

Headquarters,
P.O. Box 3000,
Johnstown Castle Estate
County Wexford, Ireland

PROPOSED DECISION

Waste Licence 164-1
Register Number:
Licensee: Dunloe Ewart PLC
Location of Facility: ‘Former Hammond Lane Metal
Company\Molloy & Sherry Site’.

Site Contained by the following street frontages: Sir John Rogerson’s Quay to the North; Britain Quay to the East; Green Street East to the South; and Benson Street to the west, Dublin 2

INTRODUCTION

This introduction is not part of the licence and does not purport to be a legal interpretation of the licence.

This *waste licence application* is for activities involving the remediation of contaminated soil by soil stabilisation and excavation for disposal, and contaminated groundwater by permeable reactive barrier at a facility in the south Dublin Docklands to be developed for commercial and residential use by Dunloe Ewart PLC.

The proposed waste licence facility straddles four street fronts - Sir John Rogerson's Quay; Britain Quay; Green St East; Benson Street - and covers an area of 2.1 hectares. Soil contamination lies randomly across the site mainly in the shallow made ground. The contaminants include arsenic, copper, lead, PAHs, and mineral oil. Groundwater in the underlying gravels is contaminated by PAHs, mineral oil and certain metals.

Past usage of the site includes:

- Lime Works (1859 – 1868)
- Alkali Manufacturers (1867 – 1895)
- Chemical Fertiliser Manufacturer (1868 – 1876)
- Shipping Yard (1900 – 1911) Storage of oil and materials
- Coal Yard (1946 – 1959)
- Hammond Lane Metal Co. (1977 – 1996): Scrap Yard: metals, oil, hydrocarbons

The remediation strategy for the facility is the redevelopment of the site with a (a) Permeable Reactive Barrier (PRB) providing a pathway interception, (b) targeted shallow source zone stabilisation using soil mixing, and (c) contaminated soil removal and off-site disposal/recovery. The total quantity of soils and made ground to be excavated, classified and exported from the facility shall not exceed 60,000 tonnes total as controlled in the licence. A programme of soil stabilisation will treat an element of this tonnage *in situ*.

It is anticipated that the licence will be in place for approximately four years.

Table of Contents

	Page No.
DECISION AND REASONS FOR THE DECISION	1
<i>PART I ACTIVITIES LICENSED</i>	1
INTERPRETATION	3
<i>PART II CONDITIONS</i>	5
CONDITION 1 SCOPE OF THE LICENCE	5
CONDITION 2 MANAGEMENT OF THE FACILITY	6
CONDITION 3 FACILITY INFRASTRUCTURE	7
CONDITION 4 RESTORATION AND AFTERCARE	10
CONDITION 5 FACILITY OPERATIONS	10
CONDITION 6 EMISSIONS	12
CONDITION 7 NUISANCES	13
CONDITION 8 MONITORING	15
CONDITION 9 CONTINGENCY ARRANGEMENTS	15
CONDITION 10 RECORDS	17
CONDITION 11 REPORTS AND NOTIFICATIONS	18
CONDITION 12 CHARGES AND FINANCIAL PROVISIONS	19
SCHEDULE A : Waste Exported	21
SCHEDULE B : Specified Engineering Works	21
SCHEDULE C : Emission Limits	21
SCHEDULE D : Monitoring	22
SCHEDULE E : Recording and Reporting to the Agency	26
SCHEDULE F : Content of the Annual Environmental Report	26

DECISION & REASONS FOR THE DECISION

The Environmental Protection Agency (the Agency) is satisfied, on the basis of the information available, that the requirements of Section 40(4) of the Waste Management Act, 1996 have been complied with in respect of the application for a waste licence for the activities listed hereunder in Part I.

In reaching this decision the Agency has considered the application and supporting documentation received from the applicant, all submissions received from other parties and the report of its inspector.

Part I Activities Licensed

In pursuance of the powers conferred on it by the Waste Management Act, 1996, the Agency proposes under Section 40(1) of the said Act to grant this Waste Licence to Dunloe Ewart PLC. to carry on the waste activities listed below at the 'Former Hammond Lane Metal Company, Molloy & Sherry Site' contained by the following street frontages: Sir John Rogerson's Quay to the North; Britain Quay to the East; Green Street East to the South; and Benson Street to the west subject to twelve conditions, with the reasons therefor and the associated schedules attached thereto set out in the licence.

Licensed Waste Disposal Activities, in accordance with the Third Schedule of the Waste Management Act 1996

Class 13	Storage prior to submission to any activity referred to in a preceding paragraph of this Schedule, other than temporary storage, pending collection, on the premises where the waste concerned is produced: This activity is limited to the storage and separation of clean inert material prior to re-use on site. The storage activity is related to production of low permeability hard standings required for the slurry wall installation activities.
-----------------	--

Licensed Waste Recovery Activities, in accordance with the Fourth Schedule of the Waste Management Act 1996

Class 2.	Recycling or reclamation of organic substances which are not used as solvents (including composting and other biological transformation processes): This activity is limited to the reclamation of hazardous contaminated soil, its treatment by soil mixing on site or export off-site for processing at a licensed facility and the treatment of hazardous contaminated groundwater by Permeable Reactive Barrier.
Class 3	Recycling or reclamation of metals and metal compounds: This activity is limited to the recovery of inorganic trace metals from the Permeable Reactive Barrier System on a periodic basis.
Class 4.	Recycling or reclamation of other inorganic materials: This activity is limited to the reclamation of hazardous contaminated soil and groundwater and their treatment by soil mixing on site and Permeable Reactive Barrier technology.
Class 13	Storage of waste intended for submission to any activity referred to in a preceding paragraph of this Schedule, other than temporary storage, pending collection, on the premises where such waste is produced: This activity is limited to the storage of source-zone contaminated soil and the temporary storage of materials arising from the activities involved in the construction of the Permeable Reactive Barrier System.

INTERPRETATION

All terms in this licence should be interpreted in accordance with the definitions in the Waste Management Act, (the Act), unless otherwise defined in this section.

