

NON TECHNICAL SUMMARY

Onyx Ireland Ltd. operate a Waste Transfer and Recycling Station at Carrignard, Six Cross Roads Business Park, Waterford City (Grid Reference E2583,N1095) (Figure A1.a). The facility, located in an industrial estate in Carrignard is used primarily for the transfer of waste, collected from industrial and commercial premises, to local landfill sites and /or private recycling facilities. In addition, reclamation of cardboard is carried out at the facility. A total tonnage of 32,800 tonnes was processed in 2005. It is estimated that a total of 49,000 tonnes will be processed through the facility in 2006.

In geological terms the site is situated in an industrial estate in an area zoned for industrial development. The estate is close to the Cork - Waterford Road N25 and is readily accessible via the local road network. The predominant landuse in the area is industrial.

All surface water drainage from the facility is collected via a network of surface drains. This subsequently drains to a stream, which ultimately discharges into the river Suir.

The site is associated with Ordovician rocks of the lower Palaeozoic Period. The entire bedrock geology of the site consists of the Ross Member of the Campile Formation. The Ross member of the Campile formation contains a grey, green and black shale with minor tuffs. The shale unit of the Ross Member contains a grey, green and black shale with minor tuffs. The area is locally faulted with igneous Dolerite rock to the southeast. In the Onyx facility the material overlying the Ross Member of the Campile Formation is generally sandy or silty gravelly clay with silt and peat deposits in places. Limited information is available on the nature and the thickness of the quaternary subsoil deposits beneath the site, however, Geological Survey of Ireland (GSI) archive record indicate that the depth of the quaternary subsoils is approximately 5 meters in the Carrignard area.

Using the basic ground water resource protection model (aquifer classification) proposed by the GSI, the bedrock underlying Carrignard is classified as a Regionally Important fissured aquifer (Rf). Based on the limited subsoil information available for the site, groundwater vulnerability would be considered high to extreme.

Waterford Corporation issued a Waste Permit to Onyx Ireland Ltd. at Carrignard, Six Cross Roads Business Park for the operation of its facility in December 2000. In Nov 2003, Waste License 177-1 was awarded to Onyx and this was reviewed in 2006. This facility now operates under WL 177-2. It is a condition of this new waste license that the maximum permissible tonnage accepted at the facility is 31,250 tonnes per annum. However this figure was exceeded in 2005. Due to the closure of the local authority landfills it is likely that the figure will again be exceeded in 2006. Consequently, the company is applying to the Environmental Protection Agency (EPA) for a review of Waste Licence No 177-2. The relevant activities of the operation in the Third and Fourth Schedule of the Waste Management Act 1996, and as amended in the European Communities (Amendment of Waste Management Act 1996) Regulations 1998, S.I. 166 of 1998 are listed below.

Principal Activity:

Third Schedule, Class 12. Repackaging prior to submission to any activity referred to in a preceding paragraph of this Schedule.

Other Activities:

Third Schedule, 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.

Third Schedule, Class 11. Blending or mixture prior to submission to any activity referred to in a preceding paragraph of this schedule.

Fourth Schedule, Class 2. Recycling or reclamation of organic substances (including composting and other biological transformation processes) which are not used as solvents.

Fourth Schedule, Class 3. Recycling or reclamation of metals and metal compounds.

Fourth Schedule, Class 4. Recycling or reclamation or other inorganic materials.

Fourth Schedule, Class 13. Storage of waste intended for submission to any activity referred to in a preceding paragraph of this Schedule, other than temporary storage, pending collection, on the premises where such waste is produced.

Onyx Ireland Ltd. is committed to operating its Waste Transfer and recycling facility at Waterford in such a manner that will ensure minimal impact on the environment. This will be done through:

- Implementation of a program of continuous improvement of the facility and operations.
- Application of BATNEEC
- Implementation of a monitoring program.

Furthermore, it is Onyx's opinion that the operations at the site will satisfy Section 40(4) of the Waste Management Act 1996.

