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DECOMMISSIONING PLAN

NURENDALE

RATHDRINAGH,

BEAUPARC,

COUNTY MEATH

WASTE LICENCE NO. W00140-03

Prepared For: -

Nurendale
Rathdrinagh,
Beauparc,
Navan,
County Meath

Prepared By: -

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1. INTRODUCTION

Nurendale operates a Materials Recovery Facility at Beuparc, Rathdrinagh, County Meath under a Waste Licence (W0140-03) issued by the Environmental Protection Agency (the Agency). Nurendale is the holder of Waste Licences at three other waste management facilities in Dublin and Meath

Condition 10.2.1 of the Licence requires the preparation of a Decommissioning Management Plan (DMP) that identifies the actions that will be taken in the event of the decommissioning or closure of the facility and details the costs. Nurendale commissioned O'Callaghan Moran & Associates (OCM) to prepare the DMP.

OCM is an environmental consultancy, established in 1997, which provides environmental services to private and public sectors. OCM has been involved in the completion of environmental risk assessments for Waste Licensed and Integrated Pollution Prevention Control licensed facilities since 2001. OCM's approach was based on the guidance in the Agency's recently issued revised guidance 'Guidance on assessing and costing environmental liabilities' (March 2014).

1.1 Facility Description

The facility is located in the townland of Rathdrinagh. It is on the N2, approximately 4km south of Slane. The current licensed area occupies 4.7 hectares and there are three main processing buildings (Buildings 1, 2 and 3) a Skip Repair Building, a Lean To, Administration Building and extensive paved open yards.

Waste activities began in the northern area of the site (approximately 3.4ha) in the early 1990's. Prior to this, the site was undeveloped and used for agricultural purposes (pasture). The original Waste Licence (W0140-01) was issued in July 2001 (W0140-01) and allowed the acceptance of 45,000 tonnes of non-hazardous waste annually.

In 2004 Nurendale applied to revise the Licence to expand the facility to allow for the acceptance of 165,000 tonnes of similar waste types per annum, to operate a municipal solid waste (MSW) drying system, construct Building 2 and install ancillary infrastructure including paved areas and drainage. The revised licence approving the changes was issued in April 2005 (W0140-02).

In May 2007, Nurendale applied to revise the Licence to increase the license area, construct Building 3 and the Skip Repair Building and increase the volume of waste inputs 250,000 tonnes per annum. The Licence was issued in March 2009 (W0140-03) and Building 3 and the Skip Repair Building were constructed.

In September 2009, Nurendale applied to revise Licence to extend the licence area and construct a new building (Building 4), which will house a combined Anaerobic Digestion (AD) and Composting system. This application is currently being considered by the Agency.

In June 2012 there was a fire in Building 3. The emergency response plan was activated and the fire services were called to the site. Although the fire was contained within the building the building was badly damaged. The building was refurbished and came back into use in 2013.

1.2 Closure Scenarios

The facility has no defined lifetime and the risk of closure is low. The commercial viability of the facility will be kept under review and, if market conditions dictate the need to close the facility, the Agency and Meath County will be notified and the DMP will be implemented.

1.3 Plan Update & Review

The DMP will be reviewed and updated annually during the preparation of the Annual Environmental Report. The DMP will also be updated following the revision of the Waste Licence. It may be revised following any future on-site incidents that have the potential to affect soil and groundwater.

1.4 Scope of the Plan

The Plan deals with the facility decommissioning and closure, which will involve the removal of all residual consumable materials and wastes, cleaning and removal of all plant and equipment, as well as cleaning of all buildings. Following closure, Nurendale may, depending on the future plans for the facility, apply to surrender the Licence.

1.5 Limitations

Nurendale has applied to the Agency for a review of the Waste Licence to construct a new building (Building 4) that will house an anaerobic digestion and compost plant, and to produce refuse derived fuel (RDF) in Building 3. This DMP is based on the current authorised activities and Nurendale will review and update the document following the grant of the revised Waste Licence.

The assessments of costs associated with the implementation of the DMP are on the information available at the time of the report preparation, Nurendale's and the Agency's draft Guidance and may be subject to amendment based on future investigations.

