total Kjeldahl Nitrogen (as N). This letter is **attached below**.

The requested changes are reflected in modified Table E.3 (i) and E.3 (ii) below.

There has been no change to the sewer emission point from the site.

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**TABLE E.3(i): EMISSIONS TO SEWER**(One page for each emission)

**Emission Point:**

Emission Point Ref. N <sup>o</sup> :	DP 001
Location of connection to sewer :	On Site
Grid Ref. (10 digit, 5E,5N):	N72088 E179433
Name of sewage undertaker:	Cork County Council

**Emission Details:**

(i) Volume to be emitted			
Normal/day	120m <sup>3</sup>	Maximum/day	240m <sup>3</sup>
Maximum rate/hour	17m <sup>3</sup>		

- (ii) Period or periods during which emissions are made, or are to be made, including daily or seasonal variations (*start-up /shutdown to be included*):

Periods of Emission (avg)	60 min/hr	24 hr/day	365 day/yr
---------------------------	-----------	-----------	------------

**TABLE E.3(ii): EMISSIONS TO SEWER - Characteristics of the emission** (1 table per emission point)

**Emission point reference number :** DP001

Parameter	Prior to treatment				As discharged				% Efficiency
	Max. hourly average (mg/l)	Max. daily average (mg/l)	kg/day	kg/year	Max. hourly average (mg/l)	Max. daily average (mg/l)	kg/day	kg/year	
<u>pH</u> <i>As in original IPC licence</i>	Not Available					6-9 Emission Limit Value			
<u>COD</u> <i>As in original IPC licence</i>	Not Available					800	130		
<u>Suspended Solids</u> Under review by Cork Co.Co.	Not Available					600 original 1000 proposed	60 original 100 proposed		
<u>Nitrate</u> <i>As in original IPC licence</i>	Not Available					100.0	6.0		
<u>Total Ammonia as N</u> Under review by Cork Co.Co.	Not Available					20.0 original 40.0 proposed	4.8 original 9.6 proposed		
<u>Total Kjeldahl Nitrogen</u> <i>As in original IPC licence</i> ** frequency of	Not Available					40.0	10.0		

Parameter	Prior to treatment				As discharged				% Efficiency
	Max. hourly average (mg/l)	Max. daily average (mg/l)	kg/day	kg/year	Max. hourly average (mg/l)	Max. daily average (mg/l)	kg/day	kg/year	
analysis changed from weekly to monthly Under review by Cork Co. Co.									
Total Phosphorus as P <i>As in original IPC licence</i>	Not Available					35.0	7.5		
Total Copper as Cu <i>As in original IPC licence</i>	Not Available					0.5	0.1		
Total Lead as Pb <i>As in original IPC licence</i>	Not Available					0.5	0.1		
Total Zinc <i>As in original IPC licence</i>	Not Available					0.5	0.1		
Biochemical Oxygen Demand <i>As in original IPC licence</i>	Not Available					400	66		
Effluent Solvent <i>As in original IPC licence</i>	Not Available					n/a	n/a		
Effluent Toxicity <i>As in original IPC licence</i>	Not Available					n/a	n/a		

Parameter	Prior to treatment				As discharged				% Efficiency
	Max. hourly average (mg/l)	Max. daily average (mg/l)	kg/day	kg/year	Max. hourly average (mg/l)	Max. daily average (mg/l)	kg/day	kg/year	
Organic Compounds As per condition 6.5 of IPC licence performed at Agency request.	Not Available					n/a	n/a		

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25/08/ 2006

In regards to: Integrated Pollution Prevention Control Licence Review

Cork County Council  
Innisearin  
Co. Cork

Dear Valerie Hannon

We are currently in the process of reviewing our IPC license under section 90(1) of the Environmental Protection Agency Acts 1992 and 2003, the purpose of the review being to ensure compliance with the requirements of the IPPC Directive.

At the time of granting the current IPC license, Cara Partners discharged treated waste water to the Cork County Council sewer which in turn discharged to Cork Harbour. However Cara Partners now discharge to the Cork County Council sewer which subsequently discharges to the municipal Waste Water Treatment plant located at Carrigrennan. Hence as part of the above review Cara Partners are proposing some minor amendments to the current licensed Waste Water Treatment Plant discharge conditions.