Aerosol	A suspension of solid or liquid particles in a gaseous medium.
Adequate lighting	20 lux measured at ground level.
Agreement	Agreement in writing.
Annually	At approximately twelve monthly intervals.
Attachment	Any reference to Attachments in this licence refers to attachments submitted as part of the waste licence application.
Application	The application by the licensee for this waste licence.
Appropriate facility	A waste management facility, duly authorised under relevant law and technically suitable.
Condition	A condition of this licence.
Construction and Demolition Waste	All wastes which arise from construction, renovation and demolition activities.
Containment boom	A boom which can contain spillages and prevent them from entering drains or watercourses.
Daily Cover	Is the term used to describe material spread (about 150mm if soil cover is used) over deposited waste at the end of each day. Synthetic materials may also be used. Its objective is to minimise odour, the amount of litter generated and to control flies and access to the waste by birds and vermin. Where soils are used for daily cover, it is recommended that they be removed at the start of the day and subsequently reused as much as possible.
Daytime	8.00 a.m. to 10.00 p.m.
Documentation	Any report, record, result, data, drawing, proposal, interpretation or other document in written or electronic form which is required by this licence.
Drawing	Any reference to a drawing or drawing number means a drawing or drawing number contained in the application, unless otherwise specified in this licence.
Emergency	Those occurrences defined in Condition 9.4
Emission Limits	Those limits, including concentration limits and deposition levels established in <i>Schedule C: Emission Limits</i> of this licence.
European Waste Catalogue (EWC)	A harmonised, non-exhaustive list of wastes drawn up by the European Commission and published as Commission Decision 94/3/EC and any subsequent amendment published in the Official Journal of the European Community.
Hazardous Waste	As defined in Section 4 (2) of the Act.
Inert waste	Waste that does not undergo any significant physical, chemical or biological transformations. Inert waste will not dissolve, burn or otherwise physically or chemically react, biodegrade or adversely affect other matter with which it

comes into contact in a way likely to give rise to environmental pollution or harm human health. The total leachability and pollutant content of the waste and the ecotoxicity of the leachate must be insignificant, and in particular not endanger the quality of surface water and/or groundwater.

LEL (Lower Explosive Limit)	The lowest percentage concentration by volume of a mixture of flammable gas with air which will propagate a flame at 25°C and atmospheric pressure.
Licence	A Waste Licence issued in accordance with the Act.
Licensee	Dunloe Ewart PLC.
List I/II Organics	Substances classified pursuant to EC Directives 76/464/EEC and 80/68/EEC.
Maintain	Keep in a fit state, including such regular inspection, servicing and repair as may be necessary to adequately perform its function.
Mobile Plant	Self-propelled machinery used for the emplacement of wastes or for the construction of specified engineering works.
Monthly	A minimum of 12 times per year, at approximately monthly intervals.
Night-time	10.00 p.m. to 8.00 a.m.
Non-hazardous Asbestos Waste	Includes bonded asbestos, such as tiles, which are not classified as hazardous waste and which are authorised for disposal at the facility.
Permeable Reactive Barrier (PRB)	An emplacement of reactive materials in the subsurface designed to intercept a contaminant plume, provide a flow path through the reactive media, and transform the contaminant(s) into environmentally acceptable forms to attain remediation concentration goals downgradient of the barrier.
Recyclable Materials	Those waste types, such as cardboard, batteries, gas cylinders, etc, which may be recycled.
Quarterly	At approximately three monthly intervals.
Sample(s)	Unless the context of this licence indicates to the contrary, samples shall include measurements by electronic instruments.
Specified Emissions	Those emissions listed in <i>Schedule C: Emission Limits</i> of this licence.
Specified Engineering Works	Those engineering works listed in <i>Schedule B: Specified Engineering Works</i> of this licence.
Treated Sludge	Sludge which has undergone biological, chemical or heat treatment, long-term storage or any other appropriate process so as significantly to reduce its fermentability and the health hazards resulting from its use.
Trigger Level	A parameter value specified in the licence, the achievement or exceedance of which requires certain actions to be taken by the licensee.
EPA Working Day	Refers to the following hours; 9.00 a.m. to 5.30 p.m. Monday to Friday inclusive.

PART II CONDITIONS

CONDITION 1 SCOPE OF THE LICENCE

- 1.1. Waste activities at the facility shall be restricted to those listed and described in Part I: Activities Licensed and authorised by this licence.
- 1.2. For the purposes of this licence, the facility is the area of land outlined in red on Drawing No. 9661-P10.07 of the application. Any reference in this licence to “facility” shall mean the area thus outlined in red.
- 1.3. This licence is for the purposes of waste licensing under the Waste Management Act 1996 only and nothing in this licence shall be construed as negating the licensee’s statutory obligations or requirements under any other enactments or regulations.
- 1.4. The quantity of wastes to be exported from the facility shall not exceed 60,000 tonnes total, unless otherwise agreed in advance with the Agency.
- 1.5. Waste Acceptance Hours and Hours of Operation
 - 1.5.1. Waste activities shall only be carried out at the facility between the hours of 7.30 a.m. and 7.30 p.m. Monday to Saturday.
- 1.6. The following shall constitute an incident for the purposes of this licence:
 - a) an emergency;
 - b) any emission which does not comply with the requirements of this licence;
 - c) any trigger level specified in this licence which is attained or exceeded; and
 - d) any indication that environmental pollution has, or may have, taken place.
- 1.7. Where the Agency considers that a non-compliance with any condition of this licence has occurred, it may serve a notice on the licensee specifying:
 - 1.7.1. That the licensee shall undertake the works stipulated in the notice, and/or otherwise comply with the requirements of the notice as set down therein, within the time-scale contained in the notice; and
 - 1.7.2. That the licensee shall carry out any other requirement specified in the notice.
- 1.8. When the notice has been complied with, the licensee shall provide written confirmation that the requirements of the notice have been carried out.
- 1.9. Every plan, programme or proposal submitted to the Agency for its agreement pursuant to any Condition of this licence shall include a proposed timescale for its implementation. The Agency may modify or alter any such plan, programme or proposal in so far as it considers such modification or alteration to be necessary and shall notify the licensee in writing of any such modification or alteration. Every such plan, programme or proposal shall be carried out within the timescale fixed by the Agency but shall not be undertaken without the agreement of the Agency. Every such plan, programme or proposal agreed by the Agency shall be covered by the conditions of this licence.

REASON: To clarify the scope of this licence

CONDITION 2 MANAGEMENT OF THE FACILITY

2.1 Facility Management

- 2.1.1 The licensee shall employ a suitably qualified and experienced facility manager who shall be designated as the person in charge. The facility manager or a nominated, suitably qualified and experienced, deputy shall be present on the facility at all times during its operation.
- 2.1.2 The licensee shall ensure that personnel performing specifically assigned tasks shall be qualified on the basis of appropriate education, training and experience, as required and shall be aware of the requirements of this licence.
- 2.1.3 The licensee shall ensure that experienced supervisors are provided at key work faces and other key potential odour source areas, to ensure that highly odorous materials are handled in a way that minimises odour generation, and that odour suppression equipment is utilised effectively in such areas.

2.2 Management Structure

- 2.2.1 Prior to the commencement of waste activities the licensee shall submit written details of the management structure of the facility to the Agency. Any proposed replacement in the management structure shall be notified in advance in writing to the Agency. Written details of the management structure shall include the following information
 - a) the names of all persons who are to provide the management and supervision of the waste activities authorised by the licence, in particular the name of the facility manager, any nominated deputies, and site supervisors;
 - b) details of the responsibilities for each individual named under a) above; and
 - c) details of the relevant education, training and experience held by each of the persons nominated under a) above.