2. SITE EVALUATION

2.1 Operator Performance

2.1.1 Facility Management

The facility is managed by a suitably qualified and experienced Facility Manager and all facility personnel are provided with appropriate training and have the requisite qualifications and experience to complete their assigned tasks. The Facility Manager has 7 years' experience in Waste Management and holds a Certificate in the FAS Waste Management Training Course. The Deputy Manager has 5 years' experience in waste management and holds a Certificate in Waste Management and EPA Waste License Training (agreed equivalent to the FAS Waste Management Training Course)

2.1.2 Incident History

In June 2012 there was a fire in Building 3. The emergency response plan was activated and the fire services were called to the site. The fire was contained within the building and, while residents in nearby houses were evacuated. Fire water run-off was contained within the site and subsequently removed for off-site treatment. The incident did not result in any short term (surface water pollution) or long term (soil and groundwater contamination) liabilities.

2.1.3 Compliance History

The facility has been the subject of numerous complaints concerning odours and noise from two neighbours since 2012. The most recent audit carried out by the Agency was on the 1st August and no non-compliances against the licence were issued.

2.1.4 Enforcement History

In 2009 Nurendale was convicted of exceeding the annual waste acceptance limit at the facility in 2008. This is the only enforcement action taken by the regulatory authorities against the facility.

2.2 Environmental Pathways & Sensitivities

2.2.1 Surface Water

The ground slopes from north to south and there is a land drain along the southern site boundary that flows from west to east and discharges into an unnamed third order stream, which is a tributary of the River Boyne. This stream enters the Boyne at Roughgrange, approximately four kilometres northeast of the facility.

Originally, surface water run-off from site discharged to the land drain on the southern site boundary, but this stopped in 2006 with the agreement of the Agency. The surface water drainage system was changed to divert runoff to an underground holding tank via silt traps and an oil interceptor, where it is stored pending consignment to an off-site waste water treatment plant.

The Licence authorises the installation of a constructed wetland within the site, which will have an outlet to the drain on the southern site boundary. When installed the oil interceptor will be connected to it and surface water run-off from the site will once again discharge to the drain.

2.2.2 Geology & Hydrogeology

A site investigation has confirmed the subsoils comprise a brown clay to approximately 1m, which is underlain by a grey/black clay with a proven depth of more than 10m. The site is underlain by the Balrickard Formation, which is a coarse sandstone, shale. It is classified as a bedrock aquifer that is generally unproductive except for local zones. The aquifer vulnerability to pollution from sources at the ground surface is low.

2.2.3 Surrounding Land Use

The facility is bordered to the west by the N2 and to the north by the Knockcommon Road. Surrounding land use is predominantly agriculture, however there are some commercial units to the west. There are nine residential dwellings with 0.5km of the site along Knockcommon Road, with a further thirteen residences within 0.5km, along the N2 and Sencilstown Road.

2.3 Site Processes & Activities

2.3.1 Waste Types & Volumes

The facility is licensed to accept the following waste types and quantities: -

- Dry Recyclable Household (35,000 tonnes),
- Commercial & Industrial (75,000 tonnes),

- Construction & Demolition (120,000 tonnes),
- Source separated biodegradable waste for composting (20,000 tonnes)

No hazardous wastes or liquid wastes are accepted.

2.3.2 Waste Acceptance & Handling Procedures

Building 1 is used for is used to shred wood recovered from the incoming C&D waste and residual material from the wood picking line at Building 2. The shredded wood is sent to off-site licensed facilities for use in the manufacture of pallet blocks or manufactured dense fibreboard. The shredded residual material is sent to Building 3. Due to the shift to manufacturing the SRF, the use of the drying tunnels has been temporarily suspended but they are likely to be used again in the future.

Building 2 is used to process the C&D waste, using a shredder, trommel, density separator, magnet, ballistic separator and a picking line to recover ferrous and non-ferrous metals, rubble, timber and inorganic fines. The 'light fraction' which comprises paper and plastics, are sent to Building 3 for further processing, while the 'heavy fraction' is sent to the crusher in the Lean-To.

