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## DECOMMISSIONING PLAN

PANDA

RATHDRINAGH,

BEAUPARC,

COUNTY MEATH

WASTE LICENCE NO. W00140-04

**Prepared For: -**

PANDA  
Rathdrinagh,  
Beauparc,  
Navan,  
County Meath

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Client		Nurendale		
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# 1. INTRODUCTION

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Nurendale, trading as PANDA operates a Materials Recovery Facility at Beuparc, Rathdrinagh, County Meath under an Industrial Emissions Licence (W0140-04) issued by the Environmental Protection Agency (the Agency).

Condition 10.2.1 of the previous Licence (W0140-3) required 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. A Decommissioning Management Plan (DMP) was prepared in 2014 and was submitted to and approved by the Office of Environmental Enforcement (OEE).

It is proposed to accept and process approximately 130,000 tonnes per annum non-hazardous incinerator bottom ash (IBA) from the Dublin Waste to Energy Ltd waste recovery plant at Poolbeg at the facility. PANDA applied for a review the current licence to accommodate the acceptance of the IBA and the Agency requested the DMP to be revised to include the proposed activities.

## 1.1 Facility Description

The installation occupies 7.9 hectares (ha) and comprises operational and undeveloped areas. The operational area (4.7ha) is either paved or occupied by buildings and an Integrated Constructed Wetland. There are three main waste processing buildings (Buildings 1, 2 and 3) a skip repair building, a weighbridge, an administration building. The undeveloped area (3.2ha), which is to the east of the operational area has not been developed and is where Building 4 will be constructed.

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 and allowed the acceptance of 45,000 tonnes of non-hazardous waste annually.

In 2004 PANDA 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, PANDA 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, PANDA applied to revise Licence to extend the licence area and construct a new building (Building 4), that would house a combined Anaerobic Digestion (AD) and Composting system.

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.

In 2016 the current licence (W0140-04) was issued in September 2016. This authorises the operation of the biological treatment plant in Building 4 and the introduction of a new drying process in Building 3 to enhance the quality of the solid recovered fuel manufactured in the building. Building 4 has not been constructed and for commercial reasons it has been decided not to proceed with the biological treatment plant.

## **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.

For the purpose of costing this Plan, it has been assumed, in accordance with the Agency's Guidance, that the installation will close unexpectedly and that the Plan will be implemented by third parties contracted by the Agency.

## **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, PANDA may, depending on the future plans for the facility, apply to surrender the Licence.

## **1.5 Limitations**

The assessments of costs associated with the implementation of the DMP are on the information available at the time of the report preparation.

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## 2. SITE EVALUATION

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### 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

In 2016, the installation received eight (8 No.) non-compliances in relation to waste management. In 2017, the installation received three (3 No.) non-compliance in relation to materials handling.

#### 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 directly 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 from where it discharges to an on-site constructed wetland. The wetland discharges to drain on the southern site boundary.

### *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 within 0.5km of the site along Knockcommon Road, with a further thirteen residences within 0.5km, along the N2 and Senchelstown Road.

## **2.3 Site Processes & Activities**

Building 1 was originally used to process mixed MSW, with the organic fines loaded into the two Wright Tunnels south of the building for treatment before being sent to landfill. An odour abatement system was provided on the Tunnels, comprising air extraction and treatment in an on-site biofilter. Owing to the introduction of source segregation collection systems and the access to alternatives to landfill, the processing of the mixed MSW and the use of the Tunnels stopped and the associated biofilter was decommissioned. It is now used to take in dry waste for SRF production and dry mixed recyclables for bulking

C&D processing used to be carried out in the open, but this is now carried out in Building 2 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 to produce SRF, while the 'heavy fraction' is sent to the crusher. Wood and timber recovered from the in-coming waste is shredded and then sent to various outlets for different uses, such as the manufacturing of pallet blocks.

Building 3 was constructed in 2010 and used for processing of mixed and source separated dry recyclables and the trial of the RDF manufacture. The building was damaged by fire in

2012, but is now back in operation. It now produces SRF from the 'lights' from Building 2 and residuals from dry recycling MRFs. The plant includes a shredder, magnets, eddy current separator, ballistic separator, density separators and final shredders.

It is proposed to relocate the SRF manufacturing and C&D processing lines to other licensed installations in Dublin, but to continue to accept skip waste and dry recyclables from the local area. It is proposed to accept and process approximately 130,000 tonnes per annum non-hazardous incinerator bottom ash (IBA) from the Dublin Waste to Energy Ltd waste recovery plant at Poolbeg.

In the short term, the processing will be carried out in Building 3 and will initially be confined to the removal of the ferrous and non-ferrous metals, which will then be sent for recycling. Following the construction of Building 4 the IBA processing may be relocated to there.

## 2.4 Buildings, Plant and Equipment

The installation occupies 7.9 hectares (ha) and comprises operational and undeveloped areas. The operational area (4.7ha) is either paved or occupied by buildings and an Integrated Constructed Wetland. There are three main waste processing buildings (Buildings 1, 2 and 3) a skip repair building, a weighbridge, an administration building. The undeveloped area (3.2ha), which is to the east of the operational area has not been developed and is where Building 4, in which it was intended to install the biological treatment plant, will be constructed.

**Table 2.1 – Site Infrastructure**

Infrastructure	Details
Administration Building	Located adjacent to the site entrance at the northern boundary.
2 No Weighbridge and associated office	Located close to the facility entrance in the north of the facility
Building 1	
Building 2	
Building 3	
Skip Repair Building	The building (372m <sup>2</sup> ) is located between Buildings 2 and 3.
2 No Dust suppression system	Building 1 and Building 2 have water sprayers installed to control dust levels
2 No Drying Tunnels	Located adjacent to Building 1 and not used
Above ground water tank	660 m <sup>3</sup> capacity
Truck wash	Located to the northeast of Building 1.
Paved Yards	35,000m <sup>2</sup>
Above ground water storage tank	660m <sup>3</sup>
Underground surface water storage tank	72m <sup>3</sup>
Underground wastewater storage tanks (5No)	Serving B1 – 11m <sup>3</sup> Serving B2 – 3m <sup>3</sup> Serving B3 – 3m <sup>3</sup> Serving truck wash-3m <sup>3</sup> Serving Wright Tunnels-25m <sup>3</sup>
Biocycle wastewater treatment plant	
Oil Storage Tanks	Diesel Oil – 30,000 litres Gas Oil – 9,000 litres Adblu – 2 x 1,000 litres



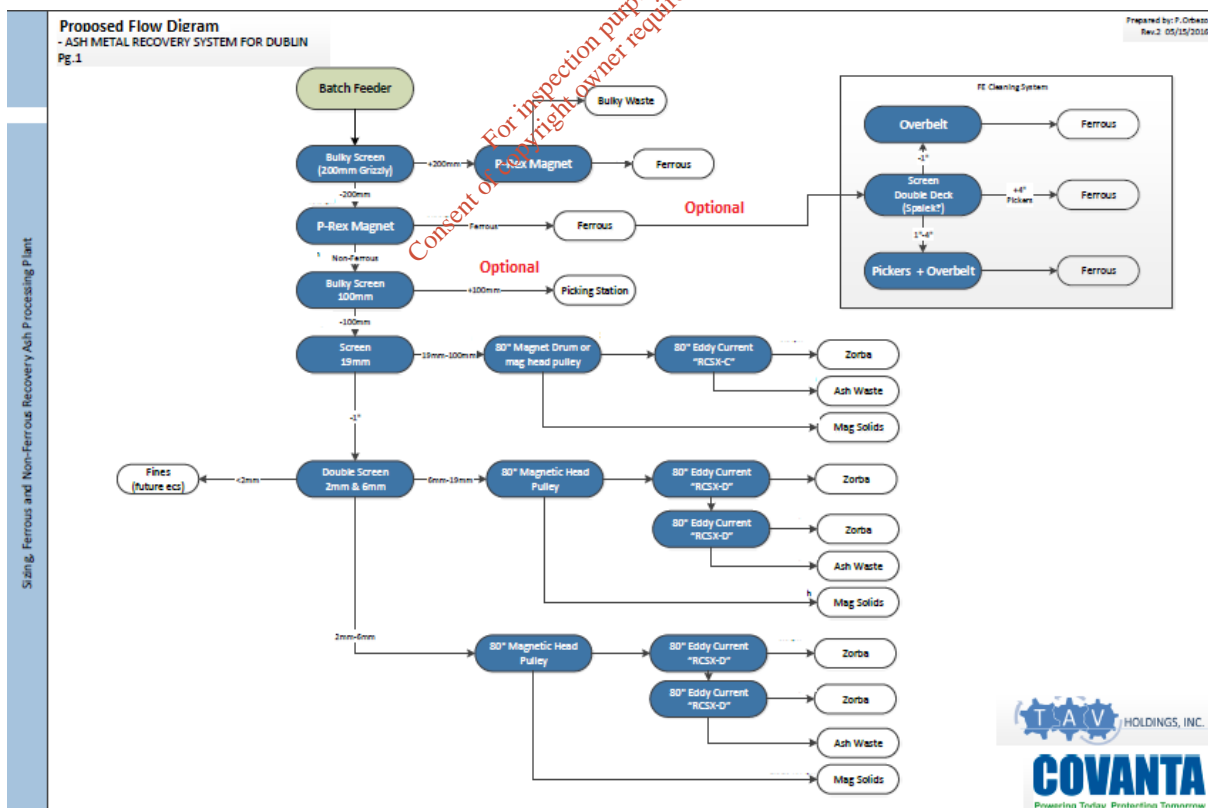
Facility operations require the use of a range of fixed and mobile plant which are listed in Table 2.2.

**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		

The proposed IBA treatment plant will comprise a series of conveyors, screens, magnets and eddy current separators, as shown on Figure 2.1

**Figure 2.1 IBA Processing Plant**



## 2.5 Inventory of Raw Materials

Diesel and gas oil are stored in above ground tanks in a dedicated structure at the eastern boundary. 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 IBCs which are bunded and located adjacent to the oil bunds. The maximum amount of fuel and Adblu stored on site at any one time is 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.

The types and maximum amount of wastes stored on site at any one time are shown in Table 2.4.

**Table 2.4 – Materials Inventory**

Item	Tonnes
Wood	150
MDF	50
Woodchip	200
MDF Woodchip	50
Skip waste	400
Metal	125
Non Ferrous Metal	125
C&I Lights	350
C&D Fines	150
Hard plastic	10
Soil and Stones	25
Gas Cylinders	2
Oversize for recirculation to Shed 2	50
SRF	500
Dry Recyclables	50
Commercial Paper	75
IBA	4,000
Rubble	1351
Tyres	25
Batteries	2
Waste Water -	8.4

## 2.6 Site Services

The facility obtains its water supply from an on-site well. There is a 660m<sup>3</sup> 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. 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.

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## 3. CLOSURE TASKS & PROGRAMMES

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### 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 PANDA, 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 PANDA 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.

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## 4. CRITERIA FOR SUCCESSFUL CLOSURE

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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

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### 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.

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## 6. CLOSURE PLAN COSTING

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The costs of a planned closure will be met in full by PANDA. The cost of implementing the DMP in an unplanned closure scenario, where PANDA is not in a position to meet the costs are presented in Table 6.1. The costs, which have been agreed by the OEE, 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.
- The materials listed in Tables 2.3 and 2.4 will be on-site at the time of closure
- 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.



**Table 6.1 Costs**

Item	Tonnage	Disposal Cost/Tonne	Processing/tonne	Loading cost/tonne	Transport cost/tonne	Admin cost/tonne	Total Cost
Wood	150	50		0.80	6	0.75	8,633
MDF	50	50		0.80	6	0.75	2,878
Woodchip	200	0		0.80	18	0.75	3,911
MDF Woodchip	50	0		0.80	18	0.75	978
Skip waste	400	60		0.80	6	0.75	27,022
Metal	125	0		0.80	0	0.75	194
Non Ferrous Metal	125	0		0.80	0	0.75	194
C&I Lights	350	82.5		0.80	7.5	0.75	32,044
C&D Fines	150	25		0.80	9	0.75	5,333
Hard plastic	10	70		0.80	7.5	0.75	791
Soil and Stones	25	3.5		0.80	8	0.75	326
Gas Cylinders	2	0		0.80	0	0.75	3
Oversize for recirculation to shed 2	50	82.5		0.80	7.5	0.75	4,578
SRF (estimate actual 500 due to bale storage)	500	45		0.80	5	0.75	25,777
Dry Recyclables	50	20		0.80	7.5	0.75	1,453
Commercial Paper	75	0		0.80	7.5	0.75	679
IBA	4,000	27	0	0.80	9	0.75	150,486
Rubble	1351	0	3	0.80	9	0.75	18,312
Tyres	25	100		0.80	7.5	0.75	2,726
Batteries	2	0		0.80	0	0.75	3
Waste Water -	8.4	0.03	-	-	0.1		10,920
Drain & Tanks Jet Vac Cleaning			-	-			9,700
Oil Interceptor & Bunds	4	0.08			0.1		720
Plant/Building Clean down - 2 men for 2 weeks							3,500

Insurance Cover - E/L P/L - 6 weeks							6,000
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 cC2.2							2,500
Security - Based on current rates - 6 Weeks							36,000
Tonnes ex Diesel & Liquid	17948						360,662
Contingency (10%)							36,066
<b>Total</b>							<b>€396,728</b>

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