The following amendments are proposed:

Parameter	Current Licensed Emission Limit values	Proposed Emission Limit Values
Total Ammonia (as N)	20.0 mg/l Concentration 4.8 kg/day Mass Emission	40 mg/l Concentration 9.6 kg/day Mass Emission
Suspended Solids	600 mg/l Concentration 60 kg/day Mass Emission	1000 mg/l Concentration 100 kg/day Mass Emission
Parameter	Current Licensed monitoring Frequency	Proposed Monitoring frequency
Total Kjeldahl Nitrogen (as N)	Weekly	Monthly

Reference: LetterCC02Aug06



The average discharge concentrations from the WWTP in 2004 and 2005 for ammonia, suspended solids are as follows:-

Emission Point Ref. Number	Parameter	Units	IPCL Limit	Avg. Emission Level	% Compliance
DP001 2004	Suspended Solids	mg l <sup>-1</sup>	600	61.2	100%
DP001 2005	Suspended Solids	mg l <sup>-1</sup>	600	64	99.1%
DP001 2004	Total Ammonia	mg l <sup>-1</sup>	20.0	3.65	100 %
DP001 2005	Total Ammonia	mg l <sup>-1</sup>	20.0	3.9	99.1%

The limit change is proposed to allow operation of the plant during occasions where the plants ability to treat ammonia to our specified emission limit is inhibited. It is not envisaged that the average ammonia and suspended solids discharge concentration will change as a result of this limit change.

It may also be concluded from a review of the Annual monitoring report that all weekly TKN analyses throughout 2005 met the emission limit value of 40.0 mg/l concentration. This trend was also verified for 2003 and 2004 TKN analyses. Hence on this basis a monitoring frequency reduction from weekly to monthly may be justified.

Please find attached

1. The 2005 Annual monitoring report for the discharge to sewer from Cara Partners.
2. The 2005 Toxicological test report of Cara Partners Trade effluent.
3. The 2005 Respiratory test of Cara Partners Trade effluent on Carrigrennan activated sludge.

I hope this proposal is to your satisfaction and should you have any questions or queries please don't hesitate to contact me at the above phone number.

Regards,

Sean Wixson  
Environmental Officer  
CARA PARTNERS

Reference Letter CCO2 Aug 06

**SAMPLE DESCRIPTION**

Client: Cara Partners  
 Client Sample Description: Trade effluent, 24 h composite, 22-23.11.05  
 Tax. Ref. No.: 05T191  
 Date of Receipt: 24.11.05 Storage Conditions: ≤ - 20°C

**SAMPLE INFORMATION**

(supporting data not within scope of INAB accreditation)

	SATL	Client	Other
Sampled by:	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Collected by:	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Sampling Procedure:	n/a		
Temperature: (°C)	17.0	pH: (at 17.3°C)	7.4
Dissolved Oxygen: (mg/l)	< 0.5	Dissolved Oxygen: (% saturation)	< 5
Conductivity: (µS/cm at 25°C)	1815	Salinity ‰: (at 20°C)	< 1

**TEST PROCEDURE**

Test Species: Tisbe battagliai Test Date: 29.11.05  
 Test Procedure: Method 6.3 based on BS 6068-5.24:1999; ISO 14669:1999;  
'Water quality - Part 5: Biological methods - Section 5.24: Determination of acute  
lethal toxicity to marine copepods (Copepoda, Crustacea)'

**TEST RESULT**

Method of Calculation: n/a

Comments:

No mortality occurred at 32% vol./vol.

Glasnevin, Dublin 11, Ireland  
 62a Nelson, Park Alto Court 3, B20  
 T: +353 1 858 2000/357 000 F: +353 1 808 2825



## Environment Programme. Laboratory Services.

Sheet no. 1 of 6 sheets.

