THE DEPARTMENT OF
AGRICULTURE, FISHERIES & FOOD
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CONDITIONS FOR APPROVAL AND OPERATION OF COMPOSTING AND BIOGAS PLANTS TREATING ANIMAL BY-PRODUCTS IN IRELAND

DRAFT

REGULATION (EC) No. 1774/2002
laying down health rules concerning animal by-products not intended for human consumption.

Enforced By

ANIMAL BY-PRODUCTS REGULATIONS S.I. 612 of 2006 and S.I. 615 of 2006

DAFF Animal By-Products Division
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1. INTRODUCTION

Regulation (EC) No. 1774/2002 of the European Parliament and of the Council of 3 October 2002 lays down health rules concerning animal by-products not intended for human consumption. This regulation defines animal by-products as " *entire bodies or parts of animals or products of animal origin… not intended for human consumption*".

S.I. 612 of 2006 (European Communities (Transmissable Spongiform Encephalopathies and Animal By-Products) Regulations 2006, transposes EU Reg. 1774/2002 into Irish law.

S.I. 615 of 2006 (Diseases of Animals Act 1966 (Transmissable Spongiform Encephalopathies) (Fertilisers and Soil improvers) Order 2006 lays down national rules for organic fertilisers and soil improvers.

The purpose of the legislation is to safeguard human and animal health by providing controls for the safe disposal of animal by-products.

Under the Regulation

- A **composting plant** is defined as *"a plant in which biological degradation of products of animal origin is undertaken under aerobic conditions"*

- A **biogas plant** is defined as *"a plant in which biological degradation of products of animal origin is undertaken under anaerobic conditions for the production and collection of biogas"*.

Article 15 of Regulation (EC) No. 1774/2002 requires that biogas plants and composting plants shall be subject to veterinary approval by the competent authority. Under Regulation 10 of S.I 612 of 2006, which implements the above Regulation, the Minister for Agriculture, Fisheries and Food may grant an approval, attach conditions to an approval, revoke or vary a condition, withdraw an approval or refuse an application.

The objective of the composting/biogas legislation is to ensure that all products of animal origin which are treated by biogas digestion or composting must meet the treatment standards required by Regulation (EC) No. 1774/2002 to ensure sufficient pathogen reduction so that the treated material may be safely applied to land.

New sites at the design and planning stages should submit site plans and details to this Department, in order to ensure that plant design and processing procedures are in accordance with the regulations, and that potential problems may be identified and rectified prior to capital expenditure.

2. CATEGORISATION OF ANIMAL BY-PRODUCTS

Under Regulation (EC) No. 1774/2002, animal by-products are categorised in 3 distinct categories:

- **Category 1**
- **Category 2**
- **Category 3**

Category 1 Material includes the following material:

- BSE carcases and suspects
- Specified Risk Material
- Catering waste from international transport

This material must be destroyed in accordance with Regulation (EC) No. 1774/2002 and is completely banned from use as feedstock in composting and biogas plants.

However, resulting materials from the processing of Category 1 material may be transformed in a biogas plant, provided that the processing was done pursuant to an alternative method approved in accordance with Article 4(2)(e) of Regulation (EC) No. 1774/2002. The biogas production must be part of that alternative method, and the resulting material must be disposed of in accordance with the conditions laid down for the alternative method.

Category 2 Material includes the following material:

- Manure
- Digestive tract content separated from the digestive tract
- Milk and colostrums

Category 3 Material includes:

- Catering waste – which is defined as ‘ *all waste food including used cooking oil originating in restaurants, catering facilities and kitchens, including central kitchens and household kitchens.’*
- Former foodstuffs of animal origin, or former foodstuffs containing products of animal origin, other than catering waste, which are no longer intended for human consumption for commercial reasons or due to problems of manufacturing or packaging defects or other defects, which do not present any risk to humans or animals.
- Parts of slaughtered animals, which are fit for human consumption but are not intended for human consumption for commercial reasons.
- Parts of animals, which are rejected as unfit for human consumption but are not affected by any signs of diseases communicable to humans or animals and derive from carcasses that are fit for human consumption.
- Fish or other sea animals, except sea mammals, caught in the open sea for the purposes of fishmeal production.
- Fresh by-products from fish from plants manufacturing fish products for human consumption.
- Raw milk originating from animals that do not show clinical signs of any disease communicable to humans or animals through the milk.
- Shells, hatchery by-products and cracked egg by-products originating from animals which did not show clinical signs of any disease communicable through that product to humans or animals.

3. FEEDSTOCK

As part of the approval process, an application for a compost/biogas facility must list all intended feedstock and its animal by-product classification, and the sources of these materials. The processing parameters adopted and approved in a particular plant will determine the type of animal by-product that may be processed in the plant.

The following animal by-product materials may be used as feedstock in a biogas or composting plant in Ireland;

- **Category 2 Material** comprising the following:
  - Manure
  - Digestive tract content separated from the digestive tract,

- **Category 3 Material** comprising the following:
  - Catering waste
  - Former foodstuffs
  - Fresh by-products from fish from plants manufacturing fish products for human consumption

End-use criteria for different categories of material as well as processing parameter requirements will generally determine for operators what material is used as feedstock in a biogas/ composting plant.

The Department of Agriculture, Fisheries and Food must be notified in writing and at least 2 weeks in advance, of any intended changes to animal by-product feedstock type.

4. PREMISES

4.1. Location

The following controls are required for composting and biogas plants that are involved in the treatment of animal by-products:

- If a composting/biogas plant is located on premises where farmed animals are kept and does not only use manure which accrues from those animals, the plant shall be located at an adequate distance from the area where such animals are kept and there must, in any case, be total physical separation between that plant and those animals and their feed and bedding, with fencing where necessary. Approval of such sites will be risk-based and will be subject to stringent conditions regarding dedication of both personnel and equipment.
- The facility must be surrounded on all sides by permanent and effective animal-proof fencing. Details of suitable fencing are included in Appendix 1.
- A lockable gate of minimum height of 1.8 m must be present at the entrance to the facility.
- In order to prevent the possibility of contact with farm animals either directly or indirectly (via vermin, birds etc), all initial processing of raw material must be carried out indoors.

4.2. Equipment – Composting Plant

A composting plant must be equipped with:

(a) a closed composting reactor, which cannot be by-passed, with:

(i) installations for monitoring temperature against time;

(ii) recording devices to record, where appropriate continuously, the results of the monitoring measurements referred to in (i); and

(iii) an adequate safety system to prevent insufficient heating;

However, other types of composting systems may be allowed provided they:

(i) ensure adequate measures to control vermin;

(ii) are managed in such a way that all the material in the system achieves the required time and temperature parameters, including, where appropriate, continuous monitoring of the parameters;

(iii) comply with all other requirements of Regulation (EC) No. 1774/2002.

In practice, in the absence of a closed composting reactor, it will be very difficult to provide and demonstrate adequate safeguards to DAFF either to achieve sanitisation of the feedstock or to prevent potential access by vermin and birds to the raw material. However, other types of composting systems may be approved by DAFF provided the systems are managed in such a way that all of the material in the system achieves the required time, temperature and particle size parameters, including, where appropriate, continuous monitoring of the parameters.

4.3. Equipment – Biogas Plant

A biogas plant must be equipped with:

(a) A pasteurisation/ hygienisation unit, which cannot be by-passed, with:

(i) installations for monitoring temperature against time;

(ii) recording devices to record continuously the results of the monitoring measurements referred to in (i); and

(iii) an adequate safety system to prevent insufficient heating;

(b) However, a pasteurisation/hygienisation unit shall not be mandatory for biogas plants that transform only:

(i) animal by-products that have undergone processing Method 1[1] or one of the approved alternative processing methods;

(ii) Category 3 material that has undergone pasteurisation/ hygienisation elsewhere; or

(iii) animal by-products which may be used as raw material without processing.

[1] Method 1 processing method refers to processing at 133 ^{o}C for at least 20 minutes at 3 bar pressure, at a particle size of 50mm or less.

4.4. Laboratory Requirements

Each biogas plant and composting plant must have its own laboratory or make use of an external laboratory. The laboratory must be equipped to carry out the necessary analyses and approved by the competent authority. A list of laboratories approved by the Department of Agriculture, Fisheries and Food for microbiological testing is attached in Appendix 4.

4.5. Waste Permit/ Licence

Applicants seeking approval to treat animal by-products in biogas or composting plants under S.I. 612 of 2006 must also apply for a separate waste permit/licence from and be compliant with all of the local authority/EPA requirements.

A facility must maintain all permits, licences and approvals attached to it in good standing. Failure to maintain any one of these authorisations may lead to the DAFF authorisation being revoked and the facility may no longer be entitled to accept or process animal by-products approved for that facility.

4.6. Mechanical Biological Treatment Plants (MBT)

Mechanical Biological Treatment Plants are mixed waste treatment facilities, which generally seek to stabilise biodegradable material prior to landfill.

If an MBT plant is treating the waste material to remove recyclables prior to landfill or incineration of residual waste only, they will not come under the scope of the Animal By-products Regulation.

The animal by-product legislation will only apply to MBT plants if the animal by-product material undergoes a composting or anaerobic digestion (AD) process for greater than 48 hours and/or if they are composting or digesting animal by-product material for subsequent land application or landfill cover. Consequently such plants must be approved by DAFF and must meet all of the approval conditions for composting plants.

The Department's position regarding MBT plants will be kept under review. If it becomes apparent that these facilities pose a risk to animal health, then the current position will change.

5. HYGIENE REQUIREMENTS

The premises should be separated into distinct 'clean' and 'dirty' areas. All unprocessed material must enter the plant via the dirty area. The processed material must be stored in the clean area prior to being taken off the premises. Dirty material must not be allowed to contaminate clean material. As well as the separation of distinct areas, this will also mean that machinery and/or equipment used in the dirty area must not be used in the clean area, nor should staff go from the dirty area into the clean area without complying with the Standard Operating Procedures documented in the plants own HACCP document. Premises should operate on a simple one-way flow basis i.e. material flows from the dirty area to the clean area and then will be discharged from site for use or disposal.

The following specific hygiene measures are required:

- Animal by-products approved for the facility must be transformed as soon as possible after arrival, and in any event within 24 hours of arrival at the plant. They must be stored properly until treated.

- Containers, receptacles and vehicles used for transporting untreated material must be cleaned and disinfected in a designated area. This area must be situated or designed to prevent risk of contamination of treated products.
  In the case of vehicles transporting only untreated catering waste and not subsequently transporting treated material, only the wheels of the vehicle need be cleaned and disinfected as well as external surfaces and any gross external contamination of the vehicle. However, any vehicle which delivers other animal by-products, or any vehicle which is used for transporting any treated material off-site, must be thoroughly cleansed and disinfected, or steam-cleaned both internally and externally. Where disinfectant is used, a disinfectant from the list of Department of Agriculture, Fisheries and Food approved disinfectants should be used. (Appendix 2). Up to date versions of this list are available on the Department of Agriculture, Fisheries and Food website.

- Preventive measures must be taken against birds; rodents, insects or other vermin. A fully documented pest-control programme must be implemented throughout the whole facility. The plant operator may choose to employ a pest control firm, or may choose to use their own preventative measures. In both situations, there must be no evidence that rats or other vermin and birds have access to the plant. The operator must also be able to demonstrate that effective pest control measures are taken on an ongoing basis and at regular intervals. If an external agency is employed, at least eight visits per annum with approximately six-week intervals between visits must be made. The control programme must be demonstrated to work on the ground. A baiting point plan must be kept on site. Results of inspections carried out on bait points as well as corrective actions taken must be recorded and signed off.

- There must be a covered area for the receipt of the animal by-product.

- All initial processing of raw material (shredding, screening and mixing) must be done indoors. This dirty area must be constructed with smooth walls and floors. Floors must be designed and laid in a such a way to ensure adequate drainage of fluids and ease of cleaning and disinfection.

- In the case of a facility where raw material is being transported outdoors from the dirty area to the treatment/ hygienisation unit, this must be done using a closed leak-proof container.

- In the case of a facility where material is taken in and processed in the same building, the clean and unclean areas should be physically separated by a wall or some such substantial physical barrier, to prevent raw/untreated material or effluent contaminating treated material in the clean end. Suitable operating procedures must also be in place and documented in their HACCP programme to ensure that the separation is observed.

- In cases where raw material and processed material are being transported around a facility, separate machines and equipment must be used.

- Cleaning and disinfection procedures and their frequency must be documented and established for all parts of the premises. Suitable equipment and cleaning agents must be provided for cleaning. Cleaning measures must be effective and thorough in everyday practice.

- As part of a daily clean-up routine, steam- cleaning to remove all visible material may be used in place of disinfectants. Pressure-washing with cold water is not considered an acceptable alternative to disinfection and/or steam-cleaning. However, in the case of a non-compliance being highlighted during sampling of processed product, the plant must be thoroughly cleaned and disinfected under the supervision of the Department of Agriculture, Fisheries and Food. The operator will need to demonstrate that adequate disinfection facilities are always available and that the plant can be thoroughly disinfected, as and when it is required.

- Hygiene control measures must include regular inspections of the environment and equipment. Inspection schedules and results must be documented. Visual inspections of the environment and equipment must be made both daily and weekly and all results and corrective actions taken must be recorded and signed off. The plant's HACCP plan will set out frequency of monitoring and inspection for identified control points.

- Installations and equipment must be kept in a good state of repair and measuring equipment must be calibrated at regular intervals. An appropriate, competent independent agency must calibrate and certify measuring devices for time/ temperature/particle size parameters regularly and at least once every 3 months. Temperature probes must be calibrated to ISO standards.

- Digestion residues and processed compost must be handled and stored at the plant in such a way as to prevent recontamination at any time. Once compost/digestion residue has reached the appropriate time/temperature parameters it may be stored outdoors for maturation purposes. It must be stored away from the intake area in the clean area and operators must ensure that a one-way system of material flow is in operation at the site, in order to prevent recontamination of processed products at any time.

- The clean area must only contain material that has been treated in accordance with the Regulations. Separation must be maintained at all times. In the event that any treated material becomes contaminated with material from the unclean area or fails microbiological testing, it, along with all in-contact material must be re-processed, or disposed of in accordance with the Regulations. The clean area must be thoroughly cleansed and disinfected/steam-cleaned. This procedure must be documented and signed off on by the plant operative responsible.

- During the application process, the operator must provide DAFF with copies of Standard Operating Procedures (SOPs) which will form part of their HACCP programme for their premises in relation to cleaning and hygiene procedures. Cleaning and hygiene procedures and checks must be documented.

6. PROCESSING/ TREATMENT STANDARDS

6.1. Biogas plants

EU Standard:

Animal by-products used as raw material in a biogas plant must be submitted to the following minimum requirements:

- **Maximum particle size before entering the unit: 12 mm;**
- **Minimum temperature in all material in the unit: 70 °C; and**
- **Minimum time in the unit without interruption: 60 minutes.**

6.2. Composting plants

EU Standard:

Animal by-products used as raw material in a composting plant must be submitted to the following minimum requirements:

- **Maximum particle size before entering the composting reactor: 12 mm**
- **Minimum temperature in all material in the reactor: 70 °C; and**
- **Minimum time in the reactor at 70 °C (all material): 60 continuous minutes.**

6.3. National processing standards for catering waste alone or if mixed with manure and/or digestive tract content separated from the digestive tract provided that the resulting material is considered as if it were from catering waste

The Department of Agriculture, Fisheries and Food has approved the following composting /biogas processing parameter conditions as a national standard for this category of waste. The following minimum requirements must be met:

- **Maximum particle size before entering the unit: 400 mm;**
- **Minimum temperature in all material in the unit: 60 °C; and**
- **Minimum time in the unit: 48 continuous hours.**

These processing parameters must be met twice, i.e. a twin barrier method.

- The standard comprises two separate stages. The first stage must take place in a closed reactor at a temperature of 60 degrees celcius for 48 continuous hours with a maximum particle size of 400 mm.
- The second stage must achieve time, temperature and particle size parameters similar to the first stage.
- Processing parameters must be automatically recorded on a thermograph in both stages.Material should be mixed thoroughly between processing stages. We would normally expect that the second stage would take place in a separate and distinct vessel/area (i.e the catering waste is treated in one vessel, then moved to a second vessel for the second stage.) However, some systems where the material is mixed may be able to achieve both stages in a single vessel. It would need to be clearly demonstrated to DAFF that the material within such a vessel achieves the two time/temperature treatment stages separately, and that mixing of

material should occur between the first and second stage.(e.g. by an auger or other turning device.) Cross contamination should not occur between the first and second stage materials.

Note that the introduction of national treatment standards for catering waste does not mean that catering waste must be treated only to the national standard. It may also be treated to the EU standard in the same manner as other category 3 animal by-products. Alternatively, processing as outlined in section 6.4 can apply to this category of waste also.

6.4. Alternative processing conditions for Category 3 material and/or Category 2 manure which will be placed on the market

The Department of Agriculture, Fisheries and Food may authorise the use of other standardised processing parameters (alternative processing systems) for processing animal by-products, provided the applicant demonstrates that such parameters ensure minimising of biological risks. The operator will have to produce documentary evidence in support of the system, including an independent risk assessment of the system. The operator must demonstrate and document the system's efficacy in inactivating pathogens using rigorous risk assessment techniques.

This validation, should be carried out in accordance with the following points:

a) Identification and analysis of possible hazards, including the impact of input material, based on a full definition of the processing conditions
b) A risk assessment which evaluates how the specific processing conditions referred to in a) are achieved in practice under normal and atypical situations
c) Validation of the intended process by measuring the reduction of viability/infectivity of:
    - Endogenous indicator organisms during the process, where the indicator is:
        - Consistently present in the raw material in high numbers,
        - Not less heat resistant to the lethal aspects of the treatment process, but also not significantly more resistant than the pathogens for which it is being used to monitor,
        - relatively easy to quantify and relatively easy to identify and to confirm;

        or

    - a well characterised test organism or virus, during exposure, introduced in a suitable test body into the starting material.
d) The validation of the intended process referred to in c) must demonstrate that the process achieves the following overall risk reduction :
    - For thermal and chemical processes by:
        - reduction of 5 log10 of E*nterococcus faecalis or Salmonella Senftenberg (775W, H2S negative),*
        - reduction of infectivity titre of thermo resistant viruses such as *parvovirus* by at least 3 log10, whenever they are identified as a relevant hazard;

        and

    - as regards chemical processes also by:
        - reduction of resistant parasites such as eggs of *ascaris sp.* By at least 99,9%(3 log10) of viable stages.
e) Designing a complete control programme including procedures for monitoring the functioning of the process referred to in (c).
f) Measures ensuring continuous monitoring and supervision of the relevant process parameters fixed in the control programme when operating the plant.
g) Records on the relevant process parameters as well as other critical control points must be recorded and maintained so that the owner, operator or their representative can monitor the operation of the plant.

6.5. On farm AD facilities using manure as the only animal by-product feedstock

Manure may be processed in on-farm biogas plants without the requirement of a pasteurisation/hygienisation unit provided that the manure originates from animals on the same farm premises and that the end-product is used on land on the farm of origin only. The end-product derived from such units is deemed as unprocessed material. These facilities must be approved by DAFF. All other biogas plants using 3rd party material will require product pasteurisation/hygienisation and approval by DAFF.

6.6. General Requirements

The operator needs to be able to demonstrate that all the material in the system has reached the required particle size, temperature standard for the required time, without interruption. All the material must achieve this at the same time without the risk of cross-contamination. If there is a failure at any of the critical control points during the treatment of a batch of an ABP, the operator must be able to isolate that batch and re-process it or dispose of it via an approved disposal route. Biogas plants must have equivalent fail-safe systems in place in order to avoid inadequate treatment.

In the case of plants processing material to the EU standard (processing for 1 hour), then temperature recordings must be taken at intervals not greater than 5 minutes. In the case of plants processing material to national standards (48 hour processing twice), then temperature readings must be taken at intervals not greater than 1 hour. In plants, which are barely achieving required temperatures, it would be necessary to reduce these temperature recording time intervals further in order to ensure that the processing parameters are being met. These temperatures must be continuously recorded on a thermograph.

As part of the application process for approval, the plant technology manufacturer must provide documentary evidence and data to demonstrate that the system can comply with the requirements of the regulations and that the composting/ biogas technology used must be capable of achieving the required time, temperature and particle size requirements consistently without the risk of cross-contamination. Such evidence should include data on the suitability of the system to treat different feed stocks, achieve the time/ temperature parameters, its efficacy in destroying pathogens and the conditions under which it must be operated, including any seasonal variations. The evidence supplied by the manufacturer will be assessed by this Department who will determine whether the system (or the information supplied) is sufficient. The initial technology testing would be followed up by continuity tests on a regular basis.

During the validation period when composting commences, a number of computer linked temperature probes would be required throughout the composting vessel or windrow, to draw up a temperature profile both longitudinally and in cross section. The minimum number of probes required would be calculated on the basis of 1 temperature probe per 3 cubic meters of material or as otherwise specified by DAFF. During the validation phase, the composting reactors must contain volumes of feedstock equivalent to volumes of feedstock that will be processed in the reactors post validation. It is important to determine which areas are the slowest to reach the required temperature and any areas which tend to be colder than others. Based on the temperature profile developed during the validation period, the number and location of probes permanently required will be determined by this Department.

The operator must also demonstrate that the system will be operated in such a way that this standard will be maintained and cross contamination is prevented.

7. SAMPLING OF DIGESTION RESIDUES AND COMPOST

7.1. Sampling Procedures and Frequency

Sampling procedures and a clear definition of what constitutes a 'batch' for the plant/ system in question must be documented in the plant's HACCP and submitted for approval by this Department during the application process.[2] Sampling must subsequently be done in accordance with the approval as issued to a plant. Samples taken by plant operators should be sent to a DAFF approved laboratory. (see Appendix 4, DAFF approved laboratories)

During the initial commissioning and validation process of a plant and prior to full approval of the plant being granted**,** a minimum of 6 consecutive batches of compost/ digestion residue must be microbiologically sampled and achieve the required test results.[2] If a positive culture result occurs during validation, the cause must be investigated by the plant operator and corrective action instigated. The sampling validation period must restart from the beginning after the last positive result received.

The frequency of sampling will reduce over time as the plant establishes reliability, provided that the testing and monitoring of control points set out in the HACCP demonstrates that the site continues to comply with the requirements of the Regulation. The frequency of testing will vary depending on the plant and will be determined by this Department. All testing will be at the operator's expense.

Sampling should be carried out on compost/ digestion residues during or immediately after processing in the case of E.Coli, and during or on withdrawal from storage for Salmonella. Clean/sterile receptacles should be used and hygienic practices employed. Five separate samples must be taken per batch. If the batch sizes are very large, 3 sub-samples per sample may be required in order to get representative samples.

Officials from this Department, will, as part of the approval process and ongoing routine inspection procedures, take samples for microbiological analysis.

It must be noted that using end-product monitoring or microbiological sampling alone to validate a process is not satisfactory and not reliable.

7.2. Microbiological Standards

Representative samples of the digestion residues or compost taken during or immediately after processing at the biogas or composting plant must comply with the following standards:

Escherichia coli: n = 5, c = 1, m = 1000, M = 5000 in 1 g;

or

Enterococcaceae: n = 5, c = 1, m = 1000, M = 5000 in 1 g;

and

Representative samples of the digestion residues or compost taken during or on withdrawal from storage at the biogas or composting plant must comply with the following standards:

Salmonella: absence in 25 g: n = 5; c = 0; m = 0; M = 0;

where:

[2] 1774/2002 defines a "Batch" as a unit of production produced in a single plant using uniform production parameters – or a number of such units, when stored together – and that can be identified for the purposes of recall and re-treatment or disposal should tests show that to be necessary. In practice, a batch will be taken as being the amount of final product produced in the period of time since the last sample.

n = number of samples to be tested;

m = threshold value for the number of bacteria; the result is considered satisfactory if the number of bacteria in all samples does not exceed m;

M = maximum value for the number of bacteria; the result is considered unsatisfactory if the number of bacteria in one or more samples is M or more; and

c = number of samples the bacterial count of which may be between m and M, the sample still being considered acceptable if the bacterial count of the other samples is m or less.

Digestion residues or compost, which do not comply with the requirements set out in this paragraph shall be re-processed, in the case of Salmonella handled or disposed of in accordance with the instructions of the Department of Agriculture, Fisheries and Food. (See paragraph 7.3 below).

In the case of manure derived compost/digestate, which will be placed on the market, the sampling procedures outlined above applies. However the following bacteriological standards, which differ from those above, should be achieved:

Escherichia coli: n = 5, c = 1, m = 0, M = 1000 in 1 g;

or

Enterococcaceae: n = 5, c = 1, m = 0, M = 1000 in 1 g;

and

Salmonella: absence in 25 g: n = 5; c = 0; m = 0; M = 0

7.3. Non-Compliances

In a situation where sample results do not comply with these standards, then, in accordance with the legislative provisions of Regulation (EC) No. 1774/2002, the following procedure must be adhered to:

- The Department of Agriculture, Fisheries and Food must be notified immediately
- The operator of the plant must investigate and establish the cause of the failure.
- The contaminated batch and any in-contact material must be re-processed or disposed of **under the supervision** of the Department of Agriculture, Fisheries and Food. In the case of facilities where the only animal by-product being processed is catering waste, contaminated batches may be sent directly for landfilling in an approved landfill site in accordance with EC Directive 1999/31 or reprocessed through the plant. For facilities using approved Category 3 animal by-products, material may either be recycled through the plant or sent for processing in an approved Category 1 or Category 3 processing plant.
- No other material should be moved off site until the situation has been assessed by Department officials and permission granted.
- The frequency of sampling and testing will be increased and specified by DAFF officials.
- Records relating to the contaminated material must be examined by DAFF officials.
- Appropriate decontamination and cleaning procedures must be followed under the supervision of DAFF officials.

Where appropriate, further recommendations will be issued by DAFF for these cases.

8. RECORD KEEPING

All records relating to all aspects of the composting or biogas process must be kept on site for a minimum period of 2 years. These records must be available for inspection on request by an authorised officer from the Department of Agriculture, Fisheries and Food and must include:

Intake records:

Records for all batches of animal by-products (including catering waste) delivered to or collected by the plant. The records must include the date of delivery, the source of the material, the quantity, description and animal by-product categorisation of the material, the name of the haulier and the receptacle number for vehicles other than those collecting catering waste only. In the case of Category 2 or Category 3 ABP material other than catering waste, the commercial documents for each consignment must also be kept and recorded by the facility.

- Completed waste acceptance forms from all animal by-product suppliers. (See Appendix 3, sample waste acceptance document.)
- Records of the relevant process parameters achieved in a biogas or composting plant as well as other critical control points must be maintained so that the owner, operator or their representative and the Department of Agriculture, Fisheries and Food can monitor the operation of the plant.
- Records relating to particle size verification checks.
- Thermographs relating to the composting or biogas process to ensure that the minimum time/ temperature parameters as set out in section 6 are met. Expanded thermographs of the critical processing stage are required to ensure that no temperature fluctuations occur below the minimum temperature requirements.
- The pest control plan and all relevant documentation pertaining to pest control plan.
- Cleaning procedures for all parts of the premises, equipment and vehicles/receptacles and all relevant recording documentation.
- Hygiene control plan, cleaning schedules and all relevant recording documentation
- Equipment repair and calibration records.
- Sampling procedures and schedules as well as laboratory results for all samples taken (as outlined in section 7).
- A system to ensure traceability for all batches of compost produced and dispatched from the plant must be in place. This must detail the source, type and quantity of the raw material, the haulier name, the batch identifying number, the dates of treatment, the vessel/reactor/bay numbers where the material was treated, all other relevant processing records, intended end-use the date of dispatch and destination of the finished product if applicable. (name and address of consumer).
- A system of hazard analysis and critical control points (HACCP) plan for the plant. This plan must identify the critical control points and establish and implement methods for monitoring and checking these points. All checks of the Critical Control Points must be documented and non-compliances and the corrective actions taken in each instance must also be recorded.
- Records must be made available to this Department on request at any reasonable time.

9. HACCP PLANS FOR COMPOSTING/BIOGAS PLANTS

In accordance with the principles prescribed in **Regulation (EC) No. 1774/2002,** the system of hazard analysis and critical control points (HACCP) plan must pay particular attention to the following points:

- Procedures/ checks at the plant for reception of animal by-products, i.e waste acceptance procedures (see Appendix 3 Waste acceptance form template).
- Processing of material to the required standards.
- Hygiene controls – including cleansing and disinfection facilities, as well as arrangements to prevent cross-contamination of processed material with raw material through the use of flow diagrams.
- Record keeping including laboratory sampling results.
- Details of what corrective actions will be taken when necessary.

The HACCP plan must include provision for a full audit trail of all materials that passes through the plant.

Standard operating procedures (SOPs) describe the practical procedures which any operative working in the plant must follow to ensure the HACCP is adhered to and these must be documented in the plants procedures manual. All operatives should be familiar with all aspects of the HACCP and the SOPs. It may be necessary for plant managers and plant operatives to be trained in HACCP.

10. COLLECTION AND TRANSPORT

Hygiene requirements for the transport of animal by-products are laid down in Article 7, Article 9 and Annex II of Regulation (EC) No. 1774/2002.

In the case of catering waste, the requirements in Article 7 and Annex II do not apply and waste management controls will apply. A record of catering waste consignments must be kept for a period of at least two years from the date of such consignment or transport.

With the exception of the aforementioned, the following points are the conditions that apply to the collection and transport of animal by-products:

10.1. Identification

- Category 2 materials and Category 3 materials must be kept separate and identifiable during collection and transportation.
- Signage with wording detailed below must be permanently attached on both sides of the container in such a way they are clearly legible and visible. The letters should be at least 15cms high.
- ALL signs must be **PERMANENTLY** attached to the trailer, i.e. bolted, welded or riveted. It will not suffice to have the signs attached with glue magnets or slide in slots.
- The sign must bear the wording:
    - For Category 3 Material: **Category 3 Material – Not for Human Consumption**
    - In the case of Category 2 manure and digestive tract content**: 'Manure'**

- It is a legislative requirement that all hauliers transporting animal by-products are registered on the Animal By-Products transport register. Applications can be sent to DAFF, Animal By-Products Section, Pavillion B, Grattan Business Park, Portlaoise, Co. Laois. A sign depicting the haulier registration code as well as individually allocated receptacle number must also be permanently affixed to the haulier receptacles.