Building 3 is used for mixed waste and dry recyclables. Source segregated dry recyclables, such as cardboard and plastics, bulked up and sent for recovery. The mixed waste is mechanically treated using a shredder, magnet. Non-recyclable residual waste is sent to landfill. The wastes can on occasion be wet and any liquid on the floor, along with liquid from the drying tunnels, is collected in an 11m³ underground storage tank located adjacent to the oil storage bund.

The equipment in the Lean-To include a crusher, a magnet, a screener (flip-flop) and an enclosed density separator. Heavy items (>1kg), such as concrete blocks and rubble, are passed through the crusher, which produces an inert aggregate. The smaller fraction is passed through the 'flip flop' screen, which produces two fractions. The larger fraction (>12mm) is passed through the density separator, which removes paper and plastics. The materials processed in the 'flip flop' are stored in bays inside the Lean-To. The inert aggregate produced by the crusher is stockpiled in the open yard. The materials from the density separator are stored in roofed bays.

2.3.3 Emissions

Potential and actual emissions from the facility include: -

- Odours,
- Noise,
- Dust,
- Surface Water,

2.4 Buildings, Plant and Equipment

The current licensed area occupies 4.7 hectares and details of the infrastructure presented in Table 2.1.

Table 2.1 – Site Infrastructure

Ref	Infrastructure	Details
1	Administration Building	Located adjacent to the site entrance at the northern boundary.
2	2 No Weighbridge and associated office	Located close to the facility entrance in the north of the facility
3	Building 1	Wood Storage and Shredding
4	Building 2	Waste processing building – Processing of Construction & Demolition Wastes and Timber.
5	Building 3	Storage of DMR and Light Residual for SRF production.
	Lean-To	Located adjacent to Building 2 and houses a covered ‘flip-flop’ unit that processes the C&D. fines
	Skip Repair Building	The building (372m ²) is located between Buildings 2 and 3.
6	2 No Dust suppression system	Building 1 and Building 2 have water sprayers installed to control dust levels
7	2 No Drying Tunnels	Located adjacent to Building 1 and used to treat mixed municipal waste
8	Above ground water tank	660 m ³ capacity
9	Truck wash	Located to the northeast of Building 1.
10	Paved Yards	35,000m ²
11	Above ground water storage tank	660m ³ .
11	Underground surface water storage tank	72m ³
12	Underground wastewater storage tanks (5No)	Serving B1 – 11m ³ Serving B2 – 3m ³ Serving B3 – 3m ³ Serving truck wash-3m ³ Serving Wright Tunnels-25m ³
13	Biocycle wastewater treatment plant	
14	Oil Storage Tanks	Diesel Oil – 30,000 litres Gas Oil – 9,000 litres Adblu – 2 x 1,000 litres

Facility operations require the use of a range of fixed and mobile plant which are listed in Table 2.2.

Table 2.2 Plant List

No.	Fixed Plant	No.	Mobile Plant
2	Composting Tunnels	3	Volvo L120
1	Doppstadt Wood Shredder	2	Kobelco Tracked Machine
1	M&J Shredder	1	Volvo L60
1	Trommel	1	Teleporter
2	Magnets	2	Hoists
1	Nihot Density Separator	1	Forklift

1	Ballistic Separator	2	Fuchs Grabs
1	Flip Flop Screen	1	Shunter
1	Wind Shifter		
1	Crusher		

2.5 Inventory of Raw Materials

Diesel and gas oil are stored in above ground tanks (30,000 litres and 9,000 litres respectively) in a dedicated structure at the eastern boundary, close to Building 1. The tanks are provided with individual bunds, each of which has a minimum capacity of 110% of the volume of the tank. The bunds are subject to routine integrity testing, as required by the Licence conditions and are structurally sound. Adblu, a diesel additive, is stored in 1,000 litre IBC's which are banded and located adjacent to the oil bunds. The maximum amount of fuel and Adblu stored on site at any one time are shown in Table 2.3.