### CONFIDENTIAL REPORT

Client:

Cara Partners  
 Little Island  
 Co Cork

Title:

Test for inhibition of oxygen  
 consumption by activated sludge.  
 (IPC Licence Register No 17)

Attn: Mr Sean Wrixon.

Job No. N527

Report by: Joe McNamee

Job Ref: 63/143436

Approved by: Martin Reilly

Order No.: PO 003328

Copies to:

Date: 30<sup>th</sup> November 2005.

#### Client work - terms and conditions of acceptance

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4. Payments for work carried out shall be in accordance with the terms and conditions stated on Enterprise Ireland's invoice.
5. No action or legal proceedings shall be taken (except in the case of wilful neglect or default) against Enterprise Ireland or the Board or any officer or servant of Enterprise Ireland by reason of its acting out of the carrying out of any research, investigation, test or analysis or the publication of the results thereof in the name of Enterprise Ireland.
6. Enterprise Ireland will not release any information received from or provided to the client in relation to this report except as may be required by law or as specified by the client.
7. The laws of Ireland, including the Freedom of Information Act, 1997, shall apply.



## Introduction

Enterprise Ireland was requested by Cara Partners to carry out respirometry testing on a sample of trade effluent arising from their manufacturing operation in Little Island, Co. Cork. The company have been issued with an Integrated Pollution Control licence (Register No. 17) by the Environmental Protection Agency to discharge their trade effluent to the local authority foul sewer. The sewer is connected to the nearby municipal waste water treatment plant in Carrigrohane (Little Island) which provides full biological treatment in admixture with domestic sewage using an activated sludge process.

The sample was collected by Enterprise Ireland on the 23<sup>rd</sup> of November 2005 and tested on the following day using an International Organisation for Standardisation test method (ISO 8192). This ISO test specifies a method for assessing the inhibitory effect of a test material on wastewater on the oxygen consumption (respiration rate) of activated sludge micro-organisms. It provides information on inhibitory or stimulatory effects after short term exposure (up to 180 minutes) of the test sample on activated sludge. The test provides for two methods which can be used, method A or method B. Method A is intended to represent conditions in a surface water while Method B is intended to represent conditions in a biological wastewater treatment plant. Test method B was carried out on the sample using activated sludge from Carrigrohane (Little Island) municipal wastewater treatment plant.

## Test Principle

Activated sludge in the presence of a suitable easily biodegradable substrate will consume oxygen rapidly at a rate depending on, among other factors, the concentration of micro-organisms present. The addition of a toxic concentration of a test material can result in a decrease in the oxygen consumption rate. The oxygen consumption rate (respiration rate) is measured using a volumetric respirometer to continually measure and record the oxygen uptake. The percent inhibition of the oxygen consumption after a stipulated time (180 minutes) is calculated by comparison with a control sample (OECD synthetic sewage)<sup>(1)</sup> containing no test material.

The sensitivity of the activated sludge can be checked using a reference substance, 3,5-dichlorophenol, which has a known toxicity in the range of 5 to 30 mg/l when tested against municipal activated sludge treating domestic sewage. When the same sludge source is regularly used its sensitivity only needs to be checked intermittently and when a different source is used its sensitivity should be checked for each series of tests where possible.

<sup>(1)</sup> **OECD synthetic sewage** Standard synthetic sewage as defined by the Organisation for Economic Co-operation and Development made up at 100 fold strength. Its composition is:

Peptone	16g
Meat extract	11g
Urea	3g
Sodium chloride	0.3g
Calcium chloride dihydrate	0.4g
Magnesium sulphate heptahydrate	0.2g
Dipotassium hydrogen phosphate	2.8g
Water	to 1000 ml

# **Test Method**

The test was carried out in accordance with Method B of ISO 8192. The only deviation from the test method involved the use of an automatic volumetric respirometer to continuously measure and record the oxygen consumption rate instead of a dissolved oxygen meter.

