



**OFFICE OF
LICENSING &
GUIDANCE**

INSPECTORS REPORT ON A LICENCE APPLICATION

To:	DIRECTORS	
From:	DONAL HOWLEY	- LICENSING UNIT
Date:	01/02/05	
RE:	APPLICATION FOR A WASTE LICENCE (REVIEW) FROM CARLOW COUNTY COUNCIL, LICENCE REGISTER 25-2, POWERSTOWN LANDFILL	

Application Details

Type of facility:	Landfill for Non-Hazardous Waste
Class(es) of Activity (P = principal activity):	3 rd Schedule: 1, 4, 5(P), 6, 7 & 13. 4 th Schedule: 2, 3, 4, 9, 11 & 13.
Quantity of waste managed per annum:	28,500 tonnes [Existing Licence provides for up to 40,000 tonnes per annum (t/a)]
Classes of Waste:	As outlined in Section 2.
Location of facility:	Powerstown, Co. Carlow.
Licence application received:	25 th July 2003
Third Party submissions:	15 as of 1 st February 2005.
EIS Required:	Yes.
Article 14 compliance date:	8 th July 2004
Article 16 Compliance date:	4 th November 2004
Site Inspection:	19 th August 2003: Breege Rooney 28 th April 2004: Donal Howley / Breege Rooney

1. Facility

This report relates to an application by Carlow County Council for a review of its waste licence for Powerstown Landfill (Reg. No. 25-1, issued 24th March 2000). The County

Council proposes to extend the landfill facility and provide an improved/relocated civic waste facility for the recovery/disposal of waste delivered by members of the public as well as a green waste composting area. The existing landfill facility covers an area of in excess of 10 hectares - 2.5 hectares of which is an unlined landfill and 5.7 hectares comprising of 13 lined cells. The proposed extended area adjacent to the existing facility covers an area of in the region of 13.5 hectares of which 2.6 hectares is proposed for landfilling (four lined cells). The annual quantity applied for is 28,500 tonnes as opposed to 40,000 t/a provided for under the existing licence.

The unlined facility was primarily operated from 1975-1991 with some sludge from wastewater treatment being deposited there until stopped by court order in 1997. Estimates of 100,000 & 130,000 are provided in the application for the amount of waste in this area. The landfilling of waste into lined cells has been carried out from 1991 to date with 13 lined cells developed in this time. The existing licence stipulates that from 30 June 2004 no waste other than inert material for capping and restoration is to be accepted at the facility. The licensee has continued to accept waste for disposal at the facility (see enclosed Audit Report for audit of 02/12/04). The capacity of the landfill with regard to licensed contours under the existing licence is very limited with the landfill likely to be full within a number of months of landfilling.

The facility is located to the east side of the River Barrow Valley, with the Powerstown stream located along the northern boundary of the existing and proposed extension running westwards to the River Barrow. The River Barrow is classified as cyprinid. The unlined landfill is likely to be impacting on the quality of both the Powerstown Stream and the groundwater.

A key issue regarding this facility is the primary aquifer below the proposed landfill, which is identified as a regionally important fissured aquifer with an extreme vulnerability rating. With reference to the GSI's Response Matrix for Landfills the response matrix for such a development is *R4 – not acceptable*. The applicant acknowledges this and makes reference to the Governments Policy Document – *Changing Our Ways*, which refers to extending existing landfills where possible and consequently proposes a lining system in excess of the requirements of the Landfill Directive (1999/31/EC) to mitigate against the vulnerability rating.

There are 15 residences located within 500m of the site, with one of these proposed to be used as a site office. The setting is rural with principal activities in the area being tillage and cattle rearing. There exists a quarry adjacent to the unlined landfill, which has had some activity in 2004 after a period of inactivity. Tourism in the area includes fishing and walks along the River Barrow.

Compliance issues with the current licence are discussed in Section 10. The main non-compliance issues relate to the non-provision of infrastructure within specified timeframes i.e. leachate lagoon and landfill gas collection and flaring system, the non-reporting of incidences regarding landfill gas trigger level exceedances, spillage of leachate, litter in the vicinity of the landfill, inadequate covering of waste and the fact that the landfill gas flare was not operating continuously.

2. Operational Description

The applicant has applied for the following additional classes of waste activities over that provided for in the existing licence:

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- Third Schedule Class 7: regarding the removal of grit from leachate in the leachate lagoon(s).
 - Fourth Schedule Class 9: regarding the use of landfill gas for the generation of electricity/energy.
 - Fourth Schedule Class 11: regarding the use of compost generated on site in restoration works.

These classes are allowed for under the RD subject to being limited to those activities.

In addition to the four new lined cells proposed additional infrastructure includes

- New entrance and access route
- New weighbridges and weighbridge hut
- New Waste Inspection & Quarantine Areas
- Conversion of an existing dwelling to site offices
- Civic Waste facility to include receptacles for recycling and disposal
- A second leachate lagoon
- Surface water collection infrastructure including a stormwater retention pond

The applicant also proposes to install a green waste compost area for windrow composting of up to 300 tonnes per annum and this is provided for in the RD.

At the landfill it is proposed to continue to accept wastes at quantities up to 28,500 t/a comprising of household waste (c. 19,000 t/a), commercial waste (c. 6,250t/a), treated sewage sludge (c. 1,220 t/a), construction & demolition waste (c. 900 t/a) and industrial non-hazardous solids (c. 780 t/a). The RD allows for these quantities with provision for alternating the amounts of these waste types subject to Agency agreement and the overall limit of 28,500 t/a not being exceeded. The existing waste licence allows for the disposal of up to 40,000 t/a of waste.

The requirements of the Landfill Directive with regard to waste acceptable for disposal at the landfill are reflected in conditions of the waste licence such as 1.4 & 5.2. The applicant proposes to accept up to 20 tonnes of various household hazardous wastes at the facility and this is provided for in the RD subject to the waste being sent off-site to appropriate facilities.

The applicant has requested to amend/increase the hours of waste acceptance at the facility from 08:30 – 16:30 (Monday to Friday) & 08:30 – 13:00 (Saturday) to 08:00 – 17:30 (Monday to Friday) & 08:00 – 12:30 (Saturday). This request is allowed under Condition 1.5 along with an hour either side for start-up/closure operations, which was requested.

Excavations proposed for the extension vary in depth to a maximum of 14m. Excavated material is proposed to remain on site for use in the facility development such as for cell construction, drainage material, internal roads, berm construction, capping and restoration works.