Table 2.3 – Raw Materials

Products	Quantity Stored litres
Diesel Oil	30,000
Gas Oil	9,000
Adblu	2,000

The quantities given in the Table are based on the volumes kept on site at any one time, but in the event of the planned closure, the actual quantities should be considerably smaller, as the shutdown would be preceded by a reduction in the on-site inventory.

2.6 Site Services

The facility obtains its water supply from an on-site well. There is a 660m³ water tank and associated pump house located at the northern boundary, which is topped up from the well as required.

Water from floor wash downs inside the waste processing buildings discharges to three underground holding tanks located inside the buildings. Leachate from the Wright Tunnels is collected in two underground holding tanks and the water from the vehicle wash is collected in a separate underground storage tank. All the wastewater is sent to the municipal wastewater treatment plant.

Sanitary wastewater from the Administration Building is collected and directed to an on-site Biocycle wastewater treatment plant, located to the south of the building. The treated effluent used to discharge to an on-site percolation area, but this has been discontinued and the effluent is currently sent off-site for treatment in a local authority owned municipal wastewater treatment plant.

3. CLOSURE TASKS & PROGRAMMES

3.1 Closure Tasks

3.1.1 Materials Management

A planned shutdown of operations would be carried out after the last batches of waste received at the site had been processed and consigned. It would be preceded by a scaling down of activities, thereby reducing the quantities of materials, particularly fuel and wastes, to be dealt with when implementing the DMP.

It should be possible to return some materials e.g. diesel, engine and hydraulic oils to the suppliers either for resale, or reuse. The remaining materials may have to be disposed of as waste, some of which may be deemed hazardous due to their composition e.g. waste oils.

A vacuum tanker will empty the oil interceptor, the wastewater storage tanks serving the buildings, truck wash and the Wright Tunnels and the contents will be sent for disposal at a suitably licensed facility. As the routine surface water monitoring has never identified a problem with the operation of the surface water drainage system is not considered necessary to empty and clean out the storm water holding tank.

3.1.2 Buildings

It is not proposed to demolish any of the building. All of the buildings will be cleaned out and left in situ for future use. Given the non-hazardous nature of the waste handled at the facility, specialist decontamination will not be required the cleaning will primarily involve power washing the floors and the use of a road sweeper. The contents of the administration building, which comprise office equipment, will be removed.

3.1.3 Plant & Equipment

The plant and equipment will either be sent other facilities operated by Nurendale, sold for use, or scrapped at an approved waste recycling/recovery facility. At the time of the preparation of this DMP it is not possible to determine if every item listed in Table 2.2 would be suitable either for use at other Nurendale facilities or for sale, as this depends on their condition at the time of the closure.

Those items that cannot be sold will be scrapped. Given the nature of the waste handled at the facility, none of the plant items will require specialist decontamination. The decontamination will be carried out on-site and will involve power washing in areas where the wash water can be collected in the existing wastewater storage tanks.

3.1.4 Soil & Groundwater Assessment

There is no evidence of any soil and groundwater contamination at the site. The scope of any such assessment, if required, will be agreed in advance with the Agency, but it may comprise the installation of soil borings and groundwater monitoring wells and the collection and testing of soil and groundwater samples. The investigations will be supervised by an experienced geologist/environmental scientist.

The field observations and results of laboratory results will form the basis for the assessment of the significance of the impact, if any, and the need for and extent of any remedial works. If remedial works are considered necessary, a proposed scope will be submitted to the Agency for approval before implementation.

3.1.5 Environmental Monitoring

Monitoring will continue following the closure of the facility and pending the surrender of the Licence. The extent of the monitoring and the frequency may be amended, subject to the Agency's approval, to reflect the fact that the facility is closed.

3.2 Closure Programme

In the event that the entire facility is closed, all the operational areas will be decommissioned. The decommissioning will take approximately 4 weeks and will be carried out in a number of tasks, some of which will happen concurrently.

Task 1: Removal of consumables and wastes from all buildings and yards; 2 weeks

Task 2: Cleaning and consignment of plant and equipment; 3 weeks.

Task 3: Clean out of buildings, wastewater storage tanks and interceptor; 1 week.