## **Test Conditions**

Test Sample Reference:	Cara Partners, Trade effluent, 24 h composite sample collected from 08:00h on the 22 <sup>nd</sup> until 08:00h on the 23 <sup>rd</sup> of November 2005
Activated Sludge Source:	Carrigreann (Little Island) sludge collected on the 23/11/05
Pre-treatment of sludge:	Allowed settle for approx 30 minutes and the supernatant decanted to increase the MLSS concentration. Aerated at 20 °C until used.
pH of Activated Sludge:	7.0
pH of test sample:	7.9 (the pH of the test sample was adjusted to approximately 7.1 using dilute sulphuric acid before testing. This was carried out to minimize the risk of toxic shock to the sludge which could be caused by a sudden pH change during testing))
Activated Sludge Concentration: (in test chamber):	1500 mg/l
Test Duration:	180 minutes
Test Temperature:	20 °C
Test Date:	24 <sup>th</sup> November 2005

## **Definitions**

**EC<sub>50</sub>** The effective concentration (0 to 100 % w/v or mg/l) of the test sample giving a calculated or interpolated inhibition of oxygen consumption of 50 % as compared to a blank control.

**Toxic Unit.** An alternative means of expressing effluent toxicity (0 to 100 % w/v only) as a function of the undiluted sample. This is known as the Toxic Unit and is defined as 100/EC<sub>50</sub>.

**Inhibition Threshold.** The effective concentration (0 to 100 % w/v or mg/l) of the test sample giving a calculated or interpolated inhibition of oxygen consumption of zero as compared to a blank control.

**Test Results**

**Sludge Sensitivity Reference Test** (Carrigrenau activated sludge of the 23<sup>rd</sup> Nov 2005)

Reference Substance Used: 3,5-dichlorophenol.

Date tested: 24<sup>th</sup> Nov 2005.

**Result of Sludge Sensitivity Test:**

180 min EC<sub>50</sub> toxicity value: 10 to 20 mg/l (see Inhibition Chart No. 1)

As this value was within the normal range (5 to 30 mg/l) for municipal activated sludge the sludge was suitable for testing purposes

**Sample Test**

(Carr Partners, Trade effluent, 24 h composite sample collected from 08:00h on the 23<sup>rd</sup> until 08:00h on the 25<sup>th</sup> of November 2005)

A screening test was carried out in duplicate on the test sample at a sample concentration of 50 % w/v (500 ml of test sample made up to 1 litre with activated sludge). No inhibition was found after 180 minutes and consequently no further testing was necessary.

The actual respiration curve for the test sample is presented in respirometry Chart 2. The chart shows a small increase in the respiration rate of the test sample as compared to the control due to biodegradation of the test sample.