The unlined landfill, based on the principle of “dilute and disperse”, is currently capped with gravely clays of varying depths between 0.3 – 1.0 m. The applicant proposes not to provide further capping, although it is noted that the Restoration & Aftercare Plan included in Attachment G refers to providing a minimum cover of 1.0 m. Having regard to the impact

that this unlined landfill is likely to be having on surface water and to the fact that it overlies a regionally important aquifer the RD requires a final capping system to be placed over this landfill to minimise the potential for leachate generation as well as the provision of leachate collection toe drains or alternative around this area to facilitate collection and treatment of leachate.

Final capping of five lined cells (No. 1-5) had been carried out as of March 2004. A further two cells (No. 7 & 8) had been planned to be permanently/final capped in 2004 (see also enclosed audit report – 02/12/04). The RD requires that Cells No. 6-12 be final capped within twelve months of the date of grant of the licence unless otherwise agreed by the Agency and that all cells subsequently filled to be final capped within twelve months of being filled.

Monitoring requirements for all media are specified under Condition 8 and Schedule D of the RD.

3. Use of Resources

Raw materials identified as being required for the extension are detailed in Section 2.9.6. of the EIS and includes details of materials to be won on site or imported. Diesel oil consumption is estimated by the applicant as being between 75,000-85,000 litres/annum with electricity requirements between 20,000-25,000 kWh per annum.

4. Emissions

Operations/aspects of the facility that have the potential to have a significant impact on the environment.

4.1 Air

In February 2001 the Agency directed the licensee/applicant to install a landfill gas collection system and flare. The licensee subsequently installed these in late 2002. Since that time the licensee has been extending the gas collection area. The licensee commenced operating the landfill gas flare (500m³/hr capacity) on a continuous basis (24hr, 7 days a week) since April 2004. The RD requires the licensee to augment the flaring capacity at the facility within six months to provide for a 750m³/hr capacity having regard to estimates for landfill gas production rates at the facility. [In Attachment D.5 the applicant estimates landfill gas quantities generated/to be generated by the facility with a maximum quantity of in the region of 6.316 million m³/annum in the year 2014. The quantity estimated by the applicant for 2004 is 4.286 million m³].

4.2 Emissions to Sewer

All leachate is required to be tankered off-site to Mortarstown Waste Water Treatment Plant or an alternative agreed with the Agency. Muinemheag Waste Water Treatment Plant had been proposed by the applicant as an alternative facility but the applicant subsequently it ruled out as being unsuitable (Article 16 response).

4.3 Emissions to Surface Waters

The applicant acknowledges that the unlined part of the facility is likely to be impacting on the water quality of the Powerstown Stream – *“there does appear to be a minor impact from Phase 1 (unlined landfill) and or Phase 2 (lined landfill) into the Powerstown Stream. An input of contaminated surface water run-off or a leakage of leachate via groundwater into the stream may be the source of this contamination”*. This is borne out by slight elevations in levels for chloride and electrical conductivity in samples taken downstream of the facility over

those taken upstream. This is similarly referred to in the Inspectors Report for the original waste licence application – “*For sampling results submitted from 1995 – 1998 both Ammonia and Chloride levels are slightly elevated downstream compared to upstream*”. The applicant refers to the ammonia levels recorded downstream of the landfill site, in the Powerstown Stream, being higher than the recommended EC limits for cyprinid waters (<0.02mg/l). The highest ammonia level recorded at the downstream point of Powerstown Stream was 0.721mg/l on 6th June 2002 with the upstream level on that date being 0.008mg/l. Biological sampling and water quality assessment carried out in 2002 on behalf of the licensee indicated a Q-rating of 3-4 (slightly polluted) upstream of the landfill and of Q3 (moderately polluted) at downstream location on Powerstown Stream.

As referred to above all collected leachate is to be tankered off-site with additional measures to be put in place regarding leachate minimisation and collection in the unlined landfill area. Surface water management infrastructure proposed includes

- Surface water swales to direct surface water from areas affected by the extension to stormwater retention pond.
- Stormwater retention pond along with grit removal trap, oil-water separator, actuated penstock and instrumentation to monitor pH, D.O., Conductivity and Level.
- Outflow from pond to the Powerstown Stream.

This is provided for in the RD along with the requirement that this be in the initial development phase and that drainage from all relevant areas throughout the facility (current and proposed extension) be drained to this system. An Emission Limit Value (ELV) for suspended solids from the outlet of the pond is set at 35 mg/l.

4.4 Emissions to ground/groundwater:

The applicant acknowledges that there is some impact on the quality of the groundwater from the unlined landfill and gives an example of electrical conductivity values in samples from upgradient and downgradient boreholes to support its contention that there is a low level impact of contaminated material entering the groundwater. Monitoring results carried out on behalf of the licensee also indicate elevated ammonia levels primarily in on site and downgradient boreholes. Some monitoring carried out by consultants in 2002 also indicates pHs ranging between 4.5 – 9.88 for on site, downgradient and upgradient wells although EPA monitoring included for 2002 ranged between 7.2 – 7.6. The Inspector’s Report for the previous application discusses private well monitoring carried out at three residences indicating detection of total coliforms at all three and the detection of faecal coliforms in the well of one residence (the Mulveys) and concludes that the most likely source of microbial contamination being from either septic tanks or the agricultural activity of the area. Details of subsequent monitoring submitted by the applicant indicate similar results. The direction of groundwater flow from the unlined landfill towards the Powerstown Stream and beyond this the Mulvey residence means that this area is also a potential source of contamination of this well.

Underlying the landfill area in general is sand and gravel to varying depths (borehole logs indicate 3.6-12.9m) overlying a regionally important fissured aquifer. A pumping test carried out on site supports this classification. Due to excavations required for the proposed extension the vulnerability rating of the aquifer is Extreme. The GSI Response Matrix for Landfills gives a response for such a site of R4 i.e. not acceptable. In support of its application to extend this site the applicant refers to the Government Policy Document – *Changing Our Ways* and also proposes a high specification landfill lining system, which goes beyond the lining requirements specified in the Landfill Directive.

This is a key issue of consideration with regard to the acceptability or otherwise of this application. If the application is to be considered acceptable the following must be satisfied

- Leachate generation to be minimised.
- Provision of a suitable lining system to minimise the potential for leachate leakage.
- Maintenance of leachate at levels such that the leachate head is kept at a minimum.
- And provision of a leachate collection system along with capability for treating the collected leachate.