10.2. Vehicles and Containers

- All animal by-products must be transported in sealed new packaging or in covered leak-proof containers or vehicles.
- Containers, receptacles and vehicles used for transporting untreated animal by-products must be cleaned and disinfected in a designated area. This area must be situated or designed in a manner so as to prevent risk of contamination of treated products.
- Vehicles and all reusable equipment must:
    - Be cleaned, washed and disinfected after each use
    - Be maintained in a clean condition
    - Be clean and dry before use
- Reusable containers must be dedicated to the carriage of one particular category of animal by-product in order to prevent cross-contamination.

10.3. Commercial Documents

- A Commercial Document must accompany all animal by-products apart from catering waste during transport. This must be produced in quadruplicate with the original being retained by the consignee and copies are to be kept by the consignor and the haulier. The fourth copy must be returned by the consignee to the consignor.
- Commercial documents are not required for manure transported between two points located on the same farm, or between farms and users located in the same Member State.
- Information contained on Commercial Documents must include:

a) The name and address of the premises of origin, and its approval number (if appropriate)
b) The name and address of the carrier
c) A description of the material
d) The category of ABP as well as the specific sub-category detail
e) The quantity of material
f) The date of dispatch from the premises
g) The receptacle number
h) The signature of the consignor of the premises of origin and its official stamp
i) The name and address of the receiver (composting/biogas plant) and its approval number

10.4. Records

- Records relating to all material collected or delivered to the plant must be kept for a minimum period of 2 years. These records must be available at all times for examination by an authorised officer.

All of the above requirements (paragraphs 10.1 to 10.4) are detailed in Trader Notice 04 05 issued by the Department of Agriculture, Fisheries and Food. Copies of this notice are available on request.

10.5. Catering Waste Collection and Transport

Catering waste must be collected and transported in such a way as to ensure that it not a human health or environmental risk. In particular, all external surfaces of vehicles transporting catering waste must be kept clean and equipment must be available for this purpose. The wheels of these vehicles should be cleaned and disinfected or steam cleaned prior to the vehicle leaving the premises. (Under current EU rules, internal cleansing and disinfection is not routinely required for vehicles transporting catering wastes alone but is recommended).

11. ORGANIC FERTILISERS AND SOIL IMPROVERS DERIVED FROM COMPOST OR DIGESTION RESIDUES

Pre-notification of intended classes of end- use, as opposed to sites must be detailed in the application for approval. However, names and addresses of individuals who will be receiving large quantities of material (in excess of 1 tonne) must be recorded. Changes of intended end-use must be notified to DAFF a minimum of 2 weeks in advance of change.

Regulation (EC) No. 1774/2002 as amended, provides for the use of organic fertilisers and soil improvers on pasture land.

S.I. 612 and 615 of 2006 regulates the use of organic fertilisers and soil improvers in Irish Law.

11.1. End-uses for organic fertilisers, soil improvers compost/ digestion residue derived from compost / digestate based on feedstock origin.

1. **CATEGORY 2 MATERIAL:**
   In accordance with S.I. 615 of 2006, an organic fertiliser or soil improver that consists of or contains CATEGORY 2 MATERIAL, (other than manure and the contents of the digestive tract), cannot be used on any land.

2. **CATEGORY 3 CATERING WASTE ONLY:**
   Compost /digestion residues resulting from the processing of catering waste may be spread on land subject to the following conditions:
   - Farmed animals (apart from pigs) must not be allowed access to the land for at least 21 days following application to the land
   - In the case of pigs, this period is extended to 60 days.

   This also applies to catering waste if mixed with manure and/or digestive tract content.

3. **CATEGORY 3 MATERIAL referred to in *Article 6 (1) (f) * or (i) ** of EU Regulation 1774/2002:***
   Compost/ digestion residues resulting from the transformation of the above may be spread on land subject to the following conditions:
   - A farmed animal does not have access to any part of the land where the fertiliser or soil improver is spread or otherwise used, for three years after the fertiliser or soil improver is spread or otherwise used.
   - A farmed animal does not have access to the fertiliser or soil improver and it does not come into contact with a feeding stuff.

- Ensiled crops or hay should not be made from a crop grown on land on which an organic fertiliser or soil improver of this type has been spread during the previous 12 months.

***Article 6 (1) (f):** *'former foodstuffs of animal origin, or former foodstuffs containing products of animal origin, other than catering waste, which are no longer intended for human consumption for commercial reasons or due to problems of manufacturing or packaging defects or other defects which do not present any risk to humans or animals'*

****Article 6 (1) (j)**: *'fresh by-products from fish from plants manufacturing fish products for human consumption'*

4. **OTHER CATEGORY 3 MATERIAL:**
   No other type of Category 3 material may be used to produce soil improvers or organic fertilisers from compost or biogas plants.

5. **CATEGORY 2 MANURE AND/OR DIGESTIVE TRACT CONTENT:**
   The above animal by-product may be used on land as an organic fertiliser/ soil improver subject to landspread regulations.

11.2. Transport and labelling of organic fertilisers and soil improvers

1. After processing the compost/digestion residue must be stored so as to avoid re-contamination.
2. Organic fertilisers and soil improvers must be transported and supplied packaged to final users other than business operators. Alternatively, if collected in bulk by the final user, a commercial document must accompany the product and contain the wording detailed below in 11.2.4.
3. The packaging shall be clearly and legibly labelled with the name and address of the manufacturing plant and shall bear the words *'organic fertilisers and soil improvers/ farmed animals must not be allowed access to the land for at least 21 days following application to the land and 60 days in the case of pigs'*, in the case of organic fertiliser derived from catering waste. In the case of organic fertiliser derived from other category 3 material, the labelling should state, '*organic fertilisers and soil improvers; farmed animals must not be allowed access to the land for at least 3 years following application to the land'* as well as '*ensiled crops or hay should not be made from a crop grown on land on which an organic fertiliser or soil improver of this type has been spread during the previous 12 months.'*
4. A commercial document must accompany the product if supplied to business operators and/or to final users if the product is supplied in bulk without packaging and labelling. (see ABP Trader Notice 04 2005) This document must bear the words '*organic fertilisers and soil improvers - farmed animals must not be allowed access to the land for at least 21days following application to the land, and at least 60 days in the case of pigs'* in the case of organic fertilisers derived from catering waste. In the case of organic fertiliser derived from other category 3 material, this document must bear the words '*organic fertilisers and soil improvers; farmed animals must not be allowed access to the land for at least 3 years following application to the land'* as well as '*ensiled crops or hay should not be made from a crop grown on land on which an organic fertiliser or soil improver of this type has been spread during the previous 12 months.'*

11.3. Register of approved users

- It is a requirement under S.I. 615 of 2006 that a food or feed business operator who is a final user of organic fertiliser or soil improver, supplied by a retailer, on land, must register with the Animal By-Products Division of DAFF. All such persons must make their application to:

  Animal By-Products Division
  Department of Agriculture, Fisheries and Food
  Pavillion B,
  Grattan Business Centre,
  Portlaoise,
  Co. Laois

- The Animal By-Products Division will maintain a register of all applicants who have received authorisation from DAFF to use organic fertiliser or soil improver on land. The register will be updated on a yearly basis and will be published on DAFF's website.

11.4. Record Keeping

- Records of all product dispatched from the plant must be kept up to date by plant management and available for inspection at all times. This list must detail:
  a) The name and address of the person receiving the product
  b) The intended use for the material (type of land e.g. arable, pastureland, garden, landscaping, forestry etc)
  c) The date the material was supplied
  d) The batch number of material supplied
  e) The quantity of material supplied

- A person responsible for land to which organic fertilisers and soil improvers are applied, and who is required to register under 11.3 above, shall keep records for a minimum period of two years of:
- The quantities and description of material applied
- The date on which and the parcels of land where material was applied
- The dates on which livestock/poultry are allowed to graze the land or on which the land is cropped for feeding-stuffs

11.5. Storage

- Until such time as the animals are allowed access the land to which the organic fertiliser or soil improver has been spread, the farmed animals must have no access to the area where the organic fertiliser or soil improver is stored.
- The fertiliser must be stored in a manner that prevents contamination or contact with any other fertilizer or feedingstuff.

APPENDIX 1

STOCK PROOF FENCING.

The facility must be surrounded on all sides by permanent stock- proof fencing of a minimum height of 1.8 m.

Posts must be 2.3 m long minimum of either: -

a) Reinforced concrete 125mm x 125mm at butt end (to IS 177: 1980)

b) Galvanised angle iron 60mm x 60mm x 6mm thick

c) Galvanised tubular steel, 75mm outside diameter, and 3.2 mm thick

Uprights and strainers shall be embedded in 0.5m square concrete bases, not more than 3.0m apart. Four strands of 3.2 mm plain wire shall be strained, and stapled or tied to the uprights with tying wire. Chain link fencing, 2.5mm, (to IS 130:1980), 1.8m high, shall be secured to the outside of the line wires over entire fence. One strand of 1.5mm barbed wire shall be placed along the top of the fence.

A gate 1.8m high, of galvanised steel, or preservative treated timber, with closing bolts and locks, shall be fitted at the entrance to the facility. The only horizontal bars shall be at the top and bottom of the gates. Chain-link fencing shall be fitted to the outside of the gates. The gates shall be designed such that neither people nor stock can get through or under when closed.

Other equivalent fence systems may be acceptable.

APPENDIX 2

DEPARTMENT OF AGRICULTURE, FISHERIES AND FOOD

1.1.1.1. Diseases of Animals (Disinfectants) Order, 1975 (Amendment) Order, 1978

LIST OF APPROVED DISINFECTANTS (15/08/2007)*

11.1.2. DISINFECTANT	Diseases in respect of which use is approved and dilution rates[1]				
	Foot and Mouth Disease	**Swine Vesicular Disease**	**Fowl Pest (Newcastle Disease, Fowl Plague (Avian Influenza)**	**Tuberculosis**	**Anthrax, Brucellosis, Contagious Bovine Pleuro-pneumonia, Glanders and other Scheduled diseases**
Acidfoam-C	70				
Agrisept MC Tabs	271	448*	271	---	450
Antec Ambicide	---	---	---	---	30
Antec Hyperox	150	50	375	100	179
Antec Virkon S	1300	200	280	----	120
Bio Dine	---	---	145	---	---
Bio Guard	---	---	80	---	---
Bio Kill	140	---	365	---	160
Bi-OO-Cyst	---	---	125	---	---
Bio Phen	---	175	190	---	---
Bio Phen Plus	400	160	210	---	---
Bio Shield	---	---	155	---	---
Bio VX	1200	135	285	---	100
Chlorasol	20	90	200	20	199
Citric acid[2]	0.2%				
Citrox	---	---	0.66	---	---
Clinidine	320	---	140	---	---
Clinidine 28	500	400	170	---	---
Deosan Iodel FD	215	234	130	26	147
Dermicidal Extra	50	150	125	13	61
Envirocare A	99	99	99	---	99

DISINFECTANT	**Foot and Mouth Disease**	**Swine Vesicular Disease**	**Fowl Pest (Newcastle Disease, Fowl Pest)**	**Tuberculosis**	**Anthrax, Brucellosis, Contagious Bovine Pleuro-pneumonia, Glanders and Other Scheduled Diseases**
Enviroguard	60	300	150	10	60
Equisept	271	---	450	---	450
FAM (New Formulation)	525	400	150	15	110
FAM 30	550	600	125	30	180
GPC 8 (New Formulation)	80	250	190	---	---
Iodosure Bio	240	160	110	---	25
Iosan Farm Disinfectant	240	180	80	15	80
Jentabs	299	299	449	---	299
Jeyes Fluid	---	---	30	---	50
Kick Start 2	800	160	145	44	256
Novagen FP	240	180	80	22	145
Omnicide 325	50	150	125	13	61
Opticide 200	50	150	125	13	61
Osmodex	525	400	150	15	110
Purogene	250	240	20	20	22
Septrivet	299	299	449	---	299
Septrivet 17	1000	1000	700	---	1000
Sodium carbonate[3]	4%				
Sodium hydroxide[3]	2%				
Sorgene 5	75	75	100	75	200
Spectocide 2000	60	300	150	10	60
Supercide	150	450	200	---	200
Superdine	550	600	125	30	180
Superkill	---	50	100	---	22
SWC Bacto Detsan	20	10	---	---	10
SWC Maxikleen	600	400	100	45	43
Tego 2000	---	---	---	---	32
Tegodor FARM	---	---	51	---	---
					Anthrax,

DISINFECTANT	**Foot and Mouth Disease**	**Swine Vesicular Disease**	**Fowl Pest (Newcastle Disease, Fowl Pest)**	**Tuberculosis**	**Brucellosis, Contagious Bovine Pleuro-pneumonia, Glanders and Other Scheduled Diseases**
Trigene II	---	---	---	41	---
V26	200	200	200	105	178
Vandox	200	30	300	---	300
Vesphene D39	10	----	50	70	55
Verucidal Extra	1300	300	300	---	112
Victor	1300	200	280	---	120
Virex	1300	200	300	---	112
Virochlor	271	448	271	---	450
Virophen	---	200	210	---	---
Virophen Plus	---	---	240	---	---
Virophor 2.8%	---	---	185	---	---
Viroshield	---	---	165	---	---
Zal Perax II	800	160	145	44	256

11.2. NOTE: READ CAREFULLY THE MANUFACTURER'S INSTRUCTIONS BEFORE USAGE

11.3. PARTICULARLY IN RELATION TO SPECIFIED PRECAUTIONS

Note: Dilution rates for disinfectants for use against Foot and Mouth Disease and/or Swine Vesicular Disease relate to effectiveness when applied to a clean surface.
(a) Thoroughly washed or sprayed with an approved disinfectant;
(b) Thoroughly cleansed, ensuring that dung, litter, etc. is removed and disposed of so that there is no risk of contact with livestock; and
(c) (The clean area) washed or sprayed with an approved disinfectant used at the approved dilution.

APPENDIX 3

SAMPLE WASTE ACCEPTANCE FORM

This form should include the following information

Name and address of Composting/Biogas site

Name, address and telephone number of waste supplier

List of feedstocks acceptable at the compost/biogas facility.

Specific definitions of all feedstock categories acceptable at the facility.

Description and source of supplier feedstock
Approximate volume of waste produced

Statement of conformity e.g. This waste contains *catering waste and/or former foodstuff and/or manure etc* only.

N.B. It is the compost/biogas plant's responsibility to ensure that regular checks are made to ensure that the information supplied above by the suppliers is up-to-date and accurate in order to ensure only acceptable feedstock types are accepted at the facility.

Signature and capacity of person signing on behalf of waste/ feedstock supplier

Date

Appendix 4

List of non-Departmental Laboratories Approved for Microbiological testing by the Department of Agriculture, Fisheries and Food

Advanced Micro Services,
South Ring Business Park,
Tramore Rd,
Co Cork

Anser Laboratories Ltd.
69A Killyman Street,
Moy, Co Tyrone
BT71 7ED.

Aqua Lab.
Donegal Road,
Killybegs,
Co. Donegal.

Biosearch (NI) Ltd
Dufferin Road
Belfast
BT3 9AA

Complete Laboratory Solutions
Ros Muc,
Connemara,
Co. Galway.

Consult-Us Ltd.
Glanmire Industrial Estate,
Glanmire,
Co. Cork.

Enfer Micro Laboratories Ltd,
Carrigeen Business Park,
Clonmel,
Co. Tipperary

Envirolab Ltd.
Christendom Enterprise Centre
Christendom
Ferrybank
Waterford

Eurofins Scientific Ireland Ltd.
Finnabair Industrial Estate,
Science Services Centre,
Dundalk, Co. Louth.

Foodtech Consultants Ltd.
Rocklawn,
West Village,
Ballincollig,
Co Cork.

Food Safety Laboratory,
Veterinary Department
Cork County Council,
County Hall,
Cork.

Independent Micro Lab Ltd.
Lismard Business Park,
Timahoe Road,
Portlaoise,
Co. Laois.

Irish Equine Centre
Johnstown,
Naas,
Co. Kildare.

Mercury Analytical Ltd,
Raheen Industrial Estate,
Limerick.

Microchem Laboratories
Clogherane,
Dungarvan,
Co. Waterford

Microlab Ltd.
Drumillard Little,
Monaghan Road,
Castleblayney,
Co. Monaghan.

Mid Antrim Laboratory Services
42A Broughshane Road,
Ballymena,
Co. Antrim.

Monaghan Veterinary Laboratory
Clones Road,
Monaghan.

Oldcastle Laboratories Ltd.
Cogan Street,
Oldcastle,
Co. Meath.

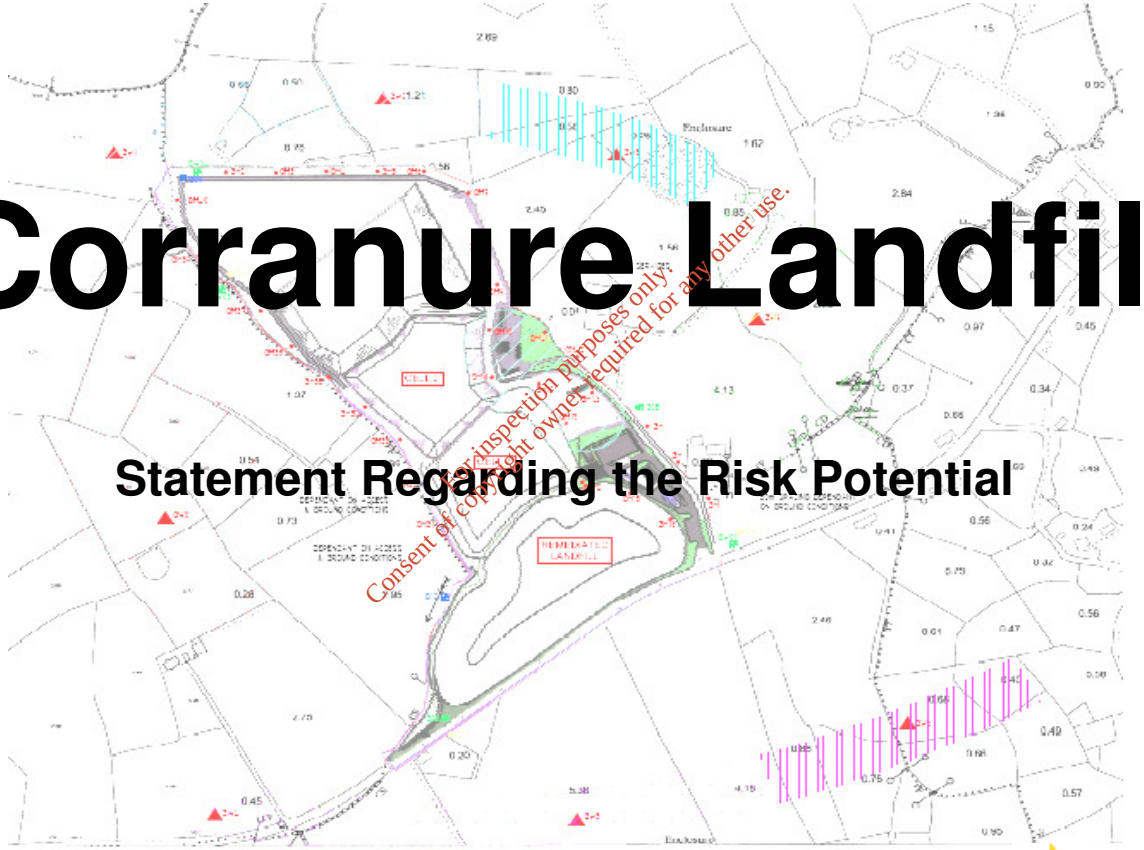
Q Lab Ltd.
P.O. Box 27,
Kerlogue Industrial Estate,
Drinagh,
Wexford.

Southern Scientific Services Ltd.
Dunrine,
Killarney
Co. Kerry.

WMT GmbH, Viersen

Corranure Landfill

Statement Regarding the Risk Potential



Cavan County Council
Comhairle Chontae an Chabháin

Oxigen Environmental Ltd.

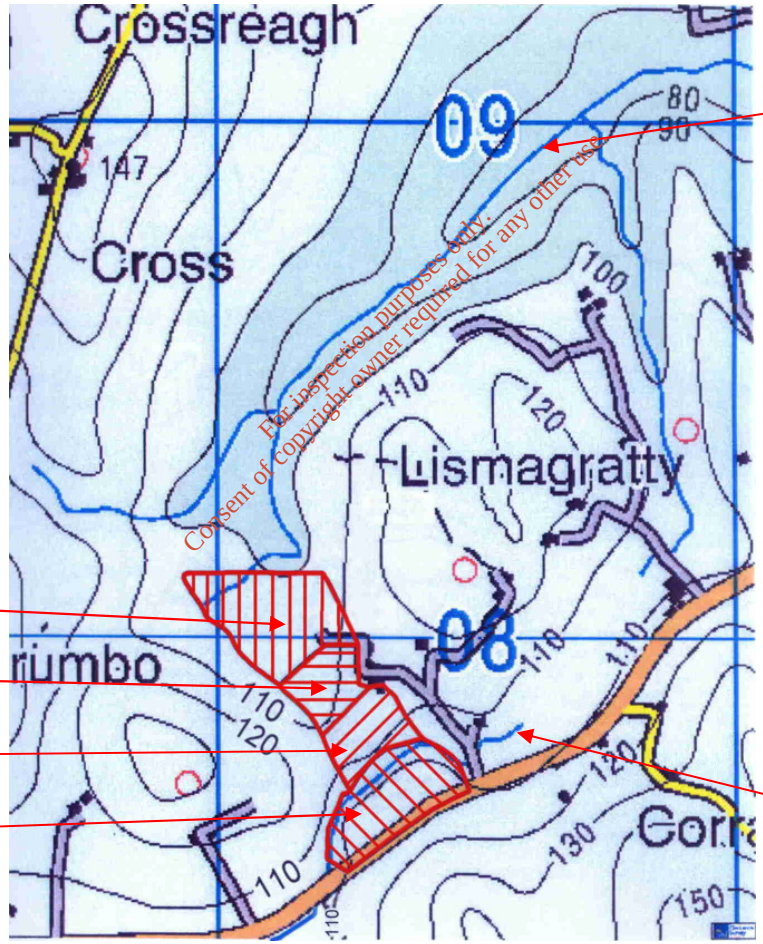
Corranure Landfill

The Risk Potential

WMT

WMT GmbH, Viersen

Location



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Corranure Landfill

The Risk Potential

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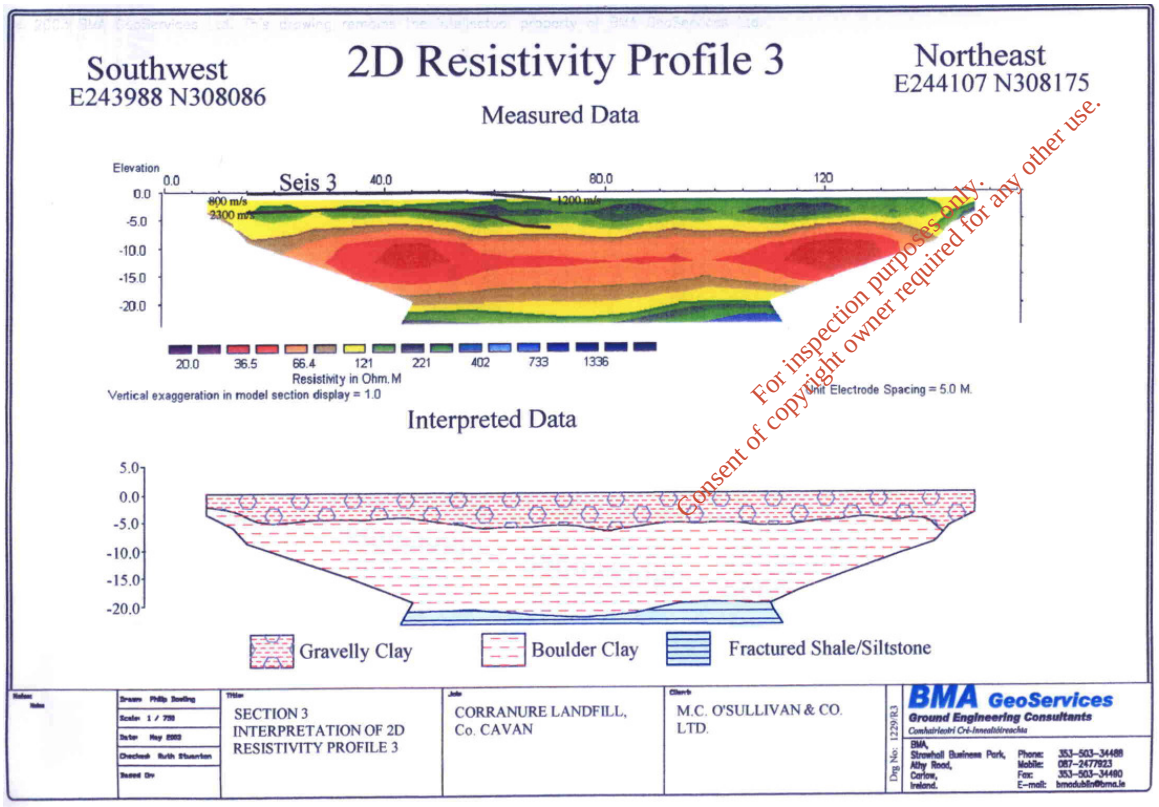
Geology / Hydrology



Groundwater Situation

Gravelly Clay
thickness up to 5 m, permeability 1 x 10^{-8} m/s
groundwater, close to the surface

Boulder Clay
thickness from 8 up to 25 m, permeability up to 1 x 10^{-9} m/s, no groundwater

Fractured Shale / Siltstone
bedrock
confined groundwater

- No influence on the bedrock aquifer by groundwater or surface water of the Gravelly Clay.
- Bedrock aquifer not relevant for further statement
- Penetrating of the Boulder Clay would create a previously non-existent risk, therefore it should not be carried out

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Corranure Landfill

The Risk Potential

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Location

Protection of Soil and Groundwater

Requirements for the base sealing

	German Directive	Council Directive	Existing Base Sealing Corranure Landfill	
			Cell 0	Cell 1-3
Artificial sealing liner	HDPE thickness ≥ 2.5 mm	no requirements for thickness	nonexistent	HDPE thickness ≥ 2.0 mm
Inpermeable mineral layer	perm. ≤ 1 x 10 $^{-9}$ m/s thickness ≥ 0.75 m	not necessary	nonexistent	nonexistent
Where the natural geological barrier is not sufficient: artificially established geological barrier	perm. ≤ 1 x 10 $^{-9}$ m/s thickness ≥ 1.0 m or perm. ≤ 1 x 10 $^{-7}$ m/s thickness ≥ 3.0 m	perm. ≤ 1 x 10 $^{-9}$ m/s thickness ≥ 0.5 m	nonexistent	perm. ≤ 1 x 10 $^{-9}$ m/s thickness ≥ 1.0 m (licence WL 0077-01 u. 02)
Natural geological barrier	perm. ≤ 1 x 10 $^{-6}$ m/s thickness: several meters	perm. ≤ 1 x 10 $^{-9}$ m/s thickness ≥ 1.0 m	perm. 1 x 10 $^{-8}$ m/s to 1 x 10 $^{-9}$ m/s thickness ≥ 8.0 – 25 m	perm. 1 x 10 $^{-8}$ m/s to 1 x 10 $^{-9}$ m/s thickness ≥ 8.0 – 25 m

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Corranure Landfill

The Risk Potential

WMT

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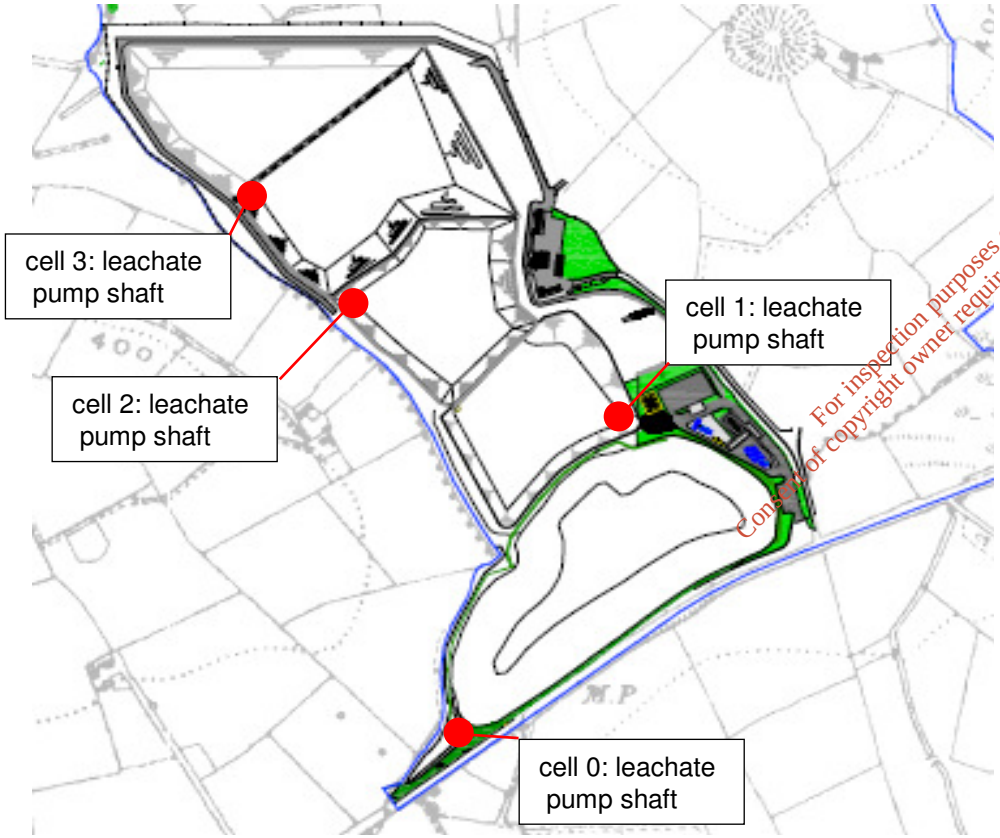
Leachate



Risk Potential

Contamination of bedrock aquifer
- high-quality geological barrier
- no possibility of contamination

Contamination of ground water close to the surface
- stratum with a low permeability
- water flow is very slow
- base sealing prevents contamination
- only a leachate overflow may cause a contamination
- very low risk potential

Contamination of surface water
- leachate disposal with pumps
- overflow possible when pump system fails
- cell 0-2 capping is finished, risk of overflow is low
- cell 3 → no capping but a great storage volume in the landfill
- low risk potential

Contamination of existing streams
- contamination of Corranure Stream or Lismagratty Stream possible when a leachate overflow occurs
- cause of topography an overflow in cell 0 or cell 1 reaches Corranure Stream and an overflow in Cell 2 or cell 3 reaches Lismagratty Stream

Cavan County Council
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Oxigen Environmental Ltd.

