ATTACHMENT NUMBER F1

Aerosol Control

Contents

F1.1 AEROSOL CONTROL

1. GENERAL

Aerosols are a fine spray of liquid particles.

2. CONSTRUCTION

There is potential for dust to be generated during construction activities on site. However, this is confined to the preliminary earth works and earth movement phase of the development, which will last for no more than approximately three months. Water will be used for dust suppression during periods of dry weather, if necessary, to minimise the possibility of dust emissions. It is not envisaged that there will be aerosol generation during this activity.

3. OPERATION

The community recycling park will accept small quantities of liquids, e.g. oil. However, these will be stored separately and sent off site for recycling. Therefore there is no potential for aerosol generation.

There will be no liquid waste accepted at the materials recycling facility and no liquid generated as part of the sorting process.

As no liquid waste will be accepted at the waste to energy plant and no liquid effluent will be produced during the construction or operational phases of the development, there is no potential for aerosol generation from the incineration process itself.

The only potential for aerosol generation will come from odour suppressing chemicals which will be sprayed onto the waste in the bunker during the brief periods when the waste to energy plant is shut down, typically for 1 to 2 days per year. The exact details of the chemicals that may be used to suppress odours are not confirmed at this time. Approval will be sought from the Agency prior to use of any such chemicals.

ATTACHMENT NUMBER F2

Bird Control

Contents

F2.1 BIRD CONTROL

1. GENERAL

Bird control is only anticipated to be necessary during the operational phase of the development, and not during construction activities. As the waste bunker and the waste sorting plant will be enclosed within the waste acceptance hall, the potential for bird nuisance at the facility will be minimised. Waste delivery trucks will also be covered to prevent birds accessing them. The maintenance of the delivery hall under negative pressure will minimise any odours, which might attract birds.

The community recycling park will be well managed and kept clean through good housekeeping practices, and as no putrescible kitchen waste will be accepted, the issue of bird nuisance will be minimised.

ATTACHMENT NUMBER F3

Dust Control

Contents

F3.1 DUST CONTROL

1. INTRODUCTION

There is the potential for dust generation in both the construction and operational phases of the proposed development.

2. CONSTRUCTION

The potential for dust to be generated during construction activities on site is confined to the preliminary earth works and earth movement phase of the development, which will last for no more than approximately three months. During this phase, if hot dry weather conditions prevailed, excavated soil could dry and become friable and susceptible to being transported off site by wind. It should be noted that only small particles are susceptible to airborne transport.

This potential exists at all construction sites and the mitigation measures and good housekeeping and site management practices necessary to minimise this potential are well known. Such measures which will be applied are described below.

The principal potential source of dust emissions from a construction site is the movement of vehicles on the site (on roads and off roads) and on external roads, as vehicles can carry soil onto the roads where it can dry and the passage of vehicles over these roads creates and raises small particles of dust.

A wheelwash will be provided during the construction phase of the project for all vehicles leaving site, other than private cars and vans.

The potential for dust to be generated in this manner will be mitigated against by watering the site roads to prevent the formation of dry dust particles and by the provision of wheel washing facilities to prevent soil from being transported onto the local road network.

A lesser potential for dust generation is presented by the movement of earth on and off site and within the site. However, as the majority of soil excavated on site will be used for the construction of berms around the site, it is expected that the only movement of material on and off site will be for the construction of the percolation area. This will only be a limited quantity of material.

While the movement of excavated material on site can lead to airborne dust emissions in exceptionally dry conditions the clayey nature of the soil on the site will effectively eliminate this potential. Furthermore, the berms around the site will be constructed and planted at the earliest possible stage of the development and there will be limited temporary storage of spoil on site. Water will be used for dust suppression during periods of dry weather, if necessary, until a stable grass covering has been established. When the berms are constructed and planted there will be no potential for airborne dust emissions.

Where temporary storage of spoil is necessary, this will be stored in specifically designated areas and these will be damped with water if necessary. During the material transfer within the site minimum drop heights will be specified to prevent the

generation of dust. Again, the clayey nature of the soil on site will tend to prevent the formation of dust particles.

Dust deposition monitoring will be carried out for the duration of the construction phase at two locations on the site boundary to ensure that dust generation is minimised and that the amentities of the area are protected. The location of dust deposition monitoring equipment will be agreed with the local authority prior to construction commencing.

In view of the above considerations and mitigation measures, it is concluded that the potential for airborne dust emissions during construction is minor and temporary in nature.