Having regard to these the applicant proposes the following measures

1. Final Capping of all lined cells but not including the unlined landfill area.
2. A lining system for the proposed four cells which is more stringent than requirements of the Landfill Directive. This proposal comprises
 - 1.0 m thick bentonite enhanced soil (BES) layer with a maximum permeability of 1×10^{-10} m/s overlain by
 - 2.5 mm thick HDPE liner
 - a geocomposite drainage geotextile ("leak detection system")
 - 2.5 mm thick HDPE liner
 - protective geotextile (Polyfelt TS40)
 - 500 mm thick granular layer (min. permeability $K > 1 \times 10^{-3}$ m/s) including leachate collection network.
3. Leachate levels in cells to be maintained below 1.0 m above base of the cells, monitored via SCADA system including remote/automatic activation of leachate pumps as well as an alarm system to indicate if leachate level limit is exceeded.
4. A second leachate lagoon to hold collected leachate prior to its removal off-site for treatment.

These proposals are provided for in the RD along with the following additional requirements

- Conditions 4.2 & 4.3 of the RD specify requirements for the unlined landfill to be capped as per the lined cells and also to include a flexible membrane (LLDPE) in the final capping system. The applicant estimated a figure for annual leachate generation in the unlined landfill of 18,684m³.
 - Condition 3.12 of the RD reflects the lining system proposed for the new cells and requires that the slope of the cells to be a minimum of 1:50 to facilitate drainage/collection of leachate.
 - Condition 3.13 of the RD also sets out requirements for leachate collection at the facility to include additional measures for the unlined area.
 - Given the seriousness of the issues identified above - particularly those underlined - Condition 5.1 has been written such the Agency will only authorise the commencement of waste deposition in the facility extension following the completion of capping works specified under Condition 4.2 to the satisfaction of the Agency. The reason for this is to ensure that necessary actions to mitigate against/prevent any existing groundwater pollution from the facility are carried out as a priority.
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The licensee is also required to submit proposals for groundwater trigger levels in accordance with the requirements of the Landfill Directive for the monitoring boreholes stipulated in the licence.

4.5 Noise:

The existing entrance is off the busy N9 with the proposed new entrance to be off a minor road, which is to be upgraded. The predominant activity in the environs is agricultural. The proposed extension is essentially a continuation of landfill activity along with the relocation of the civic waste facility and inclusion of additional infrastructure, including potentially a green waste compost area. Noise monitoring and modelling submitted as part of the application predicted negligible impact for the construction activities at the proposed landfilling areas. Noise mitigation measures proposed include the provision of berms along the northern, eastern and southern boundaries of the proposed landfill extension (with the existing landfill on western side) as well as a berm along the eastern boundary of the proposed new civic waste facility/recycling area. Condition 7 includes requirements for noise control to be implemented at the facility. Measures regarding the access road and its upgrading are governed by the planning code.

4.6 Nuisance:

Conditions of the RD, such as 5 & 7, specify requirements for the control of nuisances from litter, dust, vermin, flies and birds.

5. Restoration

The applicant proposes to restore the lined area of the landfill to a single domed/mound shape with the maximum final restoration height of the landfill to be no greater than 64.0 mOD. This maximum height is the maximum height allowed for under the existing waste licence. The applicant proposes to grass the restored landfill to be ultimately grazed after a period of five years. Planting and landscaping of the boundary areas and a buffer area to the east of the facility are also proposed. This is to include the provision of screening berms along the northern, eastern and southern boundaries of the landfill to be planted with trees and infill planting along maintained boundary hedgerows.

6. Cultural Heritage, Habitats & Protected Species

No evidence of any archaeological sites within the proposed extension were identified. Three known archaeological sites/finds were identified within 1km of the boundary of the proposed extension. Requirements detailed in correspondence from The Heritage Section of the Department of the Environment, Heritage and Local Government (at the time Dúchas) to the applicant (dated 23/01/03) have been included in Condition 8.11 of the RD.

The site is mainly arable land with a small area of scrub. Habitats within the site are considered to be of low nature conservation value. One rare floral species (wild mignonette – *Reseda lutea*) was observed in the hedgerow surrounding the proposed extension. This hedgerow is to be maintained.

7. Waste Management, Air Quality and Water Quality Management Plans

Powerstown Landfill is currently the only licensed landfill in County Carlow accepting municipal wastes. Waste management policy in County Carlow is outlined in the Joint Waste Management Plan for the South East Region (2000-2021). Local authorities

participating in this plan comprise of the applicant, Waterford City Council and the County Councils of Kilkenny, South Tipperary, Wexford and Waterford. In addition to three proposed new landfills for the region this plan refers to proposals for the extension of existing local authority landfills and also to the need to implement existing proposals to meet the immediate landfill needs of the South East Region.

In order to meet the short to medium waste management requirements the applicant proposes to extend the existing facility in line with Government Policy (*Changing Our Ways*, 1998) as opposed to developing a greenfield facility. As part of the consideration of the extension four alternatives were considered.

8. Environmental Impact Statement

I have examined and assessed the EIS and am satisfied that it complies with the EIA and Waste Licensing Regulations.

9. Compliance with Directives/Regulations

The facility as conditioned by the RD complies with the requirements of the Landfill Directive. The systems specified/conditioned by the RD for lining, leachate collection and capping comply with the BAT principle.

10. Compliance Record

Since the facility has been licensed on 24/03/00 the Agency has received almost one hundred complaints in relation to the facility. These related primarily to odours but also litter, dust, vermin, water pollution and visual aspects. Complaints have reduced substantially from thirty-three in 2003 to five in 2004. Trigger levels for gas monitoring have been exceeded on numerous occasions, normally for carbon dioxide. However, the trigger levels within the on-site buildings are not normally breached and when adjacent residents allow the council to monitor gases in their house the trigger levels have not been breached. The licensee continues to extend the gas collection system and now operates the flare on a continuous basis.

At least ten notifications of non-compliance with the waste licence have been issued to the licensee since the date of grant of the waste licence. The main non-compliance issues relate to the non-provision of infrastructure within specified timeframes i.e. leachate lagoon and landfill gas collection and flaring system, the non-reporting of incidences regarding landfill gas trigger level exceedances, spillage of leachate, litter in the vicinity of the landfill, inadequate covering of waste and the fact that the landfill gas flare was not operating continuously.

