



ACCIDENT MANAGEMENT PLAN
Graphite Resources (DEP)Ltd


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Derwenthaugh Ecoparc
EPR/KB3939RR

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1 INTRODUCTION

This document has been prepared by Sol Environment Ltd on the behalf of Graphite Resources (DEP) Ltd (hereafter referred to as “the applicant”) in support of an Environmental Permit Variation Application for the operation of the waste processing facility at their site in Blaydon, Gateshead.

This document represents the Accident Management Plan (AMP) submitted as part of the Application package to the Environment Agency (Sol Environment Ref. SOL1910CC01).

The Graphite Resources facility is located at Derwenthaugh Ecoparc, Derwenthaugh Road, Blaydon, Gateshead, NE16 3BJ.

The site is currently permitted under EPR/KB3939RR to operate a mechanical heat treatment plant with associated material recycling facility (MRF) and a pyrolysis plant with associated gas fired CHP engines.

The mechanical heat treatment plant consists of a two-line rotating steam autoclave process, with the front end handling and pre-processing in line with clinical waste regulations to allow the processing and sterilisation of clinical waste. The sterilised waste will then be further treated via the drier and metal separation unit to remove moisture and recyclates and then utilised as a fuel for the pyrolysis units.

The site is permitted to accept up to 100,000 tpa of treated clinical wastes and RDF feedstocks, of which up to 50,000 tpa is anticipated to be in the form of untreated clinical waste streams.

The Part A(1) Installation will be operated in accordance with the Environmental Permitting (England and Wales) Regulations 2018 and Chapter IV of the Industrial Emissions Directive.

This Accident Management Plan has been produced in accordance with EA guidance Document ‘*How to comply with your Environmental Permit (EPR 1.00)*’.

It is stipulated under this guidance document that the Accident Management Plan fulfils the following four key requirements:

- Identifies events or failures that could damage the environment;
- Assesses how likely they are to happen and the potential environmental consequences;
- Actions to minimise the potential causes and consequences of accidents; and
- The actions that are required to be carried out if an accident happens.

This Accident Management Plan will be implemented and maintained at the site as part of the company’s Environmental Management System and will ensure the site and all operatives within are fully prepared for such incidents.

A number of the control measures cited within this document refer the operators proposed suite of Environmental Procedures and new procedures which have been drafted in response to the proposed new operations at site (GR-E01 to GR-E12).

These documents should be referred to for detailed actions in relation to emergency response and control.

- GR-EMS - Environmental Management and Policy;
- GR-C01 – Clinical Waste Pre-Acceptance;
- GR-C02 – Clinical Waste Acceptance;
- GR-C03 – Clinical Waste Rejection;
- GR-C05 – Clinical Waste Reception and Storage;
- GR-E01 – Waste Pre-Acceptance;
- GR-E02 – Waste Acceptance;
- GR-E03 – Waste Rejection;
- GR-E04 – Off Site Waste Transfers;
- GR-E05 – Waste Reception and Storage;
- GR-E06 – Environmental Records;
- GR-E07 – Environmental Management and Monitoring; and
- GR-E08 – Infrastructure Management and Monitoring;
- GR-E09 – Accident Management Plan;
- GR-E10 – Odour Management Plan;
- GR-E11 – Fire Prevention Plan; and
- GR-E12 – Roles & Responsibilities.

The Accident Management Plan and all associated procedures will be reviewed at least every four years or as soon as practicable after an incident, with changes made accordingly to minimise the risk of occurrence / recurrence.

2 RISK MAGNITUDE ESTIMATIONS

The Accident Management Plan (Table 2.2 overleaf) has adopted a risk assessment approach to each potential hazard by combining the probability and magnitude of the potential risk to give an estimation of the risk prior to any mitigation measures. The risk management measures, which are designed to reduce the likelihood of occurrence, are then detailed followed by an estimation of the actual risk post-mitigation (Residual Risk Rating).

The DEFRA guide to risk assessment¹ indicates the approach of subjectively classifying the magnitude of potential consequences into four categories depending upon the degree of the impact that the potential risk could have and the context in which the risk is being assessed. The classification is used as a guide in this Risk Assessment.