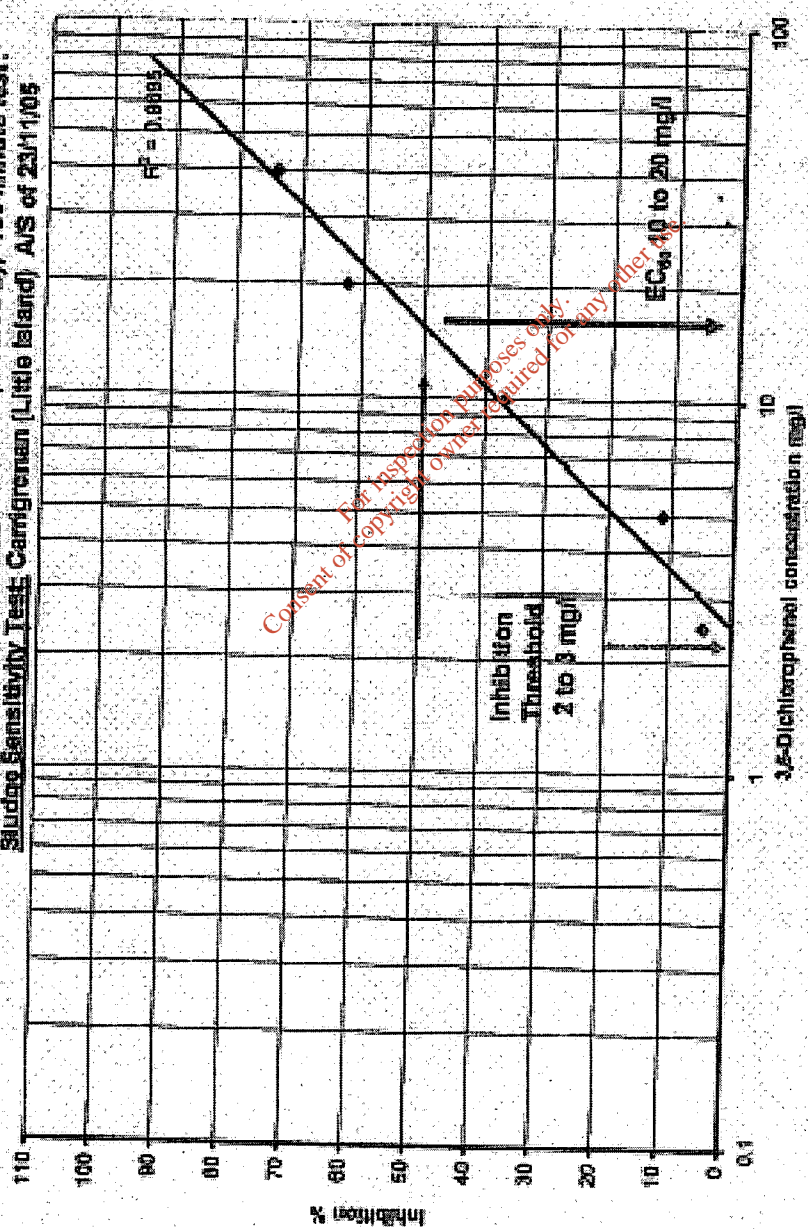
**Result of Sample Test:**

EC<sub>50</sub> toxicity value (180 minute): Greater than 50 % concentration w/v

Toxic Unit value (180 minute): Less than 2 TU

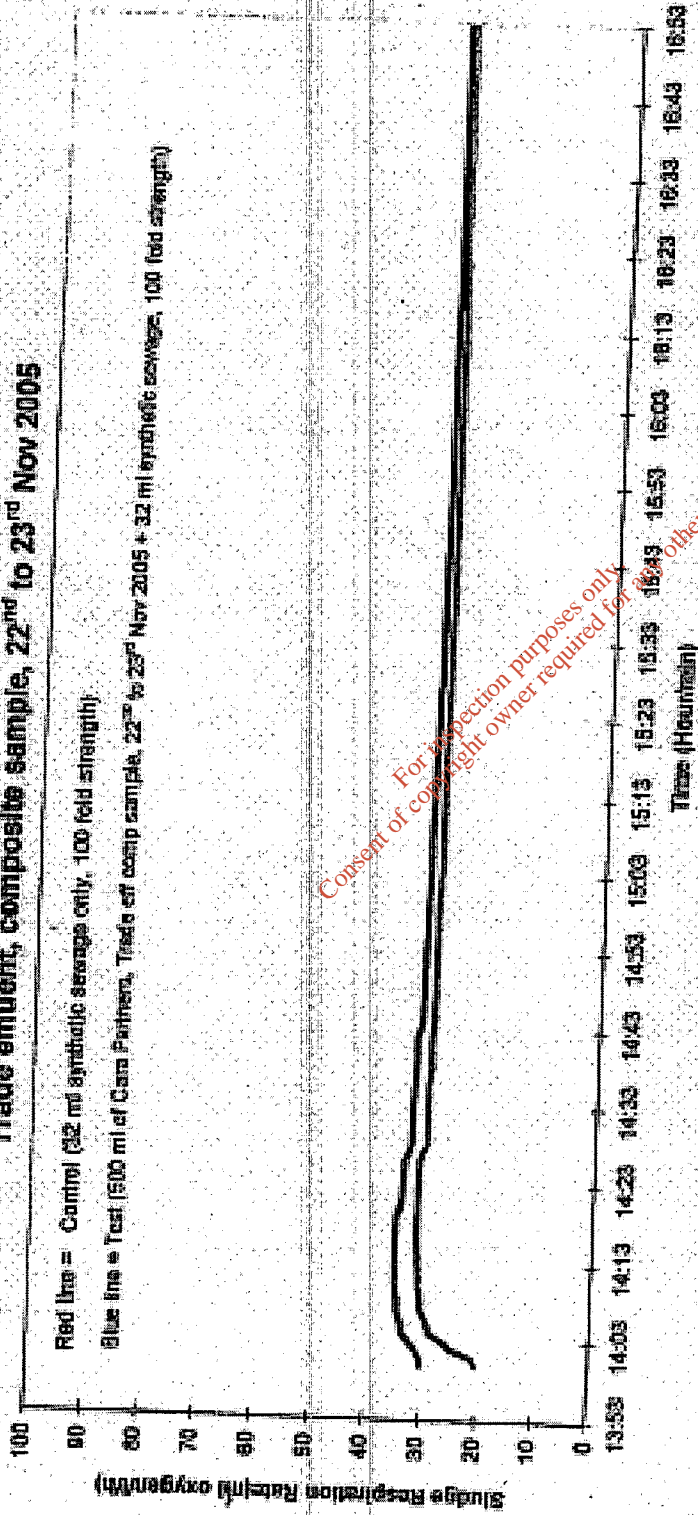


**Chart 1. Test for Inhibition of Oxygen Consumption by Activated Sludge**  
**Test Method Reference: ISO 8192 (method B), 180 minute test.**  
**Sludge Sensitivity Test: Carigranem (Little Island) AUS of 23/1/05**





**Chart 2** Respirometry Chart, Cara Partners,  
Trade effluent, composite sample, 22<sup>nd</sup> to 23<sup>rd</sup> Nov 2005



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# Summary Report - Analysis of discharge to Sewer From WWTP (Monthly Averages)

Date from 01-Jan-2004 through 21-12-2004

Date	Flowrate (m3/Day)	COD (mg/L)	BOD (mg/L)	Susp Solids (mg/L)	Ammonia (mg/L)	TKN (mg/L)	Nitrate (mg/L)	Phosphorus (mg/L)	Copper (mg/L)	Zinc (mg/L)	Lead (mg/L)	pH
Jan 2004	66	158	15.5	68.8	3.1	6.40	9.18	12.58	0.11	0.13	0.15	7.64
Feb 2004	68	147	8.0	52.7	4.2	7.25	1.50	2.04	0.02	0.08	0.01	7.40