As part of the notification of the decision to grant planning permission issued by Meath County Council, the following conditions relate to dust control during construction:

"18. All permanent screening bank side slopes, unless otherwise agreed with the Planning Authority shall be topsoiled and grass seeded as soon as practicable after their construction. Dust suppression sprays shall be used during periods of dry weather until a stable grass covering has been established.

23. Dust deposition during the construction phase shall not exceed 130 mg/m^2/day measured at the site boundaries and averaged over 30 days.

28. During the construction phase, all vehicles – other than private cars and vans – exiting the construction site shall pass through a wheel-wash facility, the details of which shall be submitted to and agreed, in writing, with the Planning Authority."

As detailed above, these conditions will be complied with.

3. OPERATION

During the operational phase of the proposed development the primary potential source of dust will be from the activated carbon/lime mixture, boiler ash and flue gas cleaning residue silos.

The flue gas cleaning residue and boiler ash silos will be located inside the building and will be fitted with High Efficiency Particulate Abatement (HEPA) filters which will effectively eliminate any dust emissions. The transfer of material to these silos will be via enclosed conveyors. These residues will then either be solidified on site or transported off site for solidification and disposal.

The activated carbon silo will be located externally and will also be equipped with HEPA filters to prevent fugitive emissions from the silo.

Bottom ash will be discharged into a water bath called a "wet bath" to cool the ashes. From the ash bunker it will be collected in covered trucks in an enclosed area and transported off site.

All vehicles transporting waste to the site will be covered to ensure that there is no dust nuisance in the locality. During the operational phase of the development, all roads will be hard-surfaced.

ATTACHMENT NUMBER F4

Fire Control

Contents

F4.1 FIRE CONTROL

1. GENERAL

The whole of the plant will be designed and provided with adequate fire protection and detection systems and will be consistent with the requirements of Meath County Council and building regulations and Indaver's Insurer's requirements. Indaver Ireland will be applying for a Fire Certificate and have been in consultation with the Fire officer to ensure that the Fire protection and Fire fighting system are in accordance with his requirements.

The system for fire fighting shall be as follows:

- Fire wall compartmentation
- Fixed water canon
- Fixed sprinkler systems (where necessary)
- Fire detection and alarm systems
- Smoke ventilation
- Hydrants and hose reels
- Dry/Wet rising mains
- Portable fire extinguishers
- On site water buffer

1.1 FIRE WALL COMPARTMENTATION

The Buildings will be divided into fire areas and fire separation compartments. In general every building forms a separate fire compartment and inside that area are further fire separation compartments. In order to minimise potential loss and improve fire safety. Special attention shall be paid to fire barriers and penetration seals in separating walls and floors all over the plant.

1.2 WATER CANON SYSTEMS

The Waste Bunker will be protected by a fixed canon system. As the waste bunker is permanently monitored by the crane operator, a fire can be detected at an early stage by the operator of the mechanical grab. Should the crane operator fail to detect a fire, automatic fire detection systems will activate an alarm in the control room. However, a localised fire can usually be more quickly detected by the human eye than by the fire detection systems installed.

In the event of a fire, it is usually quite simple to lift the part of waste on fire into the hoppers from whence it goes into the furnace. This waste is then covered by placing another layer of waste into the hopper.

Should the fire become uncontrollable by this method, the fire can be put out using one of a number of water cannons. The crane operators will be trained in fire fighting techniques. All firewater will be contained within the bunker, eliminating the need for a firewater retention pond.

A pressure switch shall be installed for alarm annunciation in the control room to indicate fire water system operation.

1.3 Fire Detection Systems

A fire alarm system will cover the entire plant and will provide a high level of protection for both personnel and property. The fire alarm system shall comprise of local detectors, manual call points, local alarm bells, remote alarm and a fire alarm/control panel.

1.4 Local Call Points

In the event of a fire alarm being activated, an audible and visual indication will be provided. A central control panel will be provided in the control room. Some fire alarm signals will be relayed to the automation control system and composite fire signals will be relayed to enable emergency response actions to be effected.

1.5 Smoke Ventilation

Smoke vents (Double Leaf Fire Vents) shall be installed on the roofs of the main process building. Smoke ventilation shall use natural ventilation generated by the temperature difference of smoke and air.

The elevated temperatures generated during a fire will operate smoke vents. by means of a fusible link Smoke vents can also be opened manually and from a remote control panel.

The cable gallery in the electrical/control building is provided with dedicated natural smoke extract through side wall pneumatically operated smoke flaps.