The four categories are as follows:

- **Severe:** Possible irreparable damage to environmental resources;
- **Moderate:** Possible damage to environmental resources which are limited within a regional context;
- **Mild:** Possible effects might be transient damage to environmental resources which are commonplace on a regional basis and alternative sources are readily available;
- **Negligible:** The effects are negligible or might cause very slight temporary deterioration in the current environmental resource quality.

The matrix shown below considers the probability of the potential risk against the magnitude of the potential impact, thereby giving an estimation of the resulting likelihood of the risk occurring.

Table 2.1: Risk Estimation Matrix				
Probability of potential Risk	Magnitude of Potential Impact			
	Severe	Moderate	Mild	Negligible
High	High	High	Medium/Low	Near Zero
Medium	High	Medium	Low	Near Zero
Low	Medium	Medium	Low	Near Zero
Negligible	Medium	Medium/Low	Low	Near Zero

The qualitative risk assessment for the Accident Management Plan has been based on the matrix outlined above.

The final stage of the risk assessment is the judgment of the severity of the residual risk following implementation of the mitigation measures.

¹ A Guide to Risk Assessment and the Risk Management for Environmental Protection, 1995.

Table 2.2: Accident Management Plan

Accident Scenario	Probability of Accident Occurring	Magnitude of Potential Impact	Risk Rating before mitigation	Risk Management	Residual Risk Rating (following Mitigation)	Action to be taken if accident occurs
<p>1 - Spills and Leaks / Loss of containment / transfer of Substances / Overfilling of Vessels</p> <p>Potential polluting substances onsite:</p> <ul style="list-style-type: none"> Waste materials stored incorrectly; Leachate; Diesel, oils and lubricants, and Other chemical (liquids and soluble powders) stored on site 	Medium	<p>Moderate to Severe</p> <p>Spillage and leakage could occur during fuel deliveries, vehicle refuelling, vehicle breakdowns/ accidents and or damage to tanks or bunds</p> <p>Loss of containment could result in potentially polluting materials (including oils and chemicals) being discharged in surface water drainage systems and to controlled waters</p>	Moderate	<ul style="list-style-type: none"> The site is entirely sealed hardstanding with fully contained and sealed drainage and therefore considered to have a low potential for impacts to groundwater; A sealed drainage and containment system for all tanks containing potentially polluting liquids has been constructed so that any leaks / spills are contained; All delivery areas are contained within a sealed drainage and containment system that incorporates bund walls, appropriate falls and drains; All storage vessels have been constructed to the appropriate British Standard; Tanks are inspected visually on a daily basis by site staff to ensure continued integrity of tanks, and identify any necessary remedial action; Site infrastructure is inspected on a daily basis with any damage reported to the Site Manager. Repairs are instigated as soon as possible to ensure integrity of all impermeable surfaces and containment infrastructure; Small volumes of lubricating oils / greases and maintenance materials are stored within the workshop and storeroom, both of which are contained; Spill kits, drip trays and absorbent materials are strategically located around site for the containing and clearing any 	Low	<p>Minor spills to be cleaned up immediately, using spill kits. Resultant materials to be placed in container for off-site disposal to appropriate facility, if necessary;</p> <p>Immediate action to be taken in event of major spill which is likely to cause polluting emissions to the environment to prevent liquid from entering surface water drains or any adjacent unsurfaced ground. Spillage to be cleared immediately and placed in containers for offsite disposal.</p> <p>Report to Environment Agency if potential for a significant emission to the environment.</p>