Description of Activity

The facility currently operates six days a week between 7.00am and 9.00pm Monday to Friday and 7.00am and 6.00pm on Saturdays. It is estimated that in the region of 49,000 tonnes of waste will be transferred through the facility in 2006. The waste types accepted at the facility are Municipal Waste, Commercial and Industrial Waste, of similar composition to Municipal Waste and, the wastes listed in table H1(c) of the waste license

application. The majority of the waste that is transferred at the facility arises from the commercial sector. The table below is indicative of breakdown of the primary waste stream composition.

Material	Percentage of Waste Stream
Cardboard	12.0
Wood	2.5
Paper	6.7
Metal	3.0
Rubble	5.0
Mixed Plastic	1.3
Glass	0.3
Mixed Packaging	1.9
Mixed Municipal Waste	67.3

Waste is only accepted at the facility from known customers or new customers subject to initial waste profiling. No public vehicles are allowed access to the site. This profiling ensures that Onyx are aware of the waste types that it will be receiving on-site before it arrives. All waste that arrives on-site is weighed, documented and directed to the Transfer Building by the weighbridge operator. Once deposited on the floor the Environmental Officer or suitably trained replacement inspects the load. Only following this visual inspection is the load processed for disposal or recovery. Any materials that are of a suspect nature (i.e. hazardous or not acceptable at the facility) are diverted to the Waste Quarantine Area within the Transfer Building for further examination and processing. Clean cardboard, timber, plastic and metal are removed from the waste deposited on the floor of the transfer building for recycling purposes.

Non-recyclable Waste

Once the waste deposited on the transfer building floor is deemed to be non-recyclable it is pushed into a stockpile to await bulk loading to 40yd³ bins or 70yd³ transfer containers. Once loaded the transfer containers are covered with either netting or tarpaulin and removed off site to KTK landfill, Kildare or Onyx Ireland Ltd. Ballymount Cross, Dublin or any of the landfill facilities listed in Table 2.6.2.b of the EIS. The weighbridge operator records the weight and destination of the non-recyclable material. Due to the operating hours of the facility and the opening hours of the landfill it is not possible to clear the floor at the end of every day. However, no non-recyclable waste remains on-site for more than 48 hours with the exception of Bank-Holidays where up to 62hrs may be the timeframe.

Recyclable Waste

There are four solid waste types that are considered to be recyclable at the Onyx facility: Cardboard, Metal, Timber, Paper, Glass, Rubble and Plastic. Clean uncontaminated

cardboard is removed from any waste loads that are deposited on the Transfer Building Floor. The cardboard is loaded onto a conveyor that feeds a baler. The baled cardboard is subsequently stored on a hard standing area on-site prior to removal to a recycling company. The weighbridge operator records the weight and destination of the recyclable material. Plastic bales are stored on-site when collected from clients until sufficient quantities are in place for delivery to a recycling facility. Both Timber, Glass, Metal and Rubble are deposited in the Recyclable Compound Area for storage prior to transport for recycling. The recovered materials are stored on-site in a skip to await transfer to a recycling facility.

Hazardous or Non-Acceptable Waste (Waste Quarantine Area)

In the event of hazardous waste or non-recyclable waste been deposited on the floor of the transfer building it is removed immediately to the waste quarantine area within the building (Here the hazardous waste is kept segregated from non-acceptable waste). The producer of the waste is identified and informed by the Environmental Officer. The incident is photographed, logged and recorded. The waste is then removed off-site by a hazardous waste contractor who must provide a C1 form if applicable.

The Onyx site is mainly accessed via the Green Road which passes the rear of the Six-Cross Roads Business Park. This road, which formerly was used as a feeder road to the business park and by other waste operators in the area, is now a cul-de-sac since the construction of the Ring Road, and is only used for accessing the Onyx facility and the adjacent composting facility by private and commercial vehicles. Traffic also enters the site via the main distributor road in the Six-Cross Roads Business Park. The Lacken road that passes the front entrance to the Business Park used to be the main route for traffic in the area leading to and from Waterford City – this function has been replaced by the new Ring Road with the Lacken Road now acting as a feeder road to the business park from the Ring Road. The entrance to the business park is less than 150 metres to the Ring Road. A random traffic survey was carried out on the 20th December 2005 to establish the traffic volumes on both access roads to the site and to assess the impact of larger operations on these roads. The survey was carried out between the hours of 7.00am and 9.00pm which reflect the licensed hours of operation of the facility. The results of the investigation illustrate that the number of Onyx vehicles (Cars and Trucks) using the Lacken Road and subsequent entrance to the business park relative to the overall usage is negligible. The majority of the traffic on the Green Road is from the Onyx site. However, given that it was originally a distributor road from the city conveying HGV's and private cars the volume of traffic on the road is now not significant.