2.3 Environmental Management System (EMS)

- 2.3.1 The licensee shall prior to commencement of the waste activities, submit to the Agency for its agreement a proposal for a documented Environmental Management System (EMS) for the facility. Following the agreement of the Agency, the licensee shall establish and maintain such a system. The EMS shall be updated as required with amendments being submitted to the Agency for its agreement.

- 2.3.2 The EMS shall include as a minimum the following elements:

2.3.2.1 Schedule of Environmental Objectives and Targets

The objectives should be specific and the targets measurable. The Schedule shall address the remediation period as a minimum. The Schedule shall include a time-scale for achieving the objectives and targets and shall comply with any other written guidance issued by the Agency.

2.3.2.2 Environmental Management Plan (EMP)

The EMP shall include, as a minimum, the following:

- (i) Methods or procedures by which the objectives and targets will be achieved and the identification of those responsible for achieving those objectives and targets;
- (ii) any other items required by written guidance issued by the Agency.

2.3.2.3 Corrective Action Procedures

The Corrective Action Procedures shall detail the corrective actions to be taken should any of the procedures detailed in the EMS not be followed.

2.3.2.4 Awareness and Training Programme

The Awareness and Training Programme shall identify training needs for personnel who work in or have responsibility for the licensed facility.

2.4 Communications Programme

- 2.4.1 The licensee shall establish and maintain a Communications Programme to ensure that members of the public can obtain information at the facility, at all reasonable times, concerning the environmental performance of the facility. This shall be established within one month of granting of the licence.

REASON: To make provision for the proper management of the activity on a planned basis having regard to the desirability of ongoing assessment, recording and reporting of matters affecting the environment.

CONDITION 3 FACILITY INFRASTRUCTURE

- 3.1 The licensee shall establish all infrastructure referred to in this licence prior to the commencement of the licensed activities or as required by the conditions of this licence.

3.2 Specified Engineering Works

- 3.2.1 The licensee shall submit proposals for all Specified Engineering Works, as defined in *Schedule B: Specified Engineering Works* of this licence, to the Agency for its agreement at least one month prior to the intended date of commencement of any such works. No such works shall be carried out without the prior agreement of the Agency.
- 3.2.2 All specified engineering works shall be supervised by a competent person(s) and that person, or persons, shall be present at all times during which relevant works are being undertaken.
- 3.2.3 Following the completion of all specified engineering works, the licensee shall complete a construction quality assurance validation. The validation report shall be made available to the Agency on request. The report shall include the following information:
- a) a description of the works;
 - b) as-built drawings of the works;
 - c) records and results of all tests carried out (including failures);
 - d) drawings and sections showing the location of all samples and tests carried out;
 - e) daily record sheets/diary;
 - f) name(s) of contractor(s)/individual(s) responsible for undertaking the specified engineering works;
 - g) name(s) of individual(s) responsible for supervision of works and for quality assurance validation of works;
 - h) records of any problems and the remedial works carried out to resolve those problems; and

- i) any other information requested in writing by the Agency.
- 3.3 Facility Notice Board
 - 3.3.1 The licensee shall provide and maintain a Facility Notice Board on the facility so that it is legible to persons outside the main entrance to the facility. The minimum dimensions of the board shall be 1200 mm by 750 mm.
 - 3.3.2 The board shall clearly show:
 - a) the name and telephone number of the facility;
 - b) the normal hours of opening;
 - c) the name of the licence holder;
 - d) an emergency out of hours contact telephone number available to the public 24 hours and 7 days per week;
 - e) the licence reference number; and
 - f) where environmental information relating to the facility can be obtained.
- 3.4 Facility Security
 - 3.4.1 Security fencing and gates shall be installed and maintained to a height of 2m.
 - 3.4.2 The licensee shall remedy any defect in the gates and/or fencing as follows:
 - a) a temporary repair shall be made by the end of the working day; and,
 - b) a repair to the standard of the original gates and/or fencing shall be undertaken within three working days.
- 3.5 Facility Office
 - 3.5.1 The licensee shall provide and maintain an office on or adjacent to the facility. The office shall be constructed and maintained in a manner suitable for the processing and storing of documentation.
 - 3.5.2 The licensee shall provide and maintain a working telephone and a method for electronic transfer of information at the facility.
- 3.6 Weighbridge
 - 3.6.1 The licensee shall provide and maintain a weighbridge at the facility.
- 3.7 Wheel Cleaning
 - 3.7.1 Prior to the commencement of waste activities at the facility, the licensee shall install and maintain on the facility a wheelwash. The wheelwash, once installed shall be inspected on a daily basis and maintained as necessary.
- 3.8 Wastewater Treatment Plant
 - 3.8.1 Prior to the commencement of waste activities at the facility and for the duration of the construction phase (installation of bentonite slurry wall and PRB cell) the licensee shall install and maintain a temporary activated carbon wastewater treatment plant on the facility to treat contaminated groundwater arising from the facility.
- 3.9 Tank and Drum Storage Areas
 - 3.9.1 All tank and drum storage areas shall be rendered impervious to the materials stored therein.

- 3.9.2 All tank and drum storage areas shall, as a minimum, be bunded, either locally or remotely, to a volume not less than the greater of the following:
- (a) 110% of the capacity of the largest tank or drum within the bunded area; or
 - (b) 25% of the total volume of substance which could be stored within the bunded area.
- 3.9.3 All drainage from bunded areas shall be diverted for collection and safe disposal.
- 3.9.4 All inlets, outlets, vent pipes, valves and gauges must be within the bunded area.
- 3.9.5 The integrity and water tightness of all the bunds and their resistance to penetration by water or other materials stored therein shall be confirmed by the licensee and shall be reported to the Agency following its installation and prior to its use as a storage area.

3.10 Surface Water Management

- 3.10.1 Effective surface water management infrastructure shall be provided and maintained at the facility during construction, operation, restoration and aftercare of the facility. As a minimum, the infrastructure shall be capable of the following:
- a) the prevention of contaminated water and leachate discharges into surface water drains and courses; and
 - b) the collection/diversion of run off arising from capped and restored areas.

3.11 Groundwater Management

- 3.11.1 Prior to the commencement of waste activities at the facility, the licensee shall install a bentonite slurry groundwater cut-off wall with a PRB Cell along the boundaries which lie adjacent to the River Liffey and River Dodder to intercept groundwater flow and direct this flow to a PRB cell for groundwater treatment. The bentonite slurry cut-off wall will be keyed 0.7m into the sub-glacial till unit (c. -13mAOD).
- 3.11.2 The design and engineering aspects of the bentonite slurry groundwater cut-off wall and the PRB cell shall be submitted to the Agency for its agreement as per Condition 3.2, Specified Engineering Works.
- 3.11.3 Maintenance of the PRB cell will be required when monitoring indicates a reduction of barrier performance. Access to the barrier will be required from above, and a lid arrangement must be incorporated within the final designs. The PRB cell shall be maintained as agreed in advance with the Agency.
- 3.11.4 Effective groundwater management infrastructure shall be provided and maintained at the facility during construction, operation, restoration and aftercare of the facility. As a minimum, the infrastructure shall be capable of the following:
- a) the protection of the groundwater resources from pollution by the waste activities; and
 - b) the protection of other infrastructure, such as the groundwater cut-off wall, from any adverse effects caused by the groundwater.