Corranure Landfill

The Risk Potential

WMT

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Leachate

Reducing the Risk Potential

Power supply

- ensure that the power supply is not interrupted for a long period
- contractual assurances with the electrical supplier

Leachate pumps

- redundant pump systems in every pump shaft
- pumps operating alternately under normal conditions

Fill level monitoring

- redundant monitoring system in every pump shaft
- install a max-max-level. This level triggered an alarm.
- alarm is send to landfill-office, landfill manager or on-call-staff

Additional safeguards

- in addition to this safe and effective leachate pump system, a further backup construction can be planned

In generall

Every failure in the system must trigger an alarm. This alarm must be sent to the landfill manager or the on-call-staff in order to rapidly initiate the appropriate measures.

Cavan County Council
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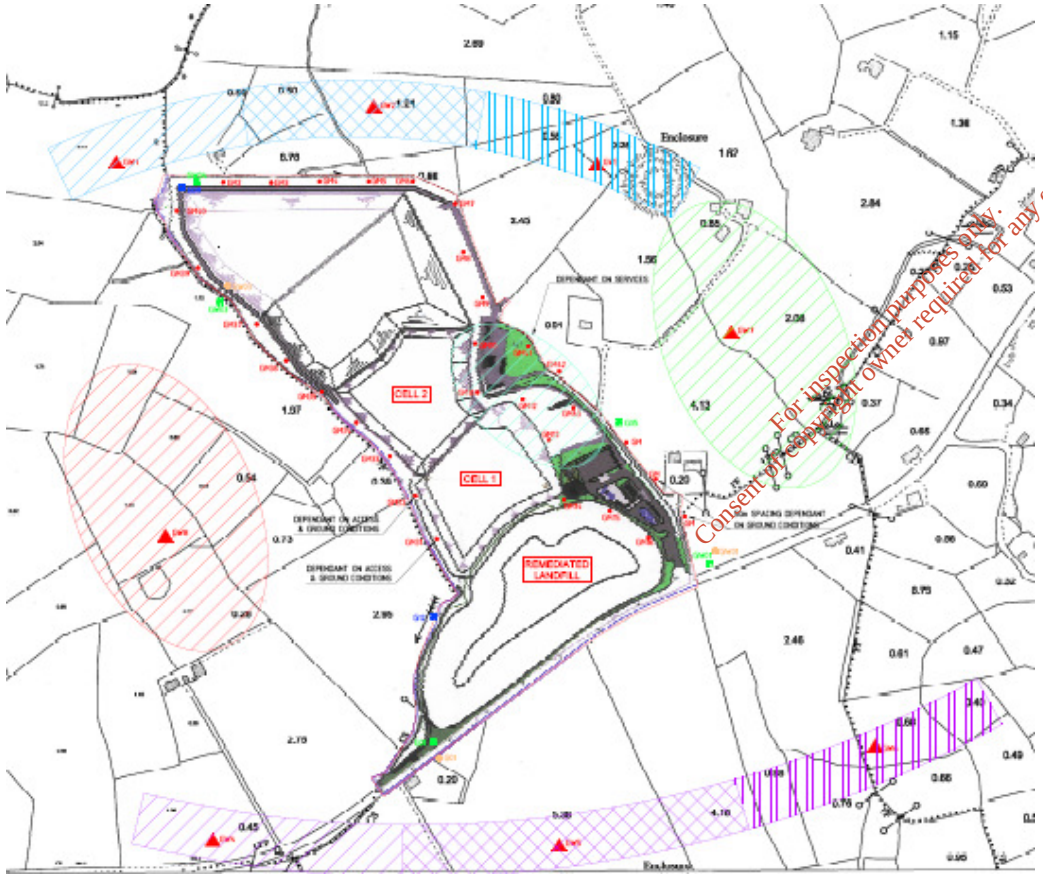
Oxigen Environmental Ltd.

Corranure Landfill

The Risk Potential

WMT GmbH, Viersen

Leachate



Monitoring

Overburden-watertable monitoring wells

- 8 wells around the landfill in a larger radius
- controlling of the watertable outside the landfill
- detection of possible contaminations coming up to the landfill or to the streams

Gas / leachate monitoring wells

- up to 30 wells around the landfill
- controlling the watertable close to the landfill
- localization of possible leaks in the base liner
- allocation from pollution to the correspondent cell

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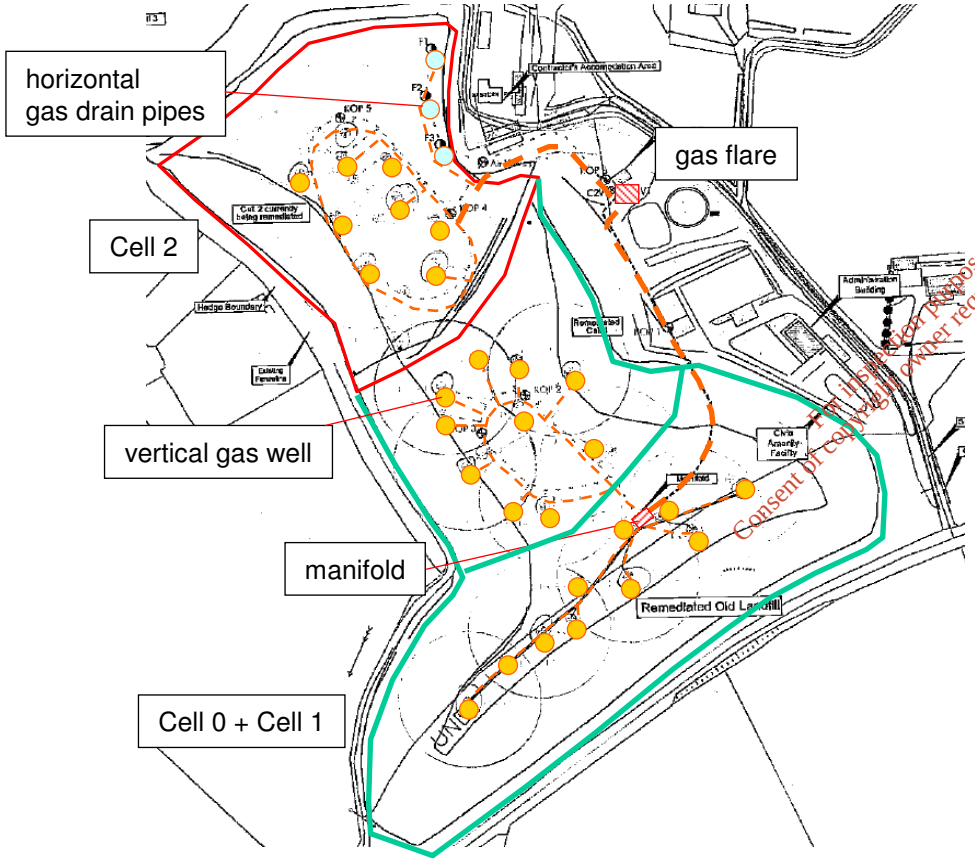
Oxigen Environmental Ltd.

Corranure Landfill

The Risk Potential

WMT GmbH, Viersen

Landfill Gas



Risk Potential

Management of the active gas system
- bad service on the system
- bad setting at the gas wells

Gas condensate
- blockage of the gas pipe
- blockage of several wells

Exhauster and flare
- breakdown of exhauster or flare leads to breakdown of the degassing system

Landfill cell in operation
- open waste area
- late and insufficient daily covering
- handling of waste

Technical operations on the landfill
- increases odour-emissions
- increases risk of methane migration

Shafts and buildings on the facility
- increased risk of methane concentration

Cavan County Council
Comhairle Chontae an Chabháin

Oxigen Environmental Ltd.

Corranure Landfill

The Risk Potential

WMT GmbH, Viersen

Landfill Gas

Reducing the Risk Potential

- Well-trained managing personnel for the active gas extraction system
- Optimal settings for each gas well
- Ad-hoc trouble shooting when there are problems with the discharging of condensate
- Ad-hoc repair from located leaks or damages
- Adequate number of gas wells
- Adequate capacity in disposal of landfill gas (flare capacity)
- The reliability of the flare and the exhauster must be very high

- **In generall**

Every failure in the system must trigger an alarm. This alarm must be sent to the landfill manager or the on-call-staff in order to rapidly initiate the appropriate measures.

Cavan County Council
Comhairle Chontae an Chabháin

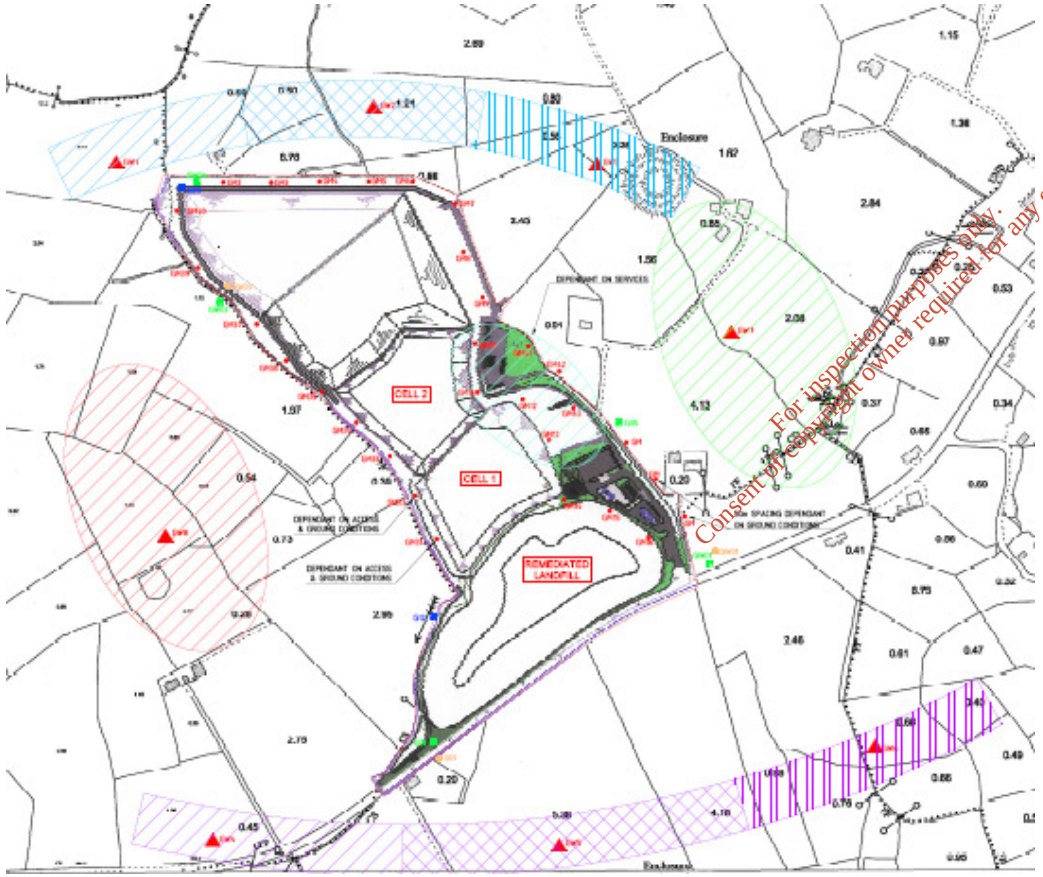
Oxigen Environmental Ltd.

Corranure Landfill

The Risk Potential

WMT GmbH, Viersen

Landfill Gas



Monitoring

Daily inspection of the landfill

- visual control of the surface
  damage to the vegetation → sign for a methane-leak
- check if there is some odour on the landfill
- check of the pipes for condensate accumulation

Gas / leachate monitoring wells

- up to 30 wells around the landfill
- controlling the gas migration close to the landfill in the gravelly clay
- localization of possible earth channels
- allocation to the correspondent cell

Flame ionization detector

- periodically check of the surface of the landfill
- allocation of leaks in the capping

Cavan County Council
Comhairle Chontae an Chabháin

Oxigen Environmental Ltd.

Corranure Landfill

The Risk Potential

WMT GmbH, Viersen

Conclusion

- Corranure Landfill is a location with a high natural and technical standard regarding risk potential of gas and leachate emissions
- Pollution of bedrock aquifer can be ruled out
- The risk of emissions can be reduced to a minimum by using redundant systems and other technical safeguards in combination with well-trained personnel
- Very close monitoring and safeguard system that keeps possible contamination inside the landfill
- Every contamination can be allocated to the correspondent cell

WMT GmbH

Waste Management Technology & Service GmbH

Landfill Construction / Geotechnics

Cavan County Council
Comhairle Chontae an Chabháin

Oxigen Environmental Ltd.

Office of the Minister for Agriculture, Fisheries and Food, Dublin 2.

Oifig an Aire Talmhaíochta, Iascaigh agus Bia. Baile Átha Cliath 2.

17th July, 2008

Ms Joan Harrington
Environmental Officer
Oxigen Environmental Ltd.
Brookville Business Park
Ardee Road
Dundalk
Co. Louth

Our Ref: 2008/31729N/JC

Dear Ms. Harrington,

I refer to your recent correspondence concerning a proposal by Oxigen Environmental Ltd for the development of Corranure Landfill at Cootehill Road, Cavan.

I have made enquiries within the Department for information that would be of assistance in the preparation of the EIS. It has been suggested that your firm consider the likely impact, if any, of the proposed development of Corranure landfill on agriculture/agricultural activities in the locality as part of the environmental impact assessment. Aspects that should be considered include the following:

Odour impacts
Impact on local water supplies (quality & quantity)
Impact of scavenging birds, vermin
Safety impacts (e.g. fire, traffic)
Impact of dust generated
Impact of wind blown litter
Impact of noise

I trust this clarifies the matter to your satisfaction.

Yours sincerely,

Dyrffphna Keogh
Private Secretary

National Roads Authority
An tÚdarás um Bóithre Náisiúnta

Ms. Joan Harrington
Environmental Officer
Oxigen Environmental Limited
Brookville Business Park
Ardee Road
Dundalk
Co. Louth

St.Martin's House / Waterloo Road / Dublin 4
Tel: **+353** 1 **660 2511** / **Fax:** +353 1 668 **0009**

24ith July 2008 NRA08-64674

RE: Proposal by Oxigen Environmental Ltd. For the development of Corranure Landfill, Cootehill Rd. Cavan

Dear Ms. Harrington,

Thank you for your letter of 19th June 2008, regarding the above proposal.

The Authority will make formal comments directly to Cavan County Council upon receipt of the Planning Application as set out under legislation.

Yours Sincerely

D. Murray

Doreen Murray
Programme Division

An Bord Pleanála

Ms. Joan Harrington,
Environmental Officer,
Oxigen Environmental Ltd.,
Corranure Landfill,
Cootehill Rd,
Cavan.

26th June, 2008

Re: Proposal by Oxigen Environmental Ltd. for the development of Corranure Landfill, Cootehill Rd., Cavan.

Dear Ms. Harrington,

I have been asked by the Board to refer to the above-mentioned matter. The Board has received your letter of the 19th June, 2008.

Please be advised that An Bord Pleanala has no function in this matter and does not, therefore, propose to comment further.

Yours sincerely,

Diarmuid Collins,
Senior Administrative Officer.

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HEALTH AND SAFETY AUTHORITY

The Metropolitan Building, James Joyce Street, Dublin 1, Ireland.
Telephone: 1890 289 389 Fax: 01 - 614 7020 Website: www.hsa.ie

Ms. Joan Harrington,
Oxigen Environmental Ltd.,
Corranure Landfill,
Cootehill Road,
Cavan.

11 June 2008

Ref. 142560

Re: Proposal by Oxigen Environmental Ltd. for the development of Corranure Landfill, Cootehill Road, Cavan

A Chara,

The Authority, acting as the Central Competent Authority under the EC (Control of Major Accident Hazards involving Dangerous Substances) Regulations, 2006 (SI 74 of 2006), gives technical advice to the planning authority when requested, under regulation 27(1) in relation to

(a) the siting of new establishments,
(b) modifications to an existing establishment to which Article 10 of the Directive applies, or
(c) proposed development in the vicinity of an existing establishment.

On the basis of your letter dated 01 May 08, the above proposal appears to be outside the scope of the regulations and thus the Authority has no observations to forward.

If you have any queries please contact the undersigned.

Yours sincerely,

Alice Doherty
Inspector
Process Industries Unit

CC: Ms. Joan Harrington, Oxigen Environmental Ltd., Brookville Business Park, Ardee Road, Dundalk, Co. Louth.

Office of the Minister for Agriculture, Fisheries and Food, Dublin 2.

Oifig an Aire Talmhaiochta, Iascaigh agus Bia, Baile Atha Cliath 2,

7th July 2008

Ms. Joan Harrington
Environmental Officer
Oxigen Environmental Ltd
Brookville Business Park
Ardee Road
Dundalk
Co. Louth

PLEASE QUOTE REF NUMBER ON ALL CORRESPONDENCE.
OurRef: 2008/31729N/JC

Dear Ms. Harrington

I wish to acknowledge receipt of your recent correspondence addressed to the Minister for Agriculture, Fisheries and Food, Brendan Smith, TD concerning the Proposal by Oxigen Environmental Ltd for the development of Corranure Landfill, Cootehill Rd, Cavan.

I will bring your letter to the Minister's attention.

Yours sincerely,

Dymphna Keogh
Private Secretary

Telephone: (01) 807 2884 LoCall 1890 200 510 Facsimile (01) 681
E-mail minister@agriculture.gov.ie

Cavan Integrated Recycling Facility Meeting

24th January 2008

Attendees

Name

Cavan Better Waste Management Association

Mary Mc Dwyer

Cian Murtagh

Andrew O'Gorman

David O' Daly

Cavan County Council

John Brannigan

RPS Consultants

Willie Madden

Oxigen Environmental Ltd.

Peter Mc Loughlin

Paul Williams

Joan Harrington

Cavan Integrated Recycling Facility Meeting

26th August 2008

Attendees

Name

Cavan Better Waste Management Association

Mary Mc Dwyer

Cian Murtagh

David O' Daly

Cavan County Council

John Brannigan

RPS Consultants

Willie Madden

Oxigen Environmental Ltd.

Peter Mc Loughlin

Jim Dowdall

Joan Harrington

Corranure Landfill Gas Management

Preliminary Landfill Gas Utilisation Feasibility Study

DOCUMENT CONTROL SHEET

Client	Cavan County Council					
Project Title	Corranure Landfill Gas Management					
Document Title	Preliminary Landfill Gas Feasibility Study					
Document No.	MGe0027RP0001					
This Document Comprises	DCS	TOC	Text	List of Tables	List of Figures	No. of Appendices
	1	1	4	1	-	-

Rev.	Status	Author(s)	Reviewed By	Approved By	Office of Origin	Issue Date
A01	Client Approval	A Druhan	A Fahy	W Madden	Galway	29/09/06

Consulting Engineers

TABLE OF CONTENTS

LIST OF FIGURES

1 INTRODUCTION

Corranure Landfill, situated on the R188 Cavan-Cootehill Road, is owned and operated by Cavan County Council under Waste Licence WL0077-02 issued by the Environmental Protection Agency. Under Condition 3.14.5 of the Waste Licence, Cavan County Council is required to submit an "assessment of whether the utilisation of landfill gas as an energy resource is feasible".

In order to explore feasible gas utilisation options for the site, an assessment of the current and future landfill gas production was undertaken. Computer modelling of landfill gas generation rates was carried out, using the GasSim program developed by the UK Environment Agency (EA).

2 GASSIM MODELLING

An analysis of landfill gas generation rates at Corranure was completed using the GasSim model developed by the UK EA, which served to quantify risks in landfill gas production at Corranure. Estimates were made of likely waste inputs over the period 2006-2011 and the composition of the waste. A collection efficiency of 80% of gas generated was assumed. It was assumed that leachate levels within the landfill would be maintained at 1m above the level of the landfill liner. Details of the landfill dimensions and construction were derived from RPS design records. When modelling with GASSIM it is necessary to treat the landfill like two separate landfills, unlined and lined, and then carry out two separate modelling exercises. The two models were based on gas generation rates in the new and lined cells 1-4 (see Figure 1) and also the old, unlined cells (see Figure 2) at the landfill.

Gas production rates and utilisation as a renewable energy source at any site are determined by a variety of factors. The remaining capacity in licensed Cells 3 and 4 and the installation of the final capping system across the filled cells will greatly influence landfill gas production, with a sharp decline in the volume of gas produced at the site expected after 2013.

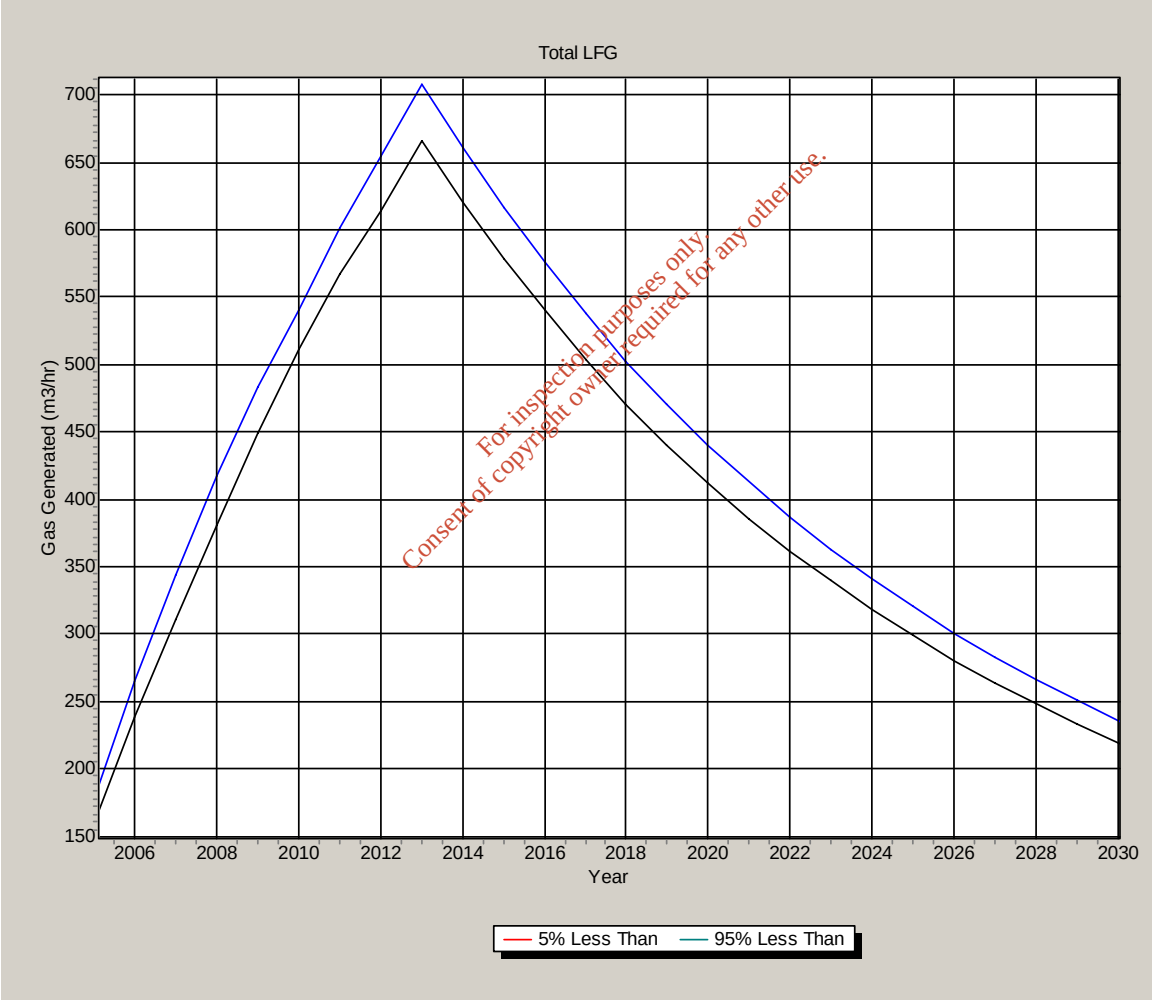

Fig 1: Expected range of rates of bulk landfill gas generation at Corranure Landfill: new & lined Cells 1-4 (5th and 95th percentile)

The model estimates a peak rate of bulk landfill gas production of approximately 650-700 m^3/hr in the year 2013 with generation rates declining steeply after this as landfilling ceases at the facility.

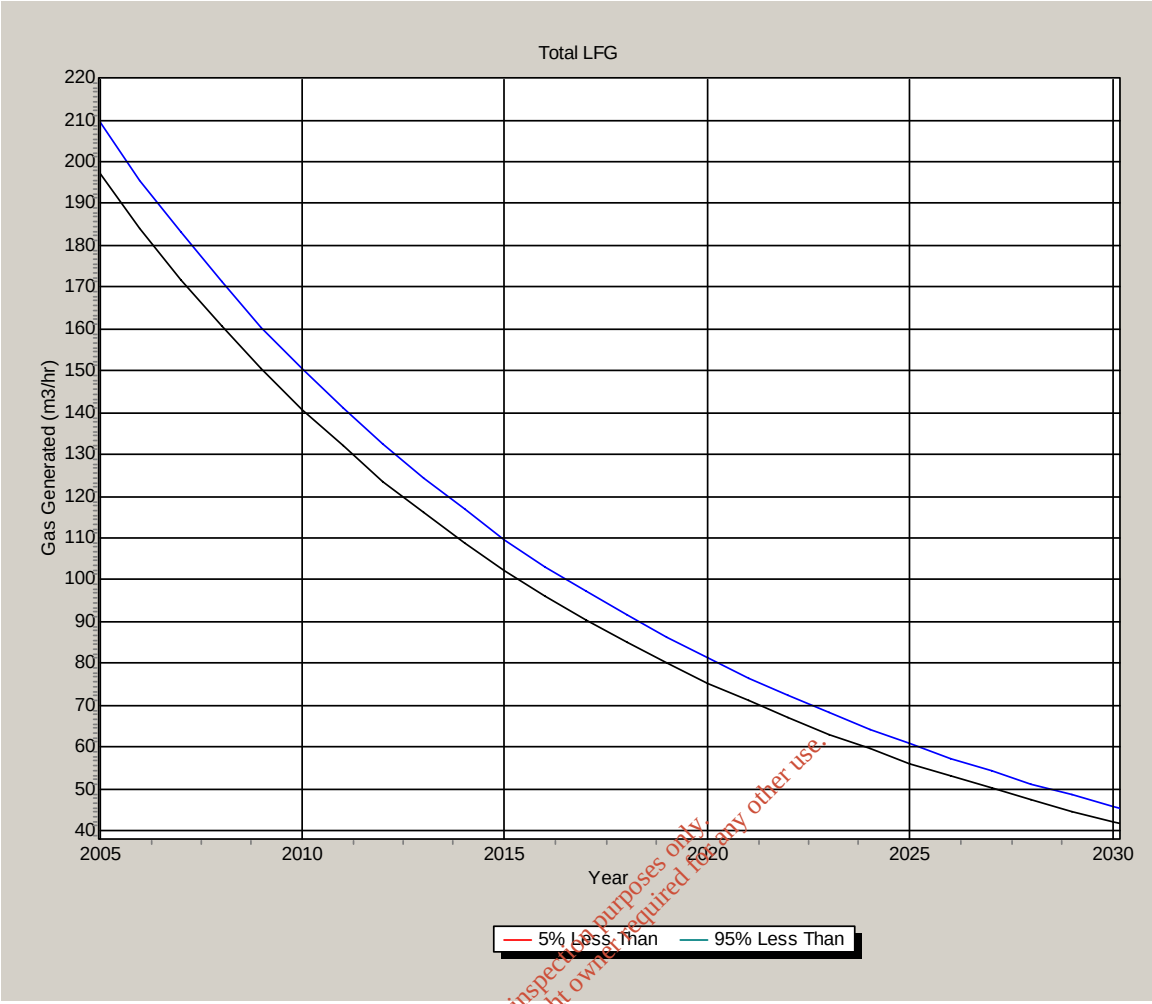

Fig 2: Expected range of rates of bulk landfill gas generation at Corranure Landfill: old & unlined cells (5th and 95th percentile)

Figure 2 shows the graphical output from the model, showing estimated gas production rates from the old, unlined cells at the landfill. The model estimates a peak rate of bulk landfill gas production of approximately 190 m^3/hr in the year 2006 with generation rates declining steeply after this.

3 CONCLUSIONS AND RECOMMENDATIONS

After combining the two GASSIM results, it was concluded from the modelling that a likely sustainable gas flow of 500-600 m^3/hr between the 2007 and 2020 could be produced, with methane levels remaining at approximately 50%, producing in excess of 1MW power generation. A peak flow of 800 m^3/hr was determined for 2013 which would sustain a maximum of 1.5 MW power generation.

It is noted here that although the old, unlined cells are producing gas, the methane percentage is likely to decline leading to a reduction in the overall MW output rating from the landfill. The percentage methane content of gas from the old cells will be a contributing factor in the overall power generation performance of the site.

It is concluded that based on this preliminary study, the utilisation of landfill gas may be viable, but would need verification though a more detailed assessment including an on-site gas pumping trial to determine quality of the gas resource and confirm that the gas flows could be sustained over the given time period. The viability of utilising the landfill gas is also dependent on economic viability, including ESB connection costs which would need to be determined.

