17 Summary

17.1 Introduction

This EIS describes the potential significant environmental effects of the Ringaskiddy waste management facility, as required by the European Communities Environmental Impact Assessment Regulations. Where unavoidable environmental effects have been identified, measures have been proposed to mitigate these effects, where feasible. These measures have been incorporated into the design of the facility, or will be implemented during the construction phase, or when the facility will be in operation.

The proposed mitigation measures and the residual impacts of the Ringaskiddy waste management facility are summarised in this chapter.

17.2 Summary of Mitigation Measures

17.2.1 Construction Phase Mitigation measures

Roads and Traffic

Construction work will start on site at 07:00, in order to avoid the Ringaskiddy morning peak traffic period, which is between 07:45-08:45. To ensure that construction workers do not obstruct the public road in the vicinity of the site, the building contractor will be required to provide adequate car-parking onsite, or to provide transport to the site for the workforce.

Noise and Vibration

Noise levels will be controlled during the construction phase, in accordance with BS 5228.

Air Quality

A code of practice has been developed, and best industry practice will be utilised to ensure that the off-site nuisance from dust, mud and litter is minimised. Measures will include, for example, wheel washes for site trucks and damping down site roads in dry and windy weather.

Flora and Fauna

A sedge, which is of 'rare to occasional' distribution was found on the site. Any of these plants, which are growing in a part of the site likely to be disturbed by construction, will be transplanted to a suitable area of the site where they will not be disturbed. Badger setts have been identified in an area of the site that will not be disturbed. Another search for setts will be undertaken in winter. If an active badger sett is found in an area, which will be disturbed, Duchas will be informed and appropriate measures will be taken.

Soils, Geology, Surface Water and Groundwater

It is intended, where possible to reuse the excavated material onsite. All material that cannot be reused onsite, will be sent offsite for reuse or disposal at a licensed landfill site.

The Construction Industry Research and Information Association (CIRIA) in the UK has issued a guidance note *Control of Water Pollution from Construction Sites, Guidance for Consultants and Contractors, CIRIA, 2001*. The construction manager will follow the recommendations of this document. Best practice will be followed in the storage of materials and the management of plant and equipment on site to avoid contamination of soils or groundwater.

Material Assets

Careful planning of work to existing services and, where necessary, undertaking advance works ahead of the main construction activities, will ensure that disruption to essential services will be minimised.

Archaeology and Cultural Heritage

In order to protect any unknown archaeological features which may exist below the existing ground level, the removal of all topsoil will be archaeologically monitored. If any archaeological features are exposed, Indaver will facilitate and fund any further archaeological investigation.

17.2.2 Operational Phase Mitigation Measures

Landscape and Visual

The facility has been located in an area, which already has several very large industrial plants. The various ancillary buildings in the Ringaskiddy facility will be of a relatively small scale and will have little significant visual impact. The element that will have the most significant impact will be the main process building in the waste to energy plant.

Considerable research has been undertaken over the past half century into techniques to help blend large installations into the landscape. The most effective methods involve the use of disruptive patterns and materials. This is a combination of irregular patterns and colours, based on shapes and tones occurring in the local landscape. It has been used successfully on recent projects in Ireland. This technique will be applied to the waste to energy plant to reduce its apparent height and mass by using:

- a carefully selected colour scheme to disrupt building outlines,
- various materials and profiles of wall cladding,
- inclined and vertical wall planes, pitched roofs and sloping eaves lines.

The main process building shape reflects the scale of the adjacent, high ground to the south. The sloped roof and walls form a series of inclined planes that continue the forms created by the adjacent fields and escarpments. Various profiled wall cladding types will be used to increase the effects of light and shade on the elevations. External cladding colours will be a mix of greens and greys which are located to break up the scale and form of the building and help blend it against the background when viewed from high ground to the north and from the inner harbour area.

The colour coated cladding on the north, east and west elevations will have an outer skin of profiled translucent sheeting which will further improve the appearance of the building, by muting the colours and adding a light absorbing quality to the facade.

The landscaping plan will utilise mounding to create a bowl into which the main building will be set. The mounding will give instant screening. The mounds will be densely planted. As it matures, the planting on the mounds will increase the effectiveness of the screening as it grows and matures over the years.

Roads and Traffic

The day shift for plant personnel will start at 07:00 and non-shift staff will commence work at 09:00. Waste will not be accepted at the facility before 09:00 and the community recycling park will not open till 10:00. These measures will reduce the volume of car and truck traffic generated by the facility during the Ringaskiddy road network morning peak period. Parking will be provided on site for waiting trucks. Vehicles will not have to queue on the public road. Car parking will be contained within the confines of the site.