Task 4: Cleaning of yards; 2 days.

Task 5: Emptying and degassing of diesel tanks; 1 day.

Task 6: Emptying and cleaning oil interceptor

Task 7: Emptying Biocycle wastewater treatment plant

Task 8: Disconnecting site services; 1 day.

Task 9: Closure Plan Validation 2 weeks.

4. CRITERIA FOR SUCCESSFUL CLOSURE

Successful decommissioning will be complete when;

- All buildings have been cleaned out and are secured;
- All equipment, materials, wastes or any other materials that could result in environmental pollution are removed from the site and recycled, recovered or disposed in accordance with all regulations in force at the time;
- All storage tanks, bunds and interceptors have been emptied and the oil storage tanks degassed,
- There is no evidence of any soil or groundwater contamination at the site.

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5. CLOSURE PLAN VALIDATION

5.1 Closure Audit & Validation Report

Following the completion of the site decommissioning, Nurendale will appoint an experienced independent environmental auditor, who will be approved by the Agency, to carry out a Closure Audit and produce a Validation Report that demonstrates the successful implementation of the Plan. The Closure Audit will address: -

1. Disposal of raw materials;
2. Disposal of wastes;
3. Decommissioning of plant, equipment and storage tanks;
4. Cleaning of buildings, plant and equipment;
5. Destination of all items of plant and equipment sent from the site;
6. Results of monitoring and testing during the decommissioning period;
7. Soil & Groundwater Assessment, and
8. The need for on-going monitoring, remedial actions or aftercare management.

The Validation Report will describe all of the activities carried out during the Closure Audit and will contain records of the destinations of all wastes, materials, plant and equipment consigned from the site. The Report will be submitted to the Agency within three months of execution of the Plan.

6. CLOSURE PLAN COSTING

The costs of a planned closure will be met in full by Nurendale. The cost of implementing the DMP in an unplanned closure scenario, where Nurendale is not in a position to meet the costs are presented in Table 6.1. The costs are based on the following assumptions:

- The closure will be unforeseen and unexpected, with no advance warning that would allow an orderly wind down of activities.
- The entire facility will be decommissioned and cleaned, with all wastes and consumables being removed from the site.
- The removal of the wastes, consumables, plant and equipment and the plant and building and plant cleaning will be carried out by third parties.

Although the works could be done by another waste contractor it is assumed that a temporary site manager and general operatives will be appointed to implement the DMP.

- A total of 8,694 tonnes of waste will be on site, comprising the following:
 - 7,525 tonnes of unprocessed C&D;
 - 75 tonnes C&D fines;
 - 200 tonnes of C&I lights
 - 25 tonnes of soil & stones
 - 190 tonnes of wood and MDF;
 - 120 tonnes of woodchip and MDF woodchip;
 - 100 tonnes of SRF;
 - 250 tonnes of unprocessed MSW;
 - 50 tonnes of dry recycled materials;
 - 90 tonnes of metal and non-ferrous metals;
 - 10 tonnes of hard plastic;
 - 26 tonnes of tyres
 - 6 tonnes of gas cylinders
 - 2 tonnes of batteries and
 - 25 tonnes of paper.
- The woodchip has a value of €15/tonne and a transport cost of €18 per tonne to transport the timber from the site to another recovery facility.
- The diesel storage tank and gas oil tank have a maximum fill lines of 30,000 litres and 9,000 litres respectively and are unlikely to be full at the time of decommissioning. Some of these fuels will be consumed during plant clean out.

- The baled SRF will be sent to authorised end destinations within Ireland.
- It is not proposed to demolish any of the buildings or remove oil storage tanks.
- A soils and groundwater assessment will not be required. This is based on the current conditions at the site, where there is no evidence of the presence of soil and groundwater contamination. This will be kept under review and the DMP may be amended in the future to include for such an assessment.

