INSPECTORS REPORT

WASTE LICENCE REGISTER NUMBER 80-1
APPLICANT: Carneige J. W. & Co. Ltd
FACILITY: Sand/Gravel Pit, Dillonsdown, Blessington. Co. Wicklow.

INSPECTORS RECOMMENDATION:
That a Waste Licence be granted subject to conditions.

(1) Introduction

Carneige J. W. & Co. Ltd applied in October 1998 to operate an inert landfill of total capacity 2.02 million tonnes in a large worked out sand and gravel pit (currently in operation) of area 14.5ha, in the townland of Dillonsdown, Co. Wicklow for the disposal of construction, demolition and quarrying wastes.

The quality of the application is poor and the material contained within is dated. However, a decision was made to move forward with a recommendation basing my decision on the Agency Landfill Site Design Manual and more recent licences issued for inert landfill.

The site lies approximately 2 km north of Blessington village, in a rural area where quarrying is widely practised. Two large active sand and gravel quarries operated by Hudsons and Cement Roadstone Holdings lie to either side (north and south, respectively). The boundaries between neighbouring gravel pits are very poorly defined on the ground and as a result the Agency wrote to the applicant on 27 February 2003 to undertake a survey of the facility boundary and mark out the same immediately. No such survey has been done (Agency site inspection 4 April 2003). Condition 1.2, specifies that the boundary be marked on the ground (forming a basis for the installation of security fencing (Condition 3.4.1.). The entrance to the pit is via a very poor road (inaccessible by private car in parts) which runs west 1km uphill from the main N81 road. Several residences lie on either side of this roadway, some served by their own borehole water supply.

Currently the facility operates an active quarry where aggregates (mostly sand and gravel) are extracted, cleaned and sorted at the core of the site (situated on a low point, see attached photograph, Plate 2). Several *galleries* of sand and gravel surround the core, where machines dig out aggregates for processing in the core. The quarry has accepted waste material intermittently since 1991 of approximately to a total of approximately 500,000tonnes.

The application divides the facility into three phases of filling (see Drawing No G1.3) which is useful in understanding site geography. Phase 3 is at the main core of the site where the existing cleaning and sorting operation occurs; Phase 1 is the main reservoir of sand and gravel which rises up westwards into ‘galleries of sand pits’, and; Phase 2 is the main western lobe where it is apparent waste was once emplaced. Infrastructure on-site includes a weighbridge, a wheelwash, and a variety of machines used for the sorting and cleaning of aggregates.

The applicant applied for the following waste activities:

Third Schedule: Waste Disposal Activities
Class 1: *Deposit on, in or under land (including landfill).* Principal Activity
Class 13: *Storage prior to submission to any activity referred to in a preceding paragraph of this Schedule, other than temporary storage, pending collection, on the premises where the waste concerned is produced.*

Fourth Schedule: Waste Recovery Activities
Class 2. *Recycling or reclamation of organic substances which are not used as solvents (including composting and other biological transformation processes).*
Class 4: *Recycling or reclamation of other inorganic materials.*
Class 13: *Storage prior to submission to any activity referred to in a preceding paragraph of this Schedule, other than temporary storage, pending collection, on the premises where the waste concerned is produced.*

The recommended Proposed Decision, for the reasons set out in Section 9 of this report, permits the above disposal and recovery activities, subject to the conditions therein.

A location map and a layout plan are attached as Drawing No. A1.2

Quantity of waste (tpa)	150,000 tpa
Prescribed date for application	1st May 1997
Application received	1st October 1998
Environmental Impact Statement Required	Yes. I have assessed the EIS and confirm that it complies with the requirements of Article 13 of the licensing regulations (S.I. 133 of 1997)
Number of Submissions Received	Five, Four Valid.

SITE VISITS

Date	Observations	Personnel
3/8/2000	Site visit	Caoimhin Nolan, Eamonn Merriman
23/1/2002	Site visit	Damien Masterson, David Shannon
14/11/2002	Site visit	Malcolm Doak
8/1/2003	Site visit	Malcolm Doak, David Shannon
28/1/2003	Site visit	Malcolm Doak, David Shannon
4/3/2003	Site visit	David Shannon

(2) Waste Types and Quantities

The application (received in 1998) specifies that 1.68 million tonnes of inert waste are to be deposited, 150,000 tonnes on an annual basis. This figure is in addition to two areas at the site where waste has already been emplaced – (a) and (b).

a) 1991 – 1998: 340,000 tonnes of inert material was landfilled intermittently since 1991 across the middle of the site into a 'landbridge' following a Circuit Court Order in 1987, to restore a right of way through the sand & gravel pit for access to a neighbouring quarry (CRH) to the south.