The total area of the smoke vents shall be approximately 1% of the floor area of each smoke-ventilated space.

1.6 External Hydrants and Hose Reels

Hose reels for the ground floor levels shall be located in such a way that any area of the buildings may be covered by at least two jets from hoses.

Hose reels shall be installed at intermediate landing levels (outside each protected stairwell) throughout the height of the main process building up to the 25m level. These hose reels will be served by the site fire main in order to provide the necessary pressure at high level to ensure acceptable operation.

External hydrants shall be positioned around the plant at a maximum spacing of 50m between adjacent hydrants and in accordance with the Building Regulation Requirements.

1.7 DRY RISING MAINS OR WET RISING MAINS

For the main process building dry rising or wet rising mains shall be installed.

Each dry riser or wet riser will be installed with landing valves where required, a inlet at the bottom and an automatic release valve at the uppermost point in the riser.

1.8 PORTABLE FIRE EXTINGUISHERS

Fire extinguishers of an appropriate type shall be located throughout the areas as required.

The type of extinguishers will be determined according to the risk. The following types can be used:

- Dry powder
- CO_2
- Water/foam

1.9 FIREWATER SUPPLY

The firewater pumps will be located in a separate compartment in the fire water pumphouse. The water reservoir for firewater will be integrated with process water storage for the plant. The Water reservoir shall guarantee water supply for 60 minutes use with maximum water consumption.

The fire water pump station will be equipped with pumps. The fire water network and pumps are common for external hydrants, hose reels and wet sprinkler systems and fixed canon systems.

Firewater will be stored on site in a 2,000 m^3 storage tank, which will be supplied from the underlying aquifer beneath the site. This tank will serve to store process water and fire water. The bottom two thirds (about 1,300 m^3) of the tank will be dedicated for firewater. Due to the location of the take-off point for process water on this tank, it will be physically impossible to use the firewater supply for process water. There will be firewater pumps to circulate the water around the fire fighting system in the event of a fire. These pumps can be activated from a number of locations around the site.

2. WASTE TO ENERGY PLANT

A fire could occur in the waste bunker, due to localised heating because of decomposition of organic material or as a result of hot ash in the waste leading to isolated fires. Decomposition of waste can raise the temperature of the waste to 75 °C, drying the waste and causing it to smoulder. Incoming ashes from domestic fires wrapped in other waste can retain their heat. When waste in the bunker is moved these ashes could be exposed to air and could start to smoulder.

As the waste bunker will be permanently monitored by the grab crane operator, smouldering of waste as described above will be detected at an early stage. The grab crane operator will simply lift the smouldering waste into the hoppers from where it

will enter the furnace. This waste will then be covered by placing another layer of waste into the hopper.

Should the grab crane operator fail to detect smouldering waste and it develops into a flame and hence becomes a fire, the automatic fire detection system will activate an alarm in the control room to alert plant operators to the situation. The fire will then be put out using either one of two water cannons located above the bunker. The grab crane operators will be trained in fire fighting techniques. The capacity of each water cannon will be approximately 300 m3/hr. The water used to extinguish a fire will be absorbed into the waste. If the volume of water used to extinguish the fire is large and cannot be absorbed, the concrete construction of the bunker will provide water retention until it is pumped out and disposed of at a licensed treatment facility.

A lower explosive limit (LEL) detector will also be installed in the waste bunker to monitor hydrocarbon levels and will provide an alarm to alert plant operators in the event of levels deviating from set limits. The ID fan will then ramp up to increase air flow through the bunker, thereby removing the explosive atmospheric conditions.

A number of design considerations will prevent flame back flow from the furnaces through the hopper into the bunker. First of all, the furnace will be kept underpressure. Secondly, the waste feeding hopper will always be filled to a minimum level generating a waste plug ball between furnace and bunker. This level will be measured and safeguarded by interlocking. Finally, a valve in or on the hopper will close automatically in case of fire or other safety initialising signals.

The 12,000 m^3 waste bunker will be designed to retain any firewater generated within the bunker. It will be constructed from one monolithic concrete slab as the base. Any potential points for leakage will be sealed with cold concrete seals. A steel plate will also be installed to remove any potential for leakage. The plate will be half in the wall and half in the base of the bunker to a depth of 10cm. In the event of a large volume of firewater remaining in the bunker as a result of use of the water cannons, the water will be removed from the bunker by vacuum tanker and sent off-site for biological treatment.

A firewater retention study will be completed prior to construction of the facility to ensure that the above retention measures are satisfactory.