				<p>spillages. Used material will be stored within a sealed container prior to export offsite.</p> <ul style="list-style-type: none"> • Damage to key containment infrastructure from vehicular movements is prevented through barriers, curbing and adequate space. • If there is a potential that pollution may occur, the site will cease reception of waste streams, remove materials at risk and initiate repairs immediately. 	
2 - Vandalism	Low	<p>Moderate</p> <p>The site could be subject to intentional vandalism and damage by intruders/ trespassers who could cause damage or harm to the plant and equipment, spills and leaks to tanks or cause fires.</p>	Low	<ul style="list-style-type: none"> • On-site security measures: • Security cameras are installed at key areas of the site; • Security fencing extends around the site perimeter; <ul style="list-style-type: none"> – 2m palisade or equivalent; • Lockable gates are located at the site entrance; • Gates will be locked whenever the site is closed; • Gates and fencing are inspected daily by operations staff to identify deterioration and damage and the need for repair; • Fencing and gates are maintained and repaired to ensure their continued integrity. If damage is sustained, repair will be made within the same working day. If this is not possible, suitable measures will be taken to prevent unauthorised access to the site and permanent repairs will be affected as soon as is practicable; • All visitors to the site are required to register in the visitor’s book and sign out again on exit, thereby minimising the risk of unauthorised visitors on the site; • Operational procedures have been 	<p>Low</p> <p>Report to authorities.</p> <p>Use spill kit to absorb any oils spilt from on-site vehicles.</p> <p>Review CCTV.</p> <p>Repair and review security measures if necessary.</p>

				implemented including regular inspections, ensuring continual monitoring of security provision at the site.		
<p>3 - Flooding</p> <p>The site is located in an EA flood risk zone 2 with limited areas in Flood Risk Zone 3</p>	Medium	Severe	Medium	<ul style="list-style-type: none"> The site is equipped with a sealed drainage system; In cases of extreme rainfall, the sites drainage system will control and release all water falling on site such that off-site flooding is minimised; Graphite Resources will closely monitor all weather situations and is signed up to the EA Flood Warning System. Maintenance of offsite drains. Safe location for storage of hazardous materials. <p>In the event of a flood warning the following steps will be taken in preparation:</p> <ul style="list-style-type: none"> Shut off electric supplies. Alert the organisations listed in our Accident Management Plan accordingly. Check that any items of plant, equipment, skips or containers are secured and cannot cause damage to site infrastructure or be washed offsite. Move site vehicles to a secure area outside the expected flood area. Keep site inventories as low as possible during the flood warning period. Move any sensitive materials or loose stocks to the most elevated areas of the site. Close and secure the site access gates to act as a barrier to prevent items being washed off or onto site. Bulk Bags of process compost like materials can be placed across the site entrance to keep floodwaters back. 	Low	<p>In the event of a flood the Operational Site Manager must be informed and should contact the Environment Agency without delay.</p> <p>A written notification in accordance with the Environmental Permit should also be submitted to the EA within 24 hours.</p> <p>Following a flood event the following actions are to be taken:</p> <ul style="list-style-type: none"> Check the site is safe to return to work Contact a qualified electrician to check that the electricity supply is safe Check all items of plant, equipment, skips or containers are intact and that there has been no damage to site infrastructure Instigate a full investigation, identify any environmental damage and review the effectiveness of our procedures and amend them accordingly

				<ul style="list-style-type: none"> Contact our suppliers and/or clients who may be sending material to site or expecting a delivery from us. Advise staff to keep off the installation until the flood warning or event has passed. 		
<p>4 - Fire in combustion plant.</p> <p>Plant malfunction;</p> <p>Electrical equipment that could provide an ignition source;</p> <p>Waste products / raw materials that may support combustion.</p>	Medium	<p>Severe</p> <p>Smoke & air pollution</p> <p>Damage to site</p> <p>Potential for human loss of life or severe injury</p>	Medium	<ul style="list-style-type: none"> All plant is subject to a planned preventative maintenance schedule; All plant has been specified to be intrinsically safe and earthed in accordance to best practice; All aspects of the plant and buildings are constructed of non-combustible materials; The plant has been designed to shut down (fail safe) in the event of an emergency; Fire suppression, detecting and monitoring systems have been installed where necessary; Separation of combustible materials from the source prior to processing; <ul style="list-style-type: none"> All waste is stored within dedicated areas; All flammable process consumables are stored in dedicated areas; All waste stockpiles are segregated and there is good access if fire trucks are needed; In the event of a fire, a plentiful supply of water is provided on site from the onsite fire water tanks and back up fire water pump. Fire water can be contained onsite due to site infrastructure (building and perimeter bund). Machinery is regularly cleaned to remove any dust, etc; Good housekeeping measures Records of fire incidences will be kept on 	Low	<p>In the event of a fire at the facility all members of staff must immediately evacuate the site and assemble to check the staff register.</p> <p>The emergency services must be contacted immediately.</p> <p>A list of useful numbers is kept in the site office and displayed prominently at the weighbridge and canteen.</p> <p>The Operational Site Manager should be informed and should contact the Environment Agency without delay.</p> <p>A written notification in accordance with the Environmental Permit should also be submitted to the EA within 24 hours.</p> <p>The site infrastructure is designed and proven to retain site drainage including firefighting waters.</p> <p>After the Fire the following actions are to be taken:</p> <ul style="list-style-type: none"> Check the site is safe to return to work Contact a qualified electrician to check that the electricity supply is safe