3.12 Monitoring Infrastructure

- 3.12.1 Monitoring infrastructure which is damaged or proves to be unsuitable for its purpose shall be replaced within one month of it being damaged or recognised as being unsuitable.
- 3.12.2 All monitoring wells, other than those agreed in *Schedule D: Monitoring*, of this licence shall be decommissioned according to the UK Environment Agency guidelines

'Decommissioning Redundant Boreholes and Wells' within three months of the date of grant of this licence.

REASON: To provide appropriate infrastructure for the protection of the environment.

CONDITION 4 RESTORATION AND AFTERCARE

- 4.1. The decommissioning of the facility shall be as described in Attachment G (Decommissioning and Aftercare) of the application. At least three months prior to the cessation of waste activities on the facility, the licensee shall submit a detailed Decommissioning Plan to the Agency for its agreement.
- 4.2. The UK Environment Agency: Guidance on the Design, Construction, Operation and Monitoring of Permeable Reactive Barriers, National Groundwater & Contaminated Land Centre Report (NC/01/51, March 2002) - Section 7.8 'Closure and Decommissioning' shall be incorporated into the Decommissioning Plan.

REASON: To provide for the restoration of the facility.

CONDITION 5 FACILITY OPERATIONS

5.1 Remediation of the Facility

5.1.1 The remediation of the facility shall be in accordance with:

- a) 'Assessment of Risk to Human Health and the Environment posed by a proposed Soil and Groundwater Remediation Strategy at the former Hammond Lane / Molloy & Sherry Site, Sir John Rogerson's Quay, Dublin 2' (Questor, QUB, Article 16(1) reply dated March 2002);
- b) Attachment D.1 (Site Infrastructure) and Attachment D.2 (Facilities Operation) of the application;
- c) Method Statement for Cement Slurry Wall, Hammond Lane, Dublin. Prepared by Keller Ground Engineering, Wetherby, W.Yorkshire, UK (Article 16(1) reply dated March 2002);
- d) Method Statement for Excavation Works. Questor, QUB (Article 16(1) reply dated March 2002).

Any variations to these specifications must be agreed in advance with the Agency.

5.1.2 Prior to the commencement of waste activities at the facility, the licensee shall carry out further ground investigations for the purposes of assessing the contamination in the made ground unit in more detail and to determine the risk of ongoing contamination of the south-east of the facility from the off-site source. The ground investigation shall be based on a systematic sampling and analysis regime to a defined grid pattern of sufficient density in order that the soils/matter be characterised for treatment/disposal and that the soil stabilisation columns be positioned correctly as per the aims of the risk assessment in Condition 5.1.1 (a).

5.1.3 The installation of soil stabilisation columns shall be to the base of estuarine clay or the top of the upper gravel unit. Finished soil stabilisation columns will be tested in accordance with the *Leaching Tests for Assessment of Contaminated Land, National*

Rivers Authority UK, 1994. Interim NRA Guidance, R&D Note 301, using the Dutch Target values for groundwater as the target eluate concentration.

5.2 Operational Controls

- 5.2.1 Remediated areas of the site shall be profiled so that no depressions exist in which water may accumulate.
- 5.2.2 Scavenging shall not be permitted at the facility.
- 5.2.3 Gates shall be locked shut when the facility is unsupervised.
- 5.2.4 The licensee shall provide and use adequate lighting during the operation of the facility in hours of darkness.
- 5.2.5 Fuels shall only be stored at appropriately bunded locations on the facility.
- 5.2.6 All tanks and drums shall be labelled to clearly indicate their contents.
- 5.2.7 No smoking shall be allowed on the facility.

5.3 Waste Handling

5.3.1 General

5.3.1.1 No wastes shall be disposed of at the facility and no wastes shall be imported into the facility for treatment. Only those wastes which comply with the acceptance criteria specified in Attachments D2 and D3 of the application shall be recovered at the facility.

5.3.2 Asbestos Waste

5.3.2.1 The handling of any asbestos on the facility shall be in accordance with Health and Safety Authority Regulations. Disposal of asbestos material must be to an appropriate licensed facility.

5.3.3 Decommissioned Tanks

5.3.3.1 Prior to the commencement of waste activities at the facility the licensee shall submit a report to the Agency on the identification, handling and removal of any tanks or containers, or their contents, on or from the facility. This should be done in conjunction with *Condition 5.1.2*.

5.4 Off-site Disposal and Recovery

5.4.1 The classification and stockpiling of all material or soil arising from the remediation of the facility and the installation of the cut-off wall and the Permeable Reactive Barrier cell shall be in accordance with Attachments D.1 (h) & (i), D.2.1.3, and D.2.1.4 of the application. At least one representative sample per 800m³ or portion thereof must be taken for chemical analysis prior to off-site disposal or recovery. Testing should also determine particle size distribution. Chemical analysis parameters and maximum concentrations shall be as agreed in advance with the Agency. The results of this analysis must be submitted to the Agency for agreement before the first batch of material is taken off-site.

5.4.2 All wastes including depleted temporary activated carbon wastewater treatment media and depleted Permeable Reactive Barrier cell media, other than those recovered in accordance with *Condition 5.3.1.1*, shall be exported from the facility and disposed of or recovered at an appropriate facility or facilities to be agreed in advance with the Agency.

5.5 Maintenance

- 5.5.1 All treatment/abatement and emission control equipment shall be calibrated and maintained, in accordance with the instructions issued by the manufacturer/supplier or installer. Written records of the calibrations and maintenance shall be made and kept by the licensee.
- 5.5.2 The licensee shall maintain and clearly label and name all sampling and monitoring locations.
- 5.5.3 The wheel-wash shall be inspected on a daily basis and drained as required. Silt, stones and other accumulated material shall be removed as required from the wheel-wash and disposed of at the working face or to a skip.

REASON: To provide for appropriate operation of the facility to ensure protection of the environment.

CONDITION 6 EMISSIONS

- 6.1. No specified emission from the facility shall exceed the emission limit values set out in *Schedule C: Emission Limits* of this licence. There shall be no other emissions of environmental significance.
- 6.2. The licensee shall ensure that the activities shall be carried out in a manner such that emissions do not result in significant impairment of, or significant interference with the environment beyond the facility boundary.
- 6.3. Dust Emissions
 - 6.3.1. The trigger level for PM₁₀ from the facility measured at any location on the boundary of the facility is:

PM₁₀ greater than 50µg/m³ for a daily sample.
- 6.4. Emissions to Sewer
 - 6.4.1. Unless otherwise agreed in advance with the Agency and the Sanitary Authority, the following shall apply for the discharge of final effluent to sewer. There shall be no other discharge or emission to sewer of environmental significance.
 - 6.4.2. Non-hazardous wastewater runoff and leachate arising from areas where wastes are stored or washed shall be discharged to the wastewater treatment plant. Treated effluent may be discharged to sewer if emission limits specified in *Schedule C.3, Emission Limits for Final Effluent Being Discharged to Sewer*, of this licence are complied with.
 - 6.4.3. No substance shall be present in emissions to sewer in such concentrations as would constitute a danger to sewer maintenance personnel working in the sewerage system, or as would be damaging to the fabric of the sewer, or as would interfere with the biological functioning of a downstream wastewater treatment works.
 - 6.4.4. The licensee shall permit authorised persons of the Agency and the Sanitary Authority to inspect, examine and test, at all reasonable times, any works and apparatus installed, in connection with the discharge or emission, and to take samples of the discharge or emission.

- 6.4.5. Hazardous wastes may not be discharged to sewer. Free phase products consisting of Light Non-Aqueous Phase Liquids and Dense Non-Aqueous Phase Liquids shall not be discharged to sewer.
- 6.4.6. The licensee shall ensure that the discharge shall not contain dissolved methane, petroleum spirits or organic solvents (including chlorinated organic solvents), at concentrations which would give rise to flammable or explosive vapours in the sewer.
- 6.4.7. Non-trade effluent wastewater (e.g. firewater, accidental spillage) which occurs on-site shall not be discharged to the sewer without the prior authorisation of the Sanitary Authority.
- 6.4.8. The licensee shall provide and maintain an inspection chamber in a suitable position in connection with each pipe through which a discharge or emission is being made. Each such inspection chamber or manhole shall be constructed and maintained by the licensee so as to permit the taking of samples of the discharge.
- 6.4.9. The licensee shall submit monitoring results to the Sanitary Authority on a monthly basis during the construction phase and on a quarterly basis during the operational phase.
- 6.4.10. A flowmeter shall be installed at the point of discharge to sewer.
- 6.4.11. A report on the performance and efficiency of the groundwater treatment system shall be submitted to the Sanitary Authority on an annual basis.
- 6.4.12. Emission limit values for emissions to sewer in this licence shall be interpreted in the following way:-
- a) Continuous monitoring.
- No flow value shall exceed the specified limit.
- b) Non-Continuous monitoring.
- No pH value shall deviate from the specified rate.
- No temperature value shall exceed the emission limit value.
- For parameters other than pH, temperature and flow, eight out of ten consecutive results, calculated as daily mean concentration or mass emission values on the basis of flow proportional composite sampling, shall not exceed the emission limit value. No individual result similarly calculated shall exceed 1.2 times the emission limit value.
- For parameters other than pH, temperature and flow, no grab sample value shall exceed 1.2 times the emission limit value.

REASON: To control emissions from the facility and provide for the protection of the environment.

CONDITION 7 NUISANCES

- 7.1 The licensee shall, at a minimum of daily intervals, inspect the facility and its immediate surrounds for nuisances caused by vermin, mud, dust and odours. Written records shall be made of all inspections and any actions taken as a result of these inspections.

- 7.2 The licensee shall ensure that dust and odours do not give rise to nuisance at the facility or the immediate area of the facility. Any method used by the licensee to control any such nuisance shall not cause environmental pollution.
- 7.3 Transfer of Soil to Ships via Conveyor
- 7.3.1 The licensee shall maintain a written record of all ship loading activities and this record, in the form of an original and three copies, shall be forwarded to the Agency at the end of each calendar month;
- 7.3.2 A record shall be kept of the wind direction and wind speed of at least half hourly intervals during all ship loading activities;
- 7.3.3 The loading pipe on the conveyor belt shall be extendable irrespective of the level of the tide so that the soil is placed into the hold of the ships through an enclosed pipe in order to prevent any dust being blown during the loading process;
- 7.3.4 The hold of the ship shall be entirely enclosed at all times during the loading of the ship and thereafter on completion of loading.
- 7.3.5 Any screening, or other processing of the contaminated soil for loading onto the ship shall only be carried out in suitable wind conditions and with the prior agreement of the Agency. A written record shall be kept of when these operations are carried out with details of the wind direction and force during these times.
- 7.4 The road network in the vicinity of the facility shall be kept free from any debris caused by vehicles entering or leaving the facility. Any such debris or deposited materials shall be removed without delay.
- 7.5 Litter Control
- 7.5.1 All loose litter or other waste placed on or in the vicinity of the facility, other than in accordance with the requirements of this licence, shall be removed, subject to the agreement of the landowners, immediately and in any event by 10.00 a.m. of the next working day after such waste is discovered.
- 7.5.2 The licensee shall ensure that all vehicles delivering waste to and removing waste and materials from the facility are appropriately covered.
- 7.6 Dust Control
- 7.6.1 In dry weather, site roads and any other areas used by vehicles shall be sprayed with water as and when required to minimise airborne dust nuisance.
- 7.7 Prior to exiting the facility, all waste vehicles shall use the wheelwash.
- 7.8 Odour Control
- 7.8.1 The covering of highly odorous surfaces at the work face and at stockpiles should be carried out progressively, and at a minimum at the end of each working day.
- 7.8.2 The maximum height of contaminated soil stockpiles is to be limited to below the level of the boundary fence. Stockpiles shall be covered with tarpaulins or an impermeable geotextile at the end of each working day.
- 7.8.3 An odour suppression spray, as agreed with the Agency, shall be applied every two hours to uncovered soil stockpiles during the working day.

REASON: To provide for the control of nuisances

CONDITION 8 MONITORING

- 8.1. The licensee shall carry out such monitoring and at such locations and frequencies as set out in *Schedule D: Monitoring* of this licence and as specified in this licence. Unless otherwise specified by this licence, all environmental monitoring shall commence no later than two months after the date of grant of this licence.
- 8.2. The licensee shall amend the frequency, locations, methods and scope of monitoring as required by this licence only upon the written instruction of the Agency and shall provide such information concerning such amendments as may be requested in writing by the Agency. Such alterations shall be carried out within any timescale nominated by the Agency.
- 8.3. Monitoring and analysis equipment shall be operated and maintained in accordance with the manufacturers' instructions (if any) so that all monitoring results accurately reflect any emission, discharge or environmental parameter.
- 8.4. The licensee shall provide safe and permanent access to all on-site sampling and monitoring points and to off-site points as required by the Agency.
- 8.5. Monitoring and analysis of the soil to ensure compliance with Condition 5.1.1 (d) shall be as described in *Method Statement for Excavation Works. Questor, QUB* (Article 16(1) reply dated March 2002).
- 8.6. Within three months of the date of grant of this licence the licensee shall submit to the Agency for its agreement an updated appropriately scaled drawing showing all the monitoring locations that are stipulated in this licence. The drawing shall include the twelve figure National Grid Reference for the various monitoring points.
- 8.7. Groundwater Monitoring
 - 8.7.1. The nine groundwater monitoring points as described in *Schedule D: Monitoring*, of this licence shall be included in the monitoring programme set out in this licence.
- 8.8. Meteorological Monitoring
 - 8.8.1. Prior to the commencement of waste activities the licensee shall provide and maintain a wind anemometer to measure wind speed and direction at the facility. The other parameters listed in *Schedule D.5: Meteorological Monitoring*, of this licence shall be obtained from the nearest met station.
- 8.9. The licensee shall, within six months of the date of grant of this licence, develop and establish a Data Management System for collation, archiving, assessing and graphically presenting the environmental monitoring data generated as a result of this licence.

REASON: To ensure compliance with the conditions of this licence by provision of a satisfactory system of monitoring of emissions.

CONDITION 9 CONTINGENCY ARRANGEMENTS

- 9.1. In the event of an incident the licensee shall immediately:
 - a) identify the date, time and place of the incident;

- b) carry out an immediate investigation to identify the nature, source and cause of the incident and any emission arising therefrom;
 - c) isolate the source of any such emission;
 - d) evaluate the environmental pollution, if any, caused by the incident;
 - e) identify and execute measures to minimise the emissions/malfunction and the effects thereof;
 - f) provide a proposal to the Agency for its agreement within one month of the incident occurring to:
 - i) identify and put in place measures to avoid reoccurrence of the incident; and
 - ii) identify and put in place any other appropriate remedial action.
- 9.2. The licensee shall, prior to commencement of waste activities submit a written Emergency Response Procedure (ERP) to the Agency for its agreement. The ERP shall address any emergency situations which may originate on the facility and shall include provision for minimising the effects of any emergency on the environment. This shall include a risk assessment to determine the requirements at the facility for fire fighting and fire water retention facilities. The Fire Authority shall be consulted by the licensee during this assessment.
- 9.3. The licensee shall have in storage an adequate supply of containment booms and/or suitable absorbent material to contain and absorb any spillage at the facility. Once used the absorbent material shall be disposed of at an appropriate facility.
- 9.4. Emergencies
- 9.4.1. All significant spillages occurring at the facility shall be treated as an emergency and immediately cleaned up and dealt with so as to alleviate their effects.
- 9.4.2. No waste shall be burnt within the boundaries of the facility. A fire at the facility shall be treated as an emergency and immediate action shall be taken to extinguish it and notify the appropriate authorities.
- 9.4.3. In the event that monitoring of groundwater levels locally (as required in Condition 8.7) indicates that the facility is having a significant effect on those levels, this shall be treated as an incident. The licensee shall submit to the Agency for its agreement and within a time specified in writing by the Agency, written proposals for the remediation of such effects.

REASON: To ensure compliance with the conditions of this licence by provision of a satisfactory system of monitoring of emissions.

CONDITION 10 RECORDS

- 10.1 The licensee shall keep the following documents at the facility office.
- a) the current waste licence relating to the facility;
 - b) the current EMS for the facility;
 - c) the previous year's AER for the facility;
 - d) all written procedures produced by the licensee which relate to the licensed activities.
- 10.2 The licensee shall maintain a written record for each load of waste dispatched from the facility. The licensee shall record the following:
- a) the name of the carrier;
 - b) the vehicle registration number/ship identification;
 - c) the name of the producer(s) and collector(s) of the waste;
 - d) a description of the waste, including the associated EWC codes;
 - e) the quantity of the waste, recorded in tonnes;
 - f) the name of the person(s) checking the load;
 - g) a consignment note number (including transfrontier shipment notification and movement/tracking form numbers, as appropriate);
 - h) the destination of the waste (including a facility name and address and waste licence or permit number as appropriate);
 - i) chemical analysis of the waste;
 - j) written confirmation that the consigned waste has reached its destination and/or has been subjected to the recovery/disposal process for which it was destined; and
 - k) any other information which might be required from time to time by the Agency.
- 10.3 Written Records
- The following written records shall be maintained by the licensee:
- a) all training undertaken by facility staff;
 - b) results from all integrity tests of bunds and other structures and any maintenance or remedial work arising from them;
 - c) details of all nuisance inspections; and
 - d) the names and qualifications of all persons who carry out all sampling and monitoring as required by this licence and who carry out the interpretation of the results of such sampling and monitoring.
- 10.4 The licensee shall maintain a written record of all complaints relating to the operation of the activity. Each such record shall give details of the following:
- a) date and time of the complaint;
 - b) the name of the complainant;
 - c) details of the nature of the complaint;
 - d) actions taken on foot of the complaint and the results of such actions; and,
 - e) the response made to each complainant.

CONDITION 11 REPORTS AND NOTIFICATIONS

- 11.1 Unless otherwise agreed by the Agency, all reports and notifications submitted to the Agency shall:
- a) be sent to the Agency's headquarters;
 - b) comprise one original and three copies unless additional copies are required;
 - c) be formatted in accordance with any written instruction or guidance issued by the Agency;
 - d) include whatever information as is specified in writing by the Agency;
 - e) be identified by a unique code, indicate any modification or amendment, and be correctly dated to reflect any such modification or amendment;
 - f) be submitted in accordance with the relevant reporting frequencies specified by this licence, such as in *Schedule E: Recording and Reporting to the Agency*, of this licence;
 - g) be accompanied by a written interpretation setting out their significance in the case of all monitoring data; and
 - h) be transferred electronically to the Agency's computer system if required by the Agency.
- 11.2 In the event of an incident occurring on the facility, the licensee shall:
- a) notify the Agency as soon as practicable and in any case not later than 10.00 a.m. the following working day after the occurrence of any incident;
 - b) submit a written record of the incident, including all aspects described in Condition 9.1(a-f), to the Agency as soon as practicable and in any case within five working days after the occurrence of any incident; and
 - c) in the event of any incident which relates to discharges to surface/sewer water, notify Dublin City Council as soon as practicable and in any case not later than 10.00 a.m. on the following working day after such an incident.
 - d) Should any further actions be taken as a result of an incident occurring, the licensee shall forward a written report of those actions to the Agency as soon as practicable and no later than ten days after the initiation of those actions.
- 11.3 Monitoring Locations
- 11.3.1 Within three months of the date of grant of this licence, the licensee shall submit to the Agency an appropriately scaled drawing(s) showing all the monitoring locations that are stipulated in this licence. The drawing(s) shall include the reference code of each monitoring point.
- 11.4 Annual Environmental Report
- 11.4.1 The licensee shall submit to the Agency for its agreement, within thirteen months from the date of grant of this licence, and within one month of the end of each year thereafter, an Annual Environmental Report (AER).
- 11.4.2 The AER shall include as a minimum the information specified in *Schedule F: Content of Annual Environmental Report*, of this licence, and shall be prepared in accordance with any relevant written guidance issued by the Agency.

CONDITION 12 CHARGES AND FINANCIAL PROVISIONS

12.1 Agency Charges

- 12.1.1 The licensee shall pay to the Agency an annual contribution of €22,023 or such sum as the Agency from time to time determines, towards the cost of monitoring the activity or otherwise in performing any functions in relation to the activity, as the Agency considers necessary for the performance of its functions under the Waste Management Act, 1996. The licensee shall in 2003 and subsequent years, not later than January 31 of each year, pay to the Agency this amount updated in accordance with changes in the Public Sector Average Earnings Index from the date of the licence to the renewal date. The updated amount shall be notified to the licensee by the Agency. For 2002, the licensee shall pay a pro rata amount from the date of this licence to 31st December, 2002. This amount shall be paid to the Agency within one month of the date of grant of this licence.
- 12.1.2 In the event that the frequency or extent of monitoring or other functions carried out by the Agency needs to be increased the licensee shall contribute such sums as determined by the Agency to defraying its costs.

12.2 Financial Provision for Closure, Restoration and Aftercare

- 12.2.1 The licensee shall arrange for the completion of a comprehensive and fully costed Environmental Liabilities Risk Assessment for the facility which will address liabilities arising from the carrying on of the activities to which this licence relates. A report on this assessment shall be submitted to the Agency for its agreement within three months of date of grant of this licence.
- 12.2.2 Prior to the commencement of waste activities on the facility the licensee shall make a Proposal for Financial Provision to the Agency for its agreement to cover any liabilities incurred by the licensee in carrying on the activities to which this licence relates. Such provision shall be maintained by the licensee unless otherwise agreed by the Agency.
- 12.2.3 The amount of financial provision, held under Condition 12.2.2 shall be reviewed and revised as necessary, but at least annually. Any proposal for such a revision shall be submitted to the Agency for its agreement.
- 12.2.4 The licensee shall within two weeks of purchase, renewal or revision of the financial provision required under Condition 12.2.2, forward to the Agency written proof of such indemnity.
- 12.2.5 Unless otherwise agreed any revision to the fund shall be computed using the following formula:

$$\text{Cost} = (\text{ECOST} \times \text{WPI}) + \text{CiCC}$$

Where:

Cost = Revised restoration and aftercare cost

ECOST = Existing restoration and aftercare cost

WPI = Appropriate Wholesale Price Index [Capital Goods, Building & Construction (i.e. Materials & Wages) Index], as published by the Central Statistics Office, for the year since last closure calculation/revision.

CiCC = Change in compliance costs as a result of change in site conditions, changes in law, regulations, regulatory authority charges, or other significant changes.

12.3. Sanitary Authority Charges

12.3.1. The Sanitary Authority charge (to be applied at appropriate intervals) per cubic metre of trade effluent discharged shall be paid to the Sanitary Authority directly on a yearly basis, at a rate based on volume and load. The licensee shall also defray annual monitoring costs of €3,302 incurred by the Sanitary Authority. Sanitary Authority charges will increase from time to time in response to increased costs in providing drainage and monitoring.

REASON: To provide for adequate financing for monitoring and financial provisions for measures to protect the environment.

SCHEDULE A : Waste Exported

A.1 Waste Exported

Table A.1 Waste Categories and Quantities

Waste Type	Maximum (Tonnes Exported)
Hazardous Waste	60,000
TOTAL	60,000

SCHEDULE B : Specified Engineering Works

Specified Engineering Works
Design and construction of the bentonite slurry groundwater cut-off wall. The proposal should include details of cut-off wall permeability and exact location.
Design and engineering aspects of the PRB to include an updated drawing in cross-section and in plan. The proposal shall address the chemical and redox aspects of the PRB treatment system and assess possible metal liberation from the treatment media during change in redox or pH, and shall provide contingency measures for such cases.
Proposals must be submitted to the Agency if soil stabilisation by way of an 'enhancement' technique of <i>insitu</i> chemical oxidation using peroxide products is to be carried out.
Installation of Wheel Cleaning
Design and construction of the conveyor to transport waste to ships.
Bunding of fuel and oil storage areas.
Restoration and Aftercare Works.
Any other works notified in writing by the Agency.

SCHEDULE C : Emission Limits

C.1 Noise Emissions: (Measured at the monitoring points indicated in Table D.1.1).

Day dB(A) L _{Aeq} (30 minutes)	Night dB(A) L _{Aeq} (30 minutes)
55	45

C.2 Dust Deposition Limits: (Measured at the monitoring points indicated in Table D.1.1).

Level (mg/m ² /day) ^{Note 1}
350

Note 1: 30 day composite sample with the results expressed as mg/m² /day.

C.3 Emission Limits for Final Effluent Being Discharged to Sewer

Emission Point Reference No: Sewer at Benson Street - **Construction Phase**
 Sewer at Sir John Rogerson's Quay - **Operational Phase**

Volume to be emitted: Maximum in any one day: 500m³

Parameter	Emission Limit Value		
	Grab Sample (mg/l)	Daily Mean Concentration (mg/l)	Daily Mean Loading (kg/day)
BOD	50	30	15
Ammoniacal nitrogen (NH ₄ - N)	50	30	15
Suspended Solids	70	50	25
Sulphates (as SO ₄)	1,500	1,100	500
pH	6 to 10	6 to 10	Not Applicable
Temperature	42 °C	42 °C	Not Applicable
PAH's (Total of 14)	0.5	0.5	0.25
Mineral Oils	20.0	10.0	5.0
Arsenic (mg/l As)	1	1	0.5
Cadmium (mg/l Cd)	0.5	0.5	0.25
Chromium (mg/l Cr)	5	5	0.25
Lead (mg/l Pb)	1	1	0.5
Copper (as Cu)	5.00	5.00	2.5
Zinc (as Zn)	10.0	10.0	5.0

SCHEDULE D : Monitoring

Monitoring to be carried out as specified below.

D.1 Monitoring Locations

Monitoring locations shall be those as set out in Table D.1.1

Table D.1.1 Monitoring Locations

Dust & Noise Stations	Permeable Reactive Barrier Cell	Ground Water Stations
Four dust and noise locations shall be agreed with the Agency within one month of the date of grant of licence.	Two sampling points shall be established within one month of the date of grant of licence: (1) within the reactor (2) outlet of the reactor	Four off-site monitoring wells, and five on-site monitoring wells, their locations shall be agreed with the Agency within one month of the date of grant of licence.

D.2 Dust

Table D.2.1 Dust Monitoring Frequency and Technique

Parameter (mg/m ² /day)	Monitoring Frequency	Analysis Method/Technique
Dust	Continuous with weekly analysis	Standard Method ^{Note 1}

Note 1: Standard method VDI2119 (Measurement of Dustfall, Determination of Dustfall using Bergerhoff Instrument (Standard Method) German Engineering Institute). Any modifications to eliminate interference due to algal growth in the gauge should be reported to the Agency.