Mar 2004	88	206	19.0	54.6	1.7	5.59	1.73	0.18	0.01	0.11	0.07	7.12
Apr 2004	73	367	39.0	94.0	8.3	10.04	3.57	0.28	0.01	0.12	0.09	6.89
May 2004	90	471	88.0	96.5	5.6	19.00	3.30	0.17	0.01	0.14	0.14	7.35
Jun 2004	77	259	48.0	38.5	3.1	8.18	2.30	0.13	0.01	0.04	0.03	7.58
Jul 2004	81	149	4.0	11.5	10.2	14.36	38.37	1.78	0.03	0.03	0.06	7.67
Aug 2004	71	159	35.0	41.3	1.9	6.00	13.90	21.30	0.02	0.17	0.05	7.46
Sep 2004	73	129	9.0	56.7	1.2	3.75	1.27	1.33	0.10	0.08	0.06	7.74
Oct 2004	82	101	10.0	42.6	4.3	7.60	0.96	0.84	0.02	0.38	0.16	7.49
Nov 2004	79	135	24.5	85.5	2.2	5.75	1.28	3.37	0.01	0.10	0.07	7.47
Dec 2004	90	136	9.0	36.0	1.6	3.59	1.28	0.12	0.01	0.03	0.10	7.31
Avg. Discharge Conc	78	202	28	61.2	3.65	7.31	5.16	3.76	0.03	0.12	0.09	7.43
Max. Discharge Conc	166	760	88	457.0	18.00	25.00	83.00	30.40	0.20	0.38	0.19	8.16
Min. Discharge Conc	0	0	4	2.5	0.00	2.00	0.40	0.00	0.01	0.03	0.01	6.32
No of Analyses	231	238	14	227	228	46	48	50	14	14	14	228

Annual Summary Report to Local authority

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