Noise and Vibration

Process and building services plant and equipment will be sited as far from noise sensitive locations as is practical. Indaver's equipment specifications will impose limits on the sound power and sound pressure emission levels from the equipment. A noise survey will be undertaken when the plant is being commissioned and acoustic enclosures will be installed if required.

Air Quality

The facility will utilise very comprehensive flue gas cleaning systems, including two separate dioxin removal systems, to ensure that air emissions meet all current emission limits. Computer modelling of the dispersion of emissions has demonstrated that ground level concentrations of emitted substances will meet the relevant air quality standards or guidelines. The plant has been designed, and operating procedures will be implemented, to prevent the emission of odours and litter.

Flora and Fauna

The site landscaping and planting scheme has been designed to enhance the habitat potential of the site. The use of non-native species will be avoided. A large part of the site will be retained and not developed. The area of scrub woodland will be developed as an area of native woodland. A management plan will be prepared for the remaining areas of semi-natural grassland.

Soils, Geology, Surface Water and Groundwater

All storage tanks for chemicals and drum storage areas will be fully bunded. Tanker unloading bays and tanker direct injection bays will be bunded. There will be storm water retention tanks, which will be used to collect contaminated water that may result from fire fighting, as well as surface water run-off. All underground process drains or pipelines will be double contained. The waste bunker will drain to a sump, which will be constructed in watertight concrete.

Hydrocarbon interceptors will be placed on surface water lines draining car-parking areas. Hard-standing areas will drain to collection tanks, the contents of which will be tested. If contaminated the contents of the collection tanks will be treated on site or exported for treatment.

A network of groundwater monitoring wells will be installed on the site. Regular monitoring of groundwater will take place, which will detect any changes in groundwater quality during the operational phase of the development.

Material Assets

Flexible and robust incinerator technologies have been chosen to ensure that a wide range of materials can be treated in the facility. The capacity of the plant to treat non-hazardous waste has been chosen to ensure that the incentive to prevent, minimise, reuse and recycle waste in the Cork region will not be reduced. The heat from the combustion processes will be used to generate electricity. A community recycling park has been included in the scheme to facilitate and promote recycling of household waste in the local community.

Process water requirements have been minimised by the used of an air-cooled condenser, for the steam from the turbine, and for the electrical generator. Boiler blow down water, purge water from the scrubbers and other process water will be recycled in the process. In addition rainwater will be collected, from the roof of the waste to energy building, for use in the process. The balance of the process water requirement will come from the Cork County Council water main in the road adjacent to the site.

The contours of the site have been utilised to use gravity to feed waste from the waste reception hall to the bunkers.

Human Beings

The site for the Ringaskiddy waste management facility was carefully chosen to minimise the impact of the facility on human beings. The site is zoned industrial and is in an area with several existing very large process plants. The site is in County Cork, from which most of the industrial hazardous waste generated in Ireland comes, and is close to a number of generators of industrial hazardous waste. The site is close to the national primary route network.

A footpath will be provided from the shoreline to the site boundary close to the Martello tower.

17.3 Summary of Residual Impacts

The Ringaskiddy waste management facility will be developed in two phases. The impacts of both phases in operation have been assessed, as this will give the greatest residual impact from the facility.

17.3.1 Construction Phase

Landscape and Visual

A short-term visual impact will arise during the construction of the waste management facility. This will be associated with general site activity, the movement of vehicles and machinery and construction works

Roads and Traffic

During the construction phases, work will start at 07:00, before the Ringaskiddy road network morning peak hour. There will be some queuing of eastbound traffic at the Shanbally roundabout immediately before 07:00.

Noise and Vibration

During the construction phase there may be a slight, short-term noise impact on nearby residences from site traffic and construction plant operating on site.

Air Quality

Construction activities may generate quantities of dust, depending on weather conditions. In addition, construction vehicles and items of plant will give rise to some exhaust emissions.

Flora and Fauna

The construction of the waste management facility will necessitate the removal of vegetation, which provides habitats to flora and fauna, in parts of the site.

Soils, Geology, Surface Water and Groundwater

Excavation work will take place below the existing ground level. With the adoption of good practice in the storage of materials and the management of construction plant, there will not be a significant impact on soils, geology, surface water and groundwater during the construction phases.

Material Assets

It will be necessary to relocate the gas main which crosses the site. Connections will be made to Cork County Council sanitary and storm sewers, to the gas distribution system and to the electricity transmission network.

Archaeology and Cultural Heritage

The construction phases are not expected to have an impact on archaeological or cultural heritage features. However there is the possibility that the removal of topsoil, and the excavation of foundations, could expose unknown archaeological features below the present ground level.

Human Beings

It is estimated that a maximum of 320 jobs will be created on site during the construction of phase 1 of the facility, which will take approximately 24 months. Approximately 100 jobs on site will be created in the construction of phase 2. Off site jobs with suppliers and service providers will also result from the construction project.

17.3.2 Operational Phase

Landscape and Visual

The development will have a significant impact on views from the public road adjacent to the site, from the southern side of Haulbowline Island and from the West Channel of Cork Harbour, on the eastern side of the site. There will be a moderate impact on the views from the road in the centre of Ringaskiddy village, from the Martello Tower and from the western side of Spike Island. From Monkstown and Rushbrooke the impact on views will be moderate to slight. From other locations the impact of the development on the views will be slight to imperceptible.

Roads and Traffic

The traffic generated by the facility will be greatest in the 1300 -1400 period.

The assessments of the traffic impact show that in the Ringaskiddy morning peak period, 07.45 to 8.45, the traffic from the facility will increase traffic on the Ringaskiddy road network by between 1% and 4%. In the lunch time period 13.00 to 14.00, the increase in traffic on the road network will be between 2% and 12%. In the Ringaskiddy evening peak period, 16.30 to 17.30, the increase in traffic on the road network will be between 1% and 8%.

Computer modelling was undertaken of traffic at the junctions on the Ringaskiddy road network in 2005, when both phases of the facility are in operation. The modelling showed that the N28 northern arm of the Shannon Park roundabout will be close to capacity, and will experience queues, in the Ringaskiddy morning peak, without the addition of traffic from the facility. The traffic from the facility will increase traffic at this junction by 1%. The modelling indicated that the Shanbally roundabout will be operating over capacity and will experience queues in the Ringaskiddy morning and evening peak periods, without the addition of traffic from the facility. The traffic from the facility will increase traffic at this junction by 2% in the morning peak period and 4% in the evening peak period. The linking roads and the other junctions will operate within capacity during the morning and evening peaks. All roads and junctions will operate within capacity during the 13.00 to 14.00 period, when the traffic generated by the facility is at a maximum.

Noise and Vibration

When the waste management facility is operational there will be no significant noise impact on nearby residences.

Air Quality

The modelling of the emissions to air from the Ringaskiddy waste management facility indicates that the ambient ground level concentrations will be below the relevant air quality standards or guidelines for all compounds emitted from the facility. The modelling results indicate that the maximum concentrations occur at or near the site's southern boundary. The results indicate that the impact of the emissions to air from the Ringaskiddy waste management facility will be minor and limited to the immediate environs of the site.

Flora and Fauna

Construction of the facility will lead to a loss of most of the habitats in the part of the site which lies to the east and north of the Hammond Lane premises.

Soils, Geology, Surface Water and Groundwater

It is anticipated that the development, when operational, will not cause any impact on the soils, geology, surface water and groundwater of the site.

Material Assets

There will be a major reduction in the amount of hazardous waste being exported from Ireland when phase 1 of the facility is in operation. There will also be a significant reduction in the quantities of industrial, commercial and other non-hazardous wastes being landfilled in the Cork area when both phases are operational.

The facility will generate approximately 10 MW of electricity in phase 1 and approximately 8MW of electricity in phase 2. It will export approximately 14 MW of electricity to the national grid, when both phases are in operation. This is enough electricity to power approximately 20,000 homes annually.

The plant will require approximately 16m^3 of water per hour for process purposes. Rain water will be collected from roofs in the waste to energy plant and process waters will be recycled to minimise the requirement for potable water.

Archaeology and Cultural Heritage

The facility will not have an impact on any of the known archaeological sites in the area. However, the waste to energy plant will have an impact on some views of the Martello tower, which is located on top of the ridge to the south-west of the site.

Human Beings

Approximately fifty jobs will be created when phase 1 of the facility is operational. Approximately seven extra jobs will be created when phase 2 is operational. The facility will contribute £1.5 million to £2 million (€1.9 million to €2.5 million) per annum to the economy through wages and salaries with both phases in operation. There will be additional expenditure on maintenance, security, insurance and various services, which will be from local suppliers where possible.

Climate

The facility will have a slight beneficial effect on the climate. Using very conservative assumptions in relation to the landfill disposal and power generation alternative, it has been calculated that the facility will emit marginally less greenhouse gases than disposing of the waste to landfill.