Gavan County Council
Corranure Landfill
Telemetry & SCADA System

Operational & Maintenance Manual

Document Number P-07-137-01

RevO

1st Draft

03/01/2008

Prepared By

EMR Integrated Solutions
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Fax +353 1 801 3166

Rev	Date	Section	Description	Req. By
0	03/01/08	All	1st Draft	PD

Table of Contents

1.0 Introduction

This document defines the operation of the Supervisory Control and Data Acquisition (SCADA) system for the Cavan County Council Corranure Landfill.

The Corranure Landfill has a three Remote Telemetry Unit (RTU) installed to enable all relevant signals to be transmitted to a central PC . The system will enable day to day monitoring of the Gas Flow and Temperature of the Flare.

Data from the Remote Terminal Units (RTUs) will be received by the central PC by CPU420 Radio Data Concentrator and transferred to the SCADA Server PC where it is stored in an ODBC data base where the information can be viewed as trended (real-time and/or historical), tabular or report format, or as a real-time animated graphics. Access to the data will be password controlled via the BroadWin WebAccess software which is viewable on any intranet/internet connected PC with the appropriate client plug-in software.

2.0 System Configuration

Data connection between the two RTU's and the central control RTU in the office will be facilitated by private radio communication links between each site and the central control site.

Figure 2.1, below, provides the reader with a diagrammatic representation of the System Configuration.

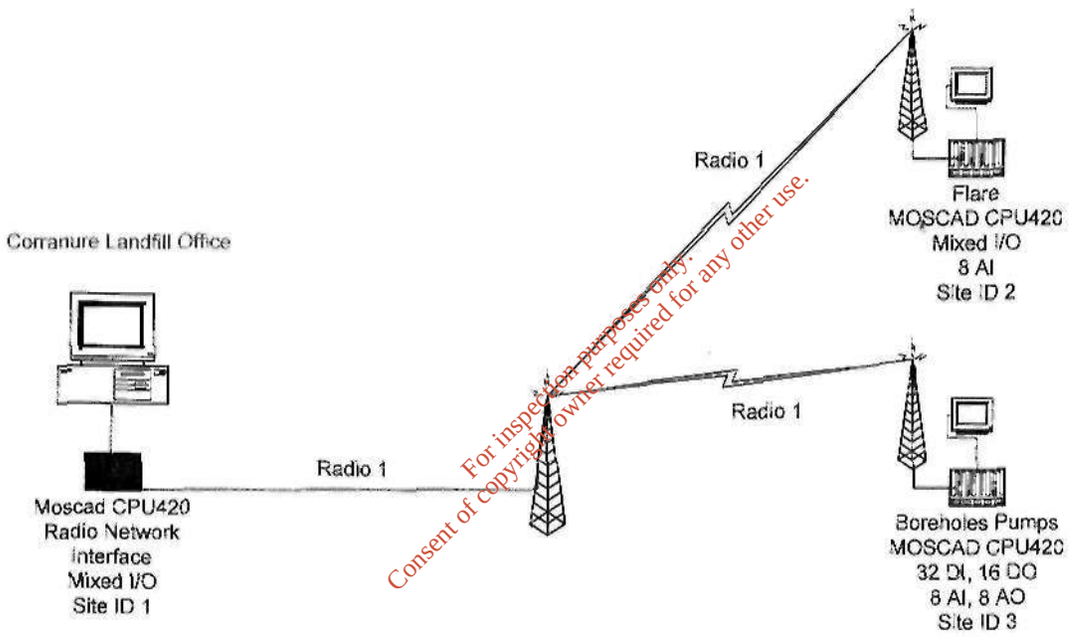


Figure 2.1 Corranure Landfill Network Diagram

3.0 Mimic Displays

The Broadwin visualisation software permits a PC to become a multi-site process monitoring station. The process control station becomes the tool for process control tasks of monitoring, supervisory control, reporting and analysis. The operator interacts with Broadwin through a series of displays.

Each screen representation on this system is subdivided into various "component" areas.

There is a horizontal banner at the bottom of each display. This banner provides the user with the current date/time. This portion of the screen is always on display.

There is a vertical banner on the right-hand side of each display. This section of the display contains the "buttons" that allow the user to navigate around the application screens. Selecting the "Mimics" button for example will bring the user to the Mimics Menu. From here, the user can navigate to any mimic in the SCADA application. The "Alarms" button will bring the user to the Alarms Summary Screen etc. The Login button allows the user to log in/out.

Mimic diagrams can be defined as animated P&ID type representations of the plant and equipment. Motors are displayed in grey when stopped, green when running* and red when a fault exists.

Flows, levels and other instrumentation are represented by numeric values indicating the measurement type, measurement value and measurements units. Levels are typically also indicated by a vessel fill indicator that shows the user the liquid level in the vessel.

Arrow Links are also provided to the user on the Mimic Screens to allow the user to navigate through the system.

The Broadwin screens for the Corranure Landfill are shown in the screen-shots that follow. Users with Access privilege will be navigated to the screen shown in Figure 3.1.

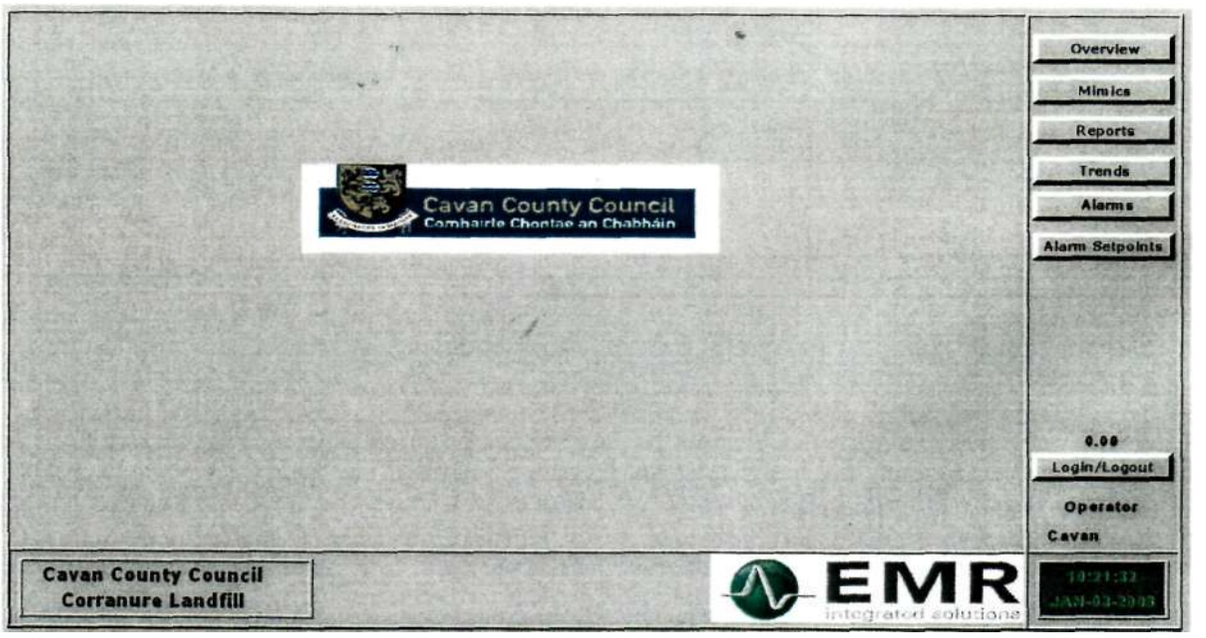


Figure 3.1 Corranure Landfill Overview Mimic Screen

This is the first screen that the user is brought to after logging into Broadwin. i
From this screen by pointing and clicking on the Mimics button will navigate the user to the screen shown in Figure 3.2.

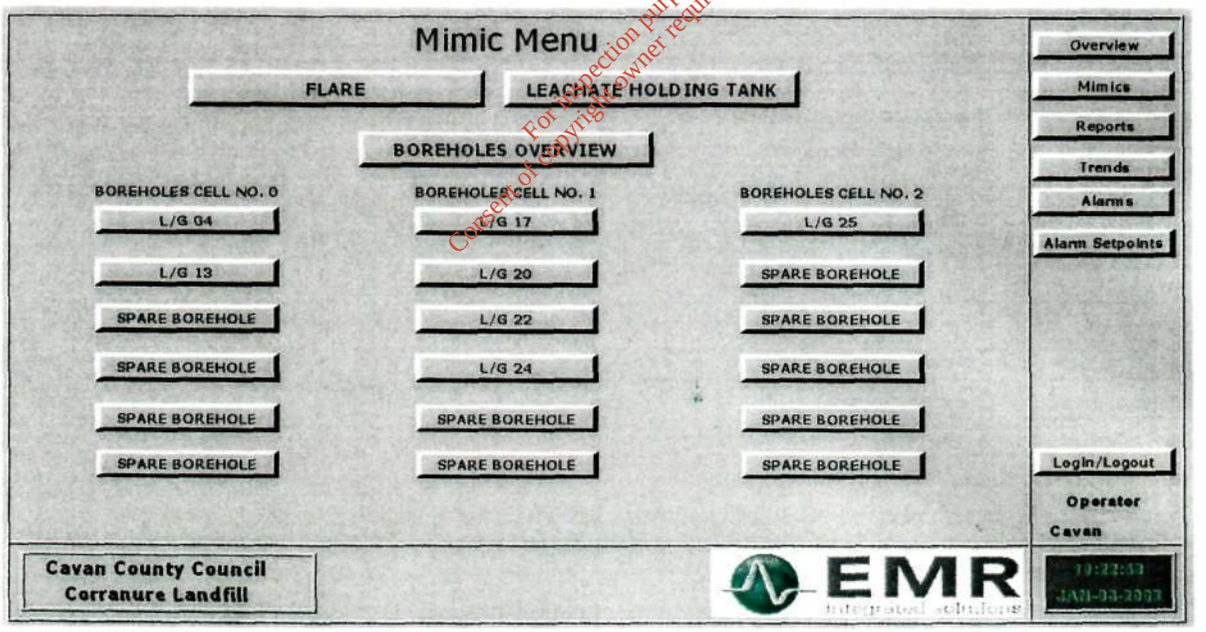


Figure 3.2 Mimic Menu Screen

This screen shows a list of Mimics for the entire system. Pointing and clicking on the Flare button will navigate the user to the screen shown in Figure 3.3.

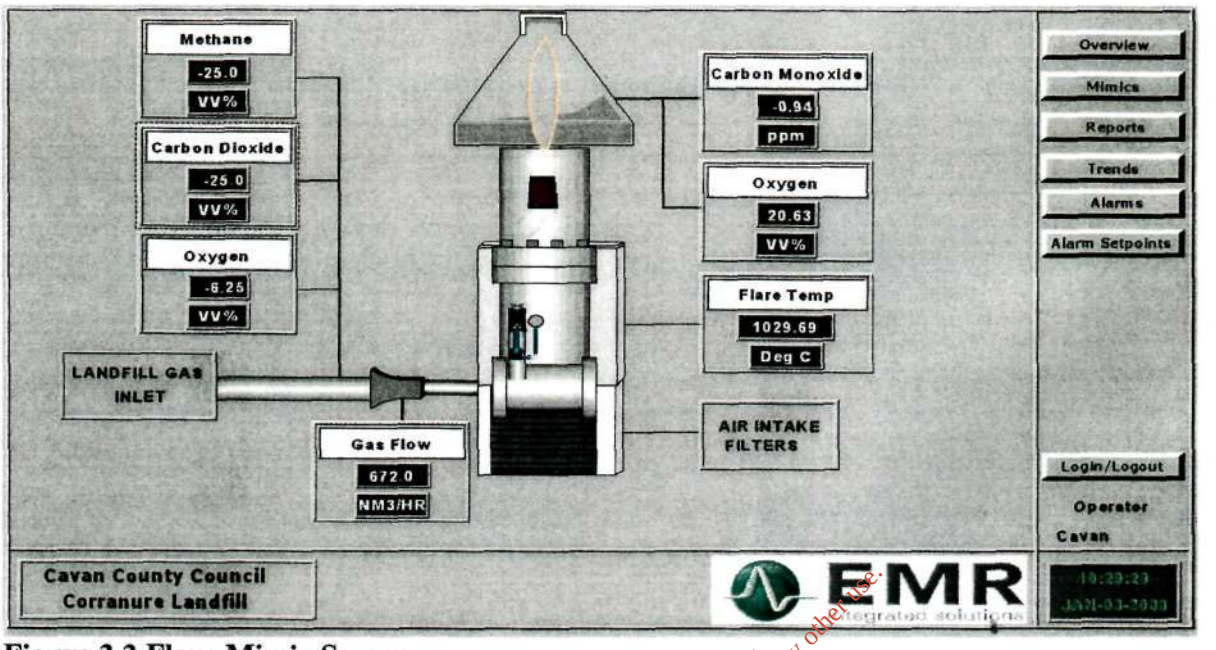


Figure 3.3 Flare Mimic Screen

This screen shows the current values for Methane, Carbon Dioxide, Oxygen and Gas Flow on the input of the Flare and on the output shows Carbon Monoxide, Oxygen and Flare Temperature been measured. Pointing and clicking on the Mimics button will navigate the user back to the screen shown in Figure 3.2. From here by pointing and clicking on the Leachate Holding Tank button will navigate the user to the screen shown in Figure 3.4.

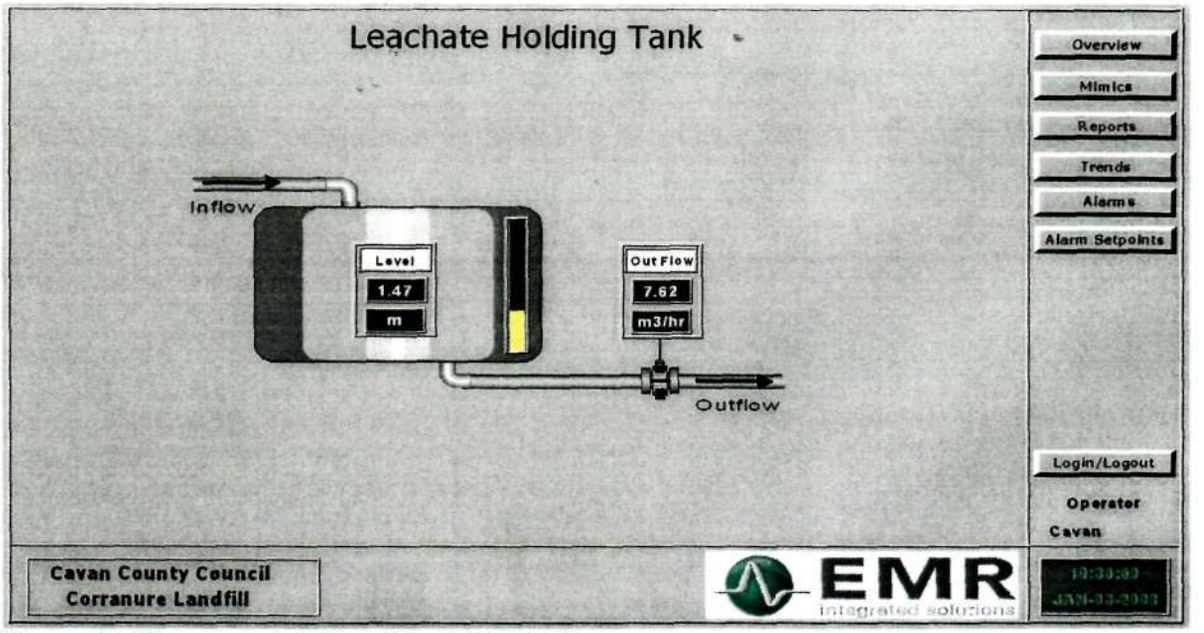


Figure 3.4 Leachate Holding Tank Mimic Screen

This screen shows the current values for the level in the tank and the output fipw from the tank been measured. Pointing and clicking on the Mimics button will navigate the user back to the screen shown in Figure 3.2. From here by pointing and clicking on the L/G 04 button will navigate the user to the screen shown in Figure 3.5.

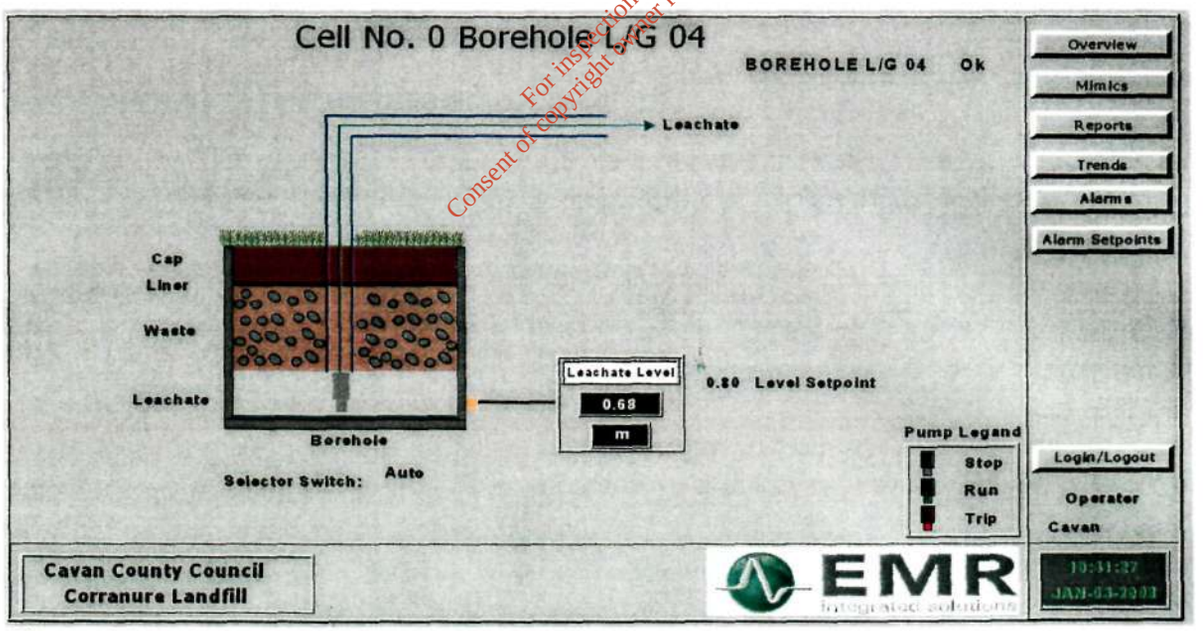


Figure 3.5 Cell No. 0 Borehole L/G 04 Mimic Screen

This screen shows the status of the borehole pump and the current value for the level of Leachate in the borehole been measured. This screen also shows the level setpoint that can be changed by operators who have supervisory access, it also shows the user if the Borehole is Ok or Fault. L/G 13, 17, 20, 22 and 24 are all the same layout of screens as L/G 04. Pointing and clicking on the Mimics button will navigate the user back to the screen shown in Figure 3.2. From here by pointing and clicking on the Boreholes Overview button will navigate the user to the screen shown in Figure 3.6.

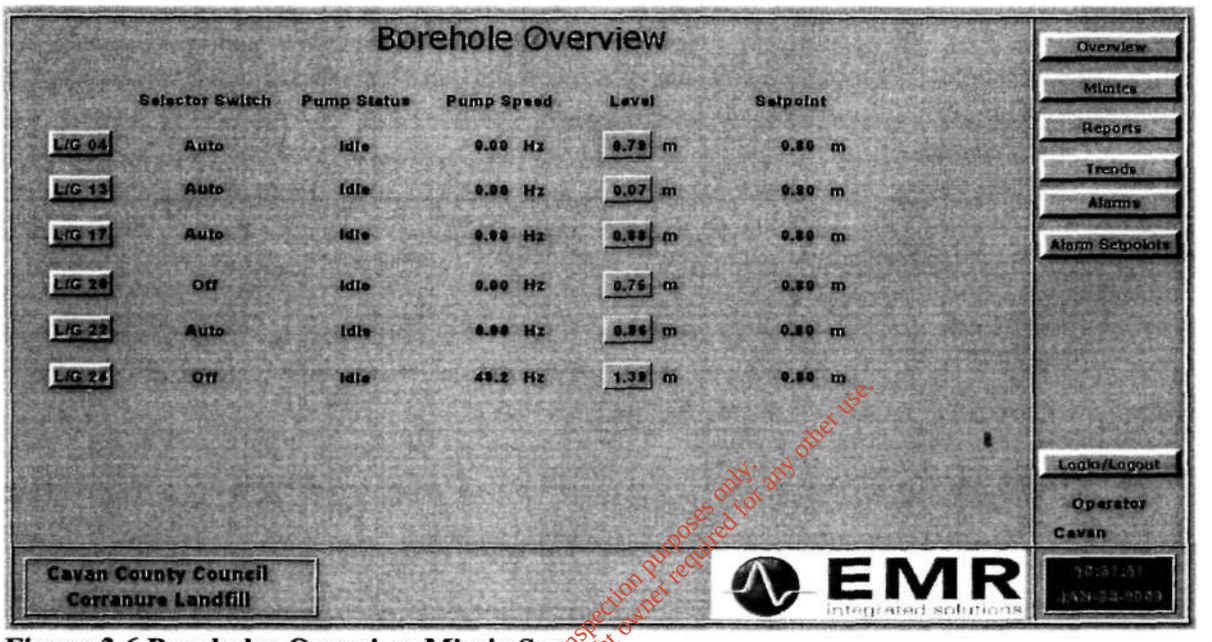


Figure 3.6 Boreholes Overview Mimic Screen

This screen shows an overview of all the Boreholes. It shows the status of the borehole pumps and selector switch on the panel at each borehole. It also shows the pump speed, the current level of leachate in each borehole and by pressing on the levels will navigate the user to the appropriate trend for this level. The level setpoints are also shown here which can be changed by operators who have supervisory access. Pointing and clicking on the Mimics button will navigate the user back to the screen shown in Figure 3.2. From here by pointing and clicking on the Alarm Setpoints button will navigate the user to the screen shown in Figure 3.7.

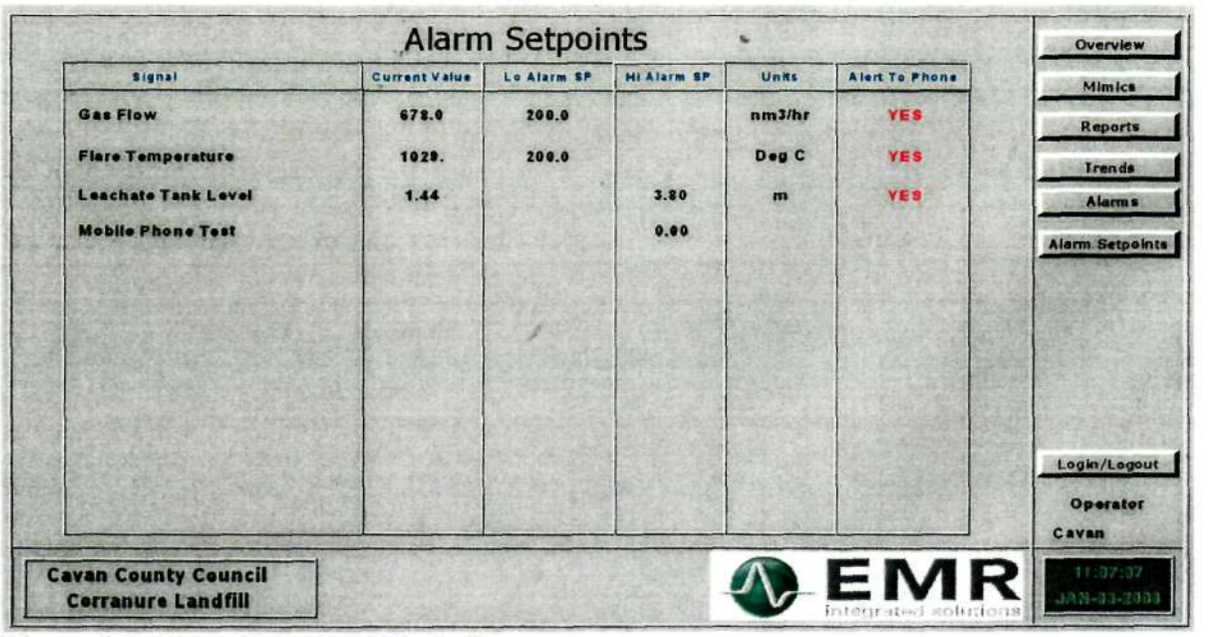


Figure 3.7 Alarm Setpoints Mimic Screen

This screen shows an overview of the alarm setpoints on the system and whether they are sent out as text alerts to the operators mobile phones. The setpoints can only be changed by the operators who have supervisory access. There is also a mobile phone test where by the operator enters a value of 8 into the Hi Alarm SP provided that they have Supervisory Access. This is a testtag and once set will send a text alert to the mobile phones.

4.0 Trend Screens

The Historical Trends Screen a sample of which is shown in Figure 4.1 allows the user to view the historical data, which is stored for all assigned plant analog IO signals.

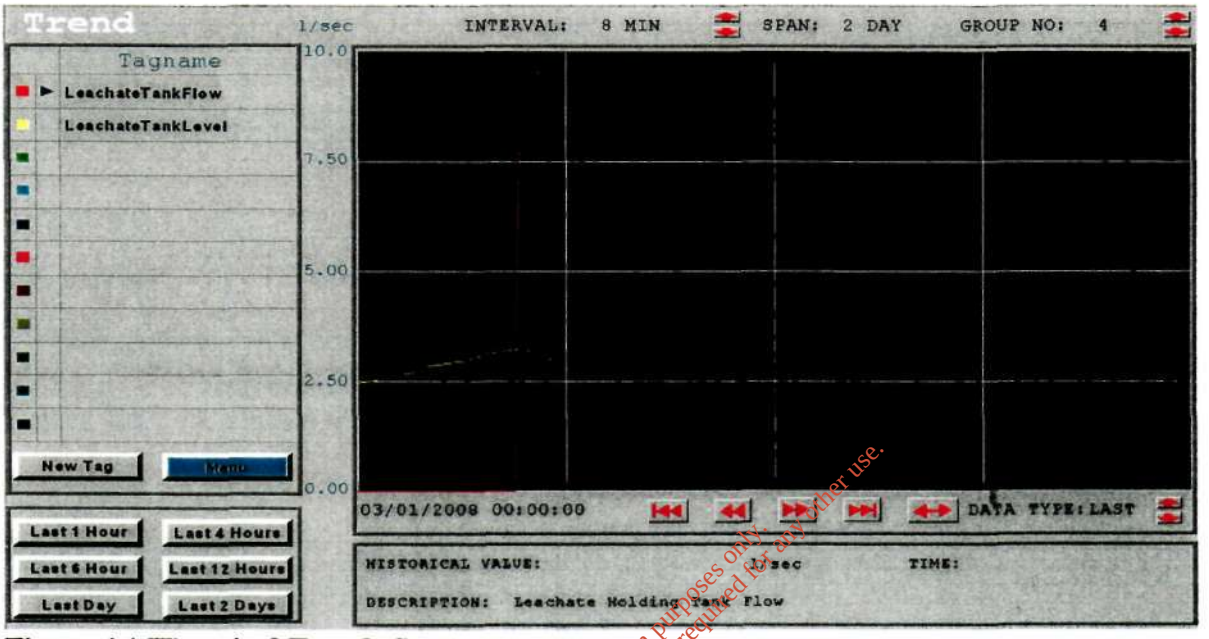


Figure 4.1 Historical Trends Screen

The screen is divided into 3 main sections as follows:

Trend Display Area (The large black rectangle).
Trend Display Controls (The numbers, buttons and arrows at the bottom 1/4 of the screen)
Analog Signal Tagnames. (The list to the left of the display screen above the array of control buttons).

The trends section of the Scada screens are accessed by pressing the Trends button on the navigation control bar. This will present the user with a master navigation screen that the user can navigate to a specific screen as desired. This screen is shown in Figure 4.2 below.

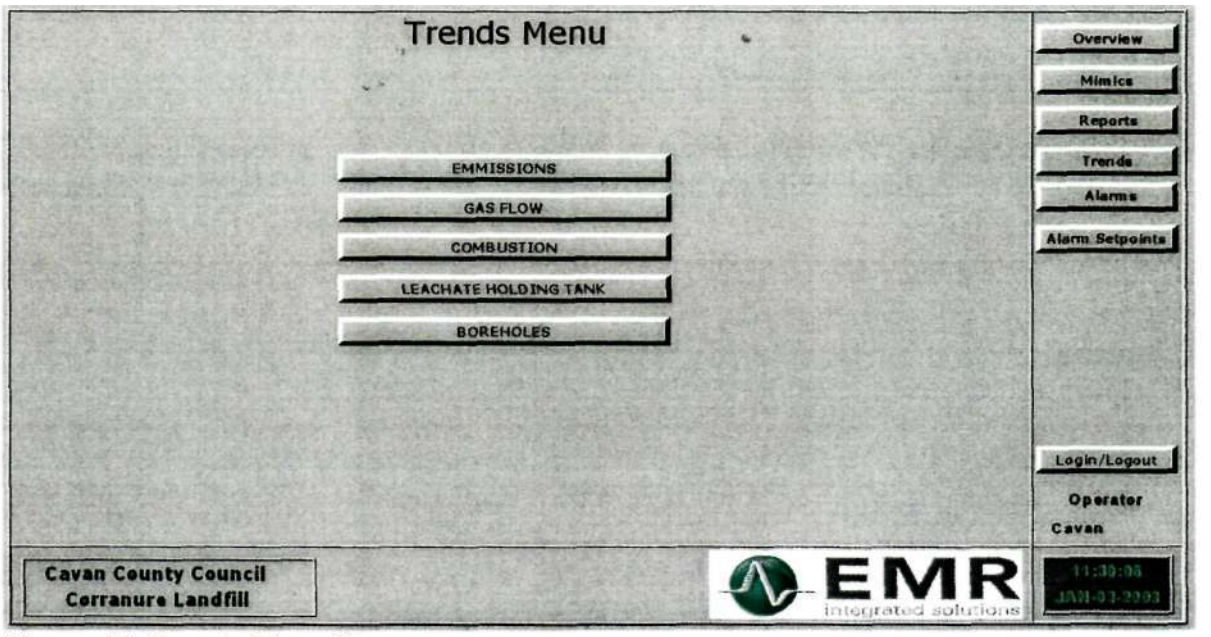


Figure 4.2 Trends Menu Screen

The trends screens allow the user to view historical data in a powerful and flexible way to ensure efficient, economic and compliant management of the Scada system.