				<p>site together with a summary of remedial action taken.</p> <ul style="list-style-type: none"> EA will be advised of all incidents of fire as soon as is practicable; Smoking will not be permitted in the operations areas of the site. The site has a detailed Fire Prevention Plan in which all staff are fully trained. 		<ul style="list-style-type: none"> Check all items of plant, equipment, skips or containers are intact and that there has been no damage to site infrastructure Instigate a full investigation and review of the incident to identify any environmental damage, the root cause and measures to prevent a reoccurrence Review the effectiveness of our procedures and amend them accordingly
<p>5 – Non conforming waste</p> <p>Some of the raw materials and waste inputs at the site could contain impurities that impede / prevent the process.</p>	Low	<p>Moderate / Severe</p> <p>Pollution of air</p> <p>Breakdown of equipment</p>	Low	<p>The following methods will be implemented to ensure that incompatible feedstocks do not compromise the safe operation of the plant:</p> <ul style="list-style-type: none"> All wastes accepted onto site have been subject to 'pre-acceptance' in accordance to established procedure; All incoming wastes are inspected in accordance with established procedure; When in the waste reception areas, any non-conforming waste will be removed prior to acceptance in accordance with established procedure; Waste types are segregated, with separate reception and processing areas for clinical and other wastes; 	Low	<p>Cease operation of the plant</p> <p>Remove wastes from site as soon as possible</p> <p>Incidents will be investigated and repairs made accordingly</p> <p>Review of staff training and refresher sessions in required areas</p> <p>Records of incidents involving incompatible wastes will be kept on site together with a summary of the remedial action taken.</p>
<p>6 – Failure of Mains Services:</p> <p>Failure in the mains services, water</p>	Medium	<p>Medium</p> <p>Loss in plant utilisation</p> <p>water supply disruption affects dust suppression and fire sprinkler systems</p>	Low	<p>The site generates enough electricity to satisfy its own parasitic load, however in the event that mains services of water and its own electricity supplied to the site are unavailable, the following actions will occur:</p> <ul style="list-style-type: none"> In the event of sudden disconnection of electricity the processing equipment will cease to operate, If there is sufficient storage space waste 	Negligible	<p>Cease operations</p> <p>Consider use of mobile water suppression systems (e.g. bowsers) if prolonged disruption.</p>

				<p>deliveries would still be accepted, however if storage capacity is exceeded this will require the ceasing of waste deliveries to the site until such time as plant is up and running and able to clear the backlog of fuel, so as to prevent large volumes of fuel accumulating on site.</p> <ul style="list-style-type: none"> Onsite fire water tanks can supply suppression equipment during main water outage. 		
<p>7. Operator Error / Failure of Equipment:</p> <p>The unexpected breakdown of any part of the plant could result in short term build up of waste in the reception areas or the incomplete treatment of waste.</p> <p>The result of operator error could result in the plant not functioning efficiently or a risk of fugitive emissions to air.</p>	Medium	<p>Moderate</p> <p>Odorous fugitive emissions</p> <p>Incomplete sterilization of clinical waste streams – illness, disease etc</p>	Moderate	<ul style="list-style-type: none"> The site is equipped with spare plant and equipment which can be used in the event of a single plant breakdown. (e.g. loading shovels etc). Should the facilities storage capacities be exceeded, incoming waste will be diverted to a nearby waste processing / landfill site. All equipment is subject to a Planned and Preventative Maintenance Programme (PPM), to minimise unplanned failures The plant includes an automatic alarm system to alert the operator of potential operational problems and where relevant will be triggered with sufficient safety margin to permit operator intervention to prevent an actual problem occurring. All operational staff will be fully trained against the site operating procedures. Training will include awareness raising of key plant parameters and the potential implications of failure to control operations as designed and the associated potential impact on the environment. All incidents will be recorded and investigated appropriately according to the site incident procedure. 	Low	<p>Stop the processing plant immediately.</p> <p>Cease waste deliveries to the site to prevent build-up of wastes.</p> <p>Report to supervisor and arrange for repairs to failed equipment.</p> <p>Should incompatible wastes be unintentionally accepted at site, these will be temporarily stored in the external quarantine area and removed from site as soon as possible.</p> <p>Instigate regular odour monitoring around the site boundary, keep roller shutter doors closed where possible and where open engage the odour suppression unit to prevent escape of odorous air during odour control system breakdown.</p> <p>Report to Environment Agency if potential for a significant impact (odour) to the environment.</p>

