



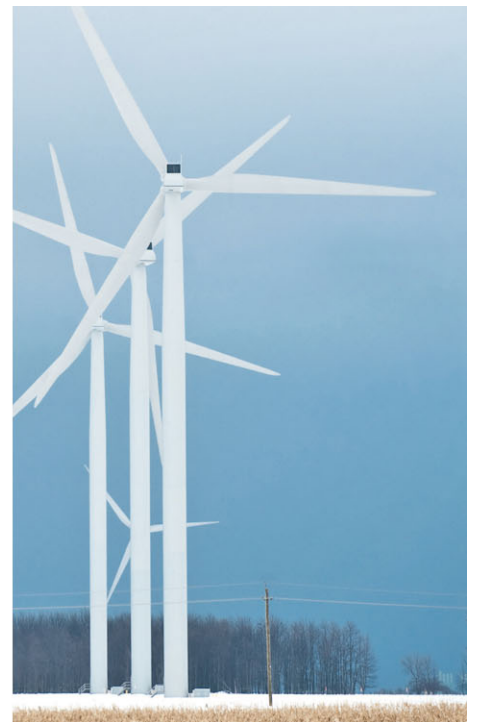
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RJS Civil Engineering Ltd

Parrys Quarry Environmental Permit Application

Accident Management Plan



3 June 2014

AMEC Environment & Infrastructure UK Limited

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Report for

RJS Civil Engineering Ltd
Plot 3, Tre Marl Industrial Estate
Llandudno Junction
Conwy County
LL31 9PN

Main Contributors

Craig Fannin
Charlotte Pearson

Issued by

Charlotte Pearson

Approved by

Julian Bromhead

**AMEC Environment & Infrastructure
UK Limited**

Canon Court, Abbey Lawn, Abbey Foregate,
Shrewsbury SY2 5DE, United Kingdom
Tel +44 (0) 1743 342 000
Fax +44 (0) 1743 342 010

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UK Limited



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Purpose of this Report

Parry's Quarry Landfill Site has been designed to, and will operate to, current modern standards, incorporating contingency and action plans for specified events and pre-assessed risks and hazards, through a clear and unambiguous management structure.

The purpose of this report is to identify the potential hazards associated with the activities, assess the risk of occurrence and potential consequences. It then sets out the risk management measures to be put in place.

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1. Introduction

AMEC Environment and Infrastructure UK Ltd (AMEC) has been commissioned by RJS Civil Engineering Ltd (RJS) to prepare an Environmental Permit (EP) application to operate a non-hazardous landfill at Parry's Quarry, Pinfold Lane, Alltami, Nr Mold, Flintshire, Wales.

The landfill will be fully engineered and contained in accordance with the Landfill Directive and Environmental Permitting (England and Wales) Regulations, 2010 (as amended), which implements the Directive.

The site is an operational clay and stone quarry, with an existing access located to the south-west of the site off Pinfold Lane and then a short distance to Mold Road, the A494, Queensferry to Mold Road.

RJS recognises the importance of the prevention of accidents that may have environmental consequences and that it is important to limit the occurrence of accidents and the consequences of them. As such, RJS has requested an Accident Management Plan for the site, looking at foreseeable hazards for the Landfill facility.

The Accident Management Plan has been produced in accordance with EA guidance 'How to comply with your Environmental Permit' (Document 433_11 (Version 6 - June 2013) and 'How to comply with your environmental permit -Additional guidance for Landfill (EPR 5.02) dated March 2009.

The Accident Management Plan will be implemented and maintained at the site as part of RJS's standard operational procedures for the site to ensure the site and site staff are fully prepared for such incidents. The Accident Management Plan 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 any re-occurrence.

2. Site Plans

2.1 Description

The Operator will establish a site plan on completion of the site infrastructure which will identify the location of any emergency kits or equipment for fire, spill kits and drain caps etc. The plan will form part of this Accident Management Plan and will be kept on site at all times.

3. Hazards

3.1 Flooding

There is a negligible risk of flooding at Parry's Quarry Landfill Site. Surface water runoff within the site will be managed to provide for controlled release to the wider water environment thus the site will not contribute to any increase in flood risk outside the site. The overall drainage at the site will generally drain towards the north into the modified existing northwest stormwater management pond via the perimeter drainage ditch system which will run all around the capped landfill. The main purpose of this pond is to retain the stormwater during a severe rain event, for flood and erosion control, and to improve surface water quality through sediment control.

The surface water management system has been designed to provide adequate freeboard for exceedence events. However, during such an extreme rainfall event there could be a flood risk in the surrounding area, completely irrespective of the site discharges. The Environment Agency flood risk map indicates that there are few receptors located downstream of the site and therefore, the proposed increase in flows in Alltami Brook as a result of the increased discharge rates would be unlikely to cause a significant increase in flood risk downstream. However, Natural Resources Wales has designated a Flood Alert Area for Alltami Brook (Llangollen to Chester Flood Alert Area).

In order to reduce the risk and minimise the potential impact of flooding offsite, RJS will employ the following measures:

- RJS would register to receive flood alerts from Natural Resources Wales' existing service.
- Check weather conditions daily for any adverse weather conditions, storm events; and
- Make weekly inspections of the surface water management system for any signs of damage or blockages and clear where necessary.

In the event of an incident or event that could potentially lead to flooding offsite or in the event of receiving a flood alert from Natural Resources Wales, RJS will employ the following measures:

- Pumping from the attenuation lagoon will be reduced to the existing consented rate of 14 l/s for the duration of the Flood Alert or event, or
- Reduced to zero if Natural Resources Wales deemed it necessary to ensure the safety of people located downstream.

3.2 Subsidence and Landslides

The risk of subsidence, settlement or landslip could impact on the lining system for the site causing a breach of the lining system. The stability of both the substrata and the engineered lining system has been assessed in a quantitative manner in the Stability Risk Assessment (ref 30030/R4155) submitted in support of the Environmental

Permit application and all necessary precautions incorporated into the design to ensure that the risk of a breach of the lining system as a result of instability in the substrata or the engineered lining system is low.

During the construction phase, the lining system will be subject to third party accredited construction quality assurance (CQA) scheme and monitoring of the compaction of any fill required to form the final side slope sub-grade will be an integral element of the CQA monitoring programme. The monitoring will include for layer thickness, number of passes of the roller and material type. The construction specification will define the specific details, based on the available construction materials.

During the operational phase of the site, in order to reduce the risk and minimise the potential impact of subsidence, settlement or landslip, RJS will employ the following measures:

- Topographical surveys will be carried out at least annually to assess settlement and compare the results against design assumptions;
- Visual inspection will also be carried out weekly to look for signs of instability or differential settlement; and
- Leachate levels will be monitored at least monthly to check for any sudden unexplained drop in levels.

In the event that stability or settlement problems are discovered, appropriate remedial action will be taken. Measures will include:

- reducing leachate heads;
- reduction of waste gradients;
- adjustment of phasing to allow slopes to be remediated;
- engineering work to increase factors of safety;
- supporting earthworks; and
- design revisions.

3.3 Fires

3.3.1 Hazard

Combustion of materials (waste, landfill gas, and other) on site will give rise to fire and harmful smoke.

Causes of combustion include:

- Naked flames;
- Cigarettes;

- Burning loads arriving on site;
- Sparks from welding equipment;
- Drilling rigs (retrospective gas well installation);
- Exposed glass on sunny days;
- Cookers/heaters in site cabins; and
- Arson.

3.3.2 Consequence

Harm to the health of site personnel, and general public, pollution of the environment, and detriment to the amenity.

3.3.3 Mitigating Measures

Relating to the above listed causes:

- No naked flames allowed over the landfill area, or near to potentially flammable materials, such as the fuel/oil store and the quarantine storage area;
- No smoking policy on the landfill or near to potentially flammable materials;
- Burning loads will be isolated in the quarantine storage area, then removed from site or landfilled when extinguished and at an acceptable temperature;
- Drilling rigs working on landfilled or operational areas will take precautions designed to minimise the risk of fire. In addition, a water bowser and fire extinguisher will be available;
- Waste loads known to contain glass will be covered immediately on sunny days;
- Regular safety checks on equipment in site cabins, and fire extinguishers present; and
- Close Circuit Television (CCTV) Cameras will operate at the site. These will be centrally monitored and the emergency services alerted directly if a fire incident occurs.

3.4 Explosion

Operational hazards such as explosion have been broken down into broad operational categories to ensure that all aspects have been covered in a logical and comprehensive manner. This maintains a system which avoids confusion and aids effectiveness as well as assisting site personnel in the management of any incidents. For specific information on a particular issue, see later sections of this plan. For each operational heading the relevant hazard identification has been undertaken.

3.5 Major Breach of Installation Liner

An assessment of the risk of a major breach of the installation liner has been considered in the Hydrological Risk Assessment (AMEC Report Ref 30030R4120). In the event of a major breach the following actions will be implemented:

- Minimise leachate heads in affected cell;
- Inspect visible liner for any signs of problems;
- Revise liner design to increase robustness;
- Inspect waste mass to look for signs of instability or inappropriate waste deposits; and
- Agree remedial measures with Natural Resources Wales.

4. Operational Hazards

4.1 Delivery of Raw Materials

4.1.1 Transfer of Substances

The only substances (other than wastes) which will be delivered to the site are fuels, oils, chemicals for the leachate treatment plant and materials for the construction of the landfill facility. Fuel is stored in a double skinned bunded tank located within a lockable shipping container and stood on a concrete hardstanding which has provision for drainage through an oil interceptor. The fuel tank has a steel bund, with a capacity of greater than 110% of the capacity of the tank. Procedures are in place to check the integrity of the tank and the bund on a daily basis.

Oils (and in future chemicals for the leachate treatment plant) are delivered to the site and are stored within a lockable steel container. These substances are only used by trained staff who are conversant with the procedures.

Construction materials including liner materials will be delivered to the site. These materials will be destined for short term storage areas or directly to the point of use. The potential pollution from spillages of construction materials are if these materials are deposited where they can pollute surface waters. The surface water management scheme is detailed in Section 3.1 of this plan. The main threat from construction materials is an increase in suspended solids in the surface water course. Following the construction of any works they will be fenced off which will prevent the deposition of construction materials where they could affect watercourses.

4.1.2 Overfilling of Vessels

The only tanker delivery will be fuel for the site plant. Other oils and chemicals will be delivered in drums or smaller containers, which will not require the contents to be transferred. Fuel will be ordered when required which will ensure that the tank has a significant capacity. When fuel is delivered, the driver will be instructed to remain with the vehicle until the delivery process is complete, and the delivery will be supervised at all times. If the volume of fuel exceeds the capacity of the tank it will overflow into the bund. Any spillages will be dealt with in accordance with the documented Spillage Action Plan at Appendix B.

4.1.3 Failure of Plant and Equipment

Failure of the fuel tank may result in all the contents being discharged into the bund. The bund has a capacity of 110% of the tank and will contain the contents of the tank.

Failure of a delivery pipe will result in a spillage which will be dealt with in accordance with the Spillage Action Plan at Appendix B.

4.1.4 Failure to Contain Firewater

The risk of fires related to the delivery of materials is considered to be low due to no naked flames or fire sources being permitted in the fuel compound. In the event of a fire involving fuel this will be dealt with by the Fire Brigade. For fuel fires water will not be used to extinguish it. As such no firewater is envisaged.

4.1.5 Making Wrong Connections to Drains or Other Systems

There are no alternative connections for the delivery of fuel and as such there is no potential to make wrong connections.

4.1.6 Preventing Incompatible Substances Coming into Contact

Chemicals and oils will be stored in a manner where they will not come into contact with one another. The flocculants, coagulants and anti-foam agents envisaged are not likely to react if they come into contact with each other.

4.1.7 Unwanted Reactions or Runaway Reactions

None expected for raw materials.

4.1.8 Vandalism

Security measures are in place and include padlocks for all access points to the fuel storage tanks. The security measures are designed to prevent unauthorised access.

4.2 General Site Operations

4.2.1 Transfer of Substances

Substances such as oils and other fluids for the maintenance of site plant will be handled by trained plant operatives. In the event of a spillage this will be dealt with in accordance with the Spillage Action Plan at Appendix B.

4.2.2 Overfilling of Vessels

Should any spillages occur due to overfilling any tanks during plant maintenance then these will be dealt with in accordance with the Spillage Action Plan at Appendix B.

4.2.3 Failure of Plant and Equipment

Should any failure of any of the systems on the site plant occur there is likely to be a spillage of fluid (e.g. hydraulic oil). This will be dealt with in accordance with the Spillage Action Plan at Appendix B.

4.2.4 Failure of Containment

Should the containment system be damaged by the operation of plant, repairs will be carried out at the earliest opportunity.

4.2.5 Failure to Contain Firewater

In the event of a non-fuel related fire in the infrastructure area this is likely to be dealt with using water. Firewater would be discharged into the landfill as all infrastructure is contained within the landfill containment areas. For a fire on the landfill site any water used to control the fire would be contained within the engineered containment system and if necessary will be recirculated as leachate into the waste mass.

4.3 Waste Acceptance

4.3.1 Preventing Incompatible Substances Coming into Contact

All haulers bringing waste onto the site will be Registered Waste Carriers and will submit accurate descriptions of the waste stream in accordance with the Duty of Care Regulations at the weighbridge. In addition, wastes will be visually checked to ensure they conform to the Duty of Care description as described in the Waste Acceptance Procedure.

Use of radios between the weighbridge and working face, where further inspection of deposited loads will occur, will allow for efficient communication, and ensure that only non-hazardous and compatible wastes are deposited in the landfill area. If the load does not comply with the description it will be rejected. In the event of a non conforming load being deposited with other waste it will be dealt with in accordance with the following waste rejection procedure:

- Any non-conforming waste found will be removed and stored in a secure quarantine area prior to disposal off site at an appropriately authorised facility. A record shall be kept in the site diary of all rejected wastes;
- If the carrier's vehicle is still present, the waste will, wherever possible, be reloaded back onto the carrier's vehicle;
- If the carrier has departed the site, and if it is considered safe to do so, the waste will be loaded into a container (if necessary) and placed in the quarantine area pending the outcome of further investigations. If waste is confirmed as not being permitted for disposal at the landfill, the waste will

be directed to an alternative facility. If necessary, the waste will be repackaged, and in the case of Hazardous Waste a consignment note will be raised;

- Wherever possible, rejected waste will be removed from the landfill within 24 hours and within 5 working days of receipt from the quarantine area at the installation. However, sampling and analysis of wastes, identification of suitable disposal facilities, and the requirements of the Hazardous Waste Regulations may result in the waste being stored for a longer period prior to removal from the installation, in which case Natural Resources Wales will be notified in accordance with the Permit;
- An incident report will be raised which will be cross reference in the site diary. This will include the following details:
 - date and time;
 - producer details;
 - carrier details;
 - Duty of Care transfer note reference number;
 - description of waste;
 - volume of waste;
 - European Waste Catalogue (EWC) code;
 - non conforming waste;
 - samples taken;
 - details of communication with Natural Resources Wales (time, name of NRW office); and
 - actions agreed and taken.
 - Unwanted Reactions and/or Runaway Reactions

The waste acceptance, rejection and quarantine procedure will prevent incompatible substances coming into contact which will prevent the possibility of unwanted or runaway reactions taking place within the waste.

4.4 Waste Handling

4.4.1 Transfer of Substances

Loads of waste will only be deposited within the engineered containment area or stored in the quarantine area. Measures are in place to ensure that the weighbridge operative and the operative at the working face communicate by radio when there is a load which requires any special tipping requirements.

Wastes which are dusty, malodorous or difficult¹ in nature will be placed at the bottom of the working face and covered over immediately with general waste to prevent aerial emissions. Should any accidental deposits of difficult wastes occur on the tipping area they will be immediately covered with general waste. A stock of suitable soils will be located near the tipping face for use as cover.

These measures, along with the litter netting system are designed to prevent waste from escaping the site.

4.4.2 Failure of Containment

The emplacement of waste will be in layers deposited in maximum 2.0m lifts and compacted using a purpose designed waste compactor vehicle. A maximum waste slope of 1v:3h will be formed at the working face. The banksman will be in attendance to ensure that loads are not deposited outside of the containment area.

4.4.3 Preventing Incompatible Substances Coming into Contact

Only non-hazardous wastes are allowed at the site. Reference will be made to Duty of Care documentation to ensure that incompatible substances are not deposited in close proximity to each other. The site operative at the working face will be notified of difficult loads by radio from the weighbridge. Appropriate areas for the deposit of difficult wastes will be identified by tip face personnel to prevent deposition of incompatible substances. Any wastes tipped which are subsequently found to differ from their description will either be reloaded into the vehicle or moved to another area of the site for disposal.

4.4.4 Unwanted reactions and/or Runaway Reactions

In accordance with the requirements of the Landfill Directive, the landfill will be permitted to accept non hazardous waste only. All loads are inspected prior to deposit and difficult loads overseen by banksman. Any loads which are on fire or appear to be hot will be examined in the quarantine area and if not suitable will be rejected. Should any material start reacting with other wastes it will be excavated and placed on an area covered with suitably soils and Natural Resources Wales will be informed.

4.4.5 Fire

The following measures will be employed to minimise the risk of fires during waste handling:

- site security to prevent unauthorised access;
- prompt emplacement, compaction and covering of wastes in well-defined cells;

¹ the term 'difficult waste' has no statutory definition but for the purposes of this application it covers non hazardous wastes, the handling or disposal of which calls for additional procedures because of their physical characteristics, for example wastes with the potential to generate excessive amount of litter or dust.

- prompt capping of completed areas; and
- prevention of air ingress in to the waste and gas extraction and collection systems.

Waste acceptance procedures will preclude the acceptance of hot or reactive wastes. No fires will be allowed on site and no wastes burnt. Any fire will be treated as an emergency.

Any fires will be notified to the Fire Brigade and extinguished as soon as possible. The burning area / waste will be isolated and attempts will be made to extinguish the fire using the on-site fire extinguishers and water bowser. All fires will be reported to Natural Resources Wales as soon as practicable.

Records of fires and the ensuing investigations and findings will be kept on site and reported in the annual environmental report together with a summary of the remedial actions taken.

4.4.6 Vandalism

Waste will be covered in accordance with the Operational Plan and litter fences picked of any significant amounts of litter. Vandalism to the litter netting system would not allow waste to leave the site as litter. Fencing would be inspected and repaired in accordance with the inspection and repair schedule detailed in the Operations Plan.

4.5 Landfill Gas

4.5.1 Failure of Plant and Equipment

The landfill gas extraction scheme will be supplied with mains electricity and be specified to provide a number of failsafe mechanisms to prevent the landfill gas flare and electricity generators operating in an unsafe manner. The landfill gas management system will be installed and operated by fully trained staff. There is a schedule of inspections of the system along with a comprehensive monitoring scheme designed to detect any failures of the system.

The inspection/monitoring regime will show any problems such as condensate build up in the collection and carrier pipework or any leaks in the pipework. Leaks are likely to be shown as high O₂ concentrations in the collection systems when high O₂ has not been detected in the landfill gas extraction points.

The landfill gas extraction system will automatically shut down under the following circumstances:

- 1. The flare goes out and the auto ignition cannot re-light the flare in three attempts;
- 2. The O₂ concentration exceeds 4%; