Attachment H.1

Proposal to Increase the Annual Throughput of the Facility

Introduction

In 2007, the Agency confirmed that the most appropriate way of increasing the waste acceptance limit beyond 105,000 tonnes was through a Licence Review which must be submitted to the Licensing section in the EPA.

Subsequent communications between Yvonne Furlong(EPA) and Suzanne Dempsey(Mr. Binman) confirmed what information was required for the Review Application.

As part of this application the duty and standby capacities were requested to be calculated for the facility with the proposed changes to demonstrate that the facility is capable of processing or transferring up to 200,000tonnes of waste.

For the transfer station, reference was made to the USEPA document, "Waste Transfer Stations: A Manual for Decision Making" for estimating floor space capacities in the event of an emergency but the formulae for the equipment capacities cannot be applied directly as there is no formula relevant to our MBT/Transfer station system which operate together.

Operations are divided into five main areas:

- MBT Plant/Transfer Station
- Dry recyclables Processing/Picking Line
- Glass Plant
- Commercial Waste Processing Area
- C&D Waste Processing Area

Each section of Mr. Binman Ltd.'s operations will be reviewed and the following information will be supplied:

- Total capacity of the each system based on operating 7 days per week, 12 hours per day
- Duty capacity of each system based on proposed operating hours of 5.5 days per week, 10 hours per day. This allows for an additional 0.5 days operating time as additional capacity based on the proposed operating hours of 6 days per week.
- Standby capacity available based on the above data.

MBT Plant / Transfer Station

Domestic and Commercial Municipal solid waste is processed in the Mechanical Biological Treatment Plant (MBT). The MBT plant mechanically separates waste into three fractions via a 30 trommel or drum screen.

0 - 60 mm	the Organic Waste Fines; mainly organic material i.e. grass clippings and vegetable peelings (metal fines are removed via magnets and eddy current separator)
60 - 180 mm	– the undersize fraction; contains ferrous and non-ferrous cans which are removed via magnets and eddy current separators
> 180 mm	– the oversize fraction; contains light papers and plastics removed via wind shifters and baled for export as Refuse Derived Fuel.

The residual waste from the mechanical separation process is sent to landfill via refuse compactor in the transfer station. The refuse compactors in the transfer station can accept waste independently i.e. directly via transfer shed floor.

MBT Plant

Total Capacity	Total Capacity(with preshredder)	Duty Capacity
7 days per week	7 days per week	5.5 days per week
12 hours per day	12 hours per day	10 hours per day
45 t/hr	50 t/hr	47t/h
3,780 t/week	4200t/week	2,585t/week
196,560 t/annum	218,400 t/annum	134,420t/annum

The plant currently processes approximately 1800 tonnes/week for five and a half days a week. With the installation of the pre-shredder, it is anticipated that the efficiency of the facility will increase by approximately 11%. This will allow a total capacity of 4,200 tonnes per week. In the worst case scenario the plant only proposes to operate 5.5 days per week at a maximum rate of 47t/h processing approximately 2,585t/week.

Standby Capacity of the Mechanical Processing Plant

Hidding Milieutechniek has set the availability of the installation supplied at approximately 95%. This means that 5% of the production may be lost as a result of technical defects, not including the time required for regular maintenance. Therefore the total capacity for the plant with the installation of the pre-shredder is 4,421t/week. With the worst case duty capacity of 2,585t/week, this allows for a standby capacity of 63%. In addition, 0.5 day/week of operating time is reserved for maintenance which would otherwise provide an additional 9% standby capacity.

By-pass of the Mechanical Separation Plant

In the event of breakdown of the MBT Plant residual waste may be sent to landfill directly via our transfer shed. The plant will be bypassed via a draw bridge and waste will be loaded into the compactors via walking floor and/or loading shovel. However the MBT Plant and Transfer Shed are confined to the same building and may be operated independently contemporaneously.

The waste is stored on the transfer shed floor for a short period of time until enough material has accumulated to fill the refuse compactor. There are two compactors available at any given time to compact all residual waste from the MBT processing and the transfer station floor.

TRANSFER STATION

Total Capacity	**Duty Capacity**
7 days per week	5.5 days per week
12 hours per day	10 hours per day
Total 4,368 operating hours per annum	Total 2,500 operating hours per annum
100 t/hr(for two compactors)	50 ton/hr
8,400 t/week	2,750t/week
436,800t/annum	143,000t/annum

Each compactor has the duty capacity to process 500 tonnes per day for 5.5 days per week. For the overall facility to process 200,000t/annum, the MBT facility will process 464t/day. When the MBT facility is operating approximately 189t/day of residual waste from the MBT will be processed by the compactors.

Assuming the worst case scenario where there is no MBT processing available, the compactors be on standby and will process 464t/day. With a total compactor waste capacity of 1000t/day the two compactors are capable of transferring all waste materials accepted at the facility and have a standby capacity of over 100%.

During normal operation of the facility, both the transfer area, MBT equipment and the compactors operate as a unit for all residual waste. Therefore the formulae provided in the USEPA document, "Waste Transfer Stations: A Manual for Decision Making" cannot be applied directly.

However, reference is made in this document to estimating the tipping floor space required to store a full day's waste in the event of a complete failure of all equipment. Based on the formula referenced in the USEPA document, and assuming the waste is piled 12 feet high, the required floor space to hold 464tonnes of waste = 6640sq. feet. The tipping floor space currently available is approximately 7,670 feet.

Table 1: Total Capacity of MBT Plant and Transfer Station

Total Capacity of Transfer Station(based on compactor capacity)	436,800
Total Capacity of MBT Plant	229,492
Minus residual from MBT Plant(36%)	82,617
Total Capacity	**583,675**

The combined capacity of the MBT Plant and Transfer Station minus residual waste from MBT Plant (36%) is 583,675t/annum.

The duty capacity of the waste operating 10 hours per day, 5.5 days per week at rates less that maximum design output:

Table 2: Duty Capacity of MBT Plant and Transfer Station

Duty Capacity of Transfer Station	143,000
Duty Capacity of MBT Plant	134,420
Minus residual from MBT Plant(36%)	48,391
Total Capacity	**228,525**

Based on these figures the standby capacity relative to the duty capacity are as follows:

Table 3: Standby Capacity of MBT Plant and Transfer Station

	Proposed
Standby Capacity Transfer Station	293,800
	205%
Standby Capacity of MBT	95,072
	70%
Combined Standby Capacity	355,150
	155%

Dry Recyclables/Sorting Station

Dry recyclables are manually processed via the sorting station or picking line. It is proposed to develop a storage/transfer area as part of the Licence review for dry recyclables to allow for covered storage and transfer of excess dry recyclables to our facility in Carrick-on Suir, which was designed to accept and process up to 50,000t of dry recyclable waste.

Total Capacity

7 days per week
12 hours per day
Total 4,368 operating hours per annum
4.5 ton/hr
19,656 ton/annum

Duty Capacity

5.5 days per week
10 hours per day
Total 2,860 operating hours per annum
4 ton/hr
11,440 ton/annum

The sorting station will have a duty capacity of approximately 11,440t/annum based on a 5.5 day week. It is anticipated that the facility will accept approximately 21,398t/annum of loose dry recyclables at full capacity (200,000t/annum). The excess dry recyclables (9,958t) will be transferred to Carrick-on-Suir for further processing.

It is anticipated that at full capacity(200,000t/annum), the facility will accept approximately 68.58t/day of dry recyclable waste. Based on the USEPA formula for calculating tipping areas, the floor space required is 5,371sq. feet, assuming waste is piled 6 feet high.

The floorspace to be provided is approximately 5,595sq. feet providing adequate capacity for the tipping area

Table 4: Standby of Sorting Station

Sorting Station	Proposed
Total Capacity	19,656
Duty Capacity	11,440
Standby Capacity	71%

Glass Plant

Duty and Standby Capacity

Total Capacity
7 days per week
12 hours per day
Total 4368 operating hours p.a.
3 ton/hr
252 ton/week
13104 ton/annum

Duty Capacity
5.5 days per week
10 hours per day
Total 2860 operating hours p.a.
3 ton/hr
165 ton/week
8580 ton/annum

The plant has the duty capacity to process 30 tonnes per day for 5.5 days per week

Table 5: Standby Capacity of Glass Plant

Glass Plant	Proposed
Total Capacity	13,104
Duty Capacity	8,580
Standby Capacity	**53%**

Commercial Waste Processing Area

This area consists of two balers with a waste acceptance area which was recently expanded to facilitate acceptance of segregated commercial waste such as cardboard, paper, etc.

Total Capacity
7 days per week
12 hours per day
Total 4368hours per annum
10 tonnes per hour per 2 balers
840 ton/week
43,680 ton/annum

Processing Capacity
5.5 days per week
10 hours per day
Total 2860 hours per annum
10 tonnes per hour per 2 balers
550t/week
28,600t/annum

Table 6: Standby Capacity Commercial Waste Processing

Total capacity	43,680
Duty Capacity	28,600
Standby Capacity	53%

C&D Waste Processing Area

Duty and Standby Capacity

Total Capacity
7 days per week
12 hours per day
Total 4368 operating hours p.a.
30 ton/hr
2520 ton/week
131040 ton/annum

Duty Capacity
5.5 days per week
10 hours per day
Total 2860 operating hours p.a.
20 ton/hr
1100 ton/week
57200 ton/annum

Table 7: Standby Capacity of C&D Facility

Rubble Crusher	Tonnes/annum
Total Capacity	131,040
Duty Capacity	57,200
Standby Capacity	**129%**

Total Capacity
7 days per week
12 hours per day
Total 4368 operating hours p.a.
10 ton/hr
840 ton/week
43,680 ton/annum

Duty Capacity
5.5 days per week
10 hours per day
Total 2860 operating hours p.a.
5 ton/hr
275 ton/week
14,300ton/annum

Table 8: Standby Capacity of Timber Shredders

Timber shredders	Tonnes/annum
Total Capacity	43,680
Duty Capacity	14,300
Standby Capacity	**205%**

Attachment H.2

a) Waste Acceptance Procedure is attached

STANDARD OPERATING PROCEDURE

SOP SIGNATURE INFORMATION

SIGNATURE	DATE	RESPONSIBILITY
		Author
		Environment Manager

Location of SOP

Environment Office

Related External Documents

N/A

1.0 SUMMARY OF CHANGES

NO.	CHANGE	REASON FOR CHANGE
1	Original Procedure	To reflect current practices and to ensure Waste Licence Compliance

2.0 PURPOSE

To document a procedure for the acceptance of waste at the facility.

3.0 SCOPE

This procedure is applicable to all waste received on-site.

4.0 ORGANISATIONAL UNITS AFFECTED

Operations Department
Transport Department
Environment Department

5.0 DEFINITIONS

N/A

6.0 PROCEDURE

Introduction

All waste vehicles received at the site are directed to the weighbridge where the waste load undergoes initial assessment by the weighbridge operator and the load details are recorded. Following initial assessment and acceptance, the waste load is directed to the relevant area within the facility where the contents of the load are discharged to a dedicated inspection area. The contents are inspected to ensure any unacceptable materials are identified that may not have been identified in the preliminary assessment. The following sections detail the operating procedures for each area responsible for inspecting the waste material on-site. The logs will be reviewed regularly to identify the sources of unacceptable materials and actions will be taken to minimise repeat incidents.

Weighbridge Operator:

1. All waste that enters the Mr Binman facility must be weighed and all details of the waste such as vehicle registration, driver, waste type, area of collection and tonnage.
2. All details are stored on a permanent record and are kept for future reference.
3. Open loads must be inspected for wastes not acceptable under the requirements of the waste licence
4. For any loads which cannot be inspected, talk to driver of vehicle to determine if anything not acceptable is in the waste. See Appendix 1.
5. If any unsuitable material is found advise the driver that the material is not acceptable on site and it must be rejected.
6. Direct waste to either the MBT facility or to the bulky waste sorting area.
7. Work in conjunction with yard manager to ensure waste reaches the correct area for processing.

MBT Facility Inspector:

1. Inspect all loads tipped in the MBT facility for unacceptable materials.
2. Remove any unacceptable material and place in quarantine area until an alternative disposal option has been found.
3. Where an unacceptable material is identified a log must be filled out identifying the hazardous material, vehicle registration and driver details. A log is kept at all times in the MBT facility.
4. All waste entering the in-feed belt on the MBT facility must be inspected for hazardous material and any objects that will interfere with the operation of the processing machinery any such items found must be removed.
5. In the event of spillages or discovery of an unknown material please contact the environmental officer for advice on the appropriate course of action.

Bulky Waste Sorting Area Inspector:

1. Inspect all loads tipped in bulky waste sorting area for unacceptable materials.
2. Any waste contaminated with unacceptable materials must not be accepted and must be returned to the waste collector.
3. For waste collected by Mr Binman vehicles, remove any hazardous material and place in quarantine area until an alternative disposal option has been found.
4. A log must be filled out daily identifying the hazardous material, vehicle registration and driver details. A log is kept at all times in the bulky waste sorting area.
5. All gypsum waste must be segregated and stored separately.
6. In the event of spillages or discovery of an unknown material please contact the environmental officer immediately for advice on the appropriate course of action.

Waste Acceptance Log

- Please ensure all unacceptable materials are removed from the waste to the quarantine area and details of the source are recorded in this log.
- Please inform your Supervisor in the event that unacceptable materials are identified and check with your Supervisor if you are not sure.

Unacceptable materials include:
Batteries, Gas cylinders, Fire extinguishers, Tyres, Waste electrical goods, Fluorescent tubes, Oil tanks, Farm plastics, Asbestos, Chemicals/ Chemical drums, Waste oil, other hazardous materials.

Date:_____

Unacceptable Waste Description	Vehicle Registration	Collector of Waste	Signature of Inspector

Reviewed by: _____

Attachment H.3

Changes to Waste Handling Procedures

There are several significant changes proposed to improve handling of waste at the facility:

Installation of a new roadway into the facility:

A new road way is proposed for installation to improve access/egress to/from the facility. Currently access/egress to/from the facility is via a relatively steep roadway which was identified as a significant risk when entering leaving the facility, especially in fuly laden waste vehicles. The new road is designed with a lesser gradient ensuring the waste is handled in a much safer manner.

Installation of a pre-shredder for residual municipal waste

Currently all residual waste processed at the facility is fed directly onto the processing line of MBT facility using front shovel loaders. The material is not shredded. As a result compacted waste may not be processed efficiently and may result in recyclable or recoverable materials being sent to landfill. The feed rate onto the line from the shovel loaders is inconsistent reducing the capacity and efficiency of the facility

Recent trials with preshredders have demonstrated that the amount of waste sent to landfill can be reduced significantly by pre-shredding the waste. The advantages are:

Continuous feed onto the MBT processing line will result in increased capacity of the facility as there will be a more even flow of materials passing through or under the mechanical separation equipment.

Continuous feed onto the line will result in increased efficiency of the MBT facility ability to separate recoverable/recyclable materials which are currently would be too bulky or compacted (eg mattresses can be shredded to recover the metal and fabric).

Covering of Cardboard Intake Area:

Covering of the cardboard intake area provided an increased capacity handling area protected from the elements. This will ensure the material does not become wet which may affect the recycling of the cardboard. Covering of this area will ensure compliance with the current conditions of the Licence. No other waste handling procedure changes are proposed for this area.

Covering of the Optibag In-take Area:

Covering of the optibag in-take area will ensure all clean dry recyclables handled at the facility are fully protected from the weather ensuring the material remains dry and protecting the recyclable quality of the material. Enclosing this area wil also provide

an extended area for handling dry recyclables prior to transfer to our dedicated MRF recycling facility at Clearpoint for optimum processing. Covering this area will also ensure potential littering is minimized from this area. Planning permission has been received. This project will ensure compliance with the current conditions of the Licence. No other waste handling procedure changes are proposed for this area.

Covering of the Timber Shredding Area:

Covering of the timber shredding area will significantly reduce dust generated from this area. Safety concerns around potential dust explosions in a confined space must be addressed as part of the design. Planning permission has been received. This project will ensure compliance with the current conditions of the Licence. No other waste handling procedure changes are proposed for this area.

Attachment I.1

Assessment of Atmospheric Emissions

INTRODUCTION

This area experiences a typical west maritime climate with relatively mild, moist winters and cool, cloudy summers. Warm maritime air associated with the Gulf Stream helps to moderate the climate. The prevailing winds are westerly to south westerly. The average annual rainfall is 938mm (measured in Limerick city). The site itself is located on a south-facing slope and is sheltered by surrounding trees.

POTENTIAL IMPACTS AND MITIGATION MEASURES

Some of the processes in operation at the site have the potential to produce dust, primarily timber shredding. Another source of dust is from the gravel car park located adjacent to Dust Monitoring Point E2. Dust monitoring at the facility has recorded dust levels above the emission limit value for dust, primarily at Dust Emission point C, which is located directly beside the timber shredding area. All monitoring reports were submitted to the EPA.

Several mitigation measures are proposed as part of this Licence Review or have been implemented in recent years to ensure dust emissions do not have an impact off-site:

Through a programme of continuous improvement, and implemented as part of the Environmental Management programme submitted to the EPA annually, Mr. Binman has covered the glass plant, the organic fines storage area, the glass and cullet storage bays, the bulky waste sorting area and the cardboard storage area over the last number of years.

Planning permission has been received for covering the dry recyclable storage area and the timber storage areas and these projects will be completed as per the Environmental Management Programme schedule submitted to the EPA in March 2008.

Planning permission was received for a new roadway and paved car park which will ensure potential dust emissions from the current gravel parking area are eliminated. A new site boundary is being defined to encompass the new road and car park.

A report received from the Consultancy conducting the dust monitoring has confirmed that the location of dust monitoring point C is unsuitable as an indicator of dust deposition due to overall site activity and a new location at the boundary of the site is proposed in Attachment F.2. A copy of the report from the Consultancy is also included in Attachment F.2.

These changes will ensure dust emissions from the facility are minimised and will ensure there is no impact off-site.

Attachment I.4

Assessment of Impact of Groundwater Emissions

Groundwater Conditions

Land to the north of the site is underlain by Waulsortian limestone. The Waulsortian limestone, where it is neither dolomitised nor highly fractured, is considered as a locally important aquifer.

The Geological Survey's Aquifer Protection Plan for County Limerick describes the location of the development as LM/E, which is a moderately productive aquifer of local importance that is extremely vulnerable.

There is a Reservoir located to the north west of the site. The reservoir consists of a cylindrical concrete tank. This tank is used to store water that is pumped from three wells in the locality. Two of the wells are located a quarter of a mile east of the site and the third well is located one and a quarter miles from the site at Ballybricken. This reservoir belongs to a private water scheme. The scheme services approximately 200 households and 100 farms.

A desk study was carried out to investigate the hydrology and hydrogeology of the area. Relevant maps and literature were consulted, further information was obtained from Limerick County Council via the EPA. Detailed water analysis was not deemed necessary.

Potential Impacts

Uncontrolled release of liquid contaminants from the processes on site could result in the contamination of ground water in the area. Potential contaminants could originate from lorry washings, leachate from waste or leakages from fuel storage areas. Any negative impacts to the water supply in the area would have the potential to negatively impact on other aspects of the environment such as flora and fauna.

Mitigation Measures

Since July 2007, all emissions from the wwtp have not been discharged to ground from emission point FE1. All emissions from the wwtp are tankered off-site for further treatment as agreed with the Agency in June 2007 until it can be demonstrated that consistent effluent discharges in compliance with the emission limit values can be achieved. A number of projects have been completed or will be completed to ensure wwtp emissions compliance.

Recent WWTP System Upgrades:

Following the substantial modifications to the wwtp in 2006 and 2007 a marked improvement was noted in the wwtp. A summary of these changes include:

- Installation of storage tanks at front end of plant to provide more consistent hydraulic loading to wwtp feed
- Installation of aeration mixing in front end storage tanks to provide homogeneous fresh feed to wwtp
- Diversion of uncontaminated roof water away from wwtp to reduce impact of wet weather periods (ongoing project)
- Installation of new grease trap for the foul sewer/canteen discharge
- Segregation of yard drainage system to optimise discharges to wwtp and eliminate potentially contaminated discharges to the oil interceptor
- Diversion of wwtp effluent off-site for further treatment until emission limit values can be met consistently

Further changes(proposed or ongoing) to improve groundwater protection:

In order to further improve groundwater protection :

- A new oil/silt interceptor has been installed for emission point FE2. The interceptor is a Klargester NS200 Class 1 full retention separator and is the best available unit on the market with a built in silt trap. This type of separator is designed for use in applications such as fuel distribution depots and vehicle workshops. Separation of the drainage systems and installation of the new oil interceptor will ensure discharges of environmental significance will not occur from this emission point. Full details of the unit are attached in Attachment D.1.
- Develop an environmental laboratory and recruit an environmental analyst in 2008. The primary benefit will be to provide more frequent and improved measurement data to identify trends and changes in wwtp in order to optimise control in the current wwtp and ultimately ensure consistent effluent discharges.
- If, following optimisation of the current wwtp system, tertiary treatment of the effluent is required, Mr Binman will install the most appropriate technology to ensure compliance. Please find attached a suitability assessment report for installation of reed bed technology for treatment of discharges from the facility. Further assessment of this option will be made pending the outcome of the data provided for the primary and secondary treatment systems already in place.
- Complete diversion of uncontaminated roof water
- Seal all joints on hard-standing areas

These projects combined with the projects already completed in the previous two years will ensure optimum operation of the drainage system and the wwtp at the facility.

All waste water discharges from the facility will be sent off-site for further treatment until the efficient operation of the wwtp can be demonstrated and the emission limit values can be achieved on a consistent basis.

Attachment I.5

Groundwater Contamination

The impact of the facility on groundwater quality is monitored through two groundwater wells There is no contamination of groundwater as a result of discharges from the facility. This is confirmed by all monitoring reports conducted by the EPA and by monitoring conducted on our behalf by Tobin Consulting Engineers. Monitoring conducted by the EPA on the 16th January 2007 indicated elevated level of Ammonia but this proved to be invalid result upon investigation by the EPA (Peter Webster, Regional Chemist).

Monitoring reports and relevant communications are attached.

epa
Office of
Environmental
Enforcement

16 MAR 2007

Ms Margaret Egan
Environmental Officer
Mr Binman Ltd, Luddenmore
Grange
Kilmallock
Co. Limerick

South/South West Region
Environmental Protection Agency
Regional Inspectorate, Inniscarra
County Cork, Ireland
Cigireacht Réigiúnach, Inis Cara
Contae Chorcaí, Éire
T: +353 21 487 5540
F: +353 21 487 5545
E: info@epa.ie
W: www.epa.ie
LoCall: 1890 33 55 99

15/03/2007 Our Ref: W0061-02/rf03pos.doc

Request For Information

Dear Ms Egan

The Agency has reviewed the licensee's response to the Agency's test report no. 270076/1 issued on 03/03/2007 received by the Agency on 13/03/2007. It is noted that there was a significant increase in the value for **ammonia** for emission point(s) reference **GW2** downgradient of the site. The value recorded, 3.29mg/l N is over 20 times the EPA Interim Guideline Value of 0.15mg/lN (2003) and over 10 times the Drinking Water Regulations (SI 439 of 2000) value of 0.30mg/lN. The licensee's response, compiled by Tobin Consulting Engineers is deemed to be inadequate, as it does not attempt to explain the significant increase in ammonia or recommend any further actions to address it.

ACTION REQUIRED

The Agency is concerned at the level of ammonia recorded in the aforementioned test report as it indicates a source of contamination.

The Agency requests that the following actions are carried out:

- Immediate resampling of GW1 and GW2 as soon as practicable.
- The new samples should be analysed for the parameters set out in the Agency's test report no. 270076/1 including microbial analysis for faecal streptococci and faecal coliforms.
- An assessment of the above test report no. 270076/1 and the results of the new samples should be carried out to determine the potential to contaminate nearby receptors including abstractions for drinking water and nearby watercourses.
- Submit a report to the Agency on the analysis including recommendations on further actions before 30/04/2007.

Failure to comply with the requirements specified in this may lead to further enforcement action by the Agency.

Please quote the above reference in future correspondence in relation to this matter. If you have any queries please contact Mr Pól Ó'Seasnáin at 021 4875540.

Yours sincerely

Mr Pól Ó'Seasnáin, Inspector
Office of Environmental Enforcement

Table 1 - Groundwater Chemistry - Addition of 8th Dataset

Parameters	SI 294 of 1989 (Qulaity of Surface Water Intended for Abstraction of Drinking Water	SI 439 of 2000 (Drinking Water Regulations) Paramentric Values	Units	GW1								GW2							
				12/10/2004	02/03/2005	13/09/2005	14/03/2006	20/09/2006	16/01/2007	01/08/2007	17/10/2007	12/10/2004	02/03/2005	13/09/2005	14/03/2006	20/09/2006	16/01/2007	01/08/2007	17/10/2007
LAB RESULTS																			
pH	>5.5 and <8.5	>5.5 and <9.6	units	7.78	7.51	7.01		7.42	7.61	7.39	7.27	7.42	7.65	7.28		7.14	7.46	7.1	7.05
Electrical conductivity EC	1,000	2,500	µS/cm@20C	491	860	808	924	865	624	625	734	800	702	728	756	828	765	856	838
Ammonia	0.16	0.3	mg/l	<0.2	<0.03	0.11		0.056	0.092	<0.02	0.03	<0.2	<0.03	0.156		<0.02	***3.29***	0.035	0.046
Total Phosphorous	-	-	mg/l	1.37	0.83	<0.20	0.26	0.22	0.46	<0.2	<0.2	0.26	0.50	1.02	<0.2	<0.2	<0.20	<0.20	<0.2
Fluoride (F)	1	1	mg/l	0.14	<5.0	<0.10		<0.10	0.12	<0.1	<0.1	<0.1	<5.0	<0.10		<0.1	0.13	0.1	0.12
Total Nitrogen	-	-	mg/l	6.91	20.00	1.00	12.1	15	41.9	6.32	4.13	4.38	2.46	15.3	2.05	9.2	20.3	1.16	1.36
Chloride	250	250	mg/l	18.2	36.6	41.7		59.3	30.7	18.4	20.3	40.9	42.6	28.0		45.9	41	47.1	*42.9*
Bromide	-	-	mg/l	-	<5.0	*<5.0*		<5.0				-	<5.0	*<5.0*		<5.0	-	-	
Nitrate	50	50	mg/l	25.70	-	-		***50.8***	30.5	25	15.9	19.1	-	-		9.2	7.79	5.18	6.37
Sulphate	200	250	mg/l	12.9	14.9	31.8		84.7	47.5	46.2	64.3	31.1	15.8	14.5		38.1	33	40.5	43.5
Sodium		200	mg/l		21.7	20.9		25.8	15.4	18.1	19.5		19.0	18.7		24.9	19.5	22.5	22.5
Magnesium	-	-	mg/l		15.1	10.3		15	8.75	8.86	11.4		9.81	11.9		10.9	9.28	10.1	9.46
Potassium	-	-	mg/l		0.92	1.43		1.06	0.36	0.56	0.53		1.21	0.97		1.34	1.11	1.11	1.2
Calcium		200	mg/l		145	142		131	76.5	85	102		124.0	*156.8*		123.2	107	130	110
Total Organic Carbon (TOC)	-	-	mg/l	4.04	-		16.2	11.4	4.75	4.64	5.67	2.1	-		2.18	4.38	3.53	4.88	3.52
Total alkalinity (as $CaCO_3$)	-	-	mg/l	191	310	328		232	250	241	297	308	285	260		327	291	351	358
Total Hardness (Calc)	-	-	mg/l		424	397		390	227	249	302		352	*441*		353	305	366	314
K:Na Ratio	-	-	Unitless		0.02	0.04		0.02	0.01	0.02			0.04	0.03		0.03	0.03	0.03	

* Change is calculated in using the 2 latest sampling periods available.

K 39.1
Na 22.9

Table 1 - Groundwater Chemistry - Addition of 9th Dataset

Parameters	SI 294 of 1989 (Qulaity of Surface Water Intended for Abstraction of Drinking Water	SI 439 of 2000 (Drinking Water Regulations) Paramentric Values	Units	GW1									GW2							
				12/10/2004	02/03/2005	13/09/2005	14/03/2006	20/09/2006	16/01/2007	01/08/2007	17/10/2007	17/12/2007	12/10/2004	02/03/2005	13/09/2005	14/03/2006	20/09/2006	16/01/2007	01/08/2007	17/10/2007	17/12/2007
LAB RESULTS																				
pH	>5.5 and <8.5	>5.5 and <9.6	units	7.78	7.51	7.01		7.42	7.61	7.39	7.27	7.51	7.42	7.65	7.28		7.14	7.46	7.1	7.05	7.35
Electrical conductivity EC	1,000	2,500	µS/cm@20C	491	860	808	924	865	624	625	734	613	800	702	728	756	828	765	856	838	857
Ammonia	0.16	0.3	mg/l	<0.2	<0.03	0.11		0.056	0.092	<0.02	0.03	0.059	<0.2	<0.03	0.156		<0.02	*3.29*	0.035	0.046	<0.02
Total Phosphorous	-	-	mg/l	1.37	0.83	<0.20	0.26	0.22	0.46	<0.2	<0.2	<0.2	0.26	0.50	1.02	<0.2	<0.2	<0.20	<0.20	<0.2	<0.2
Fluoride (F)	1	1	mg/l	0.14	<5.0	<0.10		<0.10	0.12	<0.1	<0.1	0.11	<0.1	<5.0	<0.10		<0.1	0.13	0.1	0.12	0.11
Total Nitrogen	-	-	mg/l	6.91	20.00	1.00	12.1	15	41.9	6.32	4.13	5.45	4.38	2.46	15.3	2.05	9.2	20.3	1.16	1.36	1.44
Chloride	250	250	mg/l	18.2	36.6	41.7		59.3	30.7	18.4	20.3	20.5	40.9	42.6	28.0		45.9	41	47.1	*42.9*	*45.9*
Bromide	-	-	mg/l	-	<5.0	<5.0		<5.0				<5.0	-	<5.0	*<5.0*		<5.0	-	-		<5.0
Nitrate	50	50	mg/l	25.70	-			***50.8***	30.5	25	15.9	22.1	19.1	-	-		9.2	7.79	5.18	6.37	5.36
Sulphate	200	250	mg/l	12.9	14.9	31.8		84.7	47.5	46.2	64.3	30	31.1	15.8	14.5		38.1	33	40.5	43.5	41.3
Sodium		200	mg/l		21.7	20.9		25.8	15.4	18.1	19.5	17		19.0	18.7		24.9	19.5	22.5	22.5	21.8
Magnesium	-	-	mg/l		15.1	10.3		15	8.75	8.86	11.4	8.15		9.81	11.9		10.9	9.28	10.1	9.46	15.2
Potassium	-	-	mg/l		0.92	1.43		1.06	0.36	0.56	0.53	0.6		1.21	0.97		1.34	1.11	1.11	1.2	2.25
Calcium		200	mg/l		145	142		131	76.5	85	102	48.7		124.0	*156.8*		123.2	107	130	110	83
Total Organic Carbon (TOC)	-	-	mg/l	4.04	-		16.2	11.4	4.75	4.64	5.67	4.7	2.1	-		2.18	4.38	3.53	4.88	3.52	5.83
Total alkalinity (as $CaCO_3$)	-	-	mg/l	191	310	328		232	250	241	297	239	308	285	260		327	291	351	358	270
Total Hardness (Calc)	-	-	mg/l		424	397		390	227	249	302	155		352	*441*		353	305	366	314	270
K:Na Ratio	-	-	Unitless		0.02	0.04		0.02	0.01	0.02				0.04	0.03		0.03	0.03	0.03		

* Change is calculated in using the 2 latest sampling periods available.

K 39.1
Na 22.9

Our Ref: ***3076-02-06/JS***

17th June 2008

Inspector Pól Ó Seasnain
EPA Regional Office
Inniscarra
Co. Cork

Attn of: Inspector Pól Ó Seasnain

RE: Mr. Binman Groundwater Monitoring (Licence No. W0061-02 (Formerly 61-2))

Dear Pól,

I am writing to you in response to the analyses received by Mr. Binman Ltd. on the 1st of May 2008. These water samples were collected by the EPA on 19/02/2008 and TOBIN Consulting Engineers have been asked to comment on the results of the analyses received.

The Mr. Binman site comprises a fully EPA licensed waste recovery facility (Licence No. W0061-02) located in Luddenmore, Grange, County Limerick. It operates a private waste transfer station and recycling centre and offers waste collection and recycling services for households, businesses and industries. The site is located on the southern slopes of a hill forming part of the Limerick Volcanics, which sweeps down to a flat valley floor.

Table D.5, Schedule D of Waste Licence W0061-02 identifies the following parameters and the frequency with which they must be monitored in groundwater.

D.5 Groundwater Monitoring

Parameter	Monitoring Frequency	Analysis Method/Technique
PH	Biannually	Electrometry
Electrical Conductivity	Biannually	Standard Methods
Total Organic Carbon	Biannually	Standard Methods
Ammoniacal Nitrogen	Biannually	Standard Methods
Total Phosphorous	Biannually	Standard Methods
Total Nitrogen	Biannually	Standard Methods

This is the tenth datasets taken by the EPA at the facility. The latest round of monitoring is compared to the EPA datasets taken on 12/10/2004, 02/03/2005, 13/09/2005, 14/03/2006, 30/11/2006, 16/01/2007, 01/08/2007, 17/10/2007 and 17/12/2008. We are not in a position to compare previous monitoring data where the values recorded for the parameters are not included in the above table. A summary of the EPA groundwater monitoring data to date is included in Table 1 attached and compared with the MACs in S.I. 294 of 1989 (Quality of surface water intended for abstraction of drinking water) and the Parametric Values in S.I. 439 of 2000 (Drinking Water Regulations).

Overall, the values for each parameter listed in Table 1 below are within the corresponding statutory limits set in S.I. 294 of 1989 and S.I. 439 of 2000.

GW1- Up-gradient

The pH (7.42) is consistent with all previous monitoring events. The Conductivity (606 µS/cm) is consistent with all previous monitoring events. The level of Ammonia (0.22 mg/L) is higher than all other previous monitoring events but is still below the S.I. 439 of 2000 Parametric Value of 0.3 mg/L.. The Total Phosphorus (3.02 mg/L) is higher than any other previous monitoring events. Total Nitrogen (4.82 mg/L) is lower than all previous monitoring event except 17/10/2007. Sodium (21.6 mg/L), Magnesium (10.8 mg/L), and Potassium (1.26 mg/L) are all generally higher than previous monitoring events. Calcium (88.1 mg/L) levels are higher than the previous monitoring event of 17/12/2007 but lower than previous monitoring events of 17/10/2007, 20/09/2006, 13/09/2005 and 02/03/2005. Total Organic Carbon (TOC) (5.56 mg/L) is in general in line with the 2007 monitoring events but lower than 2006 monitoring events. The Total Alkalinity (251 mg/L) is generally in line with all other monitoring events. Total Hardness (276 mg/L) is higher than the previous monitoring event 17/12/2007 but generally in line with monitoring events of 2006 and 2007.

GW2- Down-gradient

The pH (7.23) is consistent with all previous monitoring events. The Conductivity (791 µS/cm) is generally consistent with all previous monitoring events. The level of Ammonia (<0.02 mg/L) is below the level of detection and lower than that measured on 2007 monitoring events. Total Phosphorus (<0.2 mg/L) is consistent with previous monitoring events. Total Nitrogen (2.58 mg/L) is higher than the last three previous monitoring events (17/12/2007, 17/10/2007 and 01/08/2007) but is well below all other previous monitoring events. Sodium (21.6 mg/L) is in line with the previous monitoring event of 17/12/2007. Magnesium (10.8 mg/L) and Potassium (1.26 mg/L) are lower than all previous monitoring events but are generally in line with all other monitoring events. Calcium (88.1 mg/L) is higher than the previous monitoring event of 17/12/2007 but lower than all other previous monitoring events. Total Organic Carbon (TOC) (5.15 mg/L) while slightly lower than the previous monitoring event of 17/12/2007 is still higher than all other previous monitoring events. The Alkalinity (331 mg/L) is higher than all previous monitoring events except for 17/10/2007 and 01/08/2007. Hardness (265 mg/L) is lower than all previous monitoring events.

The ammonia in GW1 (0.22 mg/L), while still below the S.I. 439 of 2000 Parametric Value of 0.3 mg/L. is significantly higher than previous monitoring events. The Total Phosphorous (3.02 mg/L) at GW1 is also significantly higher than previous monitoring events. GW1 however is located upstream of the facility indicating that it is not the facility that is contributing to these high ammonia and phosphorus levels. These parameters will be examined again during monitoring to be carried out next week. If the ammonia and phosphorous levels are still found to be high we would then suggest a closer examination of the possible cause of the elevated readings.

Overall the site is operating within the requirements of the licence.

Please do not hesitate to contact me should you have any query regarding the above.

Yours Sincerely,

_____

Jennifer Smyth B.Sc(Hons) M.Sc
Environmental Scientist

Encl Table 1 – Groundwater Chemistry

Table 1 - Groundwater Chemistry - Addition of 10th Dataset

Parameters	SI 294 of 1989 (Qulaity of Surface Water Intended for Abstraction of Drinking Water	SI 439 of 2000 (Drinking Water Regulations) Paramentric Values	Units	GW1										GW2									
				12/10/2004	02/03/2005	13/09/2005	14/03/2006	20/09/2006	16/01/2007	01/08/2007	17/10/2007	17/12/2007	19/02/2008	12/10/2004	02/03/2005	13/09/2005	14/03/2006	20/09/2006	16/01/2007	01/08/2007	17/10/2007	17/12/2007	19/02/2008
LAB RESULTS																							
pH	>5.5 and <8.5	>5.5 and <9.6	units	7.78	7.51	7.01		7.42	7.61	7.39	7.27	7.51	7.42	7.42	7.65	7.28		7.14	7.46	7.1	7.05	7.35	7.23
Electrical conductivity EC	1,000	2,500	µS/cm@20C	491	860	808	924	865	624	625	734	613	606	800	702	728	756	828	765	856	838	857	791
Ammonia	0.16	0.3	mg/l	<0.2	<0.03	0.11		0.056	0.092	<0.02	0.03	0.059	*0.222*	<0.2	<0.03	0.156		<0.02	*3.29*	0.035	0.046	<0.02	<0.02
Total Phosphorous	-	-	mg/l	1.37	0.83	<0.20	0.26	0.22	0.46	<0.2	<0.2	<0.2	*3.02*	0.26	0.50	1.02	<0.2	<0.2	<0.20	<0.20	<0.2	<0.2	<0.2
Fluoride (F)	1	1	mg/l	0.14	<5.0	<0.10		<0.10	0.12	<0.1	<0.1	0.11		<0.1	<5.0	<0.10		<0.1	0.13	0.1	0.12	0.11	
Total Nitrogen	-	-	mg/l	6.91	20.00	1.00	12.1	15	41.9	6.32	4.13	5.45	4.82	4.38	2.46	15.3	2.05	9.2	20.3	1.16	1.36	1.44	2.58
Chloride	250	250	mg/l	18.2	36.6	41.7		59.3	30.7	18.4	20.3	20.5		40.9	42.6	28.0		45.9	41	47.1	*42.9*	*45.9*	
Bromide	-	-	mg/l	-	<5.0	*<5.0*		<5.0				<5.0		-	<5.0	*<5.0*		<5.0	-	-		<5.0	
Nitrate	50	50	mg/l	25.70	-	-		***50.8***	30.5	25	15.9	22.1		19.1	-	-		9.2	7.79	5.18	6.37	5.36	
Sulphate	200	250	mg/l	12.9	14.9	31.8		84.7	47.5	46.2	64.3	30		31.1	15.8	14.5		38.1	33	40.5	43.5	41.3	
Sodium		200	mg/l		21.7	20.9		25.8	15.4	18.1	19.5	17	21.6		19.0	18.7		24.9	19.5	22.5	22.5	21.8	21.6
Magnesium	-	-	mg/l		15.1	10.3		15	8.75	8.86	11.4	8.15	10.8		9.81	11.9		10.9	9.28	10.1	9.46	15.2	10.8
Potassium	-	-	mg/l		0.92	1.43		1.06	0.36	0.56	0.53	0.6	1.26		1.21	0.97		1.34	1.11	1.11	1.2	2.25	1.26
Calcium		200	mg/l		145	142		131	76.5	85	102	48.7	88.1		124.0	*156.8*		123.2	107	130	110	83	88.1
Total Organic Carbon (TOC)	-	-	mg/l	4.04	-		16.2	11.4	4.75	4.64	5.67	4.7	5.56	2.1	-		2.18	4.38	3.53	4.88	3.52	5.83	5.15
Total alkalinity (as $CaCO_3$)	-	-	mg/l	191	310	328		232	250	241	297	239	251	308	285	260		327	291	351	358	270	331
Total Hardness (Calc)	-	-	mg/l		424	397		390	227	249	302	155	276		352	*441*		353	305	366	314	270	265
K:Na Ratio	-	-	Unitless		0.02	0.04		0.02	0.01	0.02					0.04	0.03		0.03	0.03	0.03			

* Change is calculated in using the 2 latest sampling periods available.

K 39.1
Na 22.9

Office of
Environmental
Enforcement

Environmental Protection Agency
Regional Inspectorate, Inniscarra
County Cork, Ireland
An Ghníomhaireacht um Chaomhnú Comhshaoi
Cigireacht Réigiúnach, Inis Cara
Contae Chorcaí, Éire

T: +353 21 487 5540
F: +353 21 487 5545
E: info@epa.ie
W: www.epa.ie

Lo Call: 1890 33 55 99

Environmental Officer
Mr. Binman (Luddenmore)
Grange
Kilmallock
Co. Limerick

Licence No: **W0061-02** (formerly W 61-2) Date: 25/11/2006

Dear Sir / Madam,

The following test report(s) detail results of recent EPA monitoring carried out at your facility.

Please review the report and respond to your Inspector within five working days of receipt of this report should you have any query or comment in respect of its contents.

Signed

Office of Environmental Enforcement

cc: Pol O'Seasnain

ENVIRONMENTAL PROTECTION AGENCY
CORK REGIONAL INSPECTORATE
INNISCARRA, Co. CORK

Tel: 021-4875540 Fax: 021-4875545

Issued: 23/11/2006

Final Test Report

Report No: 261413 / 1

Client: OEE Enforcement Admin (Cork)

Sample No: **261413** Location: **Mr. Binman (Luddenmore) GW1**

Licence No. W0061-02 (formerly W 61-2) Issued by: Env. Protection Agency

Description: Waste site Groundwater Flow:

Sampled: 20/09/2006 at 1000 by DG Sampled as: Grab sample Split sample: No

Received: 20/09/2006

Remarks:

Determination	Result	Units	Spec Limits	Status	Method Description & EPA Method No.		Accred
pH	7.42	pH units			Electrometry	B3	N
pH measured at:	18.9	°C			Thermometry	B3	N
Conductivity @25°C (Temp Comp)	865	µS/cm			Electrometry	B4	Y
Ammonia (Aquakem)	0.056	mg/l N			Colorimetry (Aquakem)	B48	N
Total Phosphorous	0.22	mg/l P			Digest / Colorimetry	B36	Y
Fluoride	< 0.10	mg/l			Ion Chromatog.	B8	Y
Total Nitrogen	15.0	mg/l N			Digest / Colorimetry	B36	Y
Chloride	59.3	mg/l			Ion Chromatography	B8	Y
Nitrate (as NO3)	50.8	mg/l NO3			Ion Chrom. / Calculated	B8 / Calcn	Y
Bromide	< 5.0	mg/l			Ion Chromatography	B31	Y
Sulphate	84.7	mg/l			Ion Chromatography	B8	Y
Total Organic Carbon (as NPOC)	11.4	mg/l C			Digestion / IR	B17	Y
Sodium	25.8	mg/l			Ion Chromatography	B9	Y
Magnesium	15.0	mg/l			Ion Chromatography	B9	N
Potassium	1.06	mg/l			Ion Chromatography	B9	Y
Calcium	131	mg/l			Ion Chromatography	B9	Y
Total Alkalinity	232	mg/l CaCO3			Titrimetry	B6	Y
Total Hardness (Calc.)	390	mg/l CaCO3			Calculated	B9	N

Comments: TOC analysis on GF/C filtered sample.

Signed: Peter Webster

Peter Webster, (Regional Chemist)

Test reports relate solely to above sample as received and should only be reprinted in full.
Details of test methods, measurement uncertainty and interpretation of status flags on reverse of page.
Decimal zero's in BODs mg/l between 10 -100 are a function of the reporting algorithm and are not intended to imply enhanced imeasurement resolution.

Issue 5, Revised 2/02/05

ISO 17025 INAB ACCREDITED TESTING DETAILED IN SCOPE REG NO. 1177

ENVIRONMENTAL PROTECTION AGENCY
CORK REGIONAL INSPECTORATE
INNISCARRA, Co. CORK

Tel: 021-4875540 Fax: 021-4875545

Issued: 23/11/2006

Final Test Report

Report No: 261414 / 1

Client: OEE Enforcement Admin (Cork)

Sample No: **261414** Location: **Mr. Binman (Luddenmore) GW2**

Licence No. W0061-02 (formerly W 61-2) Issued by: Env. Protection Agency

Description: Waste site Groundwater Flow:

Sampled: 20/09/2006 at 1025 by DG Sampled as: Grab sample Split sample: No

Received: 20/09/2006

Remarks:

Determination	Result	Units	Spec Limits	Status	Method Description & EPA Method No.		Accred
pH	7.14	pH units			Electrometry	B3	N
pH measured at:	18.8	°C			Thermometry	B3	N
Conductivity @25°C (Temp Comp)	828	µS/cm			Electrometry	B4	Y
Ammonia (Aquakem)	< 0.020	mg/l N			Colorimetry (Aquakem)	B48	N
Total Phosphorous	< 0.20	mg/l P			Digest / Colorimetry	B36	Y
Fluoride	< 0.10	mg/l			Ion Chromatog.	B8	Y
Chloride	45.8	mg/l			Ion Chromatography	B8	Y
Nitrate (as NO3)	9.20	mg/l NO3			Ion Chrom. / Calculated	B8 / Calcn	Y
Bromide	< 5.0	mg/l			Ion Chromatography	B31	Y
Sulphate	38.1	mg/l			Ion Chromatography	B8	Y
Total Organic Carbon (as NPOC)	4.38	mg/l C			Digestion / IR	B17	Y
Sodium	24.9	mg/l			Ion Chromatography	B9	Y
Magnesium	10.9	mg/l			Ion Chromatography	B9	N
Potassium	1.34	mg/l			Ion Chromatography	B9	Y
Total Alkalinity	327	mg/l CaCO3			Titrimetry	B6	Y

Comments: TOC analysis on GF/C filtered sample. Calcium analysis did not meet laboratory guidelines for reporting as accredited values deu to delay in repeat analysis. A guide value 123.2 mg/l is Ca inferred. This equates to a calculated guide value for Total Hardness of 353 mg/l as CaCo3

Signed: P. Webster

Peter Webster, (Regional Chemist)

Test reports relate solely to above sample as received and should only be reprinted in full.
Details of test methods, measurement uncertainty and interpretation of status flags on reverse of page.
Decimal zero's in BODs mg/l between 10 -100 are a function of the reporting algorithm and are not intended to imply enhanced imeasurement resolution. Issue 5, Revised 2/02/05

ISO 17025 INAB ACCREDITED TESTING DETAILED IN SCOPE REG NO 1177

Office of
Environmental
Enforcement

Environmental Protection Agency
Regional Inspectorate, Inniscarra
County Cork, Ireland
An Ghníomhaireacht um Chaomhnú Comhshaoil
Cigireacht Réigiúnach, Inis Cara
Contae Chorcaí, Éire

T: +353 21 487 5540
F: +353 21 487 5545
E: info@epa.ie
W: www.epa.ie

Lo Call: 1890 33 55 99

Environmental Officer
Mr. Binman (Luddenmore)
Grange
Kilmallock
Co. Limerick

Licence No: W0061-02

Date: 10/06/2007

Dear Sir,

The attached test report refers to EPA monitoring carried out at your facility and previously reported the Agency.

An internal audit undertaken following a customer query highlighted that Ammonia and Reactive P values were reported but the batch was analysed outside of the recommended timeframe for such analysis. The laboratory's Quality System requires that in such circumstances data be indicated as being a Guide Value. This error has been formally logged as a non-conformance and will be reviewed as part of the laboratory's quality policy.

The attached Supplemental report corrects the above error and the report supercedes the previously issued version. I would be grateful if you would update all relevant records accordingly.

I apologise for any inconvenience casued by this error. Should you have any queries regarding the reported data please contact me at this office.

Signed Peter Webster

Peter Webster (Regional Chemist)

cc: Pol O'Seasnain

ENVIRONMENTAL PROTECTION AGENCY
CORK REGIONAL INSPECTORATE
INNISCARRA, Co. CORK

Tel: 021-4875540 Fax: 021-4875545

Issued: 08/06/2007

Supplementary Test Report Report No: 270076 / 2

This report supercedes Test Report No: 270076 / 1 Please replace previous filed or distributed copies.

Client: OEE Enforcement Admin (Cork)

Sample No: **270076** Location: **Mr. Binman (Luddenmore) GW2**

Licence No. W0061-02 (formerly W 61-2) Issued by: Env. Protection Agency

Description: Waste facility groundwater Flow:

Sampled: 16/01/2007 at 0920 by DG Sampled as: Grab sample Split sample: No

Received: 16/01/2007

Remarks:

Determination	Result	Units	Spec Limits	Status	Method Description & EPA Method No.		Accred
pH	7.46	pH units			Electrometry	B3	Y
pH measured at:	21.7	°C			Thermometry	B3	N
Conductivity @25°C (Temp Comp)	765	µS/cm			Electrometry	B4	Y
Total Phosphorous	< 0.20	mg/l P			Digest / Colorimetry	B36	Y
Fluoride	0.13	mg/l			Ion Chromatog.	B8	Y
Total Nitrogen	20.3	mg/l N			Digest / Colorimetry	B36	Y
Chloride	41.0	mg/l			Ion Chromatography	B8	Y
Nitrate (as NO3)	7.79	mg/l NO3			Ion Chrom. / Calculated	B8 / Calcn	Y
Sulphate	33.0	mg/l			Ion Chromatography	B8	Y
Total Organic Carbon (as NPOC)	3.53	mg/l C			Digestion / IR	B17	Y
Sodium	19.5	mg/l			Ion Chromatography	B9	Y
Magnesium	9.28	mg/l			Ion Chromatography	B9	Y
Potassium	1.11	mg/l			Ion Chromatography	B9	Y
Calcium	107	mg/l			Ion Chromatography	B9	Y
Total Alkalinity	291	mg/l CaCO3			Titrimetry	B6	Y
Total Hardness (Calc.)	305	mg/l CaCO3			Calculated	B9	Y

Comments: Sulphate analysis did not meet laboratory precision criteria. An internal audit undertaken in response to a customer query highlighted that ammonia measurements reported on this sample were analysed outside of the recommended timeframe set within the test method. The delay in analysis could have resulted in changes in the concentrations of these parameters and the measurements should be treated as guide values only. Recorded values were: Ammonia 3.29 mg/l N.

Signed: Peter Webster

Peter Webster, (Regional Chemist)

Test reports relate solely to above sample as received and should only be reprinted in full.
Details of test methods, measurement uncertainty and interpretation of status flags on reverse of page.
Decimal zero's in BODs mg/l between 10 -100 are a function of the reporting algorithm and are not intended to imply enhanced imeasurement resolution. Issue 5, Revised 2/02/05

ISO 17025 INAB ACCREDITED TESTING DETAILED IN SCOPE REG NO. 117

ENVIRONMENTAL PROTECTION AGENCY
CORK REGIONAL INSPECTORATE
INNISCARRA, Co. CORK

Tel: 021-4875540 Fax: 021-4875545

Issued: 08/06/2007

Supplementary Test Report Report No: 270077 / 2

This report supercedes Test Report No: 270077 / 1 Please replace previous filed or distributed copies.

Client: OEE Enforcement Admin (Cork)

Sample No: **270077** Location: **Mr. Binman (Luddenmore) GW1**

Licence No. W0061-02 (formerly W 61-2) Issued by: Env. Protection Agency

Description: Waste facility groundwater Flow:

Sampled: 16/01/2007 at 1030 by DG Sampled as: Grab sample Split sample: No

Received: 16/01/2007

Remarks:

Determination	Result	Units	Spec Limits	Status	Method Description & EPA Method No.		Accred
pH	7.61	pH units			Electrometry	B3	Y
pH measured at:	21.4	°C			Thermometry	B3	N
Conductivity @25°C (Temp Comp)	624	µS/cm			Electrometry	B4	Y
Total Phosphorous	0.46	mg/l P			Digest / Colorimetry	B36	Y
Fluoride	0.12	mg/l			Ion Chromatog.	B8	Y
Total Nitrogen	41.9	mg/l N			Digest / Colorimetry	B36	Y
Chloride	30.7	mg/l			Ion Chromatography	B8	Y
Nitrate (as NO3)	30.5	mg/l NO3			Ion Chrom. / Calculated	B8 / Calcn	Y
Sulphate	47.5	mg/l			Ion Chromatography	B8	Y
Total Organic Carbon (as NPOC)	4.75	mg/l C			Digestion / IR	B17	Y
Sodium	15.4	mg/l			Ion Chromatography	B9	Y
Magnesium	8.75	mg/l			Ion Chromatography	B9	Y
Potassium	0.36	mg/l			Ion Chromatography	B9	Y
Calcium	76.5	mg/l			Ion Chromatography	B9	Y
Total Alkalinity	250	mg/l CaCO3			Titrimetry	B6	Y
Total Hardness (Calc.)	227	mg/l CaCO3			Calculated	B9	Y

Comments: Sulphate analysis did not meet laboratory precision criteria. An internal audit undertaken in response to a customer query highlighted that ammonia measurements reported on this sample were analysed outside of the recommended timeframe set within the test method. The delay in analysis could have resulted in changes in the concentrations of these parameters and the measurements should be treated as guide values only. Recorded values were: Ammonia 0.092 mg/l N.

Signed: Peter Webster

Peter Webster, (Regional Chemist)

Test reports relate solely to above sample as received and should only be reprinted in full.
Details of test methods, measurement uncertainty and interpretation of status flags on reverse of page.
Decimal zero's in BODs mg/l between 10 -100 are a function of the reporting algorithm and are not intended to imply enhanced imeasurement resolution. Issue 5, Revised 2/02/05

ISO 17025 INAB ACCREDITED TESTING DETAILED IN SCOPE REG NO. 1177

Office of
Environmental
Enforcement

Environmental Protection Agency
Regional Inspectorate, Inniscarra
County Cork, Ireland
An Ghníomhaireacht um Chaomhnú Comhshaoil
Cigireacht Réigiúnach, Inis Cara
Contae Chorcaí, Éire

T: +353 21 487 5540
F: +353 21 487 5545
E: info@epa.ie
W: www.epa.ie

Lo Call: 1890 33 55 99

Environmental Officer
Mr. Binman (Luddenmore)
Grange
Kilmallock
Co. Limerick

Licence No: **W0061-02** (formerly W 61-2) Date: 03/03/2007

Dear Sir / Madam,

The following test report(s) detail results of recent EPA monitoring carried out at your facility.

Please review the report and respond to your Inspector within five working days of receipt of this report should you have any query or comment in respect of its contents.

Signed

Office of Environmental Enforcement

cc: Pol O'Seasnain

ENVIRONMENTAL PROTECTION AGENCY
CORK REGIONAL INSPECTORATE
INNISCARRA, Co. CORK

Tel: 021-4875540 Fax: 021-4875545

Issued: 28/02/2007

Final Test Report Report No: 270077 / 1

Client: OEE Enforcement Admin (Cork)

Sample No: **270077** Location: **Mr. Binman (Luddenmore) GW1**

Licence No. W0061-02 (formerly W 61-2) Issued by: Env. Protection Agency

Description: Waste site Groundwater Flow:

Sampled: 16/01/2007 at 1030 by DG Sampled as: Grab sample Split sample: No

Received: 16/01/2007

Remarks:

Determination	Result	Units	Spec Limits	Status	Method Description & EPA Method No.		Accred
pH	7.61	pH units			Electrometry	B3	Y
pH measured at:	21.4	°C			Thermometry	B3	N
Conductivity @25°C (Temp Comp)	624	µS/cm			Electrometry	B4	Y
Ammonia (Aquakem)	0.092	mg/l N			Colorimetry (Aquakem)	B48	N
Total Phosphorous	0.46	mg/l P			Digest / Colorimetry	B36	Y
Fluoride	0.12	mg/l			Ion Chromatog.	B8	Y
Total Nitrogen	41.9	mg/l N			Digest / Colorimetry	B36	Y
Chloride	30.7	mg/l			Ion Chromatography	B8	Y
Nitrate (as NO3)	30.5	mg/l NO3			Ion Chrom. / Calculated	B8 / Calcn	Y
Sulphate	47.5	mg/l			Ion Chromatography	B8	Y
Total Organic Carbon (as NPOC)	4.75	mg/l C			Digestion / IR	B17	Y
Sodium	15.4	mg/l			Ion Chromatography	B9	Y
Magnesium	8.75	mg/l			Ion Chromatography	B9	Y
Potassium	0.36	mg/l			Ion Chromatography	B9	Y
Calcium	76.5	mg/l			Ion Chromatography	B9	Y
Total Alkalinity	250	mg/l CaCO3			Titrimetry	B6	Y
Total Hardness (Calc.)	227	mg/l CaCO3			Calculated	B9	Y

Comments: Sulphate analysis did not meet laboratory precision criteria.

Signed: Peter Webster

Peter Webster, (Regional Chemist)

Test reports relate solely to above sample as received and should only be reprinted in full.
Details of test methods, measurement uncertainty and interpretation of status flags on reverse of page.
Decimal zero's in BODs mg/l between 10 -100 are a function of the reporting algorithm and are not intended to imply enhanced imeasurement resolution. Issue 5, Revised 2/02/05

ISO 17025 INAB ACCREDITED TESTING DETAILED IN SCOPE REG NO. 117T

ENVIRONMENTAL PROTECTION AGENCY
CORK REGIONAL INSPECTORATE
INNISCARRA, Co. CORK

Tel: 021-4875540 Fax: 021-4875545

Issued: 28/02/2007

Final Test Report

Report No: 270076 / 1

Client: OEE Enforcement Admin (Cork)

Sample No: **270076** Location: **Mr. Binman (Luddenmore) GW2**

Licence No. W0061-02 (formerly W 61-2) Issued by: Env. Protection Agency

Description: Waste site Groundwater Flow:

Sampled: 16/01/2007 at 0920 by DG Sampled as: Grab sample Split sample: No

Received: 16/01/2007

Remarks:

Determination	Result	Units	Spec Limits	Status	Method Description & EPA Method No.		Accred
pH	7.46	pH units			Electrometry	B3	Y
pH measured at:	21.7	°C			Thermometry	B3	N
Conductivity @25°C (Temp Comp)	765	µS/cm			Electrometry	B4	Y
Ammonia (Aquakem)	3.29	mg/l N			Colorimetry (Aquakem)	B48	N
Total Phosphorous	< 0.20	mg/l P			Digest / Colorimetry	B36	Y
Fluoride	0.13	mg/l			Ion Chromatog.	B8	Y
Total Nitrogen	20.3	mg/l N			Digest / Colorimetry	B36	Y
Chloride	41.0	mg/l			Ion Chromatography	B8	Y
Nitrate (as NO3)	7.79	mg/l NO3			Ion Chrom. / Calculated	B8 / Calcn	Y
Sulphate	33.0	mg/l			Ion Chromatography	B8	Y
Total Organic Carbon (as NPOC)	3.53	mg/l C			Digestion / IR	B17	Y
Sodium	19.5	mg/l			Ion Chromatography	B9	Y
Magnesium	9.28	mg/l			Ion Chromatography	B9	Y
Potassium	1.11	mg/l			Ion Chromatography	B9	Y
Calcium	107	mg/l			Ion Chromatography	B9	Y
Total Alkalinity	291	mg/l CaCO3			Titrimetry	B6	Y
Total Hardness (Calc.)	305	mg/l CaCO3			Calculated	B9	Y

Comments: Sulphate analysis did not meet laboratory precision criteria.

Signed: Peter Webster

Peter Webster, (Regional Chemist)

Test reports relate solely to above sample as received and should only be reprinted in full.
Details of test methods, measurement uncertainty and interpretation of status flags on reverse of page.
Decimal zero's in BODs mg/l between 10 -100 are a function of the reporting algorithm and are not intended to imply enhanced imeasurement resolution.

Issue 5, Revised 2/02/05

ISO 17025 INAB ACCREDITED TESTING DETAILED IN SCOPE REG NO. 1171

Office of
Environmental
Enforcement

Ms Margaret Egan
Environmental Officer
Mr Binman Limited
Luddenmore
Grange
Kilmallock
Co. Limerick

South/South West Region
Environmental Protection Agency
Regional Inspectorate, Inniscarra
County Cork, Ireland

Cigireacht Réigiúnach, Inis Cara
Contae Chorcaí, Éire

T: +353 21 487 5540
F: +353 21 487 5545
E: info@epa.ie
W: www.epa.ie

LoCall: 1890 33 55 99

26/10/2007

Our Ref: W0061-02/gc09noc.doc

Dear Ms Egan

The following test report(s) detail results of recent EPA monitoring carried out at your facility.

Please review the report and respond to your inspector within five working days of receipt of this report should you have any query or comment in respect of its contents.

Please quote the above reference in future correspondence in relation to this matter.

Yours sincerely

Niamh O'Carroll
Office of Environmental Enforcement

Cc: Pol O' Seasnain

ENVIRONMENTAL PROTECTION AGENCY
CORK REGIONAL INSPECTORATE
INNISCARRA, Co. CORK

Tel: 021-4875540 Fax: 021-4875545

Issued: 15/10/2007

Final Test Report

Report No: 271283 / 1

Client: OEE Enforcement Admin (Cork)

Sample No: **271283** Location: **Mr. Binman (Luddenmore) GW1**

Licence No. W0061-02 (formerly W 61-2) Issued by: Env. Protection Agency

Description: Waste facility groundwater Flow:

Sampled: 01/08/2007 at 1100 by DG Sampled as: Grab sample Split sample: No

Received: 01/08/2007

Remarks:

Determination	Result	Units	Spec Limits	Status	Method Description & EPA Method No.		Accred
pH	7.39	pH units			Electrometry	B3	Y
pH measured at:	18.5	°C			Thermometry	B3	N
Conductivity @25°C (Temp Comp)	625	µS/cm			Electrometry	B4	Y
Ammonia (Aquakem)	< 0.020	mg/l N			Colorimetry (Aquakem)	B48	Y
Total Phosphorous	< 0.20	mg/l P			Digest / Colorimetry	B36	Y
Fluoride	< 0.10	mg/l			Ion Chromatog.	B8	Y
Total Nitrogen	6.32	mg/l N			Digest / Colorimetry	B36	Y
Chloride	18.4	mg/l			Ion Chromatography	B8	Y
Nitrate (as NO3)	25.0	mg/l NO3			Ion Chrom. / Calculated	B8 / Calcn	Y
Sulphate	46.2	mg/l			Ion Chromatography	B8	Y
Total Organic Carbon (as NPOC)	4.64	mg/l C			Digestion / IR	B17	Y
Sodium	18.1	mg/l			Ion Chromatography	B9	Y
Magnesium	8.86	mg/l			Ion Chromatography	B9	Y
Potassium	0.56	mg/l			Ion Chromatography	B9	Y
Calcium	85.0	mg/l			Ion Chromatography	B9	Y
Total Alkalinity	241	mg/l CaCO3			Titrimetry	B6	Y
Total Hardness (Calc.)	249	mg/l CaCO3			Calculated	B9	Y

Comments: TOC: Guide value. Measurement was made outside the recommended timeframe for this parameter. Cations and Total Hardness are reported as guide values. Analysis was undertaken outside the timeframe specified in the test method.

Signed: P. Webster

Peter Webster, (Regional Chemist)

Test reports relate solely to above sample as received and should only be reprinted in full.
Details of test methods, measurement uncertainty and interpretation of status flags on reverse of page.
Decimal zero's in BODs mg/l between 10 -100 are a function of the reporting algorithm and are not intended to imply enhanced imeasurement resolution.

Issue 5, Revised 2/02/05

ISO 17025 INAB ACCREDITED TESTING DETAILED IN SCOPE REG NO. 117T

ENVIRONMENTAL PROTECTION AGENCY
CORK REGIONAL INSPECTORATE
INNISCARRA, Co. CORK

Tel: 021-4875540 Fax: 021-4875545

Issued: 15/10/2007

Final Test Report

Report No: 271284 / 1

Client: OEE Enforcement Admin (Cork)

Sample No: **271284** Location: **Mr. Binman (Luddenmore) GW2**

Licence No. W0061-02 (formerly W 61-2) Issued by: Env. Protection Agency

Description: Waste facility groundwater Flow:

Sampled: 01/08/2007 at 0910 by DG Sampled as: Grab sample Split sample: No

Received: 01/08/2007

Remarks:

Determination	Result	Units	Spec Limits	Status	Method Description & EPA Method No.		Accred
pH	7.10	pH units			Electrometry	B3	Y
pH measured at:	18.6	°C			Thermometry	B3	N
Conductivity @25°C (Temp Comp)	856	µS/cm			Electrometry	B4	Y
Ammonia (Aquakem)	0.035	mg/l N			Colorimetry (Aquakem)	B48	Y
Total Phosphorous	< 0.20	mg/l P			Digest / Colorimetry	B36	Y
Fluoride	0.10	mg/l			Ion Chromatog.	B8	Y
Total Nitrogen	1.16	mg/l N			Digest / Colorimetry	B36	Y
Chloride	47.1	mg/l			Ion Chromatography	B8	Y
Nitrate (as NO3)	5.18	mg/l NO3			Ion Chrom. / Calculated	B8 / Calcn	Y
Sulphate	40.5	mg/l			Ion Chromatography	B8	Y
Total Organic Carbon (as NPOC)	4.88	mg/l C			Digestion / IR	B17	Y
Sodium	22.5	mg/l			Ion Chromatography	B9	Y
Magnesium	10.1	mg/l			Ion Chromatography	B9	Y
Potassium	1.11	mg/l			Ion Chromatography	B9	Y
Calcium	130	mg/l			Ion Chromatography	B9	Y
Total Alkalinity	351	mg/l CaCO3			Titrimetry	B6	Y
Total Hardness (Calc.)	366	mg/l CaCO3			Calculated	B9	Y

Comments: TOC: Guide value. Measurement was made outside the recommended timeframe for this det. Cations and Total Hardness are reported as guide values. Analysis was undertaken outside the timeframe specified in the test method.

Signed: P. Webster

Peter Webster, (Regional Chemist)

Test reports relate solely to above sample as received and should only be reprinted in full.
Details of test methods, measurement uncertainty and interpretation of status flags on reverse of page.
Decimal zero's in BODs mg/l between 10 -100 are a function of the reporting algorithm and are not intended to imply enhanced imeasurement resolution.

Issue 5, Revised 2/02/05

ISO 17025 INAB ACCREDITED TESTING DETAILED IN SCOPE REG NO. 11 TT

Inspector Pól Ó Seasnain
EPA Regional Office
Inniscarra
Co. Cork

21/03/2007

Re: Mr. Binman Licence Audit Report
Licence W0061-02

Dear Pól,

I am writing to you in response to the Licence Audit Report for Mr. Binman Ltd., Licence W0061-02 on the 6th of March 2007.

The EPA licence review states that effluent from the site oil interceptor has been shown to be contaminated with high BOD and COD. This effluent discharges to a soakaway/to groundwater located at the southeast corner of the site, adjacent to the eastern end of the staff carpark. A percolation area is also located just south of the main staff car park and pump house. This is likely to discharge treated wastewater effluent to groundwater.

Groundwater monitoring well GW2 is located south southeast of the soakaway. Based on the findings of the original Hydrogeological Report (K. Motherway, 2003 attached), GW2 is directly downgradient of the soakaway discharge. The borehole log for GW2 indicates that it is 37m deep and screened through 22m of boulder clay (comprised of Silt / clay) and 13m of basalt with mineral infilled air bubbles. Therefore it is likely that GW2 would intercept water discharging into the boulder clay from the soakaway. The intercepted water could reach the borehole by either lateral migration through the boulder clay via preferential sand and gravel lenses, or by vertical migration through the boulder clay followed by lateral migration to the borehole via fractures in the basalt. Travel time in either case may be significant and result in a lag between the time of initial discharge and detection of contaminants at the borehole.

Mr. Binman are also in the process of relocating the driveway into the site and will therefore need to move the location of GW2 in the near future. The location of the new GW2 will be determined in consultation with the EPA and the current GW2 will be abandoned according to best practice.

Please do not hesitate to contact me if you have further queries.

Thank you,

Peter Conroy,
Hydrogeologist

Mr. Binman Ltd.

Mr. Binman Biannual Groundwater Monitoring Report

06/07/2007

TOBIN CONSULTING ENGINEERS

TOBIN
Patrick J. Tobin & Co. Ltd.

REPORT

PROJECT: **Mr. Binman Biannual Groundwater Monitoring Report**

CLIENT: **Mr. Binman Ltd.**
Ludderinmore, Grange,
County Limerick

COMPANY: **TOBIN Consulting Engineers**
Northpoint House,
Northpoint Business Park,
New Mallow Road,
Cork

www.tobin.ie

DOCUMENT AMENDMENT RECORD

Client: Mr. Binman

Project: Mr. Binman Biannual Groundwater Monitoring

Title: Groundwater Monitoring Report June 2007

PROJECT NUMBER: 3076			DOCUMENT REF: DV01	
DV01	For submission to EPA	ROS / 04/07/07		
1.0		ROS/ 30/06/07	PC / 05/07/07	DG/ 05/07/07
Revision	**Description & Rationale**	**Originated/Date**	**Checked/Date**	**Authorised/Date**
		TOBIN Consulting Engineers		

TABLE OF CONTENTS

1 INTRODUCTION

1.1 BRIEF

TOBIN Consulting Engineers (hereafter TOBIN) was requested by Mr. Binman Ltd. (hereafter Mr. Binman) to undertake groundwater monitoring for compliance with Waste Licence No. 61-2, granted by the Environmental Protection Agency (EPA), for the Facility.

As specified in the licence, 1 no. groundwater monitoring borehole is located up-gradient (GW1) of the site and 1 no. monitoring borehole is located down-gradient (GW2).

This report presents details of both the methodologies employed and results obtained for the groundwater assessment carried out in June of 2007 for the Mr. Binman site.

1.2 SITE DESCRIPTION

The subject site is an EPA licenced waste recovery facility, located in Luddenmore, Grange, County Limerick. The site is located on the southern slopes of a hill forming part of the Limerick Volcanics, which sweeps down to a flat valley floor. Groundwater flows beneath the site in a generally South to South-East direction, as outlined in a hydrogeological report submitted to the Agency in February of 2004.

2 METHODOLOGY

2.1 SAMPLING

Groundwater samples were collected at the site on the 18th of June 2007 from the 2 no. specified groundwater monitoring wells, GW1 and GW2. Prior to sampling, a Wattera inertial lift pump and dedicated hosing was used to purge 3 no. well volumes from each groundwater monitoring well. When sampling liquid from each groundwater monitoring point, a single pair of new disposable gloves was used and removed immediately after sampling was completed, and placed in a sealed bag for disposal. The groundwater samples were taken from each of the groundwater monitoring wells using dedicated Wattera hosing connected to an inertial lift pump, to minimise the risk of cross contamination. The sample containers were filled directly from the dedicated Waterra hosing. The bottles, without preservative, were rinsed three times with the sample water first and the plastic bottles were gently squeezed when screwing on the cap to raise the meniscus and ensure an air tight seal. Sampling bottles were supplied by the analytical laboratory (Alcontrol Geochem Ltd. in Dublin, a UKAS accredited laboratory). The samples were kept cool in insulated boxes with cool cells for transfer to laboratory. These samples were then couriered overnight and reached the laboratory in satisfactory condition.

2.2 ANALYSIS & RESULTS

Groundwater samples were analysed for the following parameters as specified in Table D.5, Schedule D of Waste Licence 61-2.

D.5 Groundwater Monitoring

Parameter	Monitoring Frequency	Analysis Method/Technique
pH	Biannually	Electrometry
Electrical Conductivity	Biannually	Standard Methods
Total Organic Carbon	Biannually	Standard Methods
Ammoniacal Nitrogen	Biannually	Standard Methods
Total Phosphorous	Biannually	Standard Methods
Total Nitrogen	Biannually	Standard Methods

The results of this analysis are presented in Table 2.1. The reported concentrations have been compared to the Drinking Water Standards for parameters set out in S.I. 439 of 2000. The Certificates of Analysis are contained in Appendix I of this report.

Table 2.1 Results of Analysis for samples collected on 18/06/2007

Parameter	Units	Drinking Water Standard	GW1	GW2
pH	pH Units	6.5-9.6	7.8	7.84
Electrical Conductivity	µS/cm	2,500	657	796
Total Organic Carbon	mg/l	-	3	<2
Ammoniacal Nitrogen	mg/l	0.3	<0.2	<0.2
Total Phosphorous	mg/l	-	<0.05	0.12
Total Nitrogen	mg/l	-	9	3

- = No Drinking Water Standard available

3 INTERPRETATION

None of the reported values exceed the corresponding drinking water values. In general, the results indicate that the groundwater quality is good.

The reported levels of pH, Total Organic Carbon and Ammoniacal Nitrogen are all similar for both up-gradient and down-gradient samples. The Electrical Conductivity and Total Phosphorus, Total Nitrogen are higher slightly lower up-gradient at GW1 (EC is 657 µS/cm, TP is <0.05 mg/L and TN is 9 mg/L) than down-gradient, at GW2 (EC is 796 µS/cm, TP is 0.12 mg/L, TN is 3 mg/L).

Table 3.1 Results of Analysis for samples collected on 14/11/2006

Parameter	Units	Drinking Water Standards	GW1	GW2
pH	pH Units	6.5-9.6	8.01	7.80
Electrical Conductivity	µS/cm	2,500	880	824
Total Organic Carbon	mg/l	-	4	4
Ammoniacal Nitrogen	mg/l	0.3	<0.2	<0.2
Total Phosphorous	mg/l	-	<0.05	0.14
Total Nitrogen	mg/l	-	16	4

- = No Drinking Water Standard available

The reported pH values are slightly lower than the previous monitoring event undertaken on 14/11/2006 for GW1 (8.01 to 7.80) but similar to the previous monitoring event for GW2 (7.80 to 7.84). The Electrical Conductivity is lower than the previous monitoring event of 14/11/2006. Previously, GW1 measured 880 µS/cm and is now 657 µS/cm. GW2 measured 824 µS/cm in the previous monitoring event and is now 796 µS/cm. The pH and EC values are typical of natural uncontaminated groundwater. The Total Organic Carbon for both GW1 (from 4 mg/l to 3 mg/l) and GW2 (from 4 mg/l to <2 mg/l) is lower than the previous monitoring event. Ammoniacal Nitrogen is in similar to the previous event for both GW1 and GW2 samples, measuring below the level of detection of 0.2 mg/l in both instances. Total Phosphorus in GW1 is in line with the previous period measuring below the level of detection of 0.05 mg/l. However, for GW2 the Total P is slightly lower in this period (0.12 mg/l) than the previous period (0.14 mg/l). Total Nitrogen has decreased in both GW1 (16 mg/L to 9 mg/L) and GW2 (4 mg/L to 3 mg/L).

4 CONCLUSIONS

All of the reported values are within the Parametric Values set out in the Drinking Water Standards (S.I. 439 of 2000). There is no significant change in the June 2007 and November 2006 samples and therefore the results indicate that the Mr. Binman facility is not adversely impacting on the groundwater quality in the area.

APPENDIX 1

Certificates of Analysis

TOBIN
Patrick J. Tobin & Co. Ltd.

NATIONAL NETWORK

Galway
Fairgreen House,
Fairgreen Road,
Galway.
Ph +353 (0)91 565211
Fax +353 (0)91 565398
E-mail galway@tobin.ie

Dublin
Block 10-3,
Blanchardstown Corporate Park,
Dublin 15.
Ph +353 (0)1 803 0406
Fax +353 (0)1 803 0409
E-mail dublin@tobin.ie

Cork
Northpoint House,
New Mallow Road,
Cork.
Ph +353 (0)21 4308 624
Fax +353 (0)21 4308 625
E-mail cork@tobin.ie

Limerick
Bedford Place,
Howley's Quay,
Lower Shannon Street,
Limerick.
Ph +353 (0)61 415 757
Fax +353 (0)61 409 378
E-mail limerick@tobin.ie

Castlebar
Market Square,
Castlebar,
Co. Mayo.
Ph +353 (0)94 902 1401
Fax +353 (0)94 902 1534
E-mail castlebar@tobin.ie

Dundalk
Eimear Court,
Market Square,
Dundalk,
Co. Louth.
Ph +353 (0)42 933 5107
Fax +353 (0)42 933 1715
E-mail dundalk@tobin.ie

Mr. Binman Ltd.

Mr. Binman Biannual Groundwater Monitoring Report

13/12/2007

TOBIN CONSULTING ENGINEERS

TOBIN
Patrick J. Tobin & Co. Ltd.

REPORT

PROJECT: **Mr. Binman Biannual Groundwater Monitoring Report**

CLIENT: **Mr. Binman Ltd.**
Luddenmore, Grange,
County Limerick

COMPANY: **TOBIN Consulting Engineers**
Northpoint House,
Northpoint Business Park,
New Mallow Road,
Cork

www.tobin.ie

DOCUMENT AMENDMENT RECORD

Client:	Mr. Binman
Project:	Mr. Binman Biannual Groundwater Monitoring
Title:	Groundwater Monitoring Report December 2007

PROJECT NUMBER: 3076			DOCUMENT REF: DV01	
DV01	For submission to EPA	ROS / 13/12/07		
1.0		ROS/13/12/07	PC / 14/12/07	
Revision	**Description & Rationale**	**Originated/Date**	**Checked/Date**	**Authorised/Date**
		TOBIN Consulting Engineers		

TABLE OF CONTENTS

1 INTRODUCTION

1.1 BRIEF

TOBIN Consulting Engineers (hereafter TOBIN) was requested by Mr. Binman Ltd. (hereafter Mr. Binman) to undertake groundwater monitoring for compliance with Waste Licence No. 61-2, granted by the Environmental Protection Agency (EPA), for the Facility.

As specified in the licence, 1 no. groundwater monitoring borehole is located up-gradient (GW1) of the site and 1 no. monitoring borehole is located down-gradient (GW2).

This report presents details of both the methodologies employed and results obtained for the groundwater assessment carried out in November of 2007 for the Mr. Binman site.

1.2 SITE DESCRIPTION

The subject site is an EPA licenced waste recovery facility, located in Luddenmore, Grange, County Limerick. The site is located on the southern slopes of a hill forming part of the Limerick Volcanics, which sweeps down to a flat valley floor. Groundwater flows beneath the site in a generally South to South-East direction, as outlined in a hydrogeological report submitted to the Agency in February of 2004.

2 METHODOLOGY

2.1 SAMPLING

Groundwater samples were collected at the site on the 19th of November 2007 from the 2 no. specified groundwater monitoring wells, GW1 and GW2. Prior to sampling, a Wattera inertial lift pump and dedicated hosing was used to purge 3 no. well volumes from each groundwater monitoring well. When sampling liquid from each groundwater monitoring point a single pair of new disposable gloves was used and removed immediately after sampling was completed, and placed in a sealed bag for disposal. The groundwater samples were taken from each of the groundwater monitoring wells using dedicated Wattera hosing connected to an inertial lift pump, to minimise the risk of cross contamination. The sample containers were filled directly from the dedicated Waterra hosing. The bottles, without preservative, were rinsed three times with the sample water first and the plastic bottles were gently squeezed when screwing on the cap to raise the meniscus and ensure an air tight seal. Sampling bottles were supplied by the analytical laboratory (Alcontrol Geochem Ltd. in Dublin, a UKAS accredited laboratory). The samples were kept cool in insulated boxes with cool cells for transfer to laboratory. These samples were then couriered overnight and reached the laboratory in satisfactory condition.

2.2 ANALYSIS & RESULTS

Groundwater samples were analysed for the following parameters as specified in Table D.5, Schedule D of Waste Licence 61-2.

D.5 Groundwater Monitoring

Parameter	Monitoring Frequency	Analysis Method/Technique
pH	Biannually	Electrometry
Electrical Conductivity	Biannually	Standard Methods
Total Organic Carbon	Biannually	Standard Methods
Ammoniacal Nitrogen	Biannually	Standard Methods
Total Phosphorous	Biannually	Standard Methods
Total Nitrogen	Biannually	Standard Methods

The results of this analysis are presented in Table 2.1. The reported concentrations have been compared to the Drinking Water Standards for parameters set out in S.I. 439 of 2000. The Certificates of Analysis are contained in Appendix I of this report.

Table 2.1 Results of Analysis for samples collected on 19/11/2007

Parameter	Units	Drinking Water Standard	GW1	GW2
pH	pH Units	6.5-9.6	7.3	7.29
Electrical Conductivity	µS/cm	2,500	804	843
Total Organic Carbon	mg/l	-	5	2
Ammoniacal Nitrogen	mg/l	0.3	<0.2	<0.2
Total Phosphorous	mg/l	-	0.06	0.15
Total Nitrogen	mg/l	-	6	2

- = No Drinking Water Standard available

3 INTERPRETATION

None of the reported values exceed the corresponding drinking water values. In general, the results indicate that the groundwater quality is good.

The reported levels of pH and Ammoniacal Nitrogen are all similar for both up-gradient and down-gradient samples. The Total Organic Carbon and Total Nitrogen are higher up-gradient at GW1 (TOC is 5 mg/L and TN is 6 mg/L) than down-gradient, at GW2 (TOC is 2 mg/L and TN is 2 mg/L). Electrical Conductivity and Total Phosphorus are both slightly higher down-gradient, at GW2 (EC is 843 µS/cm and TP is 0.15mg/L) than up-gradient, at GW1 (EC is 804 µS/cm and TP is 0.06 mg/L).

The results obtained were also compared to the results from the previous monitoring period of 18/06/07 (see table 3.1).

Table 3.1 Results of Analysis for samples collected on 18/06/2007

Parameter	Units	Drinking Water Standard	GW1	GW2
pH	pH Units	6.5-9.6	7.8	7.84
Electrical Conductivity	µS/cm	2,500	657	796
Total Organic Carbon	mg/l	-	3	<2
Ammoniacal Nitrogen	mg/l	0.3	<0.2	<0.2
Total Phosphorous	mg/l	-	<0.05	0.12
Total Nitrogen	mg/l	-	9	3

- = No Drinking Water Standard available

The reported pH values are slightly lower than the previous monitoring event undertaken on 18/06/07 for both monitoring wells. GW1 decreased from 7.8 to 7.3 and GW2 decreased from 7.84 to 7.29. The Electrical Conductivity is higher than the previous monitoring event of 18/06/07. Previously, GW1 measured 657 µS/cm and is now 804 µS/cm. GW2 measured 796 µS/cm in the previous monitoring event and is now 843 µS/cm. The pH and EC values are typical of natural uncontaminated groundwater. The Total Organic Carbon is higher than the previous monitoring event for both GW1 (from 3 mg/l to 5 mg/l) and GW2 (from <2 mg/l to 2 mg/l). Ammoniacal Nitrogen is in similar to the previous event for both GW1 and GW2 samples, measuring below the level of detection of 0.2 mg/l in both instances. Total Phosphorus in GW1 is higher than the previous period where it measured below the level of detection of 0.05 mg/l and is now 0.06 mg/L. For GW2, the Total P is also slightly higher in this period (0.15 mg/l)

than the previous period (0.12 mg/l). Total Nitrogen has decreased in both GW1 (9 mg/L to 6 mg/L) and GW2 (3 mg/L to 2 mg/L).

4 CONCLUSIONS

All of the reported values are within the Parametric Values set out in the Drinking Water Standards (S.I. 439 of 2000). There is no significant change in the December 2007 and the June 2007 samples and therefore the results indicate that the Mr. Binman facility is not adversely impacting on the groundwater quality in the area.

APPENDIX 1

Certificates of Analysis

TOBIN
Patrick J. Tobin & Co. Ltd.

NATIONAL NETWORK

Galway
Fairgreen House,
Fairgreen Road,
Galway.
Ph +353 (0)91 565211
Fax +353 (0)91 565398
E-mail galway@tobin.ie

Dublin
Block 10-3,
Blanchardstown Corporate Park,
Dublin 15.
Ph +353 (0)1 803 0406
Fax +353 (0)1 803 0409
E-mail dublin@tobin.ie

Cork
Northpoint House,
New Mallow Road,
Cork.
Ph +353 (0)21 4308 624
Fax +353 (0)21 4308 625
E-mail cork@tobin.ie

Limerick
Bedford Place,
Howley's Quay,
Lower Shannon Street,
Limerick.
Ph +353 (0)61 415 757
Fax +353 (0)61 409 378
E-mail limerick@tobin.ie

Castlebar
Market Square,
Castlebar,
Co. Mayo.
Ph +353 (0)94 902 1401
Fax +353 (0)94 902 1534
E-mail castlebar@tobin.ie

Dundalk
Eimear Court,
Market Square,
Dundalk,
Co. Louth.
Ph +353 (0)42 933 5107
Fax +353 (0)42 933 1715
E-mail dundalk@tobin.ie

Inspector Pól Ó Seasnain
EPA Regional Office
Inniscarra
Co. Cork

07/03/2007

Re: Mr. Binman Groundwater Monitoring
Licence W0061-02

Dear Pól

I am writing to you in response to the analyses received by Mr. Binman Ltd. on the 7th of March 2007. These water samples were collected by the EPA on 16/01/2007 and TOBIN Consulting Engineers have been asked to comment on the results of the analyses received.

The Mr. Binman site comprises a fully EPA licensed waste recovery facility (no. W0061-2) located in Luddenmore, Grange, County Limerick. It operates a private waste transfer station and recycling centre and offers waste collection and recycling services for households, businesses and industries. The site is located on the southern slopes of a hill forming part of the Limerick Volcanics, which sweeps down to a flat valley floor.

Table D.5, Schedule D of Waste Licence W0061-2 identifies the following parameters and the frequency with which they must be monitored in groundwater.

D.5 Groundwater Monitoring

Parameter	Monitoring Frequency	Analysis Method/Technique
PH	Biannually	Electrometry
Electrical Conductivity	Biannually	Standard Methods
Total Organic Carbon	Biannually	Standard Methods
Ammoniacal Nitrogen	Biannually	Standard Methods
Total Phosphorous	Biannually	Standard Methods
Total Nitrogen	Biannually	Standard Methods

This is the sixth dataset collected by the EPA at the facility. The latest round of monitoring is compared to the EPA datasets taken on 12/10/2004, 02/03/2005, 13/09/2005, 14/03/2006 and 30/11/2006. We are not in a position to compare previous monitoring data where the values recorded for the parameters are not included in the above table. A summary of the EPA groundwater monitoring data to date is included in Table 1 attached and compared with the MACs in S.I. 294 of 1989 (Quality of surface water intended for abstraction of drinking water) and the Parametric Values in S.I. 439 of 2000 (Drinking Water Regulations).

Overall, the values for each parameter listed in Table 1 below are within the corresponding statutory limits set in S.I. 294 of 1989 and S.I. 439 of 2000, with the exception of Ammonia sampled from GW2 on 16/01/2007.

GW1- Up-gradient

The pH is consistent with all previous monitoring events. The Conductivity measured by the EPA is lower than the previous monitoring events but higher than the event of 12/10/2004. The level of Ammonia is generally in line with the previous monitoring events. Total Phosphorus is consistent with the three previous monitoring events but lower than the event of 12/10/2004 and 02/03/2005. Fluoride is consistent with all previous monitoring events. Total Nitrogen is higher than all the previous monitoring events. The level of Chloride is generally in line with all previous monitoring events. Nitrate is comparable to the event of 12/10/2004 but lower than the event of 20/09/2006. Sulphate is higher than all the previous monitoring events except for 20/09/2006 which was measured at 84.7 mg/L. Sodium, Magnesium, Potassium and Calcium are all slightly lower than the three previous monitoring events. Total Organic Carbon (TOC) is lower than the events of 20/09/2006 and 14/03/2006 but comparable to the event of 12/10/2004. The Total Alkalinity is consistent with all the previous monitoring events. Total Hardness is lower than all the previous monitoring events. The K:Na Ratio is lower than all the other monitoring events.

GW2- Down-gradient

The pH is consistent with all previous monitoring events. The Conductivity measured by the EPA is generally in line with the previous monitoring events. The level of Ammonia is higher than all the previous monitoring events and above the S.I. 439 of 2000 Parametric Value of 0.30 mg/L. Total Phosphorus and Fluoride are consistent with the previous monitoring events. Total Nitrogen is higher than all the previous monitoring events. The level of Chloride is generally in line with the other previous monitoring events. Nitrate is comparable to the previous monitoring event of 20/09/2006 but lower than the sampling event on 12/10/2004. Sulphate is in line with the monitoring events of 20/09/2006 and 12/10/2004 but higher than the two monitoring events of 02/03/2005 and 13/09/2005. Sodium, Magnesium and Potassium are all in line with the previous monitoring events. The Calcium level is lower than all the previous monitoring events. Total Organic Carbon (TOC) and Total Alkalinity are in line with the previous monitoring events. Total Hardness is slightly lower than the previous monitoring events. The K:Na Ratio is in line with other monitoring events.

As previously outlined, we do not have any concerns at present, regarding the groundwater quality at the site and believe that there is no appreciable difference between the up-gradient and down-gradient groundwater quality. This indicates that the facility is not having an impact on the groundwater.

Please do not hesitate to contact me should you have any query regarding the above.

Yours Sincerely,

Renée O'Shea B.E.Sc. M.E.Sc.
Environmental Engineer

Table 1: Groundwater Chemistry

Parameters	SI 294 of 1989 (Quality of surface water intended for abstraction of drinking water) MACs	SI 439 of 2000 (Drinking Water Regulations) Parametric Values	Units	GW1						GW2					
				12/10/2004	02/03/2005	13/09/2005	14/03/2006	20/09/2006	16/01/2007	12/10/2004	02/03/2005	13/09/2005	14/03/2006	20/09/2006	16/01/2007
LAB RESULTS															
pH	≥5.5 and ≤8.5	≥6.5 and ≤9.6	units	7.78	7.51	7.01	-	7.42	7.61	7.42	7.65	7.28	-	7.14	7.46
Electrical conductivity EC	1,000	2,500	µS/cm @ 20 C	491.00	860.00	808.00	924.00	865.00	624.00	800.00	702.00	728.00	756.00	828.00	765.00
Ammonia	0.16	0.30	mg/l	<0.2	<0.03	0.11		0.056	0.092	<0.2	<0.03	0.156		<0.02	***3.29***
Total Phosphorous	-	-	mg/l	1.37	0.83	<0.20	0.26	0.22	0.46	0.26	0.50	1.02	<0.2	<0.2	<0.20
Fluoride (F)	1	1	mg/l	0.14	<5.0	<0.10	-	<0.10	0.12	<0.1	<5.0	<0.10		<0.1	0.13
Total Nitrogen	-	-	mg/l	6.91	20.00	17.00	12.10	15	41.9	4.38	2.46	15.30	2.05	9.2	20.3
Chloride	250	250	mg/l	18.20	36.60	41.70	-	59.3	30.7	40.90	42.60	28.00	-	45.9	41.0
Bromide	-	-	mg/l	-	<5.0	<5.0	-	<5.0		-	<5.0	*<5.0*	-	<5.0	-
Nitrate	50	50	mg/l	25.70	-	-	-	***50.8***	30.5	19.10	-	-	-	9.2	7.79
Sulphate	200	250	mg/l	12.90	14.90	31.80	-	84.7	47.5	31.10	15.80	14.50	-	38.1	33.0
Sodium		200	mg/l	-	21.70	20.90	-	25.8	15.4	-	19.00	18.70	-	24.9	19.5
Magnesium	-	-	mg/l	-	15.10	10.30	-	15	8.75	-	9.81	11.90	-	10.9	9.28
Potassium	-	-	mg/l	-	0.92	1.43	-	1.06	0.36	-	1.21	0.97	-	1.34	1.11
Calcium		200	mg/l	-	145.00	142.00	-	131	76.5	-	124.00	156.80	-	123.2	107
Total Organic Carbon (TOC)	-	-	mg/l	4.04	-	-	16.20	11.4	4.75	2.10	-		2.18	4.38	3.53
Total alkalinity (as $CaCO_3$)	-	-	mg/l	191.00	310.00	328.00	-	232.00	250.00	308.00	285.00	260.00	-	327.00	291.00
Total Hardness (Calc)	-	-	mg/l	-	424.00	397.00	-	390.00	227.00	-	352.00	441.00	-	353.00	305.00
K:Na Ratio	-	-	Unitless	-	0.04	0.07	-	0.04	0.02	-	0.06	0.05	-	0.05	0.05

Our Ref: ***3076-02-06/JS***

12th June 2008

Inspector Pól Ó Seasnain
EPA Regional Office
Inniscarra
Co. Cork

Attn of: Inspector Pól Ó Seasnain

RE: Mr. Binman Groundwater Monitoring (Licence No. W0061-02 (Formerly 61-2))

Dear Pól,

I am writing to you in response to the analyses received by Mr. Binman Ltd. on the 6th of February 2008. These water samples were collected by the EPA on 17/10/2007 and TOBIN Consulting Engineers have been asked to comment on the results of the analyses received.

The Mr. Binman site comprises a fully EPA licensed waste recovery facility (Licence No. W0061-02) located in Luddenmore, Grange, County Limerick. It operates a private waste transfer station and recycling centre and offers waste collection and recycling services for households, businesses and industries. The site is located on the southern slopes of a hill forming part of the Limerick Volcanics, which sweeps down to a flat valley floor.

Table D.5, Schedule D of Waste Licence W0061-02 identifies the following parameters and the frequency with which they must be monitored in groundwater.

D.5 Groundwater Monitoring

Parameter	Monitoring Frequency	Analysis Method/Technique
PH	Biannually	Electrometry
Electrical Conductivity	Biannually	Standard Methods
Total Organic Carbon	Biannually	Standard Methods
Ammoniacal Nitrogen	Biannually	Standard Methods
Total Phosphorous	Biannually	Standard Methods
Total Nitrogen	Biannually	Standard Methods

This is the 8th dataset taken by the EPA at the facility. The latest round of monitoring is compared to the EPA datasets taken on 12/10/2004, 02/03/2005, 13/09/2005, 14/03/2006, 30/11/2006, 16/01/2007 and 01/08/2007. We are not in a position to compare previous monitoring data where the values recorded for the parameters are not included in the above table. A summary of the EPA groundwater monitoring data to date is included in Table 1 attached and compared with the MACs in S.I. 294 of 1989 (Quality of surface water intended for abstraction of drinking water) and the Parametric Values in S.I. 439 of 2000 (Drinking Water Regulations).

Overall, the values for each parameter listed in Table 1 below are within the corresponding statutory limits set in S.I. 294 of 1989 and S.I. 439 of 2000.

GW1- Up-gradient

The pH (7.27) is consistent with all previous monitoring events. The Conductivity (734 µS/cm) measured by the EPA is in line with previous monitoring events. The level of Ammonia (0.03mg/L) is below the level of detection and is generally lower than the previous monitoring events. The Total Phosphorus is below the level of detection of 0.2 mg/L and is consistent with the last monitoring event but lower than the events of 16/01/2007, 20/09/2007 and 14/03/2007. Fluoride (<0.1 mg/L) is consistent with previous monitoring events. Total Nitrogen (4.13 mg/L) is lower than the previous monitoring events except for the event of 13/09/2005. The level of Chloride (20.3 mg/L) is slightly higher than the last monitoring event but in general lower than all previous monitoring events. Nitrate (15.9 mg/L) is lower than all previous monitoring events and below the S.I. 439 of 2000 Parametric Value. Sulphate (64.3 mg/L) is higher than all previous monitoring events except for that of the 20/09/2006 but is well below the S.I. 439 of 2000 Parametric Value of 250 mg/L. Sodium (19.5 mgL), Magnesium (11.4 mg/L) and Potassium (0.53 mg/L) are all generally in line with previous monitoring events. Calcium (102 mg/L) levels are slightly higher than the previous monitoring events. Total Organic Carbon (TOC) (5.67 mg/L) is higher than the event of 01/08/2007 but lower than the events of 20/09/2006 and 14/03/2006. The Total Alkalinity (297 mg/L) is higher than the previous three monitoring events but lower than the monitoring events of 13/09/2005 and 02/03/2005. Total Hardness (302 mg/L) is higher than the previous two monitoring events but lower than all other monitoring events.

GW2- Down-gradient

The pH (7.05) is consistent with all previous monitoring events. The Conductivity (838 µS/cm) measured by the EPA is consistent with all previous monitoring events. The level of Ammonia (0.046 mg/L) is higher than that measured 01/08/2007 but well below the value measured on the 16/01/2007. Total Phosphorus (<0.2 mg/L) and Fluoride (0.12 mg/L are consistent with previous monitoring events. Total Nitrogen (1.36 mg/L) is slightly higher than the previous monitoring event (01/08/2007) but is well below all other previous monitoring events. The level of Chloride (42.9 mg/L) is lower when compared to the previous monitoring event of 01/08/2007, but is generally in line with the other previous monitoring events. Nitrate (6.37 mg/L) is higher than the previous monitoring event on 01/08/2007 but lower than all other previous monitoring events and well below the S.I. 439 of 2000 Parametric Value of 50 mg/L. Sulphate (43.5 mg/L) is higher than all previous monitoring events but is still well below the S.I. 439 of 2000 Parametric Value of 250 mg/L. Sodium (22.5 mg/L), Magnesium (9.46 mg/L), Potassium (1.2 mg/L) and Calcium (110 mg/L) are all in line with the previous monitoring events. Total Organic Carbon (TOC) (3.52 mg/L) is lower than the last monitoring event but generally in line with the previous monitoring events. The Alkalinity (358 mg/L) is slightly higher than the previous monitoring events. Hardness (314 mg/L) is lower than all previous monitoring events except 16/01/2007.

The results for GW2, downgradient of the site show an overall higher level of mineralisation than the upgradient results from GW1. This means that electrical conductivity is higher and the ions

Chloride and Calcium are present in greater concentration in the downgradient well. While this is consistent with the monitoring results of the 7th dataset collected by the EPA it is not consistent across the historical records therefore it may reflect natural fluctuations in groundwater quality in the vicinity of the monitoring wells.

The site is operating within the requirements of the licence and based on the above results, it does not appear to be having an impact on groundwater quality.

Please do not hesitate to contact me should you have any query regarding the above.

Yours Sincerely,

Yours faithfully,

_____
Jennifer Smyth B.Sc(Hons) M.Sc
Environmental Scientist

Encl Table 1 – Groundwater Chemistry

Our Ref: ***3076-02-06/JS***

12th June 2008

Inspector Pól Ó Seasnain
EPA Regional Office
Inniscarra
Co. Cork

Attn of: Inspector Pól Ó Seasnain

RE: Mr. Binman Groundwater Monitoring (Licence No. W0061-02 (Formerly 61-2))

Dear Pól,

I am writing to you in response to the analyses received by Mr. Binman Ltd. on the 6th of February 2008. These water samples were collected by the EPA on 17/12/2007 and TOBIN Consulting Engineers have been asked to comment on the results of the analyses received.

The Mr. Binman site comprises a fully EPA licensed waste recovery facility (Licence No. W0061-02) located in Luddenmore, Grange, County Limerick. It operates a private waste transfer station and recycling centre and offers waste collection and recycling services for households, businesses and industries. The site is located on the southern slopes of a hill forming part of the Limerick Volcanics, which sweeps down to a flat valley floor.

Table D.5, Schedule D of Waste Licence W0061-02 identifies the following parameters and the frequency with which they must be monitored in groundwater.

D.5 Groundwater Monitoring

Parameter	Monitoring Frequency	Analysis Method/Technique
PH	Biannually	Electrometry
Electrical Conductivity	Biannually	Standard Methods
Total Organic Carbon	Biannually	Standard Methods
Ammoniacal Nitrogen	Biannually	Standard Methods
Total Phosphorous	Biannually	Standard Methods
Total Nitrogen	Biannually	Standard Methods

This is the ninth datasets taken by the EPA at the facility. The latest round of monitoring is compared to the EPA datasets taken on 12/10/2004, 02/03/2005, 13/09/2005, 14/03/2006, 30/11/2006, 16/01/2007, 01/08/2007 and 17/10/2007. We are not in a position to compare previous monitoring data where the values recorded for the parameters are not included in the above table. A summary of the EPA groundwater monitoring data to date is included in Table 1 attached and compared with the MACs in S.I. 294 of 1989 (Quality of surface water intended for abstraction of drinking water) and the Parametric Values in S.I. 439 of 2000 (Drinking Water Regulations).

Overall, the values for each parameter listed in Table 1 below are within the corresponding statutory limits set in S.I. 294 of 1989 and S.I. 439 of 2000.

GW1- Up-gradient

The pH (7.51) is consistent with all previous monitoring events. The Conductivity (613 µS/cm) is lower than the previous monitoring event of 17/10/2007 but is in line with the monitoring events of 01/08/2007 and 16/01/2007. The level of Ammonia (0.059mg/L) is higher than the previous monitoring event 17/10/2207 but is well below the S.I. 439 of 2000 Parametric Value of 0.3 mg/L. The Total Phosphorus is below the level of detection of 0.2 mg/L and is generally in line with the last few monitoring events. Fluoride (0.11 mg/L) is consistent with previous monitoring events. Total Nitrogen (5.45 mg/L) is higher than the previous monitoring event 17/10/2007 but in general lower than other previous monitoring events. The level of Chloride (20.5 mg/L) is slightly higher than the last two monitoring events but in general lower than all other previous monitoring events. Nitrate (22.1 mg/L) is higher than the previous monitoring event of 17/10/2007 but lower than all other previous monitoring events and below the S.I. 439 of 2000 Parametric Value. Sulphate (30 mg/L) is generally lower than other previous monitoring events and is well below the S.I. 439 of 2000 Parametric Value of 250 mg/L. Sodium (17 mg/L), Magnesium (8.15 mg/L), and Potassium (0.6 mg/L) are all generally in line with previous monitoring events. Calcium (48.7 mg/L) levels are lower than all other previous monitoring events. Total Organic Carbon (TOC) (4.7 mg/L) is in general lower or in line with all other previous monitoring events. The Total Alkalinity (239 mg/L) generally in line with all other monitoring events. Total Hardness (155 mg/L) is lower than all other previous monitoring events.

GW2- Down-gradient

The pH (7.35) is consistent with all previous monitoring events. The Conductivity (857 µS/cm) is consistent with all previous monitoring events. The level of Ammonia (<0.02 mg/L) is below the level of detection and lower than that measured on all previous monitoring events. Total Phosphorus (<0.2 mg/L) and Fluoride (0.11 mg/L) are consistent with previous monitoring events. Total Nitrogen (1.44 mg/L) is slightly higher than the last two previous monitoring events (17/10/2007 and 01/08/2007) but is well below all other previous monitoring events. The level of Chloride (45.9 mg/L) is generally in line with the other previous monitoring events except for 13/09/2005. Nitrate (5.36 mg/L) is generally lower than all other previous monitoring events but is well below the S.I. 439 of 2000 Parametric Value of 50 mg/L. Sulphate (41.3 mg/L) is in line with the last three monitoring events but higher than all previous monitoring events. However, is still well below the S.I. 439 of 2000 Parametric Value of 250 mg/L.. Sodium (21.8 mg/L) is in line with the previous monitoring events. Magnesium (15.2 mg/L) and Potassium (2.25 mg/L) are higher than all previous monitoring events. Calcium (83 mg/L) is lower than all previous monitoring events. Total Organic Carbon (TOC) (5.83 mg/L) is higher than all previous monitoring events. The Alkalinity (270 mg/L) is lower than all previous monitoring events except for 13/09/2005. Hardness (270 mg/L) is lower than all previous monitoring events.

The results for GW2, downgradient of the site show an overall higher level of mineralisation than the upgradient results from GW1. This means that electrical conductivity is higher and the ions Chloride and Calcium are present in greater concentration in the downgradient well. This is consistent with both the 7th and 8th dataset of monitoring results collected by the EPA.

As previously outlined, overall the site is operating within the requirements of the licence and based on the above results, it does not appear to be having an impact on groundwater quality.

Please do not hesitate to contact me should you have any query regarding the above.

Yours Sincerely,

_____

Jennifer Smyth B.Sc(Hons) M.Sc
Environmental Scientist

Encl Table 1 – Groundwater Chemistry

Attachment I.6

Noise Impact Assessment

Reference Attachment E.5 for the latest Noise Monitoring Report which includes an assessment of the impact of the facility.