Traffic movement on-site is strictly controlled for the transfer vehicles and the waste delivery vehicles directed straight from the weighbridge to the transfer building and back out along the same route. The facility is quite capable of handling the current traffic levels on-site and has sufficient capacity to cope with additional traffic likely to arise as a result of an increase in tonnages.

The possible significant air emissions resulting from on-site activities are:

- Odour
- Dust
- Noise

At the Onyx facility the main waste stream is commercial waste. 80 – 85% of this waste is non-putrescible and will not generate odours. The putrescible waste however, depending on the length of time it is putrefying before collection can generate significant odours. Until a waste load is deposited on the transfer building floor there is no way of telling how odorous it is or how much putrescible waste is present. As a result short term odours may be emitted from the building when such wastes are deposited. The Environmental Officer or trained replacement inspects each load upon arrival and ensures any odorous waste that arrives in the transfer building is bulk loaded immediately, to be removed off-site, thus minimising the odour potential. Furthermore, if customers continue to send such loads to the facility they will be advised that the waste will no longer be transferred through the transfer station and will be brought directly to landfill. Onyx has installed an odour control system to further reduce the impact any odours generated in the Transfer Building may have on the surrounding environment. This system can be operated either automatically or manually when deemed necessary.

All dust emitted from the facility can be described as fugitive. The potential source of dust at the site is the Waste Transfer Building, the Recycling Compound and the hard standing area in drier conditions. Dust generated in the Waste Transfer Building and the Recycling Compound is as a result of the nature of the waste deposited in the building. The dust arising from the hard standing area is as a result of the traffic movements on the site. To date there have been no complaints received relating to dust emissions from the site. 4 No. dust monitoring studies have been carried out, at the site, over the period September 2004 to September 2005 using Bergerhoff dust gauges. The results were compared with the deposition limit issued in the Waste License of 350mg/m²/day. In summary it is evident that slightly elevated dust deposition levels were recorded in the vicinity of the facility, more specifically in the region of sampling location D1. The source of these elevated levels may be attributed to a combination of off-site as well as on-site activities. Adjacent to the monitoring point is the Waterford City Council Composting facility which carries out screening operations in close proximity to the monitoring point. Initially when using the recycling compound the rubble storage area was adjacent to the monitoring location. This was subsequently moved to a more central location on-site with the same compound. Off-site construction activities have occurred adjacent to the boundary of the facility during the monitoring periods. Much of this activity related to movement of earth and construction of earth banks.

Noise is described as unwanted sound and, because of its subjective nature, the level of annoyance is difficult to measure. There are standards, which define levels of acceptability for various commercial and residential developments. With regard to acceptable ambient noise levels, the noise level outside noise sensitive areas should be kept below 55 dB (A) at daytime and 45 dB (A) at night-time. Qualified personnel from Onyx Ireland ltd. carried out a noise survey of the facility in October 2005 to establish the noise levels in the vicinity of the facility and to determine whether any tonal component existed. Both day and nighttime surveys were carried out. During the noise monitoring programs normal site activities were carried out.

The results of the survey indicate that the nighttime noise levels at the boundary of the site marginally exceed the EPA limits of 45dBA. However, these elevated levels may be attributed to off-site activities (as no activities were being carried out at the site during the monitoring period (which is typical)) such as passing traffic (NS1 – the new Ring Road around Waterford is situated between the Onyx facility and this location; NS2- the main link road around Ballybeg Housing Estate is adjacent to this monitoring location). There were no audible noise sources from the Onyx Facility at the monitoring points. The L_{A90} figures are more representative of the background levels and can be seen to lower than the 45dBA levels at the boundary of the site. The dominant noise source at N1 originated from equipment on the adjacent composting site, such as blowers and also traffic movements at the nearby DHL facility.