b) 1999 – 2002: the applicant informed the Agency at a site inspection on 8 January 2003 that further waste (mainly inert) was disposed of at two locations in the last three years in the western part of facility in the vicinity of 'Phase 2' as a narrow lobe 250m long, and 50m high and 20m wide at the top (70m at base). I estimate that this represents a volume of up to 600,000m^3 of waste emplaced since the application. Spiking for gas at three monitoring locations along the narrow strip was carried out during the 8 January 2003 Agency visit. Waste items were evident on the steep side slopes including blocks, bricks, and wood. Other items present, but generally in small quantities, included tyres, glass, empty paint pots and general confectionery litter. One reading at National GRID E97590 N16430 showed an elevated methane level of 13.0%. Such a value suggests organic waste was once emplaced at Phase 2, the gas arising from possible decomposition of buried, biodegradable waste at the facility.

There is not enough information to determine the volume, mass and types of waste deposited[1] at (b) Phase 2 nor the impact on the groundwater *lake* at the foot of the steep south slope, since the waste was emplaced onto a gravel floor in direct contact with the underlying groundwater. Therefore the Proposed Decision specifies that a risk assessment be carried out (on a grid system) for the Phase 2 wastes and any other wastes deposited at the Carneige quarry within six months of date of licence, to determine the longterm impacts of this waste. The risk assessment should recommend the remediation measures necessary to avert any ongoing pollution arising from these wastes and particularly have regard to the groundwater which I consider to be the main receptor at this site: These requirements are written into Conditions 5.2 and 5.3. Furthermore, any wastes derived from the remediation of the facility other than the inert waste types listed in Schedule A2 of the PD shall be exported from the facility as specified in Condition 5.10.1.

Schedule A and F of the recommended Proposed Decision provides for an annual maximum intake of 150,000 tpa of inert waste as per the application.

[1] The Waste Management (Landfill Levy) Regulations 2002 require that the calculation of weight of waste deposited at all unauthorised sites must be calculated by the relevant local authority from 1st June 2002 in order to assess the liability of these sites for the landfill levy.

The applicant has provided no detail on issues such as waste acceptance procedures and record keeping, and has provided little information on the types of waste to be accepted, and in particular the source of the waste. The licensee should ensure that incoming inert waste and soils are physically sorted, stockpiled, and tested for contamination as per the recent EU Council Decision of 19 December 2002 (2003/33/EC). Inert Waste which does not meet the requirements should be exported from site for disposal at a licensed facility. Such procedures are required of the licensee by Condition 5.5.1.

The applicant has requested the following as hours of operation: 7am to 6pm Monday to Friday and 7am to 1pm Saturday. These hours of operation are specified in Condition 1.6.

(3) Facility Development

The installation of infrastructure at the facility is controlled by Condition 3. The applicant provided no details in the application section D2 (preparatory works) or section D3 (liner system). No leachate or landfill gas collection system was proposed by the applicant. The Recommended Proposed Decision requires lining of the landfill with low permeability clay ($1x10^{-7}$) which must be placed at least one metre above the water table (Condition 3.12.1) as per the EU Landfill Directive.

Condition 3 requires the licencee to install security fencing, waste inspection and quarantine areas, a weighbridge, a wheel wash, a facility office and a waste water treatment plant for sewage generated on-site. Landscaping of areas outside the landfill area shall be undertaken during the first planting season (Condition 5.8.1).

The final elevations for the facility detailed in Drawing No G1.1 of the application are, in my view, very steep on the entire south side of the facility. However, this issue can be addressed as per Condition 4.1, which requires submission of a Restoration and Aftercare Plan within 18 months incorporating Drawing No. G1.1. Due to the inert nature of the waste that is to be disposed of in the landfill, the final cap shall consist of a 1m combined topsoil and subsoil restoration layer. The site will be restored for agricultural use (Condition 4.3).

(4) Emissions to Air

Landfill gas monitoring requirements in the vicinity of the recent waste emplacement at 'Phase 2' are specified in Condition 3.17.1 and Schedule D. Condition 3.13 specifies a landfill gas management system if necessary. Condition 7.4 provides for the control of dust emissions. The dust deposition rate and PM_{10} levels from both quarrying and waste activities will be monitored (Schedule D).

For the lifetime of the facility most operations will be below the surrounding ground level, and noise emissions should not have a significant impact on nearby noise sensitive receptors. Schedule C sets emission limit values and Schedule D specifies quarterly monitoring at three locations to be agreed.

(5) Emissions to Groundwater and Surface Water

Effectively there is no surface water system at the site since the entire facility is a sand and gravel quarry. Any recharge or runoff from site buildings, yards *etc* would percolate vertically to the groundwater table which lies at the foot of the south face of the 'Phase 2' filling area as a groundwater lake (see attached photograph, Plate 1). The priority at this facility is to protect the groundwater by controlling direct and indirect emissions to groundwater. Schedule D1 specifies the monitoring of the lake at two locations.

The depth of sands and gravels to bedrock (Ordovician shales) is over 24m. A number of drinking water abstraction wells lie within the gravels in the general area and particularly at Blessington village, 2km south. Groundwater flow is generally southeast towards the Pollaphuca reservoir which lies approximately 1.7km from the facility.

The GSI in a recent report[2] indicates that the Carneige quarry lies on a ***locally important gravel aquifer*** with a ***high vulnerability***. Such a setting would have a GSI/DOELG/EPA matrix response of **R3**[1] which determines that the siting of a landfill is not generally acceptable unless it can be shown: that the groundwater is confined, there will be no significant impact on the groundwater, and it is not practicable to find a site in a lower risk area.

The only groundwater monitoring borehole at the facility, lies in the core of the site, adjacent to the sorting machinery (MW4). The other three monitoring wells have either been buried or knocked down by the machinery running constantly around the site. MW4 was dipped on 8 January 2003 (10.6m depth; WT 6.15m btc; National GRID E97933 N16440). However, MW4 would have to be removed when the floor is lined. Condition 3.12.3 specifies this well be decommissioned. Given the sensitivity of groundwater in the area and the R3[1] status I am specifying that four new groundwater monitoring stations be established within one month (Condition 3.17.2).

There will be no direct emissions to groundwater (Condition 6.3.1). The applicant (Attachment D4) predicts that during the operational phase (3ha areas) up to 15,400 m^3 of rainfall will percolate annually through the waste body to groundwater. The clay liner specified in Condition 3.12.1 will attenuate this flux of water as it travels to the watertable. Any indirect emissions to groundwater such as wheelwash outflow, drainage from the waste inspection area, and run-off from the hardstanding areas shall be directed to the wastewater treatment system specified in Condition 3.10.1.

[2] Blessington Gravel Aquifer – Groundwater Potential and Vulnerability, November 2001. GSI.

(6) Waste Management, Air Quality and Water Quality Management Plans

The applicant has not referred to the above plans in the application.

I have reviewed the Waste Management Plan for County Wicklow 2000 - 2004. There is no mention of the inert landfill waste facility at Dillonsdown, Blessington in the plan. The plan states that it is the general policy of Wicklow Co. Co. that all C&D waste should be recycled rather than landfilled. Any future planning permissions regarding inert landfills must show that a certain percentage of the inert waste incoming be recycled rather than landfilled.

(8) Submissions

Five individual submissions were received in relation to this application and I have had regard to the submissions in making my recommendation to the Board.

Of the five submissions, four are from the same body (Duchas). The other is dealt with separately below:

Submission No.1, 3, 4, & 5 - Duchas

- *Peregrine Falcons occasionally use this area for nesting and breeding purposes and are listed as an Annex 1 species in the EU Birds Directive.*
- *No objection to the proposal from a nature conservation perspective provided that the applicant notifies Duchas, in the event that peregrine falcons nest on the site.*

Response

The licensee must comply with Condition 1.3 in regard to the licensee's statutory obligations or requirements under any other enactments or regulations, and Condition 8.13.

Submission No. 2- de Quense Environmental

- *EIS was not available for inspection at Kildare Co Co.*
- *Facility lies in an area where groundwater resources are vulnerable and the Poulaphuca reservoir is vulnerable to pollution.*
- *Application does not contain an impermeable liner to base of landfill*
- *Dust monitoring required*
- *Restoration required.*

Response

All above aspects of this submission have been addressed in detail in the preceeding sections to this Inspector's Report. The EIS is available at Wicklow County Council since the facility boundary lies mainly within the Wicklow County Council boundary.

(9) Recommendation

It is recommended that a licence be granted for Classes 1 and 13 of the Third Schedule and Classes 2, 4 and 13 of the Fourth Schedule as applied for in the application. In coming to this recommendation, I have evaluated the risks that any previously emplaced waste may be having on the groundwater at the facility and have specified that ground investigations and a risk assessment are carried out and agreed by the Agency before wastes can be deposited or recovered in any part of the facility.

I consider that the waste activities would, subject to the conditions of the recommended Proposed Decision, comply with the requirements of Section 40(4) of the Waste Management Act 1996.

Signed: _____ Dated: _____

Malcolm Doak, Inspector. 27th May 2003
Environmental Management and Planning.

Drawing No. A1.2

Drawing No. G1.1
And
Drawing No. G1.3

Photograph
Plates 1 and 2