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Table 6.1. Estimated Closure Costs

Shed 1	EWC Code	Waste Disposal Destination	Tonnage	Disposal Costs per ton	Loading cost/ton	transport cost/ton	Admin cost/ton	Total cost
Wood	191207	Thornton's	150	50	1.66	6	0.40	8,709
MDF	191207	Thornton's	40	50	1.66	6	0.40	2,322
Woodchip	191207	Eirebloc	100	0	1.66	18	0.40	2,006
MDF Woodchip	191207	Eirebloc	20	0	1.66	18	0.40	401
Brown Bin	200108		0		1.66		0.40	0
Shed 2								
Skip waste	170904	Thornton's	250	60	1.66	6	0.40	17,015
Metal	191202	Multimetals	25	0	1.66	0	0.40	51
Non Ferrous Metal	191203	Multimetals	20	0	1.66	0	0.40	41
C&I Lights	191212	Thornton's	100	82.5	1.66	7.5	0.40	9,206
C&D Fines	191212	Drehid	25	25	1.66	9	0.40	901
Hard plastic	191212	IPR	10	70	1.66	7.5	0.40	796
Tyres	160103	IPR	1	100	1.66	7.5	0.40	110
Soil and Stones	170504	Behan Land Reclamation	25	3.5	1.66	8	0.40	339
Gas Cylinders	160505	Calor Gas/ Flo Gas	1	0	1.66	0	0.40	2
Shed 3								
C&I Lights	191212	Thornton's	100	82.5	1.66	7.5	0.40	9,206
Metal	191202	Multimetals	25	0	1.66	0	0.40	51
Non Ferrous Metal	191203	Multimetals	20	0	1.66	0	0.40	41
Oversize for recirculation to shed 2	170904	Thornton's	25	82.5	1.66	7.5	0.40	2,301
SRF	191210	Lagan/ Irish Cement	100	45	1.66	5	0.40	5,206
Dry Recyclables	200301	DCC MRF	50	20	1.66	7.5	0.40	1,478
Commercial Paper	200101	IPR	25	0	1.66	7.5	0.40	239

Table 6.1 (Cont'd)								
Outside								
Rubble	191212	Tara Mines	7500	0	1.66	4	0.40	45,442
C&D Fines	191212	Drehid	50	25	1.66	9	0.40	1,803
Woodchip	191207	Eirebloc	0	0	1.66	18	0.40	0
Gas Cylinders	160505	Calor Gas/Flo Gas	5	0	1.66	0	0.40	10
Tyres	160103	IPR	25	100	1.66	7.5	0.40	2,739
Batteries	160601*	Wilton Waste	2	0	1.66	0	0.40	4
Waste Water - Litres	161002	Navan WWTP	84,000	0.03		0.1		10,920
Drain & Tanks Jet Vac Cleaning								9,700
Oil Interceptor & Bunds	130503*	Rilta/Enva	4,000	0.08		0.1		720
Plant/Building Clean down - 2 men for 2 weeks								3,500
Insurance Cover - E/L P/L - 2 weeks								4,000
Utility Costs - Electricity & Water - 2 weeks								5,000
Fuel - Derv			30,000	0				
Fuel - Add Blue			2,000					
Fuel - Gas Oil			9,000	0				
Surface water monitoring as per schedule c.2.2								2,500
Security - Based on current rates - 2 Weeks								12,000
Tonnes excl Diesel & Liquid			8694					158,760

Notes: See overleaf

Table 6.1 (Cont'd)

Notes

Security based on current rates at per day cost

Fuel is maximum purchased litres

All clean down water retained in Holding Tank above

Utility based on estimated office power and amenities, and yard lighting

Liquid Waste loading costs included in transport costs

No TFS required, no export from this facility.

Weeks			2
Loading/ Handling	Loader	1,400	2,800
	Loader	1,400	2,800
	Track	800	1,600
	3 Men	2,400	4,800
	Diesel	1,200	2,400
			14,400
	Tns/Hr	8694	1.66

Admin	Weigh Op	750	1500
	Manager	1000	2000
		8694	3500
	Tns/Hr		0.40

Drains/Waste	Weeks		2
Water Tank/Bunds	JetVac incl Man Hours	4250	8500
Disposal - Est Ltrs	40000	0.03	1200
			9700

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