The daytime limit of 55dBA was exceeded at two boundary locations (N1 and N2) and also at the noise sensitive locations. The boundary location exceedances were caused by on-site and off-site vehicle movements which in some instances passed within 2- 3 metres of the sampling location. Noise levels at N1 during the daytime survey were generally influenced by on-site activities within the Onyx facility although a front-end loading shovel was operational at the composting plant during monitoring, which would have contributed to noise levels.

Surface water run-off from the facility is collected in the surface water drainage network and discharged to a stream adjacent to the site. The surface water collected from the site passes (with the exception of roof run-off) through grit traps for removal of small particulate matter before passing through Class I surface water interceptors to remove additional solids, and oils and greases prior to discharge. Emergency shut-off valves have been installed at the outlet of the facility between the sampling monitoring points and the final manholes to prevent any unexpected emissions occurring. Wash water from the truck wash area discharges into an oil/ water interceptor prior to foul sewer. All wastewater from the canteen and administration areas also discharge to the foul sewer. The surface water and foul sewer drainage network, inclusive of interceptors, at the facility is cleaned out regularly. Analysis of the emissions from surface water is carried out quarterly as part of the Waste License from the EPA. The emissions from the surface water and foul sewer network do not have an adverse effect on the receiving water bodies.

While the facility has no envisaged effects on climate, climatological factors have a direct impact on possible water and air emissions from the site. In order to determine the environmental effects of surface water emissions and air pollution dispersion various climatic factors must be considered.

The nearest climatological and synoptic meteorological stations are located at Tycor Waterford, Kilkenny (40 Km to the north) and Rosslare to the East. These stations give a good approximation of the conditions that prevail in the area. The wind rose for the Kilkenny and Rosslare stations are shown in Appendix VI.

Although Kilkenny is slightly closer to Waterford it is considered that the wind speeds and directions would be similar to the Rosslare station given Waterford's relatively close proximity to the coast. The incidence of low wind conditions indicates that about 25% of hourly observations are likely to be less than 3.1m/s with calm conditions occurring about 0.5% of the year. Given that Waterford is slightly more inland it is likely that the wind speeds will be slightly lower in Waterford. Based on wind speed and direction information from the Rosslare meteorological station, the dominant wind direction in the Waterford region is South Westerly.

Annual rates of precipitation in the area have an average of approximately 1,335mm with the months of October to January receiving the greatest monthly rates. The mean winter temperature in the area is 7.4°C and Summer temperature is 15.7°C.

A desk top archaeological assessment of the site and surrounding area was undertaken. There were no archaeological sites found within the area of the Onyx site or in the areas of the land adjacent to the site. The nearest archaeological site identified was Fulachta Fiadh approximately 1km from the site. Therefore the Onyx site will have no impact on known archaeological sites in the area examined in the desk top study (up to a distance of 3.5km from the site).

The site of the transfer station is zoned for industrial use. Current land management practices around the area consist mainly of industrial developments. An ecological assessment was carried out in 2001. An additional ecological assessment of the facility and the surrounding environs was carried out on the 8th December 2005 by RPS Ltd with a view to identifying the nature conservation/ ecological constraints associated with the site. This assessment discovered that the proposed changes to the operation of the Waste Transfer Facility at Six Cross Roads Business Park will have no significant impact on the ecology of the site or areas adjacent the site. No impacts on designated sites are anticipated as a result of the operation of the facility.

The table below illustrates the raw material usage on-site for a 12 month period.