3 SUMMARY & CONCLUSION

This document has been prepared to meet the requirements pertaining to Accident Management Plans within the Environment Agency guidance document EPR1.00 *'How to Comply with your Permit'*.

It is concluded that despite the Installation having the potential for a low-moderate environmental impact to the environment, the mitigation measures incorporated into the design of the plant and the site infrastructure are sufficient to mitigate the risks

The company operates using an established suite of procedures for the control and management of all materials and plant in use in their process. These procedures detail the required actions to be taken in the event of an emergency and should be used in the first instance for any accident and emergency at site.

The structure of the Environmental Management Plan is outlined in Annex 1.

ANNEX 1: Working Plan Structure

Annex 1: Working Procedures

Ref No:	Title	Purpose
GR-EMS	Environmental Management System and Policy	This EMS defines the management of the site and provides the management controls and policies for all aspects of the site.
Clinical Waste Procedures		
GR-C01	Clinical Waste Pre-Acceptance	This procedure defines the upstream screening, checking and pre-acceptance of all incoming clinical waste prior to its arrival on site.
GR-C02	Waste Acceptance	This procedure outlines the onsite controls and considerations that need to be applied when clinical waste arrives on site for processing.
GR-C03	Clinical Waste Rejection	This procedure outlines the clinical waste rejection process for all non-conforming waste that cannot be processed on site. Acceptance of non-conforming clinical wastes will be a direct breach of the permitted conditions of the sites Environmental Permit.
GR -C04	Off Site Waste Transfers	Refer to GR-E04
GR -C05	Clinical Waste Reception and Storage	This procedure outlines the clinical waste reception and storage processes for all incoming clinical waste.
Mixed Non-Hazardous Wastes		
GR-E01	Waste Pre-Acceptance	This procedure defines the upstream screening, checking and pre-acceptance of all incoming fuel feedstocks prior to its arrival on site.
GR-E02	Waste Acceptance	This procedure outlines the onsite controls and considerations that need to be applied when fuel feedstock materials arrive on site for processing.
GR -E03	Waste Rejection	This procedure outlines the waste rejection process for all non-conforming feedstocks that cannot be processed on site. Acceptance of non-conforming wastes will be a direct breach of the permitted conditions of the sites Environmental Permit.
GR -E04	Off Site Waste Transfers	This procedure provides the necessary information to enable the assessment and off site transfer of non-conforming or untreatable waste streams.
GR -E05	Waste Reception and Storage	This procedure outlines the waste reception and storage processes for all incoming non-hazardous waste.
General Procedures		
GR -E06	Environmental Records	This procedure defines the necessary Environmental Permit and Waste Records that are required to be managed by the site to ensure compliance.
GR -E07	Environmental Management and	This procedure provides an overview of all of the necessary environmental

	Monitoring Programme	monitoring procedures and controls to ensure compliance with the Permit.
GR -E08	Infrastructure Management and Monitoring Programme	This procedure provides an outline of the inspection and cleaning requirements for the site.
GR -E09	Accident Management Plan	This procedure refers to the site's emergency plans and response requirements.
GR -E10	Fire Prevention Plan	This procedure refers to the sites fire prevention measures.
GR -E11	Odour Management Plan	This procedure refers to the site's odour mitigation measures.
GR-E12	Roles & Responsibilities	This procedure outlines the management structure and key environmental responsibilities of personnel at the site.