The facility was audited on 02/12/04 by the Agency and was found to be in non-compliance with a number of conditions of the waste licence. These related to non-reporting of incidents regarding exceedances of gas trigger levels, inadequate bunding arrangements for the waste quarantine area, acceptance of waste beyond 30 June 2004 and exceedances of the dust deposition limit. A copy of the audit report is attached.

11. Recommended Decision

Key issues regarding this facility and the proposed extension include the existence of an unlined area of landfill and its impact on water bodies, compliance history and the

hydrogeological setting of the area. The conditions regarding the unlined landfill area should be considered as a priority in order to mitigate against its potential to negatively impact on groundwater and surface water as well as the potential for landfill gas migration. The primary provisions regarding these issues are included in Conditions 3.13 – 3.16 & 4.2 – 4.4. In addition Condition 5.1 is written such that the commencement of waste deposition in the facility extension is conditional on the completion of capping works at the facility to the satisfaction of the Agency. The proposal for the extension of the landfill area recognises the hydrogeological setting and consequently has included a lining system in excess of the requirements of the Landfill Directive to mitigate against the vulnerability rating of the site. The lining system proposed is specified under Condition 3.12 of the RD.

The licensee is required to ensure that the facility does not cause a nuisance from odours (Condition 7.1). Various conditions of the RD relate to odour control measures such as the requirements for the working face, covering of waste and operational controls including the provision of final capping of completed cells (Conditions 5.4-5.6 & 4.2 – 4.4). The requirements for collection and flaring of landfill gas (Condition 3.14) and to enclose the leachate lagoons (Condition 3.13) also serve to reduce potential odour nuisance. The licensee is also required to carry out odour monitoring under Condition 8.14 of the RD. This includes daily odour checks, monthly review of odour controls including operational status and details of any complaints received as well as a biannual independent odour audit of the facility.

In mitigating against the potential for visual impact the initial phase of the development is to include the screening measures proposed by the applicant such as provision of berms along various boundaries as well as landscaping/planting measures. The extension to the landfill is to be adjacent to the existing landfill with the proposed final contours to tie in with those as provided for under the existing licence. The final profile of the extension will not exceed the maximum height of the existing landfill.

12. Submissions

There were 15 submissions (as of 1st February 2005) made in relation to this application.

13.1 Submissions from local community

Twelve objections were received from members of the local community and raised a number of themes/issues. These will be considered as follows. [A full schedule of all those who made submissions is appended].

- (i) *Odours: A number of submissions refer to odours from the facility being a problem such as: very bad odours; foul smells; vile smell coming through the window if left open; odour from gases can often be too much and there being much previous experience of bad odour caused by the current landfill. Submissions refer to there being no confidence that the licensee will be able to suppress smells despite various assurances and that the local community will bear a heavy burden of excessive odours if the landfill goes ahead.*

Comment:- The RD requires the licensee to ensure that odours do not cause a nuisance at or in the immediate area of the facility. In addition to operational practices such as the phased filling of cells, restriction on the size of the working face of the landfill and cover requirements set out in Condition 5 of the RD, the licensee is required to provide final capping on all filled cells within twelve months of filling. Additional landfill gas collection and flaring infrastructure is also to be required at the facility. The licensee is also to be required to carrying out odour checks and odour

monitoring on an ongoing basis as part of the odour control/management at the facility (see Section 11 of this report)

(ii) Water Issues including unsuitability of site with respect to potential for pollution of groundwater's and surface waters in the surrounding area: A number of submissions express concern regarding the location of the facility and past history including

- Site is in a predominantly sand area and the sandy soil type of the area is most prone to water pollution.*
- All local residents use borehole wells, most of which use surface mounted pumps such that the water table is at no point lower than 13m below ground level*
- Wells must be vulnerable due to the sandy nature of the area, human error, accidents, vandalism and the fact that blasting is carried out a short distance from the area.*
- Any leaking of toxins/leachate would immediately enter the local water table*
- Water table is very high and so the height of the landfill area has to be high*
- Both surface waters and groundwaters at risk from leachate pollution*
- Any pollutant brought around site on wheels or feet could easily get into the surface water on site which may seep underground and to nearby streams and rivers.*
- Any mistake, accident or malicious act could in a short period of time affect the local water table and quite possibly the River Barrow (a source of water for Leighlinbridge, 3km downstream. The Leighlinbridge water supply is sourced a short distance across fields.*
- The proposed site is not “dug out” i.e. currently a functioning farm. Any landfill would result in constructing “mountains of rubbish” giving rise to possibility of run-off, stability concerns and a permanent physical change to the local landscape.*
- Many problems have arisen from local water supplies polluted*
- Having to live without water on many occasions*
- The fear of contaminated water*
- All the spring wells in the vicinity of the landfill are contaminated.*

Comment:- Refer to Sections 4.2, 4.3 and 4.4 of this report.

(iii) Birds: A number of submissions refer to problems regarding birds depositing soiled materials onto gardens.

Comment:- Condition 7 of the RD specifies bird control requirements at the facility such that birds do not give rise to nuisance at or in the immediate area of the facility.

(iv) Land Interest: One of the submissions objects to the manner of the application, and contends that the applicant does not own the land, that the submitter does, and

that the applicant will not discuss financial terms. The submission states that the site notice was unlawfully erected on their land and that is such it was removed by the landowner.

Comment:- The issue of applicant ownership, compulsory purchase orders, etc. is not within the remit of the waste licence application process. The site notice was assessed as having complied with the requirements of Article 7 of the Waste Management (Licensing) Regulations (S.I. No. 185 of 2000).

(v) Traffic: A number of submissions refer to concerns as to traffic issues such as;

- Proposed entrance will be a hazard, with extra traffic flow along a very minor road which serves the residents*
- Number of HGVs and private vehicles accessing the facility*
- The existing side road is totally unsuitable for the traffic with its exit point out onto the main road sub-standard*
- The number of fatalities that have occurred on or about the entrance to the existing dump over the years*

Comment:- The off-site road network and traffic issues are a matter for the roads authority.

(vi) Noise: A number of submissions refer to concerns about noise emissions from the facility, such as

- Noise due to increased traffic, spreading and covering of material and the various activities of the facility*
- Increased noise pollution due to excavation of land including the use of heavy machinery and vehicles and for landfill operations*
- The new entrance would cause noise levels to be amplified dramatically*
- Visually impaired residents will not be able to walk safely along the access road due to noise from the facility and not being able to hear light vehicles*
- Problems with noise in the past.*

Comment:- The hours of waste acceptance/operations are specified in Condition 1.5 of the RD. Activities between 07:00 and 08:00 are to be limited for the purpose of limiting potential for noise nuisance. Off-site road infrastructure is a matter for the roads authority. See also Section 4.5 of this report.