D.3 Noise

Table D.3.1 Noise Monitoring Frequency and Technique

Parameter	Monitoring Frequency ^{Note 2}	Analysis Method/Technique
L(A) _{EQ} [30 minutes]	Monthly	Standard ^{Note 1}
L(A) ₁₀ [30 minutes]	Monthly	Standard ^{Note 1}
L(A) ₉₀ [30 minutes]	Monthly	Standard ^{Note 1}
Frequency Analysis(1/3 Octave band analysis)	Monthly	Standard ^{Note 1}

Note 1: "International Standards Organisation. ISO 1996. Acoustics - description and Measurement of Environmental noise. Parts 1, 2 and 3."

Note 2: During waste activities licensed.

D.4 Permeable Reactive Barrier & Groundwater

Table D.4.1 Groundwater - Parameters /Frequency

Parameter ^{Note 1}	PERMEABLE REACTIVE BARRIER CELL Monitoring Frequency	GROUNDWATER Monitoring Frequency
Visual Inspection/Odour ^{Note 2}	Not applicable	Monthly
Groundwater Level	Not applicable	Monthly
Dissolved Oxygen	Monthly	Quarterly
Electrical Conductivity	Monthly	Monthly
pH	Monthly	Monthly
Temperature	Monthly	Monthly
Total Alkalinity	Not applicable	Annually
Calcium	Not applicable	Annually
Manganese	Not applicable	Annually
Sulphate	Not applicable	Annually
Cyanide (Total)	Not applicable	Annually
Chloride	Monthly	Annually
Sodium	Not applicable	Annually
List I/II organic substances ^{Note 3}	Monthly	Quarterly
Mineral Oil	Monthly	Quarterly
BTEX	Monthly	Quarterly
PAH	Monthly	Quarterly
Phenols	Monthly	Quarterly
Arsenic	Monthly	Quarterly
Cadmium	Monthly	Quarterly
Copper	Monthly	Quarterly
Chromium (Total)	Monthly	Quarterly
Iron	Monthly	Quarterly
Magnesium	Monthly	Quarterly
Lead	Quarterly	Quarterly
Mercury	Monthly	Quarterly
Potassium	Quarterly	Quarterly
Zinc	Quarterly	Quarterly

Note 1: All the analysis shall be carried out by a competent laboratory using standard and internationally accepted procedures.

Note 2: Where there is evident gross contamination of groundwater, additional samples should be analysed.

Note 3: Samples screened for the presence of organic compounds using Gas Chromatography / Mass Spectrometry (GC/MS) or other appropriate techniques and using the list I/II Substances from EU Directive 76/464/EEC and 80/68/EEC as a guideline. Recommended analytical techniques include: volatiles (US Environmental Protection Agency method 524 or equivalent), semi-volatiles (US Environmental Protection Agency method 525 or equivalent), and pesticides (US Environmental Protection Agency method 608 or equivalent).

D.5 Meteorological Monitoring

Table D.5.1 Meteorological Monitoring:

Data to be obtained from a location on the facility

Parameter	Monitoring Frequency	Analysis Method/Technique
Precipitation Volume	Daily ^{Note 1}	Standard
Temperature (min/max.)	Daily ^{Note 1}	Standard
Wind Force and Direction	Daily ^{Note 2}	Standard
Evaporation	Monthly ^{Note 1}	Standard
Evapotranspiration	Monthly ^{Note 1}	Standard
Humidity	Monthly ^{Note 1}	Standard
Atmospheric Pressure	Daily ^{Note 1}	Standard

Note 1: These parameters may be obtained from the nearest Met Station, namely Dublin Airport.

Note 2: And also at hourly intervals during transfer of soil to ship.

D.6 Monitoring of Emissions to Sewer

Emission Point Reference No: Sewer at Benson Street - **Construction Phase**
Sewer at Sir John Rogerson's Quay - **Operational Phase**

Table D.6.1 Sewer Monitoring - Parameters / Frequency

Parameter	Monitoring Frequency	Analysis Method/Technique ^{Note 1}
Flow	Continuous On Discharge	Flow meter / recorder
Biochemical Oxygen Demand	Fortnightly	Composite. Standard Method ^{Note 1}
Ammoniacal Nitrogen	Fortnightly	Composite. Standard Method ^{Note 1}
Suspended Solids	Fortnightly	Composite. Gravimetric
Sulphates (as SO ₄)	Fortnightly	Composite. Standard Method ^{Note 1}
pH	Fortnightly	Composite pH meter/recorder
Temperature	Fortnightly	Grab
PAH's (Total of 16)	Fortnightly	Composite
Mineral Oils	Fortnightly	Composite
Arsenic (mg/l As)	Fortnightly	Composite
Cadmium (mg/l Cd)	Fortnightly	Composite
Chromium (mg/l Cr)	Fortnightly	Composite
Lead (mg/l Pb)	Fortnightly	Composite
Copper (as Cu)	Fortnightly	Composite
Zinc (as Zn)	Fortnightly	Composite
Toxicity Units (as T.U.)	Fortnightly	Grab

Note 1: "Standards Methods for the Examination of Water and Wastewater", (prepared and published jointly by A.P.H.A., A.W.W.A & W.E.F) 19th Ed. 1995, American Public Health Association, 1015 Fifteenth Street, N.W., Washington DC 20005, USA".

SCHEDULE E : Recording and Reporting to the Agency

Report	Reporting Frequency ^{Note1}	Report Submission Date
Environmental Management System Updates	Annually	One month after the end of the year reported on.
Annual Environment Report (AER)	Annually	Thirteen months from the date of grant of licence and one month
Record of incidents	As they occur	Within five days of the incident.
Bund, tank and container integrity assessment	-	Six months from the date of grant of licence.
Specified Engineering Works reports	As they arise	Prior to the works commencing.
Monitoring of Groundwater Aspects	Quarterly	Ten days after end of the quarter being reported on.
Monitoring of Final Effluent to Sewer	Quarterly	Ten days after end of the quarter being reported on.
Meteorological Monitoring	Annually	Ten days after end of the quarter being reported on.
Dust Monitoring	Monthly	Ten days after the period being reported on.
Noise Monitoring	Quarterly	Ten days after the period being reported on.
Any other monitoring	As they occur	Within ten days of obtaining results.

Note 1: Unless altered at the request of the Agency

SCHEDULE F : Content of the Annual Environmental Report

Annual Environmental Report Content
Reporting Period.
Waste activities carried out at the facility.
Summary report on emissions.
Summary of results and interpretation of environmental monitoring.
Proposed development of the facility and timescale of such development.
Report on development works undertaken during the reporting period, and a timescale for those proposed during the coming year.
Full title and a written summary of any procedures developed by the licensee in the year which relates to the facility operation.
Reported incidents and complaints summaries.
Review of Nuisance Controls.
Reports on financial provision made under this licence, management and staffing structure of the facility, and a programme for public information.
Any other items specified by the Agency.

Signed on behalf of the said Agency
on the 16th day of August, 2002

Claire Fahy **Authorised Person**