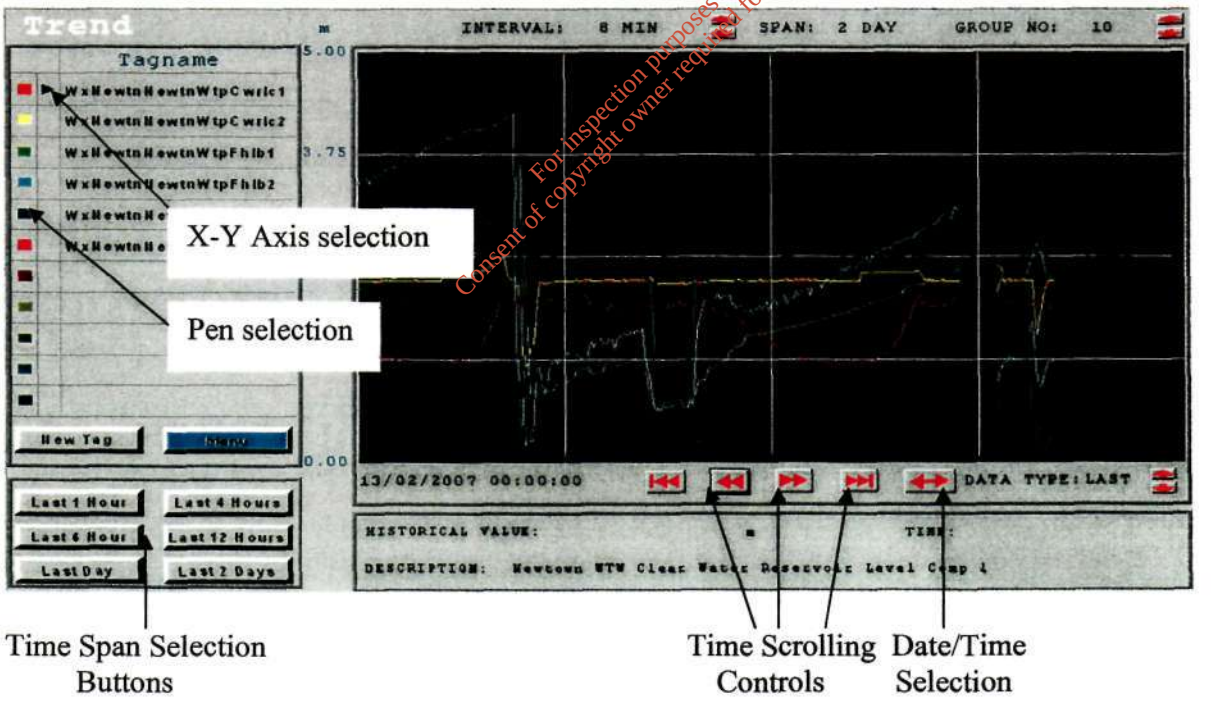


Figure 4.3 Trend Screen

X-Y Axis selection

In the screen shown above all of the values being displayed are shown on the screen, however the X axis scale and engineering units, and the historical values and description only pertain to the parameter indicated by the ▸ symbol. In the screen above the current trend that this applies to is the Clear Water Reservoir Level. Clicking on another trend in the column where the • is displayed will change both the scale and engineering units to that appropriate for the trend data being displayed and the description of the trend. The screen below shows the result of selecting the Outlet Flow. Note the change of scale and engineering units as well as the description.

Pen Selection

Each trend being displayed is associated with a specific colour as indicated by the column on the extreme left of the display screen. These square indicators also act as buttons to allow the specific trend to be displayed or not on the main screen.

Time Span Buttons

These allow the screen display to be viewed with higher degree of granularity. The screen above shows the trend for the last two days. Note the banner at the top of the screen that indicates the current span. Changing the view to the last 12 hours will show the last 12 hours of data.
Note that the span has now changed to 12 hours and that the data is shown with higher resolution. Note that the date and time displayed on the bottom left of the display screen changes indicating the date and time at which the historical trend starts from.

Time Scrolling Buttons

Pressing the ◂◂ scrolling button allows the user to navigate to a previous view of the trends being examined. For example pressing ◂◂ three times will cause the display to view the same trend but for an earlier period.
Note the change in time at the bottom left corner which shows an earlier starting time for the display. Pressing ▸▸ performs the reverse operation and pressing ▸▸| moves the display to current time.

Date/Time Selection Button

Pressing the date/time selection key  will present the user with a dialog box which will allow a specific day and time to be selected for examination, shown below.

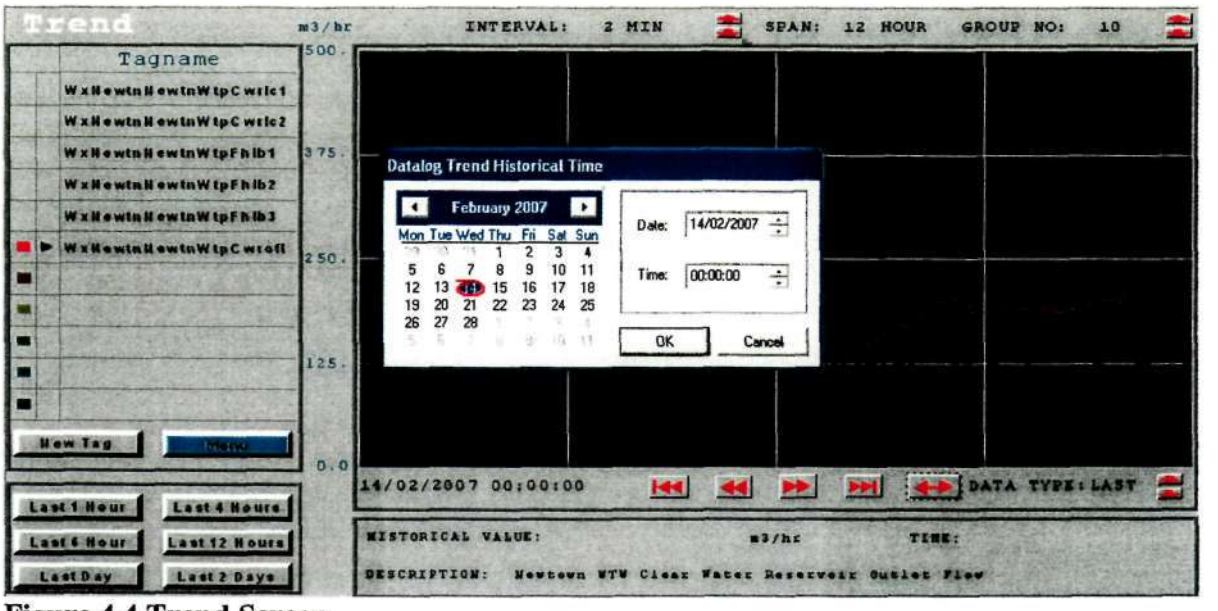


Figure 4.4 Trend Screen

For example if the date is changed to the previous week and the OK button is pressed the tren< display will change to show the trend data for the previous week.
Note the change in date to show new start on the trend screen data log.

Interactive Cursor Facility

A further facility to allow the user to examine data is a movable cursor that will show the use a precise value and time for any point on the trend display. To use this facility position th< mouse cursor anywhere inside the black screen and press the left click button. The cursor wil appear as a vertical line which can be moved across the Y axis by moving the mouse with th left button down.

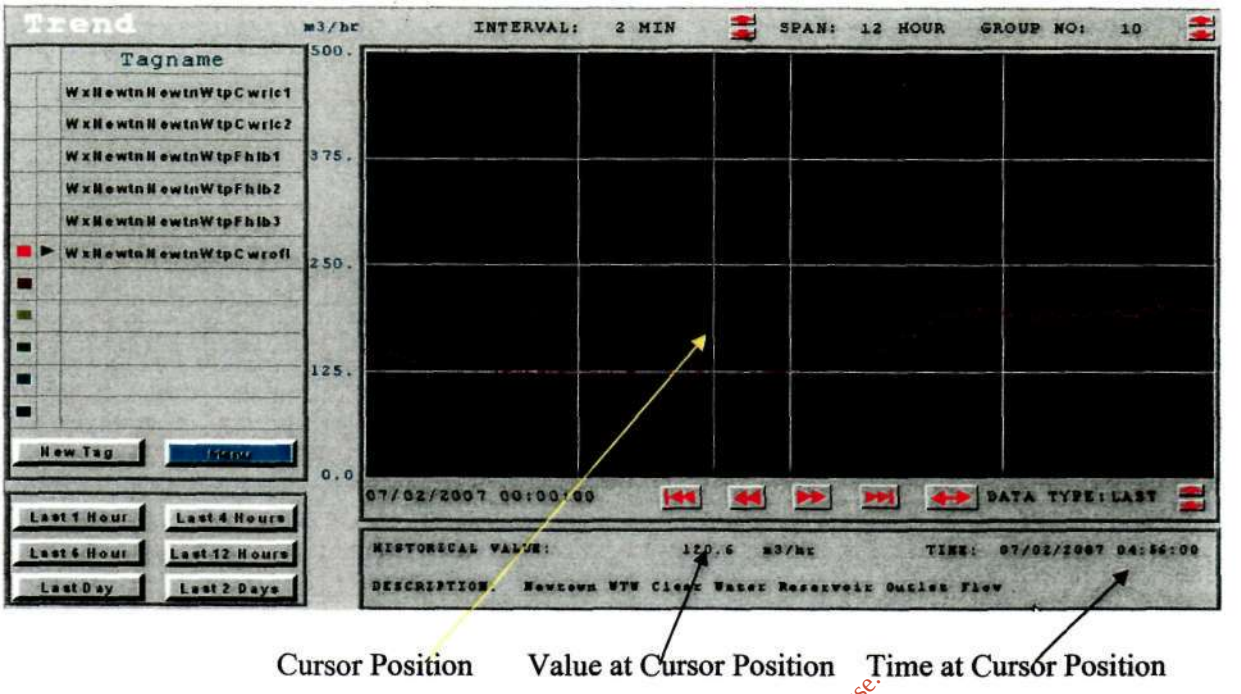


Figure 4.5 Trend Screen

Pressing the menu button will always return the user to the Trend Menu Screen Figure 4.2. During the same login session the user can navigate away from the trend screens and on returning to the screen will find in the same state as is was before looking at other screens. On exit from the scada system and a subsequent login to the scada system the screens will revert to the default trend screen, which is a Last 2 Days view with all available trends displayed. From this point the user can manipulate the screens to examine the required information in the desired detail.

5.0 Alarms Screen

The Alarms Screen Figure 5.1 allows the user to view a list of alarms that have occurred. It also allows the user to sort the alarms by Time, by Name, by Priority, and by Acknowledged State. Sorting by Priority will display higher priority alarms at the top of the screen. Sorting by Acknowledged state will show unacknowledged alarms towards the top of the screen. It is important to note that alarms are global for administrator level users and all alarms across the entire system are displayed on the same screen. A typical alarm screen configuration sorted by Time is shown in Figure 5.1.

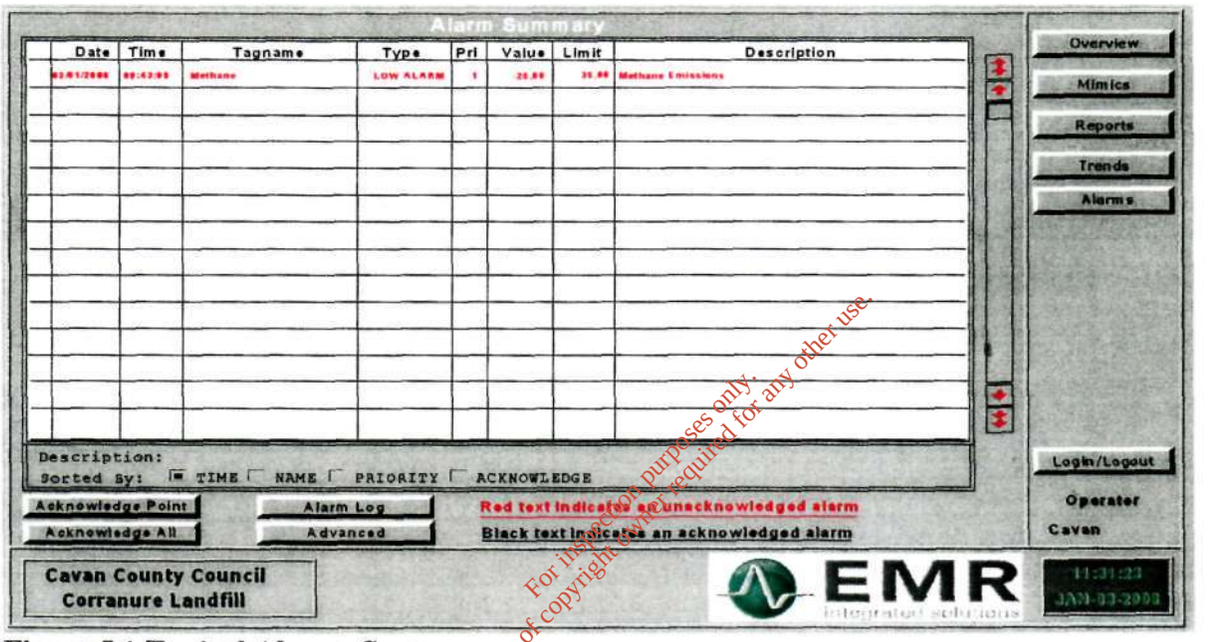


Figure 5.1 Typical Alarms Screen

This screen allows the user to view alarms that have occurred. For ease of use unacknowledged alarms are shown in red text and acknowledged alarms are shown in black text. **Alarms** represent warnings of process conditions that could cause problems and may require operator response. A typical alarm is triggered when a process value exceeds a user-defined limit, such as an analogue value exceeding a hi-limit threshold. This triggers an unacknowledged alarm state which can be used to notify the operator of a problem.

The alarm screen has the following controls:

Acknowledgement buttons: These are located to the bottom left of the display, allow the user to acknowledge all alarms or a single selected alarm. In order to acknowledge a specific alarm the mouse cursor is positioned anywhere in the row of the alarm that the user wishes to acknowledge and the left mouse button clicked. The • symbol will appear in the extreme left

box of the row, indicating that the row is selected. In order to acknowledge the alarm the user positions the mouse cursor over the "Acknowledge Point" button and left clicks to activate it.

Alarm Log: This button is located next to the Acknowledge Point button. Pushing this button, by positioning the mouse cursor over it and left clicking to activate the button, will navigate user to the alarm log screen shown in Figure 5.2.

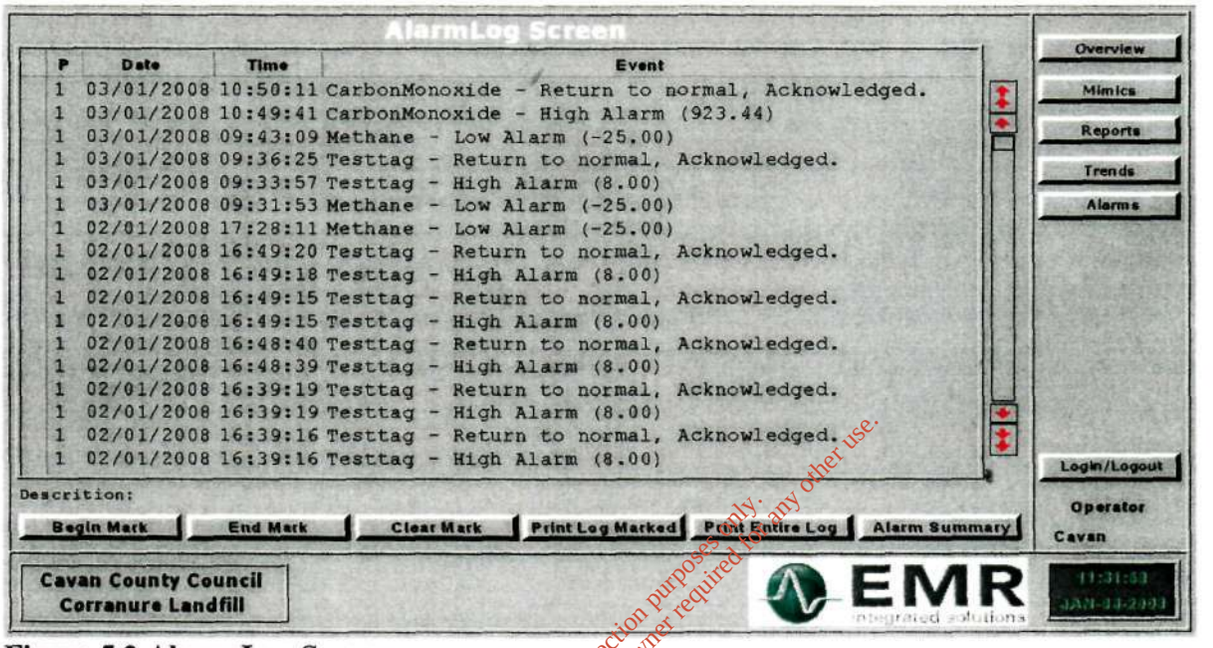


Figure 5.2 Alarm Log Screen

This screen shows a history of alarms with the most recent alarm at the top. The scroll bar at the right hand side of the screen allows the user to scroll backwards and forwards through the log. The **T** button will always move the user to the most recent point in the log by five entries at a time from the current location. The + will move the user towards the last, most historic, entry in the file by five entries at a time from the current location. The single up-arrow and down-arrow have exactly the same function but only move by one entry at a time. Alternatively the user can scroll through the entries by positioning the mouse cursor within the scroll bar control box, which can then be moved up and down by moving the mouse with the left mouse button held down.

This screen has a number of controls grouped along the bottom of the screen. These buttons function as follows.

Begin Mark/End Mark/Clear Mark: These buttons are used in conjunction with each other. Using these buttons on the screen shown above to select all records that occurred at 15:00 is

illustrated in Figure 5.3. Once a selection has been made the marked entries can be cleared by using the Clear Mark button.

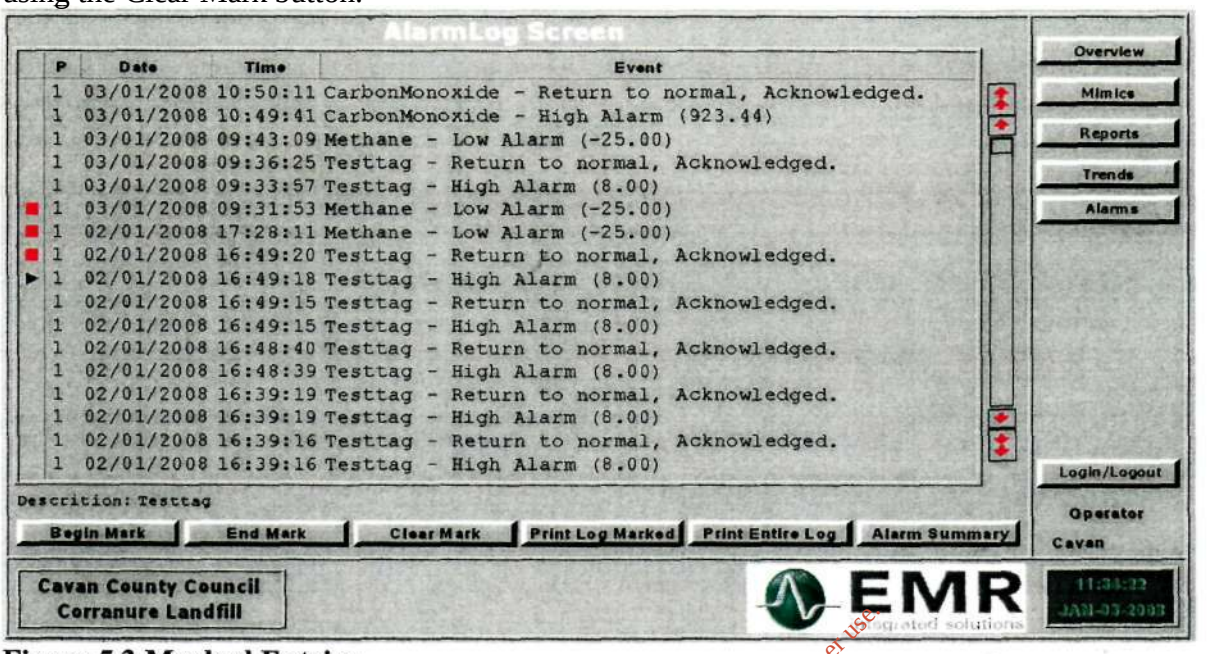


Figure 5.3 Marked Entries

Print Log Marked/Print Entire Log: The "Print Log Marked" button will print marked entries as defined by the red boxes in the row headers. The "Print Entire Log" button will print all of the entries contained within the log.

Alarm Summary: Pushing this button will return the user to the screen shown in Figure 5.1.

Appendix 1

OEM Documentation

OEM Documentation

Appendix A MOSCAD-M Manuals
Please see attached file "Appendix A - MOSCAD-M Manual.pdf"

Appendix B MOSCAD MCPM Manuals
Please see attached file "Appendix B - MOSCAD MCPM Manual.pdf

Appendix C Broadwin Manuals
Please see attached files "Appendix C - Broadwin Manual.pdf

OPERATIONS PLAN 2007

CORRANURE LANDFILL

Date of Revision: 27/07/07

TABLE OF CONTENTS

1.0 OPERATIONS PLAN

1.1 INTRODUCTION

On 12th June 2001 the EPA granted a waste licence subject to conditions to Cavan County Council for its facility at Corranure Landfill. In accordance with the Waste Management (Licensing) (Amendment) Regulations, S.I. No. 336 of 2002, a request for the review of Waste Licence 77-1 for Corranure Landfill on behalf of Cavan County Council was made to the EPA in April 2003. As a result a new Waste Licence W0077-02 was granted by the EPA on the 10th May, 2005. This licence is for the continued operation and expansion of a non-hazardous waste landfill, a Civic Amenity (CA) facility and a recycling building located at Corranure Landfill, Cootehill Rd., County Cavan. There have been two Amendments to the waste licence which are contained in Appendix B. Amendment B related to a revision to the waste licence boundary.

Conditions 2.3 & 2.4 of Waste Licence W0077-02 states the following:

2.3.1 The licensee shall operate and maintain an Environmental Management System (EMS). The EMS shall be updated on an annual basis with amendments being notified to the Agency, as part of the AER.

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

2.3.2.1 ***Schedule of Environmental Objectives and Targets***

The objectives should be specific and the targets measurable. The Schedule shall address a five-year period as a minimum and reviewed annually. The Schedule shall include a time-scale for achieving the objectives and targets.

2.3.2.2 ***Environmental Management Plan (EMP)***

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

(i) the items specified to be contained in an Environmental Management Plan in the Landfill Operational Practices Manual published by the Agency,

(ii) methods by which the objectives and targets will be achieved and the identification of those responsible for achieving those objectives and targets, and

(iii) any other items required by written guidance issued by the Agency.

2.3.2.3 ***Corrective Action Procedures***

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

2.3.2.4 ***Awareness and Training Programme***

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

2.4 Communications Programme

The communications programme ensures that members of the public can obtain information concerning the environmental performance of the facility at all reasonable times.

An Environmental Management System (EMS) can be defined as that part of the part of the licensee's overall management system which deals with environmental issues relating to the licensed facility.

The purpose of this EMS, prepared by the Licencee, is;

- to document the management system that operates at the Corranure Landfill site, and
- to control any environmental impacts which it may occur as a result of the facility.

It is the responsibility of the Landfill Manager to review and update the EMS on an annual basis.

1.2 SCHEDULE OF ENVIRONMENTAL OBJECTIVES AND TARGETS

1.2.1 REVIEW OF OBJECTIVES AND TARGETS FOR 2006

Objective 1: Energy Consumption

Objective: Reduce Energy Consumption

Target Date: December 2006

Responsibility: Landfill Manager

Progress: According to figures received from ESB Customer Care, 98,514kWh units of electricity were used in 2005. This figure was exceeded however in 2006 when approximately 169,000 kWh units of electricity were used.

Objective 2: Landfill Gas Emissions

Objective: Reduce Landfill Gas emissions on site

Target Date: May 2006

Responsibility: Landfill Manager

Progress:

Completion of the capping works on Cell 1 in May 2006,

- Installation of new wellheads on 12 leachate/gas wells on the remediated old landfill and on Cell 1,
- Improvement of the bentonite seals around all wells outlined above,
- Improvements to lines, levels and falls of the landfill gas pipework, including installation of new condensate knockout pots on the pipe network, and
- Connection of horizontal pipework in the active cell to a temporary open flare.

Objective 3: Improve Facility Layout

Objective: The erection of a retaining wall to the back of the waste compound, relocation of the wheelwash and upgrade of the access road adjacent to the compound

Target Date: December 2006

Responsibility: Landfill Manager

Progress: Tenders were invited to carry out site infrastructure development works in August/September 2006. A contractor was appointed in late November 2006. The design was revised and the retaining wall was no longer required. The revised layout included for a new weighbridge adjacent to the existing unit for outgoing traffic with a control office in between. The access route for traffic to the landfill cells was altered. The existing wheelwash was relocated further north towards Cell 3. A sealed surface was provided on the road between the weighbridge and the new wheelwash location. A hardcore surface was provided thereafter as far as the entrance to the landfill cell.

Objective 4: Provision of Training

Objective: Provide appropriate training to all staff on any matters arising out of work on the site.

Target Date: December 2006

Responsibility: Landfill Manager

Progress: No suitable training was identified. A new Landfill Manager was appointed in December 2006. An Assistant Landfill Manager was appointed January 2007.

Objective 5: Increase Capacity of Landfill

Objective: Complete the construction of Cell no. 3

Target Date: September 2006

Responsibility: Contract

Progress: Construction of Cell No. 3 was substantially completed in June 2006.

1.2.1 SCHEDULE OF ENVIRONMENTAL OBJECTIVES AND TARGETS FOR 2007

Schedule of Environmental Objectives and Targets for 2007

Objective	Target date
Complete Capping of Cell 2	Late 2007
Increase leachate extraction in remediated old landfill, Cells 1 and 2	Continuous
Increase landfill gas extraction: • Install additional landfill gas extraction wells in Cell 1 • Install new landfill gas extraction wells in Cell 2 • Install horizontal gas wells in Cell 3 • Increase flaring rate	March 2007
Complete Site Infrastructure Development Works	April 2007
Carry out continuous monitoring of enclosed landfill gas flare	Continuous
Provision of training to Landfill Manager and Assistant Landfill Manager	Continuous

1.3 ENVIRONMENTAL MANAGEMENT PLAN

1.3.1 Introduction

The purpose of this Environmental Management Plan (EMP), prepared by Cavan County Council, is to document the current and future operations at its facility at Corranure. Subsequently the EMP is the site manual for Corranure Landfill.

The EMP is a working document and shall accommodate the need for some matters to be determined or amended as the life of the site progresses.

1.3.2 Details of Operator

The operator of Corranure Landfill is Cavan County Council, Courthouse, Cavan Town.
Tel: 049-4378300, Fax: 049-4361565, E-mail: info@cavancoco.ie

A Senior Executive Officer is responsible for the landfill and may be contacted at the Waste Management Section of Cavan County Council, 17 Farnham St., Cavan.
Tel. 049-4378300, Fax. 049-4361565

The Landfill Manager is based at Corranure Landfill, Cootehill Rd., Cavan.
Tel. 049-4372700, Fax. 049-4372554.

The Landfill Manager is assisted by the Assistant Landfill Manager and Weighbridge Operator, both based at Corranure Landfill, Cootehill Rd., Cavan.
Tel. 049-4372700, Fax. 049-4372554.

Other landfill staff include a Tractor Driver, two General Operatives and a Civic Amenity Supervisor. The two compactors and compactor drivers are sub-contracted onto site.

See **Appendix 1** Management Structure at Corranure Landfill

1.3.3 Site Description

Corranure Landfill Facility is located within the townlands of Corranure and Lismagratty adjacent to the Cavan-Cootehill Rd (R188) approximately 3 km northeast of Cavan Town. See **Appendix 2** Location Map for Corranure Landfill Site.

The site is bounded to the south by the R188 Regional road, to the east by a lane giving access to existing farm buildings and to the north and west by a series of hedgerows and small areas of

woodland. The landfill is located within a drumlin region. The surrounding landscape consists of fertile land primarily of agricultural use. The area under the remediated old landfill was initially a wet boggy area underlain by stiff clays. The landfill was designed on a 'dilute and disperse' principle. The new cells are directly to the northwest of the remediated old landfill

The landfill facility consists of a remediated old landfill which is unlined and Cells 1, 2, 3 and 4 which are lined with a leachate collection system.

1.3.4 Types of Waste Accepted

Corranure Landfill is licenced to accept household waste, commercial waste, green waste, construction and demolition waste, street cleaning residues and hazardous household waste. The Civic Amenity Facility opened in February 2002.

At present the Civic Amenity site accepts clean, dry, segregated recyclables from householders as follows:

- newspapers including magazines,
- cardboard,
- tetra pak,
- glass bottles and jars,
- aluminium and steel cans,
- plastic containers and plastic shrink wrap,
- electrical goods.
- fluorescent tubes,
- batteries,
- scrap steel,
- waste engine oil and oil filters,
- C& D waste and green waste, and
- textiles/footwear,

The Waste Acceptance Procedure for Corranure Landfill is detailed in **Appendix 3**.

1.3.5 Quantity of Waste Accepted

The facility at Corranure Landfill Site is licensed to accept the following wastes:

Waste Type	Maximum Tonnes per Annum
Household Waste	50,000
Commercial Waste	32,000
Construction and Demolition Waste	5,000
Green Waste	2,000
Street Cleaning Residues	900
Hazardous Household Waste	100
TOTAL	90,000

Wastes arriving at the site are treated under the terms of documented waste acceptance procedures. Only wastes deemed acceptable are disposed of at Corranure Landfill facility.

During the period June 6th 2001 to March 11th 2002 no wastes were disposed of at Corranure Landfill facility due to construction works in progress.

1.3.6 Site Capacity

Filling of waste began in Cell 2 of the landfill in October 2005. A total of 14,990 tonnes of waste were placed in the landfill between October 2005 and December 2005. It was originally estimated that the capacity of Cell 2 was 72,000 tonnes, based on a proposed filling profile and a compaction rate of 0.7t/m^3. From 1st January 2006 to 31st December 2006, 85,869 tonnes of waste were disposed of in Cell 2. This was achieved by filling the waste to a steeper profile than previously proposed and obtaining a higher compaction rate.

In March 2007, it was estimated that there was 2-3 months filling capacity remaining in Cell 2. Cell 2 is now closed and Cell 3 is active. The remaining capacity in Cell 3 is calculated to be 239,000 tonnes. Appendix 4 contains the Filling Plan for Cell 3; DG0009-01F02 which has been fowarded to the Agency for approval.

1.3.7 Engineering Details

1.3.7.1 Offices and Site Buildings

The administration building is at the entrance to the landfill site. The building consists of a control room, landfill manager's office, canteen, shower room and toilets. A new weighbridge control kiosk was constructed in 2007.

There is also a secure steel container on site for storage of bin bags, tools such as shovels, forks, 'litter grabbers' etc and a cardboard bailing shed.

1.3.7.2 Car Park

The car parking area is located at the entrance of the site and can accommodate 10 cars including 1 place for disabled parking.

1.3.7.3 Weighbridge

The 'Avery Berkel' weighbridge is a platform design with a capacity of 60 tonnes and dimensions of approximately 20m x 3m. A new weighbridge was installed at the facility adjacent to the existing unit for outgoing traffic with a control kiosk in between. This will allow traffic to access the facility on a two way basis and will help alleviate congestion and queuing at the facility entrance.

1.3.7.4 Security Gates and Fencing

There are padlock secure gates at the entrance and back of the landfill. The perimeter of the site is fully fenced with security fencing - palisade fencing at the front and cranks top post and wire at the back. The fence is checked on a regular basis and the front gates are kept locked when the site is closed.

1.3.7.5 Fuel Storage

Fuel is not stored on site at the landfill. However, a bunded fuel storage tank is provided. Site vehicles are refuelled directly from a commercial fuel tanker. The generator on site is also fuelled by these means.

1.3.7.6 Wheelwash

The existing wheelwash has been relocated further north towards Cell 2 and is used by all lorries and tractors leaving the tip face area. The wheel wash is inspected and manually washed and de-sludged when required.

1.3.7.7 Site Access Roads and Secondary Site Roads

Access to the landfill is via the R188 Cavan-Cootehill Road in the townlands of Corranure and Lismagratty. Cavan County Council is responsible for maintenance of this road.

13.7.8 Site Machinery

Two compactors (on hire) are used on site at the landfill. Other plant and machinery is hired in as required. The Landfill operates its own tractor for emptying waste skips used by the public entering the site. The licensee also operates its own machine for the bailing of cardboard. Site personnel have been trained on the use of this baler.

1.3.7.9 Silt Trap and Oil Interceptor

The silt trap and oil interceptor are located inside the kerbed area on the right hand side of the internal road. Surface water from the paved areas enters the silt-trap and then the oil interceptor. The treated water at the outlet of the oil interceptor discharges to a surface water drain.

1.3.7.10 Leachate Management System

A glass-lined steel leachate tank was installed at the facility in 2006 with a capacity of 1,531 m^3. It is intended that this will be the primary leachate storage unit at the facility. The original lagoon, with a capacity of approximately 270 m^3 is to be used as an emergency overflow to the tank. Therefore, the total available capacity for leachate storage at Corranure Landfill is 1,801 m^3 which exceeds the required storage capacity for 7 days of average leachate generation.

Leachate abstraction wells and an interceptor drain remove leachate from the remediated old landfill. Cell 1 was remediated in late 2005/early 2006. Cell 2 is currently being remediated (due for completion in August 2007) and Cell 3 is the active cell.

The remediated old landfill, Cells 1 and 2 are connected to the gas management system, which consists of gas extraction wells, pipework and a gas flare.

- **Leachate Main Upgrade**

The existing leachate main from the landfill into Cavan town was upgraded from a 63mm diameter to a 110mm diameter MDPE main.

A new rising main from the new leachate storage tank to the current discharge point at the entrance to the Rocklands Estate was installed. This increased leachate pumping capacity at the landfill and will enable the facility to deal with the expected increase in leachate generation rates.

- **Leachate Pumping System Improvements:**

Alterations to the existing leachate management system to improve leachate management at the site and to allow the facility to better deal with future increases in leachate generation rates are as follows:

1. All leachate generated on site is now pumped into a leachate inlet pumping chamber adjacent to the existing lagoon. Leachate is pumped from this chamber into the new leachate storage tank. A duty-standby pump system has been installed so as to ensure that sufficient pumping capacity will always be available to manage the leachate.
2. A new leachate discharge pumping chamber was constructed to pump leachate from the collection tank into the Cavan town sewer system. This arrangement will facilitate easier management of the system and improve ease of monitoring of the pumping system by landfill staff.
3. The pumping chamber P6V6 has been replaced by a new pump chamber that pumps leachate from the interceptor drain to the leachate storage tank.

4. All new leachate pumping infrastructure was configured so as to allow connection to the facility's telemetry system.

1.3.7.11 Landfill Gas Management System

A gas management system operates at the facility which consists of gas extraction wells, pipework and an enclosed gas flare.

There are 4 no. gas extraction wells on the remediated old landfill and 9 no. gas extraction wells in Cell 1. A further 13 no. gas extraction wells were also installed in Cell 2 in between March and May 2007. All landfill gas wells are connected to the enclosed flare which has a capacity of 500m^3/hr. A landfill gas analyser was installed on the flare in 2007. Cell 3 Gas Management Plan DG0010-01 F01 is shown in Appendix 4.

1.3.7.12 Surface Water Management System

Surface water from the remediated old landfill and Cell 1 drains along the perimeter of the cells towards the south west corner of the site to a culvert beneath the R188 and into the Corranure Stream. Surface water from Cell 2 drains northwards along the edge of Cell 3 and the proposed cell 4 to the Lismagratty stream.

There are surface water monitoring points on the Lismagratty and Corranure Streams.

1.3.7.13 Monitoring Points

Monitoring points for landfill gas, surface water, groundwater, dust, noise and leachate have been established and labelled.

See **Appendix 4** Location Map Environmental Monitoring Points.

1.3.7.14 Facility Notice Board

A Facility Notice Board for the landfill is located at the site entrance gates. This notice board shows the following information:

a) the name and telephone number of the facility,
b) the normal hours of opening,
c) the name, address and telephone number of the licence holder,
d) an emergency out of hours contact telephone number,

e) the licence reference number, and

f) where environmental information relating to the facility can be obtained.

1.3.7.15 Containment Details

An adequate supply of containment booms and suitable absorbent material is stored in a locked container in the compound area. Once used the absorbent material will be disposed off at an appropriate facility and unused material replaced in the spill kit.

1.3.7.16 Other Significant Site Engineering Works

As per Waste Licence W0077-02, Cavan County Council will submit proposals for all Specified Engineering Works, as defined in Schedule B: Specified Engineering Works, to the Agency for their agreement at least one month prior to the intended date of commencement of such works.

No works will be carried out without the prior agreement of the Agency.

A competent person will supervise all specified engineering works and that person will be present at all times during which relevant works are taking place.

1.3.8 Operational Matters

1.3.8.1 Description of Operations

Cavan County Council owns and operates a non-hazardous landfill and Civic Amenity centre at its facility at Corranure, Cootehill Rd., Cavan.

The volume of non-hazardous waste to be deposited at the landfill is limited to 90,000 tonnes per annum and waste is deposited in lined areas of the facility.

The Civic Amenity centre allows for the recycling of householders: magazines, newspaper, cardboard, tetra-pak, glass, aluminium and steel cans, plastic, textiles/clothes, footwear, electrical goods, fluorescent tubes, C&D waste, waste engine oil, batteries (wet and household) and green waste.

Cavan County Council operates its facility in accordance with the Conditions of Waste Licence W0077-02 and manages and operates the facility to ensure that the activities there do not cause environmental pollution or nuisance. BHP Laboratories carries out all environmental monitoring and Cavan County Council submits all monitoring results and reports on the development, operation and management of the facility to the Agency.

1.3.8.2 Water, Leachate and Landfill Gas Control Measures

Groundwater Control Measures

Protection of groundwater is achieved on site as follows:

- the remediation of landfill cells which will reduce the production of leachate,
- the provision of a leachate management system in order to maintain a low leachate head.

A groundwater monitoring programme is in place at the facility. When results of analysis of groundwater samples indicate environmental pollution has taken place, the results are recorded as an incident and investigated. Details of results are forwarded to the agency as per the Emergency Response Procedure; **Appendix 5**.

See **Appendix 5** Environmental Incident Report Form and Emergency Response Procedure.

Surface Water Control Measures

The remediated old landfill is situated on the site of a small lake, Lismagratty Lough. Corranure stream runs from the South west corner of the old landfill for about 4 km to Cavan town. A baseline survey was carried out in 1998 as part of the Environmental Impact Statement. In general the stream was found to be highly polluted by leachate from the original landfill which was active at that time.

Measures taken at Corranure to protect against Surface Water contamination include:

- the realignment and piping of the Corranure Stream to prevent leachate from entering the stream,
- the capping of the cells which will reduce the amount of leachate generated, and
- the management of surface water runoff.

There is no diesel fuel stored on the site at Corranure. There is a bunded diesel tank on the site but it is currently not in use. The various machines are filled from a mobile fuel truck on site as required. Oil and fuel containment booms are kept on site as a mitigation measure should an accident occur.

A surface water monitoring programme is in place at the facility. When results of analysis of surface water samples indicate environmental pollution has taken place, the results are recorded as an incident and investigated. Details of results are forwarded to the Agency as per the Emergency Response Procedure; **Appendix 5**.

See **Appendix 4** Location Map Environmental Monitoring Points and **Appendix 5** Environmental Incident Report Form and Emergency Response Procedure.

Leachate Control Measures

See 1.3.7.10 Leachate Management System
See **Appendix 5** Emergency Leachate Procedure

Gas Control Measures

Landfill Gas may give rise to some of the following problems;

- Fire/explosion hazard,
- Toxic hazard, and
- Odour Nuisance.

Measures taken at Corranure to protect against some of the problems associated with landfill gas include;

- Monitoring for gas migration,
- The administration building on site was constructed having regard to the DoE's 1994 publication "Protection of New Buildings from Landfill Gas",
- The main office building is fitted with gas monitors, and
- Provision of a 500 m^3/hr ground gas flare for the active flaring of landfill gas from the remediated area

Landfill gas monitoring points have been installed at the perimeter of the landfilled areas to monitor for off-site migration of gas.

A landfill gas monitoring programme is in place at the facility as per Schedule D.2 of Waste Licence W0077-02.

1.3.8.3 Measures for the Control of Environmental Nuisances

Environmental nuisances are monitored by means of on site inspections and recorded on weekly site inspection forms.

Vermin

The objective of the vermin control programme at Corranure Landfill is to make 'food' sources inaccessible and living conditions as unattractive as possible. The following landfill procedures are implemented as mitigating measures against vermin and pests:

- The tipping face is kept as small as possible
- Waste is compacted with a high tonnage steel wheel compactor
- The tipping area is covered every evening with clay cover material
- All other areas except the tipping area are covered with 300mm of soil
- Contracted rodent control programme by ISS Hygiene Services, which service the baits every six weeks.

Birds

As for vermin and fly control the objective of the bird control programme at Corranure Landfill is to make 'food' sources inaccessible and living conditions as unattractive as possible. The following landfill procedures are implemented as mitigating measures against birds:

- The tipping face is kept as small as possible
- The waste is compacted with a high tonnage steel wheel compactor
- The tipping area is covered every evening with clay cover material

Bird Control Ireland (BCI) Ltd. were appointed to operate a bird control programme at Corranure.

Flies

The following landfill procedures are implemented as mitigating measures against flies and insects:

- The tipping face is kept as small as possible
- Waste is compacted with a high tonnage steel wheel compactor
- The tipping area is covered every evening with clay cover material
- Appropriately covered waste lorries on site
- Application of insecticide on tipping area, offices, machinery and residents' houses as appropriate during fly season.

Dust

The following landfill procedures are implemented as mitigating measures against dust:

- Prevention of dust nuisance in dry weather by spraying site roads and other areas used by site vehicles with water, and
- Prevention of dust nuisance by appropriate maintenance of clay stock pile on site.

See **Appendix 5** Fire Prevention Procedure and Emergency Response Procedure.

Mud

The following landfill procedures are implemented as mitigating measures against mud:

- All lorries / tractors must use the wheelwash facilities on leaving the tipface.

Odours

The following landfill procedures are implemented as mitigating measures against odours:

- The tipping face is kept as small as possible
- The waste is compacted with a high tonnage steel wheel compactor
- The tipping area is covered every evening with clay cover material
- Appropriately covered waste lorries on site
- An odour control solution is applied when necessary

Litter

On a day to day basis litter management on site includes the following:

- The working face in enclosed by 6-metre high litter fencing
- Litter trapped in the netting is removed as soon as practicable
- Litter on or in the vicinity of the facility is removed, subject to the agreement of the landowners, immediately and in any event by 10.00am of the next working day after such waste is discovered or reported
- Cavan County Council employs a Landfill Operative at the facility for the active management of litter on site
- All waste deposited at the working face is compacted using a steel wheeled compactor
- The working face is covered with suitable material (clay) at the end of the day

See **Appendix 6** Site Inspection Form at Corranure Landfill and **Appendix 7** Procedures for Operation Corranure Landfill in Adverse Wind Conditions.

1.3.8.4 Site Opening and Operating Hours

Site Opening Hours:	8.00am to 5.30pm Monday to Friday 8.00am to 1.00pm Saturday
Waste Acceptance Hours:	8.00am to 4.30pm Monday to Friday 8.00am to 12.30pm Saturday

1.3.8.5 Access Control and Waste Acceptance Procedures

Corranure Landfill is used by the public for recycling and waste disposal and also by licenced hauliers. Waste Acceptance Procedure at Corranure Landfill details the procedures for acceptance of different types of waste at the landfill and is detailed in **Appendix 3.**

1.3.8.6 Equipment to be Utilised

The following plant and machinery are used on site at the landfill:

1. 2 Compactors (on hire) for compacting waste,
2. Tractor for emptying waste skips used by the public entering the site,
3. Trucks (on hire) for bringing clay/stones on to site for covering purposes,
4. Generator,
5. Baler for the bailing of cardboard, and
6. Other machinery is hired in as required.

1.3.8.7 Waste Placement Procedures

See **Appendix 3** Waste Acceptance Procedure at Corranure Landfill details the procedures for access to the landfill, acceptance of different types of waste and waste placement at the landfill.

1.3.8.8 Cover Requirements

All the waste entering the site at Corranure ends up at the working face and compacted. The waste is compacted in layers of about 1-1.5 m deep. The working face shall be no more than 2.5 m in height after compaction, no more than 25 m wide and have a slope no greater than 1 in 3. After each days operation the waste is covered using clay cover. Temporary capping shall be a layer of soil at least 0.5 m deep.

1.3.8.9 Site Personnel

Landfill Manager
Assistant Landfill Manager and Weigbridge Operator
Tractor Driver
General Operatives

See **Appendix 1** for details of qualifications/experience/training and job description of the named site personnel.

1.3.8.10 Monitoring and Maintenance Procedures

A monitoring programme for surface water, groundwater, leachate, landfill gas, dust and noise is in place as per Schedule D: Monitoring of Waste Licence W0077-02. All sampling locations (with the exception of the tap for well water samples) are labelled. All boreholes are protected by an outer metal casing, which is padlocked at all times.

1.3.8.11 Operational and Safety Rules and Emergency Procedures

Cavan County Council enforces Operational and Safety Rules.
See **Appendix 9** Site Rules and Safety Manual at Corranure Landfill, Emergency contact numbers and Accident / Near Miss Investigation Form.
Appendix 5 Emergency Response Procedure details the actions to be taken in the event of an emergency on site.

1.3.8.12 Litter Abatement Methods and Procedures

See 1.3.8.3 Measures for the control of Environmental Nuisances – Litter.

1.3.8.13 Noise and Dust Abatement

Noise

A noise monitoring programme is in place at the facility as per Schedule D.4 of Waste Licence W0077-02. Excessive noise at Corranure could be expected from two areas:

- Compaction and handling of the waste in the active cell, and
- Waste traffic entering and leaving the site.

Noise monitoring is ongoing at Corranure and is part of the monitoring programme.

The remediated old landfill provides a screen between the new cell and the Cootehill - Cavan road. Noise levels at the facility are not high with the waste compactor been the only major noise level contributor on site.

Dust

Dust levels are also been monitored at Corranure. The working face is well buffered from the surrounding areas so any dust created there should not have a severe adverse effect. All refuse lorries leaving the site have to use the wheel wash, which reduces the possibility of a dust nuisance. Also all the hard areas at the facility are cleaned and swept with a mechanical sweeper on a regular basis.

1.3.8.14 Wheel Cleaning Procedures

All lorries and leachate tractor and tanker units must use the wheel wash facility on leaving the landfilled area. This wheel wash is inspected, washed and desludged as required.

1.3.8.15 Measures to deal with Vermin and Other Pests

See 1.3.8.3 Measures for the control of environmental nuisances.

1.3.8.16 Assessment of Settlement in Filled Areas

This is assessed annually by means of a topographical and stability survey.

1.3.8.17 Assessment of Compacted Waste Density

The steel wheeled compactor currently used on site achieves a compacted waste density in excess of 0.8 tonnes / m^3.

1.3.9 Closure and Aftercare

A Closure, Restoration and Aftercare Plan (CRAMP) is currently being prepared for Corranure Landfill.

1.3.10 Corrective Action Procedures

See **Appendix 5** Corrective Action Procedure.

1.3.11 Awareness & Training Procedures

See **Appendix 9** Awareness and Training Procedures.

1.3.12 Communications Programme

See **Appendix 10** Communications Programme and Complaint Form.

APPENDIX 1

Management Structure at Corranure Landfill

Management Structure at Corranure Landfill

Position	Qualifications / Experience	Duties / Responsibilities
Landfill Manager (From December 05 2006)	Sean Guider B.Sc. (Environmental Science & Technology). Grad. Dip. (Environmental Management, Development & Control). 8 Years – Cavan County Council – Environment Section 2.5 years – Cavan County Council - Waste Management Section	• Responsible for overall operation of the site. • Supervision and direction of staff. • Responsible for implementing requirements of Waste Licence. • Liaising with Senior Council Personnel, on-site contractors and staff from outside bodies. • Carrying out duties of Assistant Manager during annual leave and/or as necessary.
Assistant Manager (From January 02 2007)	Sinead Fox B.Sc. (Environmental Science) 4 Years – Technician – various County Councils (Environment Section) 2 Years – Environmental Consultancy	• Daily and weekly site inspections • Operation of weighbridge • Maintain financial records • Outdoor supervisory control (including nuisance monitoring and control, monitoring & supervision concerning active cell, Flare operation, pumps, lagoon) • Supervision of Civic Amenity site • Checking plant & equipment • Act for landfill manager in that person's absence • Carry out any other duties from time to time as instructed by the landfill manager
Site Foreman	Brendan Smith Worked at Corranure Landfill for 16 years as Caretaker and Assistant Landfill Manager	• Operation of weighbridge • General site maintenance • Odour patrolling • Inspections after hours • Supervision of active cell and CA site • Carry out any other duties from time to time as instructed by the landfill manager

Weighbridge Operator (From July 26 2006)	Martin Mulligan 27 Years – Fingal County Council – 20 years on bin lorries 6 years builders labourer/general maintenance at Coolmine Recycling centre 1 year as acting supervisor at Coolmine Recycling centre	• Operation of weighbridge • Monitoring of Civic Amenity site • Litter picking and cleaning around C.A. site and compound • General Maintenance work • Carry out any other duties from time to time as instructed by the landfill manager/assistant manager • Act for tractor driver in that person's absence
Tractor driver (From March 2004)	Tommy Keaney 29 years working for Cavan County Council 15 years working on the Co. Co. bin lorry 11 years as a general operative including roads and waterworks areas (as caretaker for 2 years) March 2004 – Started as general operative at Corranure Landfill on baler and litter picking and acting driver Currently Tractor driver	• Maintaining general appearance of the site. • Emptying waste skips from C.A. site. • Ensuring dust generation is kept to a minimum and pathways, wheel wash and weighbridge areas are kept clean by means of water hosing. • Maintenance and operation of bird control equipment • Act for Civic Amenity supervisor in that person's absence • Carry out any other duties from time to time as instructed by the assistant manager/acting manager
General Operative (From April 2007)	David Gilliland 30 years working for Cavan County Council as a refuse collector.	• Bailing of cardboard generated in the C.A site • Litter picking around whole facility and maintaining general appearance of the site. • Carry out any other duties from time to time as instructed by the landfill manager/assistant manager • Condensate management role
General Operative (From January 19 2004)	John Gorman 31 years with Cavan Co Co – on bin lorries including working as a general operative	• Bailing of cardboard generated in the C.A site in that person's absence • General litter picking around C.A. site and general environs of landfill • Assisting tractor driver as necessary • Carry out any other duties from time to time as instructed by the landfill manager/assistant manager • Tipface Supervisor

APPENDIX 2

Location Map
&
Amendments to Waste Licence

RPS mcos
COWI

Site Location Map

Fig. 2.2

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

AMENDMENT A
TO
WASTE LICENCE

Licence Register Number:	77-2
Licensee:	Cavan County Council
Location of Facility:	Corranure Landfill, Lismagratty and Corranure Townlands, Cootehill Road, Cavan, County Cavan.

Reason for the Amendment of Conditions

The Environmental Protection Agency has examined the terms of Waste Licence Reg. No. 77-2 as required by the provisions of Section 76(3)(a) of the Waste Management Acts 1996 to 2003, and determined that the licence can be brought into conformity with the provisions and requirements of Council Directive 96/61/EC by the exercise of the powers conferred by Section 76(4) of the Waste Management Acts 1996 to 2003.

The Environmental Protection Agency is satisfied, on the basis of the information available, that subject to compliance with the conditions of Waste Licence Reg. No. 77-2 granted on the 10/05/2005, as well as any amendments noted herein, any emissions from the activity will comply with and not contravene any of the requirements of Section 40(4) of the Waste Management Acts 1996 to 2003.

Amendment of Conditions

In pursuance of the powers conferred on it by Section 76(4) of the Waste Management Acts 1996 to 2003, the Agency amends Waste Licence Reg. No. 77-2, granted to Cavan County Council, for a facility located at Corranure Landfill, Lismagratty & Corranure Townlands, Cootehill Road, Cavan, County Cavan.

This amendment is limited to the following conditions of Waste Licence Reg. No. 77-2.

Amendments

Accident Prevention and Emergency Response

10.5 The licensee shall, within twelve months of date of this amendment, ensure that a documented Accident Prevention Policy is in place, which will address the hazards on-site, particularly in relation to the prevention of accidents with a possible impact on the environment. This procedure shall be reviewed annually and updated as necessary.

To be inserted after Condition 10.4 of the existing licence.

Reason: ***To provide for the protection of the environment.***

Condition 4: Restoration and Aftercare Plan

4.9 A final validation report to include a certificate of completion for the Restoration and Aftercare Plan, for all or part of the site as necessary, shall be submitted to the Agency within three months of execution of the plan. The licensee shall carry out such tests, investigations or submit certification, as requested by the Agency, to confirm that there is no continuing risk to the environment.

To be inserted after Condition 4.8 of the existing licence.

Reason: ***To provide for the restoration of the facility.***

These amendments should be read in conjunction with Waste Licence Reg. No. 77-2, granted on 10/05/2005.

Sealed by the seal of the Agency on this the 28th day of October 2005

PRESENT when the seal of the Agency was affixed hereto:

Padraic Larkin, Director/Authorised Person

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

RECOMMENDED TECHNICAL AMENDMENT B TO WASTE LICENCE

Licence Register Number:	W0077-02
Licensee:	Cavan County Council
Location of Facility:	Corranure Landfill, Cootehill Road, Cavan

Amendments

(a) Amend Condition 1 as follows:

1.2 For the purposes of this licence, the facility is the area of land outlined in red on Drawing No. DG 0012-01 Rev. F01 *Corranure Landfill Site Plan (dated 20/06/2007)*. Any reference in this licence to "facility" shall mean the area thus outlined in red.

(b) Add the following text to the end of existing text in the 'Reason' in Condition 1:

To formally adopt licensed area boundary adjustments.

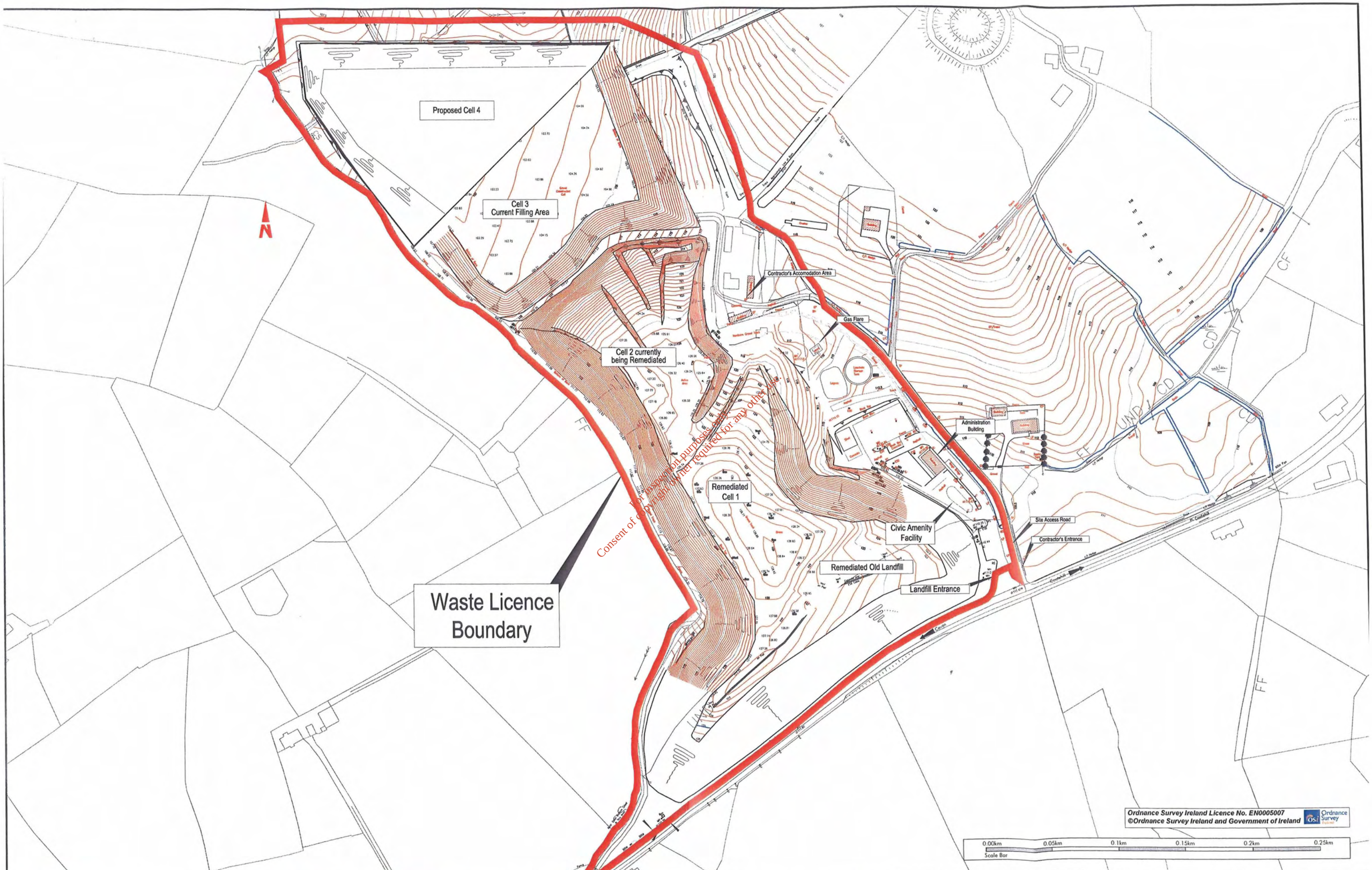
---------- ❖ ----------

This technical amendment shall be cited as Amendment B (in pursuance of Section 42B(1) of the Waste Management Acts 1996 to 2005) to Waste Licence Register No.W0077-02.

Sealed by the seal of the Agency on this the 16th day of July 2007

PRESENT when the seal of the Agency was affixed hereto:

Dara Lynott **Director**



Cavan County Council
Comhairle Chontae an Chabháin

F. Gibbons
Director of Services,
Cavan County Council
Courthouse,
Cavan.

Louth • Monaghan • Cavan
Meath
Better Waste

RPS Consulting Engineers

RPS Consulting Engineers, Lyrr Building, IDA Business & Technology Park, Mervue, Galway, Ireland.

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F01	20.06.07	J.McG	Final Issue	W.M.

Corranure Landfill
Licence Compliance

Title:

Corranure Landfill
Site Plan

Drawn by:	J.McG	Job No:	MGE0068
Checked by:	A.F.	File No:	MGE0068DG0012
Approved by:	W.M.	Drg. No:	DG0012-01
Scale:	1:1250	Rev:	F01

APPENDIX 3

Waste Acceptance Procedure

Waste Acceptance Procedure

Purpose:

A Waste Acceptance Procedure for Corranure Landfill is required in order to comply with Condition 5 (Facility Operation and Waste Management) of the licence and to satisfy the procedures in which Irish landfills are operated in accordance with the Waste Management Act, 1996. The basic purpose of this procedure is to ensure that only wastes which the licence is permitted to accept are allowed to be deposited on site.

Waste

Waste can be broadly categorised into three types:

- Hazardous waste,
- Non-hazardous waste, and
- Inert Waste.

The licence awarded to Corranure is for non-hazardous waste. The Waste type catered for at Corranure is mostly comprised of municipal waste or any commercial waste which is similar to household waste. Inert material accepted on site is used at the tipface for the construction of internal access roads.

Waste shall only be accepted at the facility at times as designated in Waste Licence.

Waste shall only be accepted at the facility, from Local Authority waste collection or transport vehicles or holders of waste collection permits, unless exempted or excluded, issued under the Waste Management (Collection Permit) Regulations 2001.

Unacceptable Waste

Wastes which are not acceptable include,

- liquid waste,
- waste which is explosive, oxidising, highly flammable or flammable as defined in Directive 91/689/EEC,
- hospital and other clinical wastes arising from medical or veterinary establishments,
- animal by-products, excrement or remains,

- untreated sludges,
- oil/water mixtures,
- septic tank waste, and
- whole and shredded tyres.

Waste Categories allowed at Corranure

Waste Type	Tonnes per Annum
Household waste	50,000
Commercial	32,000
Construction and Demolition waste	5,000
Green waste	2,000
Street cleaning residues	900
Hazardous Household waste	100
Total	**90,000**

Waste Acceptance Procedure at Corranure

The following is the procedure in place for waste acceptance at Corranure;

On arrival of waste at the site, (be it from a household, haulier or commercial transit) the site operative must carry out the following procedure:

- Inspect waste in vehicle as far as is possible,
- Determine whether the waste is inert, non-hazardous or hazardous,
- Determine whether the waste is permitted for deposit by the waste licence, and
- Assess the disposal charge, based on weight.

Should the waste be deemed acceptable:

- The driver is directed to the working face. Waste is then inspected as it is being deposited to ensure that it matches description.

Should the waste be considered to be non-conforming, the following procedure is put in place:

- The load is removed to the waste quarantine area,
- Further information is obtained by means of examination of waste and photograped,
- The waste producer is contacted for clarification,
- The driver is advised that if tipped and found unacceptable, the waste will be reloaded and a handling charge made, and
- A rejected load record sheet is filled out and the waste shall be removed to an alternative facility.

If upon deposition the waste is found to be non-conforming / the driver is informed accordingly and:

- Reload waste back into vehicle, advise driver that an alternative disposal or recovery facility should be located, and
- A rejected load record sheet is filled out.

If found upon deposition that the waste appears to consist of / or contain a hazardous substance, the following procedure is put in place;

- The waste is isolated and removed to the quarantine area,
- The EPA is contacted,
- A rejected load record sheet is filled out and an alternative disposal or recovery facility is located, and
- All waste in the quarantine area shall not be stored there for more than 3 months.

Any wastes which are found upon inspection to be hot or on fire prior to deposition shall be directed away from the filling area to a location where the fire can be extinguished.

Information on each load shall include:

- Time/date of arrival/departure,
- Unique identification number of each load,
- Carrier details (including waste collection permit reference no.),
- Vehicle registration number,
- Waste producer (include facility waste permit/licence reference no.),
- Waste description and EWC code,
- Quantity of waste, and
- Name of person who checked load.

Rejected Load Record Sheet

Date: **Time:**

Carrier Name: **Registration No:**

Source of Waste: **Type of Waste:**

Quantity of Waste:

Description of rejected waste when inspected at working face:

_____

_____

_____

_____

Destination of rejected waste:

_____

_____

_____

_____

Waste Licence/Permit No. of Destination Facility:

Name and Waste Collection Permit No. of Carrier:

Signature of Waste Inspector:

_____

Waste Placement in the Active Cell

- All the waste entering the site at Corranure ends up at the active working face and compacted. Lorry drivers are directed to the appropriate tipping area,
- The waste is compacted in layers of about 1-1.5 m deep,
- The working face shall be no more than 2.5 m in height after compaction, no more than 25 m wide and have a slope no greater than 1 in 3,
- After each days operation the waste is covered using clay material and
- When operations move to a different part of the cell, intermediate cover shall consist of a layer of soil at least 0.5 m deep.

Responsibilities:

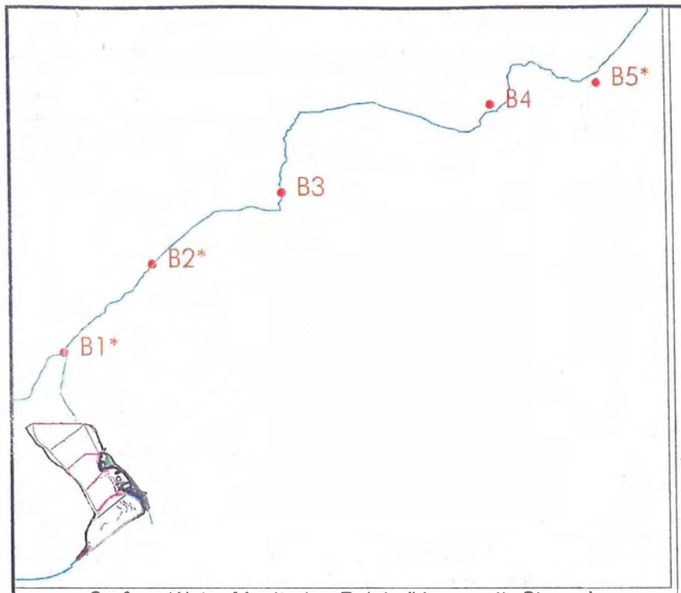
The designated person for carrying through such procedures is the Weighbridge Operator, the Landfill Manager, the Assistant Landfill Manager, and the Tipface Supervisor.

APPENDIX 4

Location Map of Environmental Monitoring Points

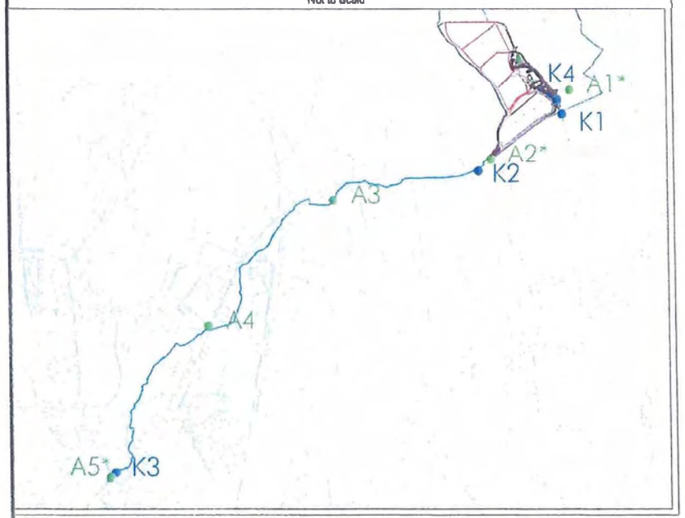
Cell 3 Filling Plan

Cell 3 Gas Management Plan



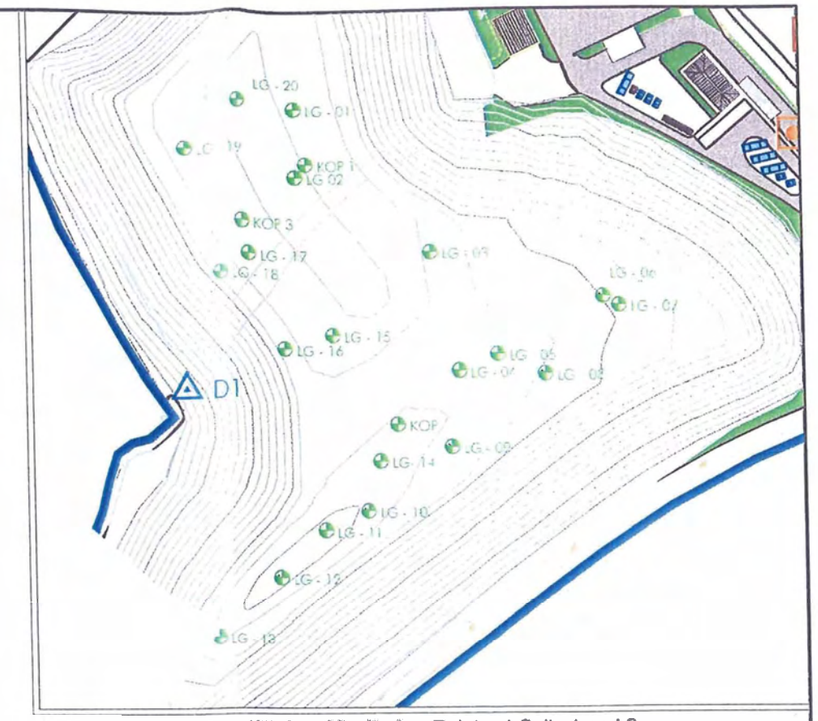
Surface Water Monitoring Points (Lismagratty Stream)

Not to Scale



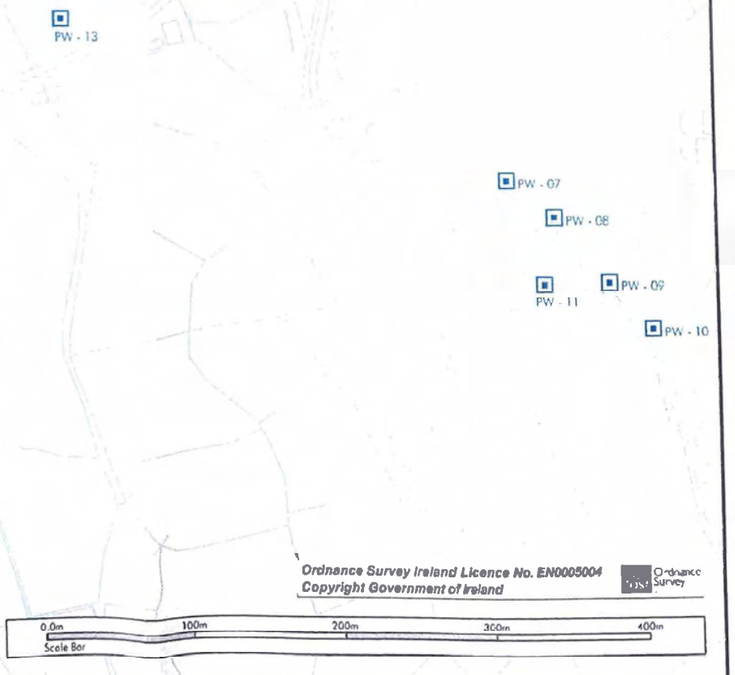
Surface Water Monitoring Points (Corranure Stream)

Not to Scale



Landfill Gas Monitoring Points at Cells 1 and 2

Scale 1:1000 @ A1



Legend:

- Surface Water Monitoring Point
- Perimeter Gas Well
- Sewer Sample Monitoring Point
- Surface Water Emission Point
- Ground Water Well / Private Well
- Dust Monitoring Point
- Noise Monitoring Point
- Landfill Gas Extraction Well

Monitoring Points

Scale 1:2000 @ A1

Scale Bar: 0.0m, 100m, 200m, 300m, 400m

Cavan County Council
Comhairle Chontae an Chabháin

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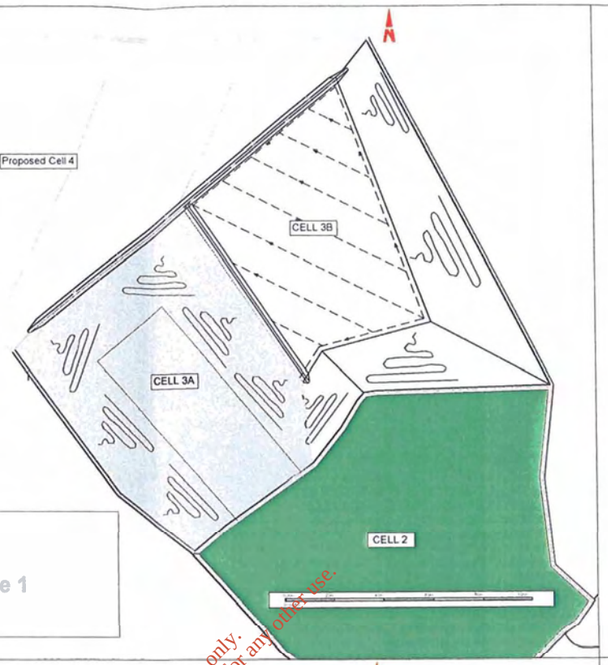
No.	Date	By	Amendment / Issue	App.
F01	04.04.07	CM	Final Issue	

Corranure Landfill
Licence Compliance

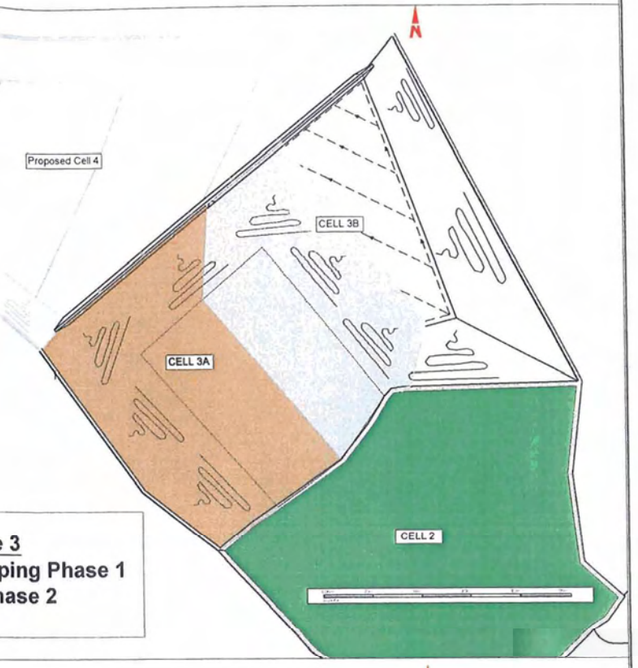
Title: Corranure Landfill Locations of Monitoring Points

Drawn by:	C.N.	Job No:	MGE0068
Checked by:		File No:	MGE0068DG0007
Approved by:		Drg. No:	DG0007-01
Scale:	As Shown	Rev:	F01
Date:	April '07		

Stage 1
Separation of Cell 3

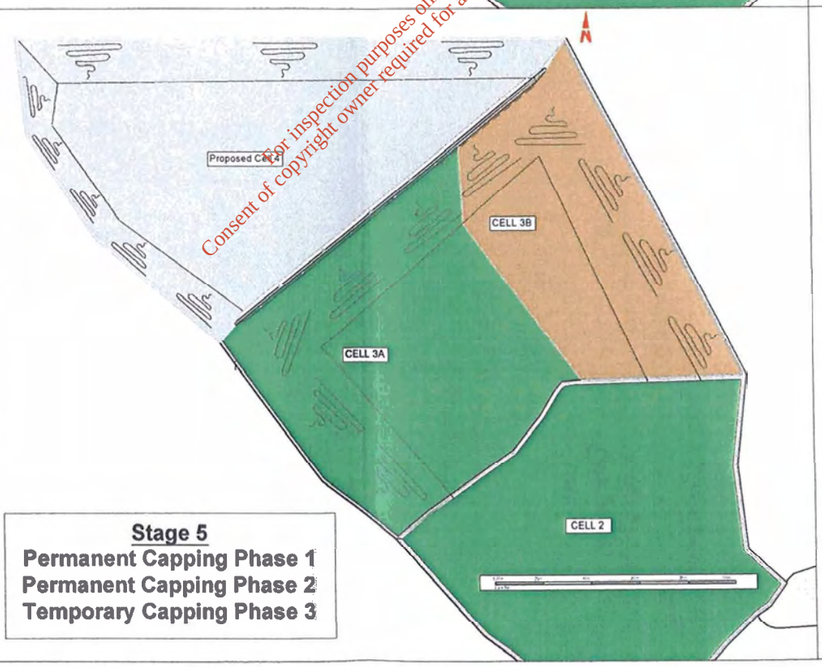


Stage 2
Filling Phase 1

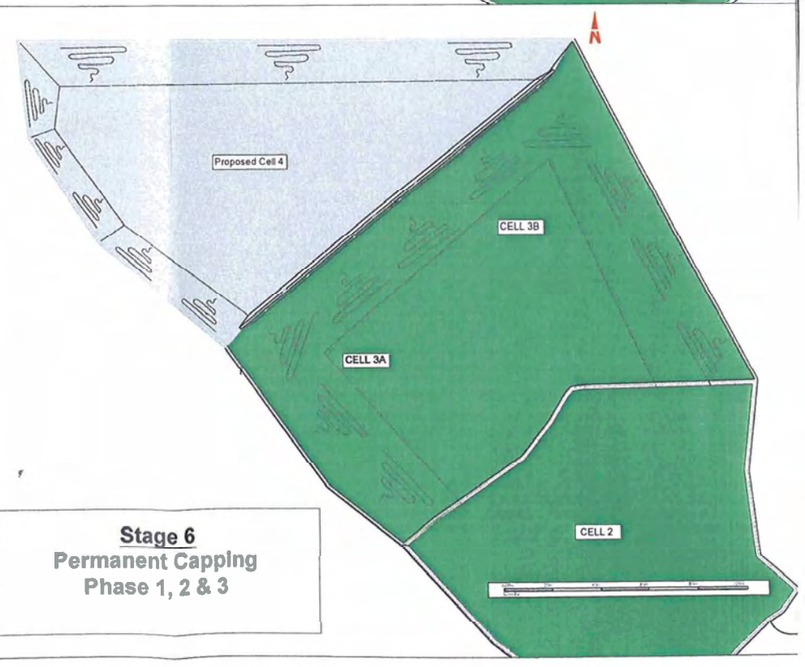


Stage 3
Temporary Capping Phase 1
Filling Phase 2

Stage 4
Permanent Capping Phase 1
Temporary Capping Phase 2
Filling Phase 3



Stage 5
Permanent Capping Phase 1
Permanent Capping Phase 2
Temporary Capping Phase 3



Stage 6
Permanent Capping
Phase 1, 2 & 3

Legend

Active Cell | Temporary Cap | Permanent Cap

Cavan County Council
Comhairle Chontae an Chabháin

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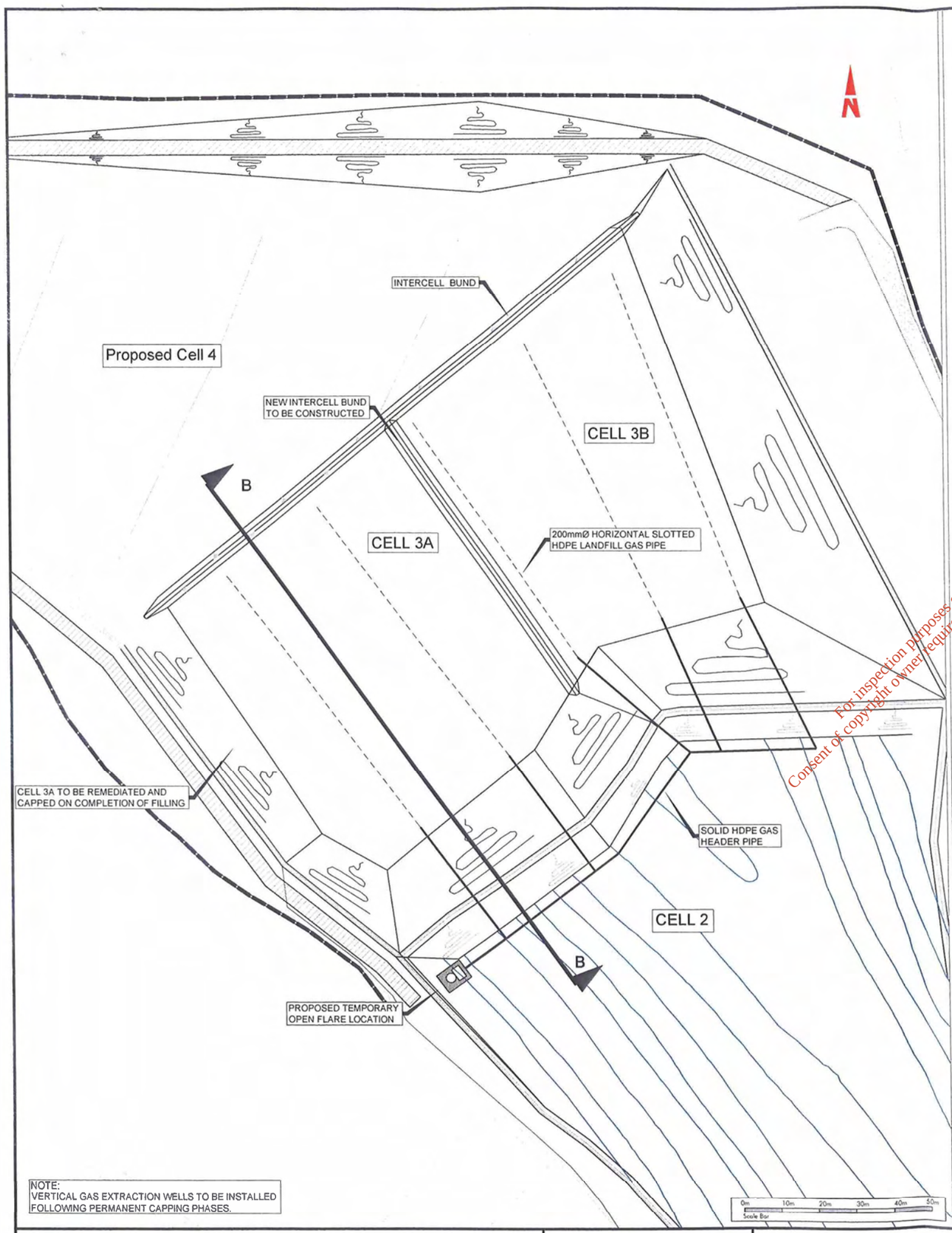
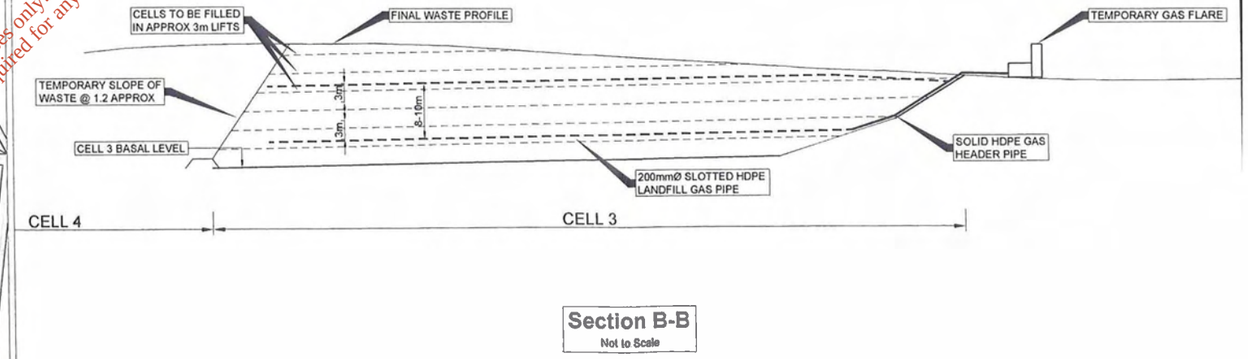
F03	11.06.07	J.McG / A.F.	Final Issue	W.M.
F02	1.06.07	J.McG / A.F.	Final Issue	W.M.
F01	19.04.07	C.N. / A.F.	Final Issue	W.M.

Corranure Landfill
Licence Compliance

Title:
Cell 3 Filling Plan

Drawn by:	C.N.	Job No:	MGE0068
Checked by:	A.F.	File No:	MGE0068DG0009
Approved by:	W.M.	Drg. No:	Rev:
Scale:	As Shown	DG0009.01	F02





Section B-B
Not to Scale

Cavan County Council
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No.	Date		Amendment / Issue	App.
D01	19.04.07	C.N. A.F.	Final Issue	W.M.

Corranure Landfill
Licence Compliance

Title:
Cell 3
Gas Management Plan

Drawn by:	C.N.	Job No:	MGE0068
Checked by:	A.F.	File No:	MGE0068DG0010
Approved by:	W.M.	Drg. No:	DG0010-01
Scale:	As Shown	Rev:	F01
Date:	April 07		

APPENDIX 5

Environmental Incident Report Form, Corrective Action Procedure Form, Emergency Response Procedure & Fire Prevention Form

Corranure Landfill Waste Licence 77-2
Environmental Incident Report Form

Incident Discovered:

When:

By Whom:

Nature of the Incident:

Source/Cause of Incident:

Any Environmental Pollution Caused:

Any Trigger Levels exceeded:

Where there Samples taken:

Who took these Samples:

What Corrective action was taken:

Measures taken to avoid a reoccurrence:

Was the Site Supervisor notified:

When were the EPA Phoned/Faxed:

When were they notified in Writing:

Corrective Action Procedure

Procedure:

In the event of an breach of conditions of Waste Licence or occurrence of incident (as defined in Waste Licence) on site a Corrective Action Record (CAR) Sheet should be filled out. The person who the CAR sheet is directed to is noted, the person raising the CAR is noted, the date of issue is noted, the description of the non-compliance is given, the reason for occurrence is recorded, the action to corrective with effective date, the action to prevent recurrence with effective date is also described. The EPA and/or Fisheries should be notified in the event of an incident.

Each non-compliance is given a CAR number and registered on the CAR register. When the corrective action has been carried out and deemed satisfactory, the person raising the CAR signs and dates the CAR Sheet closing the process. The date of closure is recorded on the register for tracking purposes. A sample CAR sheet is illustrated below.

Responsibilities:

The designated person for investigating and carrying through such procedures is the Landfill Manager and in his absence, the Deputy Manager.

CORRECTIVE ACTION RECORD (CAR) SHEET **CAR N0. 01 etc**

To:

From:

Date:

Description of Non-Compliance

Reason for Non-Compliance

Action to Correct **Effective Date**

Action to prevent recurrence **Effective Date**

Signatures **Date closed off**

CAR REGISTER

CAR Number	Date Issued	Date Closed

Emergency Response Procedure

Purpose:

To provide the procedures necessary to deal with emergencies in a timely and efficient manner with minimum effect on people or the environment.

1 Fire within Waste Facility

- In the event of a fire, immediate action should be taken by the facility operatives to extinguish it, in so far as it poses no risk to the operative. Operatives should be aware of the location of the fire fighting equipment and have been given training on how to use the equipment. Otherwise the fire service should be called.
- Initiate on site fire drill. Ensure all persons are assembled at Fire Assembly point. Take role Call,
- On arrival of fire services liaise with fire officer and follow his directions, and
- Any fire at the facility should be treated as an incident and the landfill manager and the EPA should be informed forthwith.

2 Fire in incoming vehicle

- All vehicles entering the site should be examined as part of the waste acceptance procedure for indications of fire, such as smoke or burning smells. Any suspicious vehicle entering the facility should be immediately diverted to a suitable location where the source can be investigated and any fire extinguished,
- If appropriate, call Fire Services,
- Initiate on site fire drill, and
- On arrival of fire services liaise with fire officer and follow his instructions.

3 Explosion

- Evacuate area,
- Call Fire Service, Ambulance Services in the event of serious injury,
- Close main gate to incoming traffic,
- Check gas levels in enclosed areas, and
- Document incident to EPA in appropriate manner.

4 Mains Power Failure

- Back-up generator on site

5 Damage to Rising Main to Town Sewage Works

- Isolate and switch off all pumps
- Tanker leachate as necessary
- Organise for repair works
- Inform Environment Section in Cavan County Council

6 Oil Spillage on Site

- Detect source of leak and isolate
- Using the spill kit on site to contain and absorb spill
- The landfill manager will dispose of the spent absorbent material as appropriate
- Document incident to EPA in appropriate manner

7 Personal Accident on Site

- Check the person and if appropriate remove him/her from any impending danger
- If injury is minor use first aid facilities on site
- If injury is major contact ambulance service
- All appropriate numbers are displayed in site offices

8 Any other incident that may pose a significant threat to persons or to the environment

- In the event of any other incident occurring that may pose a significant threat to persons or the environment, the landfill manager is informed and deals with the incident as appropriate. This may include contamination of local wells used as
- water supplies or an exceedance of a trigger level stated in the facility waste licence 77-2.
- The landfill manager documents the incident and forwards same to the Agency

Responsibilities:

The designated person for investigating and carrying through such procedures is the Landfill Manager, and in his / her absence, the deputy Manager. Chief fire officer and emergency services are also responsible.

Emergency Leachate Procedure

Purpose

Leachate describes any liquid percolating through the deposited waste and emitted from or contained within a landfill. An effective leachate collection and removal system is required to minimise the potential threat to both surface and groundwaters and the local environment.

This procedure has been developed in the event that problems may arise with the discharging of leachate to the Wastewater Treatment plant in Cavan.

Procedure

1. The empty tanker and tractor drives onto the weighbridge,
2. The weighbridge operator weighs the tanker unit,
3. The weighbridge operator authorises the tanker driver to proceed to the leachate tank,
4. The tanker driver extends the tanker hose into the leachate tank and pumps leachate directly out of the tank and into the tanker. When the tanker is full (gauged when the leachate reaches the glass ring at top of tanker), the tanker driver stops the pumping operation, closes the tanker valve, replaces the tanker hose along the side of the tanker and proceeds to the weighbridge. The tanker driver supervises the removal of leachate at all times,
5. The tanker unit is reweighed on the weighbridge. The microprocessor calculates the weight of the leachate in the tanker and records it as net weight on the weighbridge docket. The microprocessor also records the registration number of the tractor and the date and time of the leachate removal on the weighbridge docket,
6. The weighbridge operator also records the following details on the docket:
    - Haulier name
    - Date and time of removal of leachate
    - Driver name
    - Description of goods
    - Name and address of wastewater plant to which the leachate was transported
    - Any incidents or spillages of leachate during its removal

7. The weighbridge operator and the tanker driver sign the weighbridge docket,

8. The driver brings the load to Cavan County Waste Water Treatment Plant,

9. The driver attaches the hose of the tanker of the tanker to the inlet pipe at the treatment plant, opens the valve and empties the tanker,

10. The driver contacts the plant manager in the event of any deviation from the above at the treatment plant,

11. The driver leaves the treatment plant.

Responsibilities:

The following people have responsibilities for carrying out this procedure:

Landfill Manager

Weighbridge operator

Tanker driver

Fire Prevention

Introduction

Section 18 of the Fire Services Act 1981, states that every person having control over premises has a duty to:

- take all reasonable measures to guard against the outbreak of fire, and
- to ensure as far as is reasonably practicable the safety of persons on the premises in the event of an outbreak of fire.