(vii) Health: A number of submissions voice health/quality of life concerns due to living in the vicinity of the facility referring to health issues/disabilities of locals such as chronic asthma, heart condition, visually impaired, blind, epileptics and Intellectual disability. Concerns are raised with regard to the potential for leachate contaminating groundwater and surface waters causing health problems.

Comment:- The control/management of leachate, groundwater and surface water are discussed in sections 4.2, 4.3 & 4.4 of this report. The conditions of the RD regarding the development and operation of the facility are such that in accordance

with the principles of BAT any risk to the environment and human health are mitigated.

In a recently published major study by the UK Government¹ it was concluded that:

“... we found no consistent evidence that people living close to landfill sites accepting MSW suffered worse health than people living further away from such sites. In particular, we found that the weight of evidence is against any increased incidence of cancers in people living near to landfill sites.”

(viii) Flies: A number of submissions refer to ongoing problems due to flies, they are continuously in the house, a common unwelcome by-product of the present landfill, no improvement in this regard since the waste licence was issued and that the high incidence of flies coming from the landfill can at times be intolerable, almost plague-like.

Comment:- The RD requires the licensee to ensure that flies do not cause a nuisance at or in the vicinity of the facility as a result of the facility activities. Operational controls specified in Condition 5 of the RD include requirements on minimising the working face and cover requirements to mitigate against the potential for nuisances such as from flies. See also comments to the submission from the National Council for the Blind.

(ix) Dust: A number of submissions were made with regard to there already being problems with dust emissions from the current facility and voicing concerns about an increase in dust in the air due to the increase in traffic arising from the proposed extension.

Comment:- The RD requires the licensee to ensure that dust from the facility does not give rise to a nuisance off-site. The licensee will also be required to provide and maintain effective site roads at the facility and in the instance of dry weather to spray with water those areas with potential to cause dust nuisance. See also the enclosed audit report in this regard.

(x) Vermin: A number of submissions refer to the issue of vermin. In this regard it is contended that there has been no improvement since the waste licence was issued. References are made to an infestation of mice in a family home; rats in a house and infestation of such in outhouses and yards. It is stated that there is a large movement of rats in and out of the existing facility and a lack of confidence is expressed that the applicant will be able to control/suppress rats.

Comment:- The RD requires the licensee to ensure that vermin do not cause a nuisance at or in the immediate area of the facility. Conditions 7.7 and 10.7 of the RD require a programme be implemented and maintained to this effect and that written records of the programme be maintained.

(xi) Waste Types: One submission refers to the acceptance of waste types at the facility including sewage from Carlow, animals and asbestos.

¹ Review of Environmental and Health Effects of Waste Management: Municipal Solid Waste and Similar Wastes. Department for Environment, Food and Rural Affairs, London. 2004.

Comment:- The RD restricts the recovery/disposal of waste at the facility to Municipal Waste, Commercial Waste, Industrial, Construction & Demolition Waste and Treated Sewage Sludge. The existing licence for the facility (Reg. No. 25-1) allows for, subject to conditions, the disposal of sewage sludge and asbestos based construction materials at the landfill. The RD allows for the disposal of sewage sludge at the facility. However, the applicant does not propose to accept asbestos waste at the facility and consequently this has not been allowed in the RD.

(xii) Management/History of facility: A number of submissions make reference to the past history of the facility and to concerns about the ability of the licensee to manage the facility properly. Submissions include statements that

- the facility opened in 1977 with no planning permission,*
- promises were made by the applicant following a picket of the facility in 1983 that were never kept*
- management has not been good over the years*
- there was a picket at the facility in March 2000 at the time the current waste licence was granted*
- since the licence issued there hasn't been improvement with regard to flies, vermin and very bad odours*
- if the applicant can't manage the current landfill how can you expect us to trust them with an extension?*
- local community has borne the brunt of the existing site for over 25 years. In that time the applicant has failed in its duty and responsibility frequently. Assurances and promises for the applicant are not acceptable as answers to the questions posed in submissions.*

Comment:- Any agreements/promises between the applicant and third parties prior to the licensing regime are outside of the waste licensing regulatory system. The licensee will be required to operate the facility in accordance with the conditions of the waste licence in force. As part of the waste licence the licensee is obliged to deal directly with complainants and to resolve any complaints that may arise. The Agency will carry out enforcement actions to include site inspections, audits and monitoring as well as review of documents, reports, records, etc. that the licensee will be required to prepare under the waste licence.

(xiii) Distances to dwellings: One submission expresses concern about the proximity of the facility to their residence and notes that their dwelling will be

- Less than 50 yards from the entrance;*
- Approximately 100 yards from the leachate lagoon; and*
- Approximately 200 yards from the composting slab.*

Comment:- These distances are noted. The leachate lagoon will be lined in accordance with the requirements of the RD and will be enclosed save for inlets and outlets. The licensee will be required to prepare a Leachate Handling Procedure for the handling and removal of leachate from the facility prior to the use of this lagoon. The composting slab, if provided, will be for a limited quantity of green waste and will only be provided following agreement of the Agency of proposals for the operation of the facility to include nuisance control measures. The quantity proposed by the

applicant of 300 tonnes/annum of green waste is below the threshold, referred to in the 2nd Draft Document on Biological Treatment of Biowaste, requiring a permit under the Waste Directive (75/442/EEC as amended).

(xiv) *Property Value/Land Interest: A number of submissions express concerns regarding property devaluation and planning restrictions due to the proposed extension. Issues/concerns raised about the proposed extension include: that dwellings and land will be worthless; that planning restrictions proposed as a by-product of the application will render it impossible for family land to be used to build houses for family members and that it would have a catastrophic impact on the local agri-business and in turn have a detrimental effect on the value of land and property in the area. It is contended that the planning restriction is ironic "in a time where there is a focus on "rural regeneration" as a solution to urban overcrowding".*

Comment:- The issues of property value, planning/land-use restrictions are not under the remit of the waste licence application process. The licensee proposed a buffer area between the proposed extended landfill and boundaries of the facility on the north, east and south, with the existing adjacent landfill on the west. The RD requires that this buffer area be maintained and includes provisions for landscaping of this area to include the planting of indigenous tree species (Conditions 3.19 & 3.20).