Raw Material	Units	Storage Location	Volume Stored	Consumption/annum 2005	Supplier
Water	M ³	Local Authority	-	272	Waterford City Council
Odour Neutraliser	Litres	Transfer Station Bund	200	400	North Chemicals
Traffic Film Remover	Litres	Truck wash shed	125	800	Murco Chemicals
Disinfectant	Litres	Transfer Station Bund	50	100	Murco Chemicals
Hydraulic Oil	Litres	Transfer Station Bund	2000	4,000	Maxol
Engine Oil	Litres	Transfer Station Bund	2000	700	Maxol
Diesel Oil	Litres	Transfer Station Bund	2000	18,000	Vale Oil

Details of Plant

A 2.5tonne forklift with grab attachment
A Teleporter (New Holland LM 1340)
Grab Machine (JCB JS 200L)
Lindemann baler (likely to be replaced in 2006)
Compressor
1 No. Single Ram Mill Baler

The following table details the monitoring program proposed by IPODEC to assess the emissions from the facility. Figure F2a illustrates the monitoring locations.

Emission	Frequency	Parameter
Surface water	Quarterly	Ph,Temp,TSS,NH3,Cond,OFG, BOD,COD,Visual.
Noise	Annually	Laeq, La10, La90, 1/3 Octave Band Analysis
Dust	3 times per annum	Particulate Content
Foul Sewer	Quarterly	PH, Temp,BOD,COD,TSS,OFG , MBAS

Onyx Ireland Ltd.

Onyx Ireland Limited has operated in Ireland for over 30 years, as William O'Brien Plant Hire and Cleanaway. In 1990 IpoDec (which has been re-branded as Onyx) bought the company. Onyx Ireland Limited is the largest provider of commercial waste management and recycling in Ireland with Waste Transfer and Recycling Facilities located in Limerick, Dublin, Cork, Newry and Waterford. All facilities are fully licensed by the Environmental Protection Agency or permitted by the local authorities. The company, through its operations, handles over 275,000 tonnes of commercial and industrial waste per annum and 275,000 tonnes of domestic waste.

Onyx Ireland is 100% owned by Onyx, the waste management arm of the multinational Utilities Group, Veolia Environmental. Veolia Environment is the world leader in environmental services with 302,000 employees operating in over 100 countries worldwide. Its activities are focused on water, transport, energy and waste management. ONYX is one of the world's leading waste management companies operating in all of the industry sectors. With a sizeable presence throughout Britain, Europe and the World, Onyx employs 69,000 people world-wide, servicing 36 countries comprising more than 63 million inhabitants. The ONYX group operates 220 sorting, transfer/recycling facilities recovering more than 4.5 million tonnes per annum, 99 composting centres treating 1.9 million tonnes per annum, 70 waste to energy plants treating 8.3 million tonnes and 152 landfill sites worldwide and a turnover of €6 billion.

Dublin Operations

In the Dublin area Onyx Ireland Limited operates a Waste Transfer and Recycling Facility in Ballymount through which it processes waste for the commercial and industrial sector. This facility was granted a Waste Management licence by the Environmental protection agency in November 1999 (Waste Licence 39-1). It was the first privately operated non-hazardous waste transfer facility to be licensed in Ireland. As a result of clients needs and the significant increase in waste volumes passing through the facility, Onyx applied in December 1999 to the EPA for a review of the licence primarily with a view to increasing the opening hours to 24 hours per day seven days per week and to ensure that the facility was licensed to accept the quantities of waste being handled. This revised waste licence was granted in September 2000. (EPA licence 39-2). In 2001 Onyx Ireland Ltd continued the upgrading of the site and initiated the implementation of an Environmental Management System to ISO 14001 standard. A Material Recycling Facility was installed in 2002 to further increase the volumes being recycled.

In addition to its own Waste Transfer and Recycling Facility, Onyx operates on a Joint Venture partnership with South Dublin County Council a Waste Baling and Recycling Facility, also in the Ballymount area and the Arthurstown Landfill in Kill, Co. Kildare. This landfill is operated to the highest environmental standards and is one of the few of its type in the world where baled waste is landfilled. The Baling station processes approx 275,000 tonnes of waste per annum and serves both SDCC and Dublin Corporation domestic waste collections.