Possible Causes of Fire at the Facility

Fire at Landfills can arise due to:

1. Burning waste delivered to site that could combust
2. Self-ignition due to increased temperature caused by decomposition of organic waste
3. Electrical or other fire in the Administration Building or outside sheds

Elimination of Risk and Fire Prevention

Waste delivered to the Site that is observed to be on fire or smoking will be directed to the inspection area where closer inspection will be carried out to decide whether to extinguish the fire using the on site fire extinguishers or to alert the fire fighting service.

To prevent fire in the landfill availability of oxygen or air must be avoided and can be achieved using the following operational practices:

- High compaction of the waste using the appropriate compactor (layer thickness < 0.5m and 3-4 passes by compactor)
- Daily cover of waste
- Tipping areas not utilised for a considerable amount of time will be temporarily covered with approximately 0.5m of soil

No smoking is allowed on the Site

The administration building and the cardboard bailing shed to the back of the site are fitted with fire fighting equipment

A fire hydrant is located near the entrance to the facility, which the Fire Services and staff of the facility have access to

The fire alarm is rung every six months to ensure all staff on site knows it is sound.

All personnel on site have attended a half-day Fire prevention course and evacuation drill carried out by Cavan Fire Protection Services in June 2002

The Landfill Manager has been in contact with the Chief Fire Officer for Cavan who is aware of the risks and the location and times of operation of the Landfill

The Administration building is fitted with a fire alarm system and the exits are clearly marked with emergency lighting

One of the emergency exits doors has been fitted with a thumb turn lock

The notice board in the main administration building carries the local fire station numbers

Dealing with an Outbreak of Fire

A stockpile of clay material will be located close to the working area. If a fire breaks out in or close to the working area the dust will be pushed by the compactor onto the fire to choke it

If fire is observed in areas away from the working area it should be isolated by the spreading of dust followed by sealing of all possible sources of oxygen (vents, exposed surfaces etc) thus eventually extinguishing the fire

If a case develops where the staff and management on site feel that they are not able to deal adequately with the incident the local fire authority will be called. All fire incidents shall be reported to the local fire authority

If an outbreak of fire occurs in the Civic Amenity Area, for example in the waste skips or in the paper or cardboard recycling bins the staff on site will use the on site equipment if they feel its appropriate or else make the decision to call the local fire authority

There are no open sources of water within the required ½ Km radius for the Fire Services to utilise in the outbreak of a fire at the tipping face. However with the hydrant located near the entrance of the facility along with water stored within each fire tenders and water tanker available from the local fire station, any possible outbreaks of fire shall be dealt with effectively. The Chief Fire Officer of Cavan County Council has indicated that there is no requirement for fire water retention facilities at the facility as each cell at the facility would take up to five days to fill with water and with pumps at the Leachate Lagoon having a capacity of 9 cubic meters an hour, the cell is more than capable of holding a substantial amount of water at any one time.

The designated person in charge is the Landfill Manager and in his/her absence the Assistant Landfill Manager.

APPENDIX 6

Site Inspection Forms

Daily Flare Inspection
Corranure Landfill 2007

Week beginning (Monday)_____

	Open Flare		Enclosed Flare		
	Time & Initials	Time & Initials	Time & Initials	Time & Initials	Comments
Mon					
Tue					
Wed					
Thurs					
Fri					
Sat					
Sun					

Notes:

Signed:_____

Daily Leachate and Lagoon Tank Inspection
Corranure Landfill 2007

Week beginning (Monday)_____

	Lagoon			Steel Tank			
	Level Low/Med/High	Condition OK/Poor	Time & Initials	Level Low/Med/ High	Condition OK/Poor	Time & Initials	Comments
Mon							
Tue							
Wed							
Thurs							
Fri							
Sat							
Sun							

Notes:

Signed:_____

Cavan County Council – Corranure Landfill 77-2
Load Inspections

Load Inspection No.

Date:

Transaction No.

Time:

Haulier:

Waste Type:

Waste Origin:

Inspected By:

Comments:

Cavan County Council – Corranure Landfill (77-2)
Weekly Site Inspection

Date of Inspection: _____

Inspected by: _____

Status Time of Inspection	Satisfactory	Unsatisfactory	Not Checked
Covering of Waste			
Litter Control			
Condition of Site Roads			
Condition of Site Entrance			
Condition of Perimeter Fence			
Condition of Compound Area			
Condition of C.A Site			
Leachate Lagoon			
Leachate Steel Tank			
Wheel Wash Facility			
Birds			
Insects			
Vermin			
Odour			
Noise			
Dust			
Cover Stockpile			
Weighbridge			

Comments/Notes:

CORRANURE LANDFILL WASTE LICENCE 77-2

ODOUR PATROL RECORD SHEET

LOCATION (&Sensitivity) *1	Time	Wind Direction	Wind Speed *2	Weather Conditions *3	Odour Extent *4	Odour Intensity *5	Comments
Landfill							
Anteeduff Road							
Ballyhaise							
Outley							
Cootehill Road							
Carratober Road							
Cavan By-Pass							
Cavan Town							
Drumalee Cross							

***1. Location & Sensitivity**

0 None Detectable
1 Remote (No housing, commercial/Industrial premises or public area within 100m
2 Low Sensitivity (no housing, business premises or public area within 100m of area affected)
3 Moderate Sensitivity (housing business premises or public area within 100m of affeceted area)
4 High Sensitivity (housing business premises or public area within area affected)
5 Ultra Sensitivity (complaints arising from residents, businesses, and users of public areas within area affected)

***2 Wind Strength**

0 Calm Smoke rises vertically
1 Light Breeze Wind felt on face, leaves rustle
2 Moderate Breeze Raises dust, small branches are moved while walking)
3 Strong breeze Large branches in motion
4 Gale Twigs break off trees

***3 Weather Conditions**

Precipitation: dry, rained recently, drizzle, raining
Temperature: cold, cool, warm, hot.

***4 Odour Extent**

0 None
1 Local and Impersistent
2 Impersistent but detected way from sample site
3 Persistent but localised
4 Persistent and pervasive up to 50m from sample site
5 Persistent and widespread

***5 Odour Intensity**

1 No detectable odour
2 Faint odour (inhale facing wind to notice odour)
3 Moderate odour (detectable with normal breathing
4 Strong odour (bearable but offensive)
5 Very Strong odour (unbearable)

Signed:_____ Date:_____

CAVAN COUNTY COUNCIL – CORRANURE LANDFILL WASTE LICENCE 77-2

WEEKLY SURFACE WATER VISUAL INSPECTION REPORT

Monitoring Location	Code	Flow *High/ Med/ Low*	Level *High/ Med/ Low*	Weed Growth *Yes/No*	Algae *Yes/No*	Stagnant *Yes/No*	Odour *Yes/No*	Colour *Clear/ Cloudy/ Brown*	Comments
Opposite Landfill Main Entrance	K1								
S.W Corner Outside Landfill Entrance	K2								
Beside Orchard Pub, Cavan	K3								
Inside Landfill Main Entrance	K4								
Ouley Road	A2								

APPENDIX 7

Procedures for Operation at Corranure Landfill in Adverse Weather Conditions

Procedure for Operating in Adverse Weather Conditions

Purpose:

This procedure details the programme that operates at Corranure landfill in adverse weather conditions. The aim of this programme is to prevent waste from escaping from the site and thereby prevent serious visual damage to the surrounds of the facility in adverse weather conditions.

Procedure:

On a day to day basis litter is managed on site by means of the following:

- The working face is enclosed by a 6m high litter fence
- Litter trapped in the netting is removed as soon as practicable
- Litter placed on or in the vicinity of the facility is removed, subject to the agreement of the landowners, immediately and in any event by 10.00am of the next working day after such waste is discovered
- All waste deposited at the working face is compacted using a steel wheeled compactor
- The working face is covered by clay material at the end of the day
- A general operative is employed at the landfill, to maintain the appearance of the site

In adverse weather conditions the following procedures are put in place:

1. Complete closure

In storm force winds, the site will be closed to waste acceptance. This decision will be taken in consultation with the Landfill Manager/ Assistant Landfill Manager and Senior Executive Officer.

2. Limited closure

In rapidly changing conditions, the landfill will be closed for short intermittent periods to control litter on site. Again this decision will be taken in consultation with the Landfill Manager/ Assistant Landfill Manager and Senior Executive Officer.

3. Restrictive closure

For example lightweight or loose loads liable to give rise to unacceptable litter problems, are temporarily refused permission until conditions improve to allow their access. Again this decision will be taken in consultation with the Landfill Manager/ Assistant Landfill Manager and Senior Executive Officer.

The following people have responsibilities for carrying out this procedure:

Landfill Manager/ Assistant Landfill Manager and Senior Executive Officer.

APPENDIX 8

Site Rules & Safety Manual
Accident / Near Miss Investigation Form
Emergency Contact Numbers

Site Safety Rules

Employees should:

1. Consider their own safety and the safety of their fellow workers at all times.
2. Never engage in any kind of horseplay.
3. Avoid taking risks.
4. Wear high visibility vest and safety footwear at all times.
5. Inform the management of any accidents or incidents.
6. Wear any other Personnel Protection Equipment issued to them.
7. Take good care of the P. P. E. issued to them.
8. Be responsible for any equipment or tools that they have used.
9. Inform the supervisor of any defective tools, equipment, etc.
10. Not leave any tools or equipment lying around.
11. Pick up any knocked signs.
12. Remove stones and debris from the roadways.
13. Abide by the instructions of the supervisors when requests are reasonable and lawful.
14. Keep their work area and canteen clean and tidy.
15. Dispose of all rubbish into skips or bins provided.
16. Always inform your supervisor if you are leaving site.
17. Adhere to speed limits.

Cavan County Council - Corranure Landfill Site Waste Licence 77-2

Safety Awareness Manual

IMPORTANT - PLEASE COMPLETE

Name: _____

Address: _____

Contact Number: _____

I confirm that I will read the contents of this handbook and should I fail to understand or have any queries to any part, I will bring it to the attention of my Supervisor

I will comply with all Site Safety rules and wear all Personal Protective Equipment where required.

Employee Signature: _____

Date: _____

Supervisor: _____

Date: _____

THIS HANDBOOK HAS BEEN PREPARED TO HELP YOU LEARN THE ROUTINES THAT WILL MAKE YOUR JOB SAFER. IT SERVES AS A TRAINING AID FOR NEW AND EXPERIENCED WORKERS ALIKE

REMEMBER:

- **LOOK OUT FOR YOUR OWN SAFETY**
- **LOOK OUT FOR THE SAFETY OF OTHERS**

NOTE:

IT IS YOUR DUTY TO TAKE REASONABLE CARE FOR THE HEALTH AND SAFETY OF YOURSELF AND OTHERS WHO MAY BE AFFECTED BY YOUR ACTIONS. THIS MEANS THAT YOU ARE RESPONSIBLE FOR WHAT YOU DO AND ALSO WHAT YOU DO NOT DO.

THE SAFETY HEALTH & WELFARE AT WORK ACT, 2005 STATES IT IS YOUR DUTY TO COOPERATE WITH YOUR EMPLOYER ON ALL SAFETY MATTERS AND NOT TO MISUSE OR RENDER UNUSABLE ANY EQUIPMENT PROVIDED.

ACCIDENT PREVENTION & CONTROL

Accidents are unplanned, unwanted events which can injure or kill people. Accidents can be caused by unsafe conditions and attitudes of people at work. By following a safety programme, unsafe conditions can be avoided. This in turn helps to improve the safety of the workplace.

Prevention can remove or reduce the possibility of an accident. Simply follow some basic rules:

Do

- Protect yourself – wear all protective clothing and personal safety equipment issued to you or required by your work conditions.
- Be alert – know where to get help. Know where the first aid box is and any fire fighting equipment.
- Report faulty equipment and dangerous occurrences and incidents.

- Be careful – human error is caused by carelessness, fatigue, preoccupation and lack of concentration.
- Take advantage of training programmes.
- Report all personal injuries and record in site diary.

Don't

- Overload any work equipment either by lifting or loads.
- Operate work equipment unsafely or at unsafe speeds.
- Throw or drop objects from work equipment.
- Indulge in horseplay.
- Use drugs, solvents or alcohol when operating equipment.
- Ignore warning instructions or signs.

Protective Clothing & Equipment

Protective clothing and equipment is the last resort to guard against risk but where it is provided it is for your protection and you must wear it:

Clothing:

- High visibility clothing is provided and must be worn by all staff.
- Must be properly fitting and comfortable.
- No loose ends that might catch in machinery.
- Kept clean and in good condition.

Gloves:

- Must be worn when handling wastes, especially of an unknown nature and during operations such as vehicle fuelling.
- Kept clean and hygienic.
- Make sure they provide the proper protection – Relevant to the task.

Foot Protection:

- Safety footwear is mandatory and must be worn at all times on site.
- Safety boots or wellingtons with steel mid-soles as well as steel toe caps shall be used by operatives on the landfill site

Dust masks, ear muffs and hard hats are also available and issued to staff.

Note:

- Any PPE that has become damaged and is unrepairable must be disposed of. All visitors entering the active site must also wear suitable safety gear.

SITE TIDINESS

Keep site tidy by:

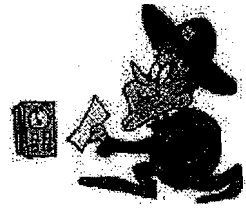
- Keeping pathways free from obstacles, remove any obstructions or trip hazards.
- Clear up materials/rubbish regularly from work areas, thus ensuring a tidy site for visitors and persons using the landfill.

Fire / Emergency

All Staff should be familiar with the following in the event of an emergency Situation arising:

- Know where the nearest emergency exit is.
- Know where your assembly point is.
- Ensure your supervisor knows you are on site.
- Emergency facilities and equipment such as fire extinguishers should not be tampered with except in emergency situations. All staff should be aware of the different types of extinguishers on site and their uses.
- All staff should be aware of the lists of phone numbers for police, fire and ambulance services, prominently displayed on site for use in the event of an emergency.

Fire Response



- In the event of a fire, immediate action should be taken by facility operatives to extinguish it, as long as it poses no risk to the operative.
- A small fire on the surface of the waste or within the waste may be tackled using available materials and plant and be smothered with inert material working from the outside towards the centre. Under no circumstances must a machine or operative move over the centre of the fire, as this is highly dangerous. If the material continues to burn after the initial action, the burning material should be isolated from the rest of the waste by digging out and spreading on top of inert material and attempts should be made again at smothering the fire.

- If operatives cannot extinguish the fire themselves, then 999 or the local fire station should be called, and details of the fire should be given to enable the fire service to arrange for any special equipment or additional units to be utilised.
- Any fire at the facility should be treated as an incident. The facility manager must be informed immediately and the EPA and HSA informed forthwith with the details of the event.

Accidents & Incidents

Unfortunately accidents do happen however some simple measures taken by you can remove or reduce the possibility of risk, for example:

Do

- Make the casualty as comfortable as possible.
- Keep the casualty warm.
- Call for medical help.
- Stop any bleeding.
- Turn off the power if the casualty is in contact with live electricity supply.

Don't

- Endanger yourself when helping an injured person.
- Move a casualty unless it is really necessary.
- Give the casualty anything to eat or drink.
- Let the casualty smoke.
- Touch any equipment or person with your body if they are in contact with electricity. If you need to get them away from electricity, use something dry (e.g. a wooden pole) and nothing made of metal.

Finally

- All staff should be aware of the First aid facilities available on site
- First aid boxes are available in clearly marked locations throughout the site. The contents of each first aid box shall be checked at regular intervals
- Eye wash facilities are available on site. Any bottle with a broken seal should be disposed off immediately
- A minimum of one person with a first aid qualification will normally be present on site. All accidents, injuries and near misses must be reported to this person.

- All staff at the site, including those employed temporarily shall have adequate protection against tetanus and Hepatitis B.
- This protection shall be recorded and be kept up to date, with boosters given at 10 yearly intervals.
- Site staff shall be made aware of the symptoms of Weil's disease and be issued with a leaflet in relation to the disease.
- All staff should be aware of hot and cold washing facilities available on site.

MANUAL HANDLING

The use of plant equipment means the operator does not normally become involved with lifting and handling equipment or materials manually. Sometimes, when changes are being made to the equipment or even a refuelling task, you will be required to use the correct method of manual handling.

The following are some basic rules for manual lifting:

- Inspect the load to be lifted for sharp edges, slivers, and wet or greasy spots.
- Wear gloves when lifting or handling objects with sharp or splintered edges.
- These gloves must be free of oil, grease, or other agents that may cause a poor grip.
- Inspect the route over which the load is to be carried. It should be in plain view and free of obstructions or spillage that could cause tripping or slipping.
- Consider the distance that the load is to be carried. Recognise the fact that your gripping power may weaken over long distances.
- Size up the load and make a preliminary "assessment" to ensure that the load is easily within your lifting capacity otherwise get help.
- If team lifting is required, personnel should be similar in height and physique.

To lift an object off the ground, the following manual lifting steps should be followed:

- Make sure of good footing and set your feet about 10 to 15 inches apart. It may help to set one foot forward of the other.
- Assume a knee-bend or squatting position, keeping your back straight and upright. Get a firm grip and lift the object by straightening your knees – not your back.
- Get the load close to your body (not on extended arms). To turn or change position, shift your feet – don't twist your back.

Working with Plant Equipment

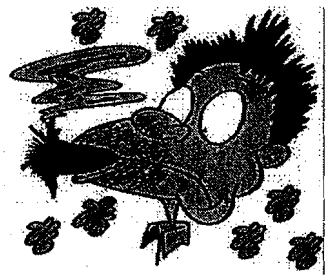
The driver of any item of mobile plant must, each day check before starting that item of plant:

- Oil, water, hydraulic fluid and fuel levels.
- Wheel, tyre or track wear.
- Cab security.
- Brake efficiency.

- The driver must then make a record in the site diary of all checks and defects found and inform the site manager of such defects.
- At the end of the working day, the operative must:
  - Ensure that all mobile plant is safely parked and securely locked.
  - Check that all equipment is turned off and left in a safe condition.
  - Securely lock away all tools and small items of equipment.
  - Ensure that the fuel store is locked and secure against spillages.

- Only trained personnel may operate any plant or equipment on site.
- The site is provided with adequate lighting to allow for the safe operation of tipping during winter months.

Landfill Gas



- All site staff should be aware of all the hazards of working on the site, particularly from landfill gas.
- Welding or cutting equipment or any equipment employing a naked flame must not be used on the site without the prior approval of the site manager.
- Confined spaces, including manholes must not be entered without prior testing for flammable and asphyxiant gases.
- A strict no smoking policy (except in designated areas) shall be observed on site, due to the risks and hazards posed by landfill gas.

Vehicle Movement

- The maximum speed limit within the site for all vehicles is 8 kph.
- All drivers delivering waste must report to the weighbridge area and all open vehicles delivering waste must be netted or sheeted to prevent spillage.
- Watch out for moving vehicles on site, nearly half the fatal workplace accidents involve vehicles in the workplace. The commonest accidents involve:
  - Being struck or run over by a vehicle / suffocated by a load falling from a vehicle / Falling from vehicles.

REMEMBER! THE BASIC SITE RULES:

- ALCOHOL OR UNPRESCRIBED DRUGS ARE NOT ALLOWED ON SITE.
- DO NOT USE FAULTY OR DEFECTIVE EQUIPMENT - IF IN DOUBT, CHECK IT OUT!
- ONLY TRAINED PERSONNEL ARE ALLOWED TO OPERATE MACHINERY AND PRESCRIBED TOOLS AND EQUIPMENT.
- WEAR PROTECTIVE CLOTHING/EQUIPMENT WHERE REQUIRED.
- NO PERSON SHALL INTENTIONALLY OR RECKLESSLY INTERFERE WITH, OR MISUSE ANY APPLIANCE, PROTECTIVE CLOTHING, EQUIPMENT, OR OTHER MEANS OR THING PROVIDED IN PURSUANCE OF ANY OF THE RELEVANT STATUTORY PROVISIONS OR OTHERWISE, FOR SECURING THE SAFETY, HEALTH OR WELFARE OF PERSONS ARISING OUT OF WORK ACTIVITIES

Cavan County Council – Corranure Landfill (77-2)
Emergency Contact Numbers

Name of Site:	Corranure Landfill Cootehill Cavan
Landfill Manager Sean Guider	087 287 2097
Assistant Landfill Manager Sinead Fox	087 980 8507
County Council Switch Board:	049-4378300
Dr.John Sullivan:	049-4361700
Doctor on Call: **Ater 6pm Weekdays & All Weekend**	1850-777911
Hospital **Cavan General:**	049-4376000
Garda Station:	049-4331300
Ambulance/Fire Brigade:	999
ESB:	1850-372-999
Machinery Yard:	049-4378483
EPA **Head Quarters:**	053-60600
Health & Safety Authority:	01-6620400

Cavan County Council- Corranure Landfill WL 77-2

Accident and Near Miss Investigation Form

Name of Injured Employee:

Personal Number:

Date & Time of Accident:

Date & Time of Investigation:

Accident Location:

Machinery or Activity Involved:

Briefly outline the nature of the Accident Injury or Near Miss:

WITNESS TO THE CIRCUMSTANCES

Name	Personnel Number	Statement Given (Yes/No)

Name of Person completing this Form

Signature	Title	Date

CIRCUMSTANCES OF THE ACCIDENT OR NEAR-MISS

MACHINERY/EQUIPMENT:

If machinery/equipment was involved please give relevant details?

Indicate the checks carried out on the machinery:

PROTECTIVE EQUIPMENT:

Was the accident victim wearing protective equipment appropriate to the job?

YES_____ NO_____

Please elaborate if relevant:

Indicate the checks carried out:

CIRCUMSTANCES OF THE ACCIDENT OR NEAR-MISS

PROCEDURES:

Was there an established procedure for the work?

YES_____ NO_____

If yes please give details of compliance (or non-compliance) with the procedure:

OTHER CIRCUMSTANCES:

Please elaborate on other circumstances, you have noted, which may be relevant to this investigation:

CIRCUMSTANCES OF THE ACCIDENT OR NEAR-MISS

GENERAL CONDITIONS AT THE ACCIDENT SCENE:

Give details of any conditions at the accident/incident scene, which may be relevant (e.g. lighting, floors, steps, ramps etc):

TRAINING:

Was the employee doing work appropriate to his or her training and competence?

YES_____ NO_____

Please elaborate if relevant:

PLEASE LIST AND DESCRIBE THE ATTACHMENTS TO THIS REPORT:
(Drawings, photographs, statements, notes, measurements etc)

BRIEFLY DESCRIBE ANY MEDICAL OR FIRST-AID GIVEN AT THE TIME OF THE ACCIDENT:

PLEASE INDICATE WHAT OTHER INVESTIGATION IS NEEDED TO COMPLETE THE REVIEW OF THE INCIDENT:

REPORT OF FINDINGS

Detail the circumstances of the accident/incident based on the evidence gathered and witnesses accounts

SIGNED: _____ DATE: _____

FOR PERSONNEL SECTION

	YES	NO
Has the accident been reported appropriately?	_____	_____
Has the accident been notified to the **HSA, if appropriate?**	_____	_____
Have notes been put on files to maintain **contact with the key witnesses?**	_____	_____
Have notes been put on files to maintain contact with the key witnesses?	_____	_____
Has the insurance company been notified as appropriate?	_____	_____

Notes in relation to any civil claim proceedings:

Employee's absence resulting from the accident:

Details of medical reports attached to this file:

APPENDIX 9

Awareness and Training Procedure

Awareness and Training Procedure

Purpose:

Suitable training, instruction and supervision shall be given to all site employees, be they full or part time staff. In addition all contractors shall be informed of the hazards and necessary precautions to be taken, whilst working at the site.

This procedure is to comply with condition 2.3.2.4 of the Waste Licence

1. Fire/Emergency

All staff shall be familiar with the following in the event of an emergency situation arising:

- Know where the nearest emergency exit is
- Know where their assembly point is
- Ensure their supervisor knows they are on site

All assembly points shall be issued individually and posted up around the site

- **On discovery of a fire** the alarm shall be raised and staff shall proceed to the nearest assembly point and further action shall be decided
- **On hearing the fire alarm** staff shall proceed to their assembly point
- Emergency facilities and equipment such as fire extinguishers should not be tampered with except in emergency situations. All staff shall be briefed on the different types of extinguishers and their uses
- All staff shall be made aware of the lists of phone numbers for police, fire and ambulance services, prominently displayed on site for use in the event of an emergency

2. Accidents/Incidents

- All staff shall be made aware of the first aid facilities available on site
- A first aid box shall be made available in clearly marked locations throughout the site. The contents of each first aid box shall be checked at regular intervals by a named individual, responsible for its upkeep
- Eye wash facilities shall also be made available on site. Any bottle with a broken seal shall be disposed off immediately
- First aid training will be made available, with a minimum of one person with a first aid qualification normally present on site
- All accidents, injuries and near misses must be reported to this person

- He/she shall complete the site incident/injury report form. In addition if the accident involves a person being off work for more than three consecutive days (excluding the day of the accident itself and including weekends), it is imperative that the accident is reported to the Health and Safety Authority
- All staff at the site, including those employed temporarily shall have adequate protection against tetanus, Hepatitis A & B and Polio. This protection shall be recorded and be kept up to date, with boosters given at 10 yearly intervals
- Site staff shall be made aware of the symptoms of Weil's disease and be issued with a leaflet in relation to the disease
- All staff shall be made aware of hot and cold washing facilities available on site

3. Manual Handling

- Anyone involved in manual handling on site shall be required to be adequately trained in Manual Handling
- Individuals or their employer prior to undertaking work at the site should have previously been provided with manual handling training prior to carrying out manual handling tasks onsite

4. Personal Protection Equipment

- High visibility clothing shall be provided and must be worn by all staff and visitors
- Safety boots/shoes, with steel toecaps and a steel insert in the sole are mandatory and must be worn at all times
- Protective gloves shall be worn, relevant to the task
- Safety helmets and eye protection shall be available as necessary
- Eye protection is mandatory for those driving site machinery or working in high noise areas

5. Working at Heights

Lifting tackle and equipment is to be used according to the procedures in place

- Certificates must be available for inspection prior to starting any future work on site to deem equipment fit for use
- Ladders shall be secured and examined to confirm that they are in good working condition
- Only trained and competent personnel will be authorised to work at heights

6. Working with Bulldozers/Weighbridge/Civic Amenity Area

- Only trained personnel may operate any of the above. Refresher training shall be provided in conjunction with changes in technology
- A checklist shall be carried out on all workplace vehicles before use to ensure they are in good working condition
- The site shall be provided with adequate lighting to allow for the safe operation of tipping during the winter months

7. Landfill Monitoring

- An active monitoring programme in respect of groundwater, surface water, leachate and landfill gas shall be carried out
- Only those trained and qualified in this field shall be involved in this monitoring

8. Landfill Gas

- All site staff, including contractors shall be made aware of all the hazards of working on the site, particularly from landfill gas. Employees shall be trained regarding the potential risks, the existence of occupational exposure limits and associated preventative measures and precautions
- Smoking on site shall be forbidden, except in designated areas

9. Confined Spaces

- Instructions shall be provided to all employees that no one shall enter any confined spaces, unless suitably qualified to do so and an authorised person has certified that it is safe to do so. Strict safety precautions shall be in place whilst working in such areas

10. Electrical Safety

- Only qualified electrical staff shall be authorised to repair/install any electrical appliance or connections
- Damaged electrical equipment shall be removed from the work area and reported immediately to the electrical supervisor to organise replacement or repair
- The electrical distribution system shall be inspected annually by a qualified electrician
- All power lines shall be signpost by protective barriers

11. Work Permits

- The appropriate permits must accompany hot work. Absence of these permits will result in the stoppage of work

12. Training Courses

- All persons on site shall attend the Waste Operative Training course and Safe Pass course, ran in conjunction with Fas
- The facility Manager on site has have attended the Waste Management Training course
- All records of such training shall be kept on file

Responsibilities:

The designated person for carrying through Health and Safety Training procedures and ensuring all persons on site are trained accordingly is the landfill Manager.

APPENDIX 10

Communications Programme
&
Complaint Form

Communications Programme

Introduction

Corranure Landfill has been operating as the main waste disposal facility by Cavan County Council over the last 20 years. Originally designed on a 'dilute and disperse' principle. The existing landfill is approximately 3 hectares in size and situated adjacent to the R188 Cavan-Cootehill Road in the townlands of Corranure and Lismagratty.

A Waste Licence for the facility was issued by the EPA in June 2001, Ref WL 77-1. Since this time a further licence was issued in May 2005, Ref WL 77-2. Condition 2.4 of Waste Licence Ref. 77-2 requires the submission of a Communications Programme for Corranure Landfill facility.

Information on Environmental Performance

Monitoring is carried out at facility under the following headings:

- Surface Water
- Ground Water
- Leachate
- Landfill Gas
- Noise
- Dust
- Meteorological
- Emissions to Sewer
- Litter Control
- Bird Control
- Incidents

Information on the above monitoring is available at the following location:

Landfill Manager

Corranure Landfill,
Cootehill Rd.,
Cavan.

Phone: +353 (0)49 4372700
Fax: +353 (0)49 4372554

Information on the Environmental Performance of Corranure Landfill Site can be obtained by contacting the landfill manager as per the contact details listed above between the hours of 8.30am to 4.30pm Monday to Friday inclusive. In the interest of safety members of the public wishing to view this information should do so by appointment with the facility manager.

Private Well Monitoring

Condition 9.9 of Waste Licence 77-2, requires Cavan County Council to undertake monitoring on all private wells within 500 m of the facility. The results are given to the relevant householder upon receipt. Should any exceedances be indicated and should water be deemed unsuitable for human consumption, the householder will be advised of same and be supplied with an alternate water supply.

Complaints Form

Complaint No. **Name of complainant:** **Time & date of complaint:** **Complaint received by:**
Details of Complaint:
Corrective Action:
Person responsible for corrective action: **Date of completion of corrective action:**
Signed:_____ **Date:**