(xv) *Litter: A number of submissions refer to problems regarding litter stating that in windy conditions paper items blow long distances across farmland posing a danger to livestock and that it appears uncontrollable as it occurs several times per year due to the excess height of the landfill.*

Comment:- The RD requires the licensee to ensure that litter from the facility does not give rise to nuisance off-site. Condition 7 includes specified litter control measures to be employed at the facility including litter netting around the active tipping area while operational controls specified in Condition 5 also aid in the control of litter at the facility. Condition 11.3 requires the licensee to submit a proposal regarding the operation of the facility during windy conditions.

(xvi) *Tourism: One submission contends that the effect of the proposed extension will be great as the area is scenic and refers to the River Barrow, Leighlinbridge and Carlow fast becoming tourist attractions.*

Comment:- The capping and restoration works as required under the RD for the existing facility will improve the visual aspect of the facility from the N9. The development of the extended facility will be subject to the provision of landscaping measures including berms and tree planting in the initial stages. It is considered that the operation of the facility in accordance with the conditions of the RD will not have a detrimental effect on tourism in the area.

(xvii) *Landfill Gas: In addition to submissions regarding odours concern is raised about greenhouse gases, such as methane and carbon dioxide, being emitted from the landfill and detrimental to the environment and ozone layer. Concern is raised about odourless gases causing greater damage such as asphyxiation and gas explosions.*

Comment:- As discussed in Section 4.1 of this report the licensee will be required to install/maintain additional landfill gas collection and flaring infrastructure at the facility. Where landfill gas is not collected passive venting will be required e.g. along

the perimeter of the unlined landfill. The RD also requires the licensee to install perimeter landfill gas monitoring boreholes around the periphery of the landfill facility.

(xviii) Archaeology: A number submissions express concern that the increase in HGV traffic may cause some damage to the three archaeological sites within 1km of the proposed site.

Comment:- Refer to comment regarding traffic above. The RD sets out archaeological monitoring/reporting requirements, and actions where necessary, which reflects the requirements outlined by Dúchas (now Department of the Environment, Heritage and Local Government) in correspondence to the applicant dated 23/01/03 and included in the EIS.

(xix) Landscape: A number of submissions were made regarding concerns about the effect of the extension on the landscape including:

- The extension will result in areas of elevation, which will impact on the views of the nearby hills including Gallow Hill and Mount Margie;*
- The Civic Amenity Area etc. will impact on the landscape and visibility;*
- The proposed vegetation including deciduous trees, to hide the eye-sore that is the landfill sight, will in turn block even more of the surrounding beauty; and*
- The landfill should be located in a more remote area with a more natural elevation.*

Comment:- The extension to the landfill as proposed and provided for in the RD is such that its final contours join with the existing landfill and will not exceed the maximum elevation allowed for the existing landfill under the current waste licence (Reg. No. 25-1). See also Section 11 of this report.

(xx) Ecology: A number of submissions make reference to the presence of a rare species of wild flower (wild mignonette) at the site and express concern that it is in grave danger due to potential pollution.

Comment:- The presence of this species was identified by the applicant and is discussed in Section 6 of this report. Conditions of the RD specify surface water, groundwater and leachate management at the facility and are discussed in Section 4 of this report.

12.2 Submission from Mr. Frank Menton, South Eastern Health Board (14/08/03)

The South Eastern Health Board refers to complaints that it had received in the past relating to odours, problems with material from the facility being carried onto property by birds and to water supply problems. Reference was made to a Circuit Court Case in 1996 (prior to waste licence Reg. No. 25-1) initiated by residents in which Mr. Menton was summonsed as a witness and following which damages were stated to be paid to the resident's by the applicant. The submission concludes by stating that the current position is that the facility is well managed, with the core activity moved further away from occupied houses in the area and that no complaints have been made to the Environmental Health Department in the past three years.

Noted.

12.3 Submission from Mr. Ronan Tierney, James Cody & Sons Solicitor (03/09/03)

This submission is made on behalf their client, Mr. Jim Nolan of Powerstown, who is stated to own the major portion of the lands, the subject of the proposed extension. James Cody & Sons object to the manner in which the application has been made, stating that the application states that the applicant is the prospective purchaser of the lands and also that the applicant is in the process of purchasing 8.7 hectares from their client. James Cody & Sons state that this is completely untrue, that while discussions were held between the parties, the applicant refused to discuss financial payment, terms or enter into any contractual arrangement pending outcome of the application. James Cody further states that the applicant has no interest in the property and as such is incapable of making the application, that the site notice had been unlawfully erected upon their client's property and that their client has addressed this act of trespass by removing the site notice.

The issue of applicant ownership, compulsory purchase orders, etc. is not within the remit of the waste licence application process. The site notice was assessed as having complied with the requirements of Article 7 of the Waste Management (Licensing) Regulations (S.I. No. 185 of 2000).

12.4 Submission from Ms. Judith Martin, National Council for the Blind (07/10/03)

This submission is made on behalf of two registered blind clients living at Powerstown, Milford – Mrs. Lizzie Dermody and Ms. Roisin Dermody. This submission contends that the planned extension will have a devastating effect on their clients as the road outside their house will become the main access road for heavy vehicles using the facility. It refers to Ms. Dermody being a long cane user and raises concern about the road being congested and casing the surface to break up and rendering it impossible for her to travel on. The submission also refers to concern about and increasing amount of dust in the air due to traffic and states that there have been high incidences of flies from the dump, which can at times be intolerable, almost plague-like. Concern is also raised at the use of chemical sprays to control flies and which is stated to be particularly irritating to both clients and particularly Ms. Dermody's eye condition.

The issue of traffic outside of the facility is not within the remit of the waste licence application process but rather is dealt with under the planning code. The licensee will be required to ensure that the facility does not cause off-site nuisance such as from dust and flies. The use of fly sprays is to be carried out only under the direction of a specialised contractor and such that it does not itself cause off-site nuisance (Condition 7.7)

14. Charges

The charge in the original licence was set at £14,010 (€17,792.7). The charge is revised to €24,023 due largely to increases in the Inspector daily fee since 2000 (**using 2004 daily fee**).

15. Recommendation

I have considered all the documentation submitted in relation to this application and recommend that the Agency grant a revised licence for the waste activities and subject to the conditions as set out in the attached RD and particularly with regard to Condition 5.1 and for the reasons as drafted.