Cork Operations

In Cork Onyx operates a recycling and transfer facility at Forge Hill, Kinsale Road. This facility was permitted by Cork County Council in 2001. In 2003 it was issued with a Waste Licence no 173-1 and redevelopment of the site is ongoing to include a Material Recycling Facility. Cardboard, paper, plastic, metal and timber are the principal materials recovered here. In 2004, more than 40,000 tonnes of recyclable and waste passed through the Forge Hill Facility. The facility is permitted to temporarily store WEEE material on site.

Limerick Operations

In December 2000 Onyx purchased the Cussens & Co Waste Management business and took a lease in their site in the Dock Road, Limerick. This site was licensed by the EPA (Reg No. 82-1 which has been revised to 82-2) and has undergone a major infrastructural facelift to ensure that the facility (including the installation of a Material Recovery Facility) can be operated in compliance with the conditions set out in the licence. The primary focus of the site is to maximise the quantity of materials being recycled and minimise the amount sent for disposal to landfill. From Limerick, where Onyx is by far the largest supplier of waste management services to the commercial sector the company services clients in Limerick City and County, North Cork, Tipperary NR, Clare and North Kerry. This facility is a 24 hour licensed facility.

Newry Operations

In Newry, Onyx Ireland Limited, have a company which trades as SCL Onyx Ltd. In 2001 this company was created following the acquisition of Sludge Clearance Limited in Dec 2001. The company has now strengthened its position by establishing Waste Transfer and Recycling Facilities and specialist paper recycling and confidential document destruction at the location in Newry. The company targeted growth in the municipal services sector in Northern Ireland and continues to develop this growing market.

Alternatives considered

Alternatives for the Waterford Depot were considered as part of the environmental assessment conducted. An alternative to the current site location was not further considered given that the waste recycling and transfer activities are established at the site and have not led to any significant environmental or social concerns. In addition, the site is located in an area zoned for industrial development, has a close proximity to Waterford City where the majority of waste is produced in the South-East region, is set-back sufficient distance from the nearest residential properties and finally is close to the proposed ring road around Waterford City.

The significant growth of the Onyx activity at its facility in Waterford in 2005 will continue in 2006. This has predominantly been caused by the closure of the local authority landfills in Waterford City and County. Now all this residual waste collected from their segregated collection schemes of the local authorities must be transferred out of the county and city to Powerstown landfill in Carlow. Furthermore, neither authority has a transfer station of their own and consequently must use private operators to transfer their waste. Onyx has the largest facility in the area and is at present the only one capable of handling the volumes involved (c. 17,000 tonnes per annum). In relation to the Onyx commercial activities, with the increases in recycling, materials that were formerly sent to landfill directly are now being brought to the transfer facility for sorting and recovery for recycling.

There are no plans for the closure of the Waterford Waste Transfer Station for the foreseeable future. Due to the fact that waste is not permanently held at the facility it

will not reach capacity at a certain point in time having received a finite volume of waste. In theory the transfer station can operate indefinitely as waste merely passes through the station. Only non-hazardous waste is handled at the facility and thus there is unlikely to be any contamination of the site as a result of activities at the station. Therefore, once operations have ceased at the facility, it would be a relatively simple process to convert the site into a location for another commercial or industrial activity. Upon cessation of the activity Onyx Ireland proposes to:

- Remove all plant equipment
- Have the site totally cleaned
- Have all interceptors and drains cleaned out by a licensed waste contractor, once all plant equipment has been removed and the site cleaned.
- Empty the fuel storage tanks
- Remove all office equipment
- Notify the EPA and Local Authorities of the imminent closure of the activity.

Contingency arrangements for the facility as required by the EPA include:

- The submission of Emergency Response Procedures to the agency within six months of grant of license
- The provision of containment booms and adsorbent material for spillages
- Treating all significant spillages as an emergency
- Assessment for the need for fire water retention
- The diversion of waste from the facility in the event of breakdown of equipment
- Evaluation of emissions that exceed emission levels

Onyx Ireland Ltd. is committed to operating its Waste Transfer and Recycling facility at Carrignard in such a manner that will ensure minimal impact on the environment. This will be done through:

- Implementation of a program of continuous improvement of the facility and operations
- Application of BATNEEC
- Implementation of a monitoring program

Neither Onyx management nor personnel have been prosecuted under the Waste Management Act.