3. MATERIALS RECYCLING FACILITY

In the materials recycling facility, there is a small potential for fire due to the sorting and conveying of materials such as paper and cardboard. However, due to the design of the equipment and good housekeeping practices, the risk of fire will be kept to a minimum.

The following fire detection and protection faciltities will be provided:

- Smoke evacuation facilities in the roof
- Smoke detection system
- Hydrants and hose reels
- Fire extinguishers

4. COMMUNITY RECYCLING PARK

As the community recycling park will be outodoors and will only be for the storage of household recycable waste, there is minimal risk of a fire occuring.

Fire extinguishers will be provided at the community recycling park.

5. TRAINING

Fire training, such as use of fire extinguishers, will be provided to all employees. More specialised training, such as use of fire hose reels, hydrants and breathing apparatus, will be given to operators and supervisors within the facility. This training is described in detail in Attachment L2.1. In addition, emergency contact numbers such as the fire service, police and ambulance will be documented in the site emergency response plan, as detailed in Attachment K1.1, and will be posted in prominent locations throughout the facility.

ATTACHMENT NUMBER F5

Litter Control

Contents

F5.1 LITTER CONTROL

1. INTRODUCTION

Litter control is a priority for Indaver and mitigation measures will be implemented to minimise the potential impacts. These have been built into the design of the waste acceptance and handling processes. Litter control will be primarily required during the operation phase.

2. CONTROL MEASURES

All waste vehicles entering the site will be covered. The waste trucks for both the materials recycling facility and the waste to energy plant will drive into an enclosed waste acceptance hall on arrival. To prevent litter escaping from the waste acceptance hall, it will be maintained under negative pressure (i.e. air will be drawn in through any opening rather than escaping out). The fact that the waste will be stored in an enclosed area and under negative pressure ensures that there will be no windblown waste or odours emanating from the waste to energy plant or materials recycling facility.

The bunker for the waste to energy plant is sized at 12,000 m^3, which is sufficient to allow the plant to accept waste during periods of shut down for maintenance and to continue operating over prolonged periods (e.g. long weekends) without deliveries and therefore waste will not be stored externally.

Storage capacity of 2,200 m^3 will be provided in the materials recycling facility, which is sufficient capacity to allow storage during a maintenance period of 7 days.

The community recycling park will be staffed continuously during opening hours to monitor deliveries of waste and to ensure that no inappropriate waste is delivered. Individual waste steam will be depositied into dedicated containers and the storage containers will be kept in shelters as necessary. The area will be kept clean and odour free through good housekeeping practices, including regular washing and sweeping of the area and monitoring of waste deliveries. As results of this, the potential for litter will be controlled.

The facility will also operate "litter patrols" within the facility and also around the site and on local approach roads to ensure that litter will not become an impact.

ATTACHMENT NUMBER F6

Odour Control

Contents

F6.1 ODOUR CONTROL

1. GENERAL

The potential problem of odours should not arise during the construction period. The design of the development and implementation of operating procedures will mitigate potential odour generation during the operational phase of the development.

To prevent the egress of odours from the waste acceptance hall and the waste recycling area they will be maintained under negative pressure, (i.e. air will be drawn in through any opening rather than escaping out). This is effected by drawing some of the air for combustion from the waste bunker. The fact that the waste will be stored in a contained area and under negative pressure will ensure that there is no windblown waste or odours emanating from the facility.

When both lines are shut down, typically for 1-2 days per year, the fans will be kept on-line for as long as possible to maintain the bunker under negative pressure. Any odours will then be discharged via the 40m stack. During these brief periods the waste in the bunker will be sprayed with odour suppressing chemicals to minimise odours.

The Community Recycling Park will be staffed continuously during opening hours to monitor deliveries of waste and ensure that no inappropriate waste is delivered. No organic kitchen waste will be accepted at the park. The area will be kept clean and odour free through good housekeeping practices such as regular washing and sweeping of the area, provision of hand washing facilities for members of the public and monitoring of waste deliveries. Therefore there should be no odour genration at the recycling park.

ATTACHMENT NUMBER F7

Roads Cleansing

Contents

F7.1 ROADS CLEANSING

1. GENERAL

The issue of roads cleansing is more pertinent to the initial construction phase of the development.

2. CONSTRUCTION

Construction activities on site including excavation and earthmoving could result in the generation of dust. Transportation of loose materials on or off site that are not properly contained could also result in dust generation, as would the transfer of mud/soil from the wheels of construction traffic onto surrounding roads. A number of factors will affect the extent of dust generation and potential impacts on air quality including wind speed and direction, the dryness of the soil, and the proximity of sensitive receptors to the site.

The following mitigation measures will be put in place to minimise any dust generation and thus prevent any significant impacts on air quality and road cleanliness:

- Good housekeeping and site management including the proper storage of spoil/loose materials on site
- Wheel washing facilities will be provided on site to prevent mud or dirt being carried off site
- Proper containment of loose materials that are transported on or off site
- Site construction roads will be brushed and sprayed with water as necessary in order to alleviate any dust problems in dry weather

3. OPERATION

During the operational phase of the proposed development, all vehicles transporting waste to the site will be covered to ensure that there is no litter nuisance in the locality. All site access roads and car parks will have an asphalt wearing surface while the ramp up to the waste reception hall will have a concrete pavement. Roads and car parks will generally be kerbed with concrete kerbs.

ATTACHMENT NUMBER F8

Traffic Control

Contents

Attachment F8.1 Traffic Control

Copies of the Traffic Impact Assessment Report (Atkins Mc Carthy, January 2001) and the Traffic Impact Assessment – Further Information Report (Atkins Mc Carthy, June 2001) are included in Attachment 8 of the EIS and Attachment B of the EIS Additional Information respectively.

F8.1 TRAFFIC CONTROL

1. TRAFFIC IMPACT ASSESSMENT

Atkins McCarthy were commissioned by Project Management Ltd. to carry out a traffic impact assessment to assess the impact of construction and operational generated traffic on traffic levels on the surrounding road network.

The assessment involved carrying out a traffic count to establish existing traffic levels on the adjacent regional roads. By estimating the levels of construction and operational generated traffic, the impact of this traffic on the surrounding road network was then predicted.

An analysis of the capacity of the road infrastructure at the proposed site entrance was carried out using the UK Department of Transport PICADY (Priority Intersection Capacity and Delay) model. This model predicts capacities, queues and delays at major and minor road junctions.

The traffic flow capacity of the roads was established using design guideline RT180 'Geometric Design Guidelines' published by the Environmental Research Unit.

A full copy of the traffic impact assessment report is included in Attachment 8 of the EIS.

Further work was carried out on the traffic impact assessment and a copy of this report is included in Attachment B of the EIS Additional Information.

2. EXISTING ENVIRONMENT

2.1 ROAD INFRASTRUCTURE

The development site is located on the north side of the R152 regional road between Drogheda and Duleek. The R152 is a single carriageway road with a typical carriageway width of approximately 7.0 metres and a 60mph speed limit (at the development site). It extends from the N1 National Primary Route at Drogheda to the N2 National Primary Route south of Rathleigh. The R152 forms a traffic signal controlled T-junction with the N1 and a priority controlled T-junction with the N2.

To the south-west of the site the R152 forms a priority controlled junction with the R150 which provides a link to the N1 at Julianstown and the N2 north of Balrath.

The National Roads Authority (NRA) programme includes a plan to by-pass Drogheda as part of the M1 Northern Motorway scheme. This is expected to be open to traffic from 2004. This by-pass will form an important addition to the North/South strategic road corridor improving traffic flow.

The horizontal alignment of the proposed motorway will traverse the R152 at the proposed Drogheda South Interchange approximately 2km north of the development site. The Drogheda South Interchange is a spilt type interchange on the Donore Road and the R152 Platin Road which provides a new link road between the Donore Road and the R152. The proposed interchange will facilitate all traffic movements on and off the motorway.

2.2 EXISTING TRAFFIC FLOWS

Traffic counts were carried out on the 18th May 2000 during morning and evening peak periods on the R152 at the proposed site and on the R150 west of Duleek. The counts were carried out from 7.00 to 9.00 am and 4.30 to 6.30 pm. The overall recorded morning and evening peak flows occurred between 7.45 am and 8.45 am and 5.00 pm and 6.00 pm respectively. The two-way peak hour traffic flows are summarised in Table 2.1 below. All traffic flows are expressed in terms of passenger car units (pcu's).

Table 2.1 Existing Traffic Flows

Road	Morning Peak Hour (pcu's)	Evening Peak Hour (pcu's)
R150	264	278
R152	799	902

The percentage of heavy commercial vehicles (hcvs) on the R150 was approximately 18% during the morning peak hour and 16% during the evening peak hour. The proportion of hcvs on the R152 was 13% during the morning peak hour and 12% during the evening peak hour.

The design capacity of the R152 is in the range 700 to 1,200 pcu's/hour two-way at Level of Service C (LOS C) and 1,300 to 1,500 pcu's /hour two-way at Level of Service D (LOS D) based on the design capacities for undivided rural roads in the E.R.U. design guideline RT180. The design capacity of the R150 west of Duleek is in the range 575 to 950 pcu's/hour two-way at LOS C and 1,025 to 1,200 pcu's at LOS D.

The estimated design capacities of the R152, in the vicinity of the proposed development, and the R150, west of Duleek, at LOS C and LOS D are shown in Table 2.2 below:

Table 2.2 Estimated Design Capacities

	Estimated Design Capacities (pcu's/hour)	
	LOS C	LOS D
R152	830	1,300
R150	660	1,030

Based on the above traffic counts and estimated capacities of the R150 and R152, the R150 is currently operating within capacity at LOS C. Depending on the percentage sight distance greater than 460 metres along the existing route, the R152 may currently be operating in excess of capacity at LOS C at peak hours but within capacity at LOS D.

2.3 PREDICTED TRAFFIC FLOWS

There are a number of planned developments along the R152 which would lead to increased traffic flows, most notably and a proposed AgriPark development, an Industrial Park at Duleek and the Marathon Power Plant, opposite the proposed development site. The Marathon Power Plant EIS predicts insignificant operational traffic and construction traffic associated with up to 300 construction employees and 50 hcvs per day.

Inspection of the planning files for the proposed AgriPark and Industrial Park indicates that these developments could lead to an increase in peak flows of about 120 pcu's.

The development of the M1 motorway is predicted to result in reduced flows on the R152. This is because a proportion of existing traffic uses the N2 and R152 as an alternative route to the N1, and it is expected that this traffic will transfer to the M1 motorway when completed. The Preliminary Design Report for the Drogheda bypass section envisaged that this would lead to reduction of 30% in traffic flows on the R152. Meath County Council indicated that a decrease of 15% from existing traffic levels on the R150, between the N2 and R152, is envisaged when the M1 motorway is completed.

The predicted 2004 peak hour traffic flows on the R152 and the R150, east of the N2 were determined by applying the assumed annual average growth rate of 5% to 2004, reducing these volumes by 30% and 15% respectively in accordance with the expected impact of the M1 Motorway envisaged by Meath County Council, as detailed above and then increasing these volumes to account for the additional traffic flows generated by adjacent proposed developments, also discussed above.

The predicted 2020 two-way peak hour traffic flows on all routes were determined on the basis of the growth assumptions detailed above up to 2004 and an assumed annual average growth rate of 2% thereafter to 2020.

Taking all these factors into account it is estimated that the years 2004 and 2020 peak traffic flow will be as shown in Table 2.3.

Table 2.3 Predicted 2004 and 2020 Peak Hour Flows without the Development

Route	Predicted Two-Way Peak Hour Traffic Flows (pcu's)	
	2004	2020
R152, immediately north of proposed development	890	1180
R150, west of Duleek	350	450

The proposed Agri-Park, whose traffic generation was included in the Indaver traffic impact assessment, was refused planning permission since the planning application for the Indaver Waste Management Facility was lodged. Therefore the predicted traffic levels on the R152 used in the traffic impact assessment are considered even more conservative in both 2004 and 2020.

3. CONSTRUCTION IMPACT AND MITIGATIONS

3.1 INTRODUCTION

During construction, traffic will be generated due to the movements of the following on and off site:

- Indaver Ireland Personnel
- Contractors
- Material/Equipment Deliveries
- Visitors

Access for site traffic will be via the R152. A temporary hardstanding area for carparking will be provided within the construction compound.

3.2 CONSTRUCTION TRAFFIC

Peak construction employment on-site is expected to be approximately 300 personnel. Assuming that all construction employees will travel to and from work by car with an average occupancy of 1.2 persons per vehicle, it is expected that the total two-way peak traffic would be of the order of 250 pcu's. As the majority of construction employees will work from 7.00 am and 7.00 pm the predicted two-way peak traffic flows generated by construction employees will occur before the morning peak and after the evening peak hour.

Two-way peak construction deliveries are expected to be of the order of 100 hcvs per day, or 300 pcu's, with a total two-way peak of 42 pcu's.

Assuming a 64:36 north south distribution for construction employees (based on population centres around the site) and a 70:30 north south distribution for construction deliveries (based on the assumption that the majority of hcvs will travel via the M1), this results in a peak hourly flow of 160 pcu's for personnel and 29 pcu's for hcvs (assuming 1 hcv is equivalent to 3 pcu's). This represents an increase of 189 pcu's or 21% over the predicted traffic flows of 890 pcu's in 2004 and an increase of 16% over the predicted traffic flows of 1180 pcu's in 2020. This impact will be short term, i.e. only during the construction phase.

3.3 POSSIBLE CUMULATIVE IMPACTS

The operational traffic from other developments in the vicinity of the proposed development is accounted for in the predicted year 2004 and 2020 traffic flows.

However, should the peak construction activity coincide with peak construction activity on the Marathon site, this would result in the order of an additional peak flow of 378 pcu's on the R152. This would represent and increase of about 42% over predicted flows, giving a total flow of 1,268 pcu's. This is within the capacity of the road at Level of Service D.

This increase would represent a minor to moderate temporary impact on traffic on the R152. In the unlikely event that the peak construction activity for both developments should coincide, Indaver Ireland will implement a range of mitigation measures.

These will include the provision of buses from population centres for site workers, provision of cycle parking and showering facilities for locally based workers, restriction of hcv deliveries during peak hours, and staggering the arrival and departure times of site workers.

4. OPERATIONAL IMPACTS AND MITIGATION

4.1 OPERATIONAL TRAFFIC

The proposed development will employ a total of ca. 50 people. Traffic will be generated as a result of employees commuting to work and also the various operational activities on site. A summary of the predicted two-way traffic volumes generated by the proposed development during the daily operational period and peak hour period is summarised in Table 4.1.

Table 4.1 Predicted Two-Way Traffic Volumes

Activity	Daily Operational Period (two-way)	Peak Hour (two-way)
Employees	111 cars	34 cars
Visitors	20 cars	1 car
Waste to Energy	122 hcvs	15 hcvs
Materials Recycling Facility	22 hcvs	4 hcvs
Community Recycling Park	134 cars	6 cars

It is anticipated that approximately 64% of all hcvs associated with the development will travel to and from the site via the M1 and the R152, i.e. from the north. The remaining 36% of the hcvs will travel to and from the site via the N2 and R152, i.e. from the west.

A similar distribution on the R152 is expected for traffic generated by both employees and the community recycling park. This assessment is based on the location of urban centres within a 30 minute travel time of the proposed waste management facility.

4.2 IMPACT OF OPERATIONAL TRAFFIC ON ROAD NETWORK

As the development is expected to be completed in 2004, this year is taken as the plan year for the purposes of this assessment. The impact of traffic from the prposed development in the year 2020 was also assessed. The existing (2000) traffic volumes were factored to 2004 and 2020 levels using the methodology described in Section 2.3 above.

The predicted peak hour two-way traffic flows for 2004 and 2020 on the surrounding local road network with and without the proposed development are summarised in Tables 4.2 and 4.3.

Table 4.2 Predicted 2004 Two-Way Peak Hour Traffic Flows

Route	Predicted 2004 Two-Way Peak Hour Traffic Flows (pcus)	
	Without Development	With Development
R152, immediately north of proposed development	890	952 (+7.0%)
R150, west of site	350	375 (+7.1%)

Table 4.3 Predicted 2020 Two-Way Peak Hour Traffic Flows

Route	Predicted 2004 Two-Way Peak Hour Traffic Flows (pcus)	
	Without Development	With Development
R152, immediately north of proposed development	1180	1242 (+5.3%)
R150, west of site	450	475 (+5.6%)

The increase in the predicted two-way peak hour traffic volumes due to the proposed development is no more than 7.1% on any of the roads in the vicinity of the development. The level of service within which these roads operate, will not be affected. Therefore the road network will not be adversely affected by the proposed development.

4.3 SITE ENTRANCE

The entrance to the development site will be on the R152 road. Based on the recommendations of the E.R.U. RT180 design guideline there are no requirements for speed change lanes at the proposed priority controlled entrance. However, in order to allow traffic enter and leave the site without interfering with other traffic the following works are proposed at the entrance junction:

- A deceleration lane
- A right-turn lane
- A 15m turning radius at the entrance

In addition, a footpath (2m wide) on the northern side of the R152 at the development site and a pedestrian refuge island at the proposed entrance will be constructed. A layout drawing of the entrance junction is included in Attachment D1.2.

The expected future local road network junction arrangements were analysed for the predicted 2004 and 2020 peak hour traffic flows with and without the proposed development in place using the computer software programme PICADY for priority controlled junctions. The capacities of the junctions with and without the proposed development are shown in Tables 4.4 and 4.5 below. The operation of the junctions is summarised in terms of the Ratio of Flow to Capacity (RFC), the highest average delays for vehicles in seconds and whether there would be significant queuing for turning vehicles (maximum queue lengths in vehicles).

Table 4.4 Junction Capacities (2004)

Junction	Without Development			With Development		
	RFC	Delays (s)	Queuing (vehicles)	RFC	Delays (s)	Queuing (vehicles)
R153/R150	0.25	9.0	None	0.26	9.0	None
N2/R150	0.37	12.6	None	0.4	13.2	None
N2/R152	0.4	11.4	None	0.4	11.4	None
R152/R150	0.38	9.6	None	0.39	9.6	None
Entrance	-	-	-	0.09	8.4	None

Table 4.5 Junction Capacities (2020)

Junction	Without Development			With Development		
	RFC	Delays (s)	Queuing (vehicles)	RFC	Delays (s)	Queuing (vehicles)
R153/R150	0.36	11.4	None	0.37	11.4	None
N2/R150	0.58	21.6	1.3	0.61	23.4	1.5
N2/R152	0.56	17.4	1.2	0.56	17.4	1.3
R152/R150	0.57	14.4	1.3	0.58	15.0	1.3
Entrance	-	-	-	0.1	9.6	None

As can be seen from Tables 4.4 and 4.5, the impact of traffic due to the proposed development on the operation of the junctions on the road network in the area is insignificant.

5. CONCLUSIONS

The development will generate both construction and operational traffic. The levels of both construction and operational traffic will not significantly impact on the surrounding road network and will not cause the design capacity of the roads to be exceeded. A priority controlled entrance to the development site with deceleration and turning lanes will allow traffic enter and leave the site without interfering with other traffic on the R152.

A traffic management plan will be implemented during the construction phase to ensure that no impacts will occur during construction. These will include the provision of buses from population centres for site workers, provision of cycle parking and showering facilities for locally based workers.

The only potential impact identified is if the Marathon Power Plant peak construction phase coincides with that of the proposed development. In this case a minor to moderate impact is predicted as the increase in flows will be in the order of 40%. The R152 would still however operate within capacity at LOS D.

In the unlikely event of this occurring Indaver Ireland will implement further mitigation measures including restriction of hcv deliveries during peak hours, and staggering the arrival and departure times of site workers.

The expected future local road network junction arrangements were analysed for the predicted 2004 and 2020 peak hour traffic flows with and without the proposed development in place using the computer software programme PICADY for priority controlled junctions. The capacities of the junctions with and without the proposed development are shown in Tables 4.4 and 4.5 below. The operation of the junctions is summarised in terms of the Ratio of Flow to Capacity (RFC), the highest average delays for vehicles in seconds and whether there would be significant queuing for turning vehicles (maximum queue lengths in vehicles).

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Table 4.5 Junction Capacities (2020)

Junction	Without Development			With Development		
	RFC	Delays (s)	Queuing (vehicles)	RFC	Delays (s)	Queuing (vehicles)
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R152/R150	0.57	14.4	1.3	0.58	15.0	1.3
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As can be seen from Tables 4.4 and 4.5, the impact of traffic due to the proposed development on the operation of the junctions on the road network in the area is insignificant.

5. CONCLUSIONS

The development will generate both construction and operational traffic. The levels of both construction and operational traffic will not significantly impact on the surrounding road network and will not cause the design capacity of the roads to be exceeded. A priority controlled entrance to the development site with deceleration and turning lanes will allow traffic enter and leave the site without interfering with other traffic on the R152.

ATTACHMENT NUMBER F9

Vermin Control

Contents

F9.1 VERMIN CONTROL

1. GENERAL

Potential vermin problems are associated with the operational phase only. Vermin problems are often associated with waste management facilities, particularly landfills. As the waste bunker and the waste sorting plant will be enclosed within the waste acceptance hall, the potential for vermin to be associated with these aspects of the facility will be minimised. To further mitigate potential impacts a comprehensive rodent control plan will be put in place. A specialist company such as Rentokill will be used to implement the rodent control plan. This company will make an assessment of the vermin control requirements for the facility. Aspects such as whether to use poisons or suitable traps and the location and number of these will make up this assessment. It is envisaged that this company will visit the site monthly and records of these visits will be maintained by Indaver Ireland.

The community recycling park will be well managed and kept clean though good housekeeping practices, and as no putrescible kitchen waste will be accepted, the problem of vermin will be minimised.