Signed

Donal Howley

Appendix 1

Licence Audit Report

Licence Audit Report

Mr. John Mulholand
Director of Services
Carlow County Council
Powerstown Landfill Site
Powerstown
Co Carlow

Audit No:	3	Register No:	25-1
Lead Auditor:	Olivia Cunningham	Audit Reference No:	AR04OC
Auditors	Tony Dolan Breda Miller	Scheduled:	25/11/2004
Audit Criteria:	Compliance	Date of Audit:	02/12/2004
Licence Reg. No.	25-1	Date of Issue of Report :	05/01/2005

F.A.O. Mr. John Carley

This Licence Audit Report details the Agency's findings following an audit at Powerstown Landfill on the above date.

NOTIFICATION OF NON-COMPLIANCE

You have been found to be in non-compliance with the conditions of the Licence as set out in this Audit Report. You are required to undertake the corrective actions specified to close out the Non-Compliances and Observations raised in this Report or further enforcement action may be taken by the Agency.

In view of the above you are required to submit a schedule to the Agency within 14 working days of receipt of this Report detailing how the non-compliances and observations specified therein are to be rectified. Please quote the above Audit Reference Number in any future correspondence in relation to this Report. If you have any further queries please contact Ms. Breege Rooney at 053-60600

The opening meeting commenced at 10:00 and the following were in attendance:

Representing Carlow County Council

Mr. John Carley	Senior Engineer
Mr. Matty Curran	Deputy Facility Manager
Mr. Eamon Brophy	Senior Executive Officer
Mr. Brendan Morrissey	Administrative Officer Environment

Representing the Environmental Protection Agency:

Ms. Olivia Cunningham	Lead Auditor
Mr. Tony Dolan	Inspector
Ms. Breda Miller	Programme Officer

Olivia Cunningham gave a brief introduction to the objectives and scope of the audit and the procedure to be followed for the remainder of the audit.

Review of Progress of EMP Implementation

A presentation on the progress of implementation of the Environmental Management Programme was given by Mr. John Carley. It was noted that the Facility Manager departed the site in July (2004), the Deputy Facility Manager, Mr. Matty Curran, has been acting Facility Manager since that date. We were informed that a new Facility Manager will commence work at the facility at the beginning of January.

The licensee outlined that progress had been made in relation to the following:

- Capping contract documents are in preparation for Cells 7 & 8.
- The civic amenity has been extended to include a clothes bank, timber skip, cardboard skip and plastic film skip.
- A sprinkler system has been installed as a dust control measure.
- A sophisticated security system has been installed.
- Resurfacing of the entrance to the civic amenity is due to take place shortly following the installation of an oil interceptor.
- A reduction in the number of complaints received by the facility in 2004.
- The flare is now operational 24 hours per day.

Site Inspection and Assessment

A tour of the site was conducted, special attention was paid to the working face, civic amenity site, security fencing, monitoring locations, landfill gas flare and the leachate lagoon.

Interview

The following representatives were interviewed during the audit:

Name	Position	Issue
Mr. Matty Curran	Acting Facility Manager	Various Site Issues

Documentation

The following documentation was requested for review:

Record	Condition No.	Comment
Training Records	2.5.1	See Audit Findings
Calibration Records	9.13	Satisfactory
Complaints Register	3.14	Satisfactory
Waste Records	3.12	Satisfactory
Leachate Removal Records	3.13	See Audit Findings
Corrective Action Procedure	2.4.1	Satisfactory
AER	3.11(d)	
Flare Temperature Records	9.1	Satisfactory
Leachate Levels Records	9.1	Satisfactory
Bird Records	6.4	Satisfactory
Gas Monitoring Reports	9.1	See Audit Findings
Groundwater Monitoring Reports	9.1	See Audit Findings
Surfacewater Monitoring Reports	9.1	Satisfactory
Dust Monitoring Reports	9.1	See Audit Findings
Emergency Response Procedure	10.1	See Audit Findings
Topographical Survey	9.17	Satisfactory

The Agency notes that the landfill management is going through a transitional period at the moment and as a result of this some of the documentation and recordkeeping needs to be updated. The deputy manager is to be commended for his efforts in maintaining very good waste records on-site.

The closing meeting commenced at 14:55 and the attendees were as at the opening meeting with the exception of Mr. John Carley who was absent.

Olivia Cunningham gave a summary of the audit result. The licensee was found to be in non-compliance with the Licence in the area listed below. Non compliances and observations made during the audit (listed below), were discussed.

The licensee was briefed on the Agency's reporting procedures and was advised that an audit report would be issued.

Finally, the licensee was thanked for the courteous and co-operative manner of the staff, and the assistance and co-operation extended during the audit.

Audit Non-Compliances

The audit process is a random sample on a particular day of a facility's compliance with some of its licence conditions. Where a non-compliance against a particular condition has not been reported, this should not be construed to mean that there is full compliance with that condition of the licence.

The licensee was found to be in non-compliance with the requirements of the licence in respect of the following on the day of the audit (Schedule and Condition numbers refer to the Licence):

1. Non Reporting of Incidents.

The landfill gas trigger levels have been breached at a number of perimeter boreholes on a number of occasions. On 20/11/2004 the CO₂ measured at TP9 (a perimeter borehole) was recorded as 12.9%. The trigger level for CO₂ is 1.5%. This was not reported as an incident.

Conditions 3.1, 3.2 and 10.7 state:

3.1 The licensee shall make written records of the following incidents:

- a) any emission which results in the contravention of any relevant standard, including any standard for an environmental medium, or any relevant emission limit value, prescribed under any relevant enactment;*
- b) any emission which does not comply with the requirements of this licence;*
- c) **any trigger level specified in this licence** or in the EMS which is attained or exceeded;*
- d) any malfunction of any environmental control system;*
- e) any indication that contamination has, or may have, taken place;*
- f) the cessation of waste activities at the facility for a period in excess of 28 days, and their recommencement;*
- g) any occurrence with the potential for environmental pollution; and,*
- h) any emergency.*

3.2 The written record shall include all aspects described in Condition 10.7.

10.7 In the event that any monitoring, sampling or observations indicate that an incident has, or may have, taken place, the licensee shall immediately:

- a) identify the date, time and place of the incident;*
 - b) carry out an immediate investigation to identify the nature, source and cause of the incident and any emission;*
 - c) isolate the source of the emission;*
-

-
- d) *evaluate the environmental pollution, if any, caused by the incident;*
 - e) *identify and execute measures to minimise the emissions/malfunction and the effects thereof;*
 - f) *provide a proposal to the Agency for agreement within one month to:*
 - (i) *identify and put in place measures to avoid reoccurrence of the incident, and;*
 - (ii) *identify and put in place any other appropriate remedial action.*

Corrective Action Required

Develop and implement a procedure to ensure that all incidents are reported to the Agency as per Conditions 3.1, 3.2 and 10.7.

The licensee is advised to study the impact of the old landfilled area (Phase I) on landfill gas generation and migration. Pending the outcome of this study, it may be necessary to install further landfill gas extraction boreholes in this area to reduce landfill gas migration.

2. Bunding

The bunding arrangements for the waste quarantine area do not comply with the requirements of Condition 4.9. The area is not contained by an impervious bund.

Condition 4.9 states:

4.9 The Waste Inspection and Quarantine Area and the Civic Waste Facility referred to in Conditions 4.7 and 4.8 shall:

- a) *be constructed with a hard impervious base graded to a longitudinal cross-sectional fall;*
- b) *be contained by an impervious bund not less than 100mm high; and*
- c) *drain only to a sump.*

Corrective Action Required

Install a ramp at the entrance to this area or otherwise modify the area to ensure compliance with the requirements of Condition 4.9.

3. Waste Acceptance

Waste is continuing to be accepted at the facility in lined cells. The licence states that waste was to cease being accepted at the facility on 30/06/2004.

Condition 5.21 states:

- 5.21 No waste shall be accepted at the facility, other than inert material for capping and restoration, after 30 June 2004.
-

Corrective Action Required

It is noted that the licensee has applied for a review of the Waste Licence to include an extension of the landfill and that this application is under consideration by the Agency.

4. Exceedances of Emission Limit Values (ELV's)

The following exceedances of ELV's were noted in the dust monitoring reports:

Monitoring Point	Result (mg/m ² /day)	Monitoring Period	ELV (mg/m ² /day)
DM2	929	July/August 2004	350
DM3	709	July/August 2004	350
DM2	2,282	August/September 2004	350

Condition 7.1 states:

- 7.1. *No specified emission from the facility shall exceed the emission limit values set out in Schedule G: Emissions of this licence. There shall be no other emissions of environmental significance.*

Corrective Action Required

The audit teams notes that a sprinkler system has now been installed at DM2. Any corrective actions taken (or planned) on foot of any exceedances of ELV's should be noted in the monitoring report.

In all future reports, trend the results (particularly high results) and use the results to develop a corrective action plan.

Audit Observations

While these observations do not constitute non-compliances with any condition of the licence, they should be addressed or where relevant noted by the licensee in order to ensure compliance, improve environmental performance of the facility and provide clarification on certain issues. Where requested the actions taken and clarifications requested should be reported back to the Agency.

1. EMP

Ensure that the EMP, including the objectives and targets are reviewed and amended for 2005. It was noted that many of the objectives and targets described in the EMP for 2004 were not addressed during 2004.

2. Training

An updated plan for identifying training needs must be developed, the plan should include any training needs of the new landfill manager.

3. Communications

It was noted that work on the newsletter has ceased. The audit team recommends that the licensee recommence the development of a newsletter as this was a very positive outcome of last year's audit.

4. Bunding

Conduct a bund test on the waste oil bund in accordance with Condition 4.15.5 of the waste licence. Submit the test results as part of the AER for 2004.

5. Measuring Gauge

As previously noted in last year's audit report, it is recommended that the licensee install a measuring gauge in the leachate lagoon to ensure that a minimum freeboard of 0.75m is maintained at all times. At the moment compliance with Condition 4.21.3 of the waste licence cannot be determined. The measuring gauge should be installed as a matter of priority.

6. Working Face

It was noted during the course of the inspection that the working face was large (estimated to be greater than 25m wide), the audit team were informed that a base layer was being applied to the new cell (cell 13), hence the large working area. The licensee is advised to minimise the working face area as soon as possible, and in the interim additional nuisance control measures should be put in place.

7. Waste Acceptance Procedures

An amount of recyclable material was observed in the domestic waste skips at the civic amenity area, the Agency notes however, that this material was later removed to the appropriate recyclable containers by facility personnel. It is recommended to display notices at the domestic skip in the civic amenity area, encouraging members of the public to recover/recycle as much waste as possible.

The current waste acceptance procedures date back to 2000. Review and update the procedures taking account of the requirements of the Council Decision of 19th December 2002 establishing criteria and procedures for the acceptance of waste at landfills.

8. Capping

Permanently cap cells 7 & 8 as soon as possible. As previously noted, review the capping of Phase I and investigate the requirements for leachate management

ensuring that a suitable cap is in place throughout Phase I.

9. Surface Water Monitoring Point

No additional surface water monitoring point has been installed to the monitoring programme downgradient of the old landfilled area (i.e. Phase I). Submit a proposal to the Agency detailing the proposed location of this monitoring point.

10. Leachate Removal Records

The volume of leachate removed from the facility is currently recorded in kg. The volumes in all future records of leachate removal should be recorded in cubic metres as per condition 3.13 (c).

11. Emergency Response Procedure

The current ERP was drawn up in 2000. Review and update this procedure taking account of any new activities on-site.

12. Training Records

The licensee informed the audit team that the consultants 'Malone O'Regan' came on-site and reviewed the contents of the AER with relevant personnel on-site, the Agency commends this form of training, however the training should be documented in accordance with Condition 2.5.1.

13. Groundwater Monitoring

The groundwater monitoring results indicate significant exceedances of Interim Guideline Values (IGV's), particularly in relation to ammonia and chloride at GW2. It is recommended to trend the results and focus on values that significantly exceed the IGV's, base any corrective actions on the interpretation of the results.

14. Gant Chart

It is recommended to develop a Gant Chart detailing all monitoring requirements, submission dates for reporting etc. to ensure that all monitoring and reporting are carried out in accordance with the Conditions of the licence.

The licensee shall take the actions required to close out the non-compliances and observations raised in this Licence Audit Report. These actions will be verified during subsequent site inspections/audits.

Please quote the Audit Reference Number in any future correspondence in relation to this Report.

Report prepared by:

Olivia Cunningham

Reviewed by:

Brendan Wall

Date:

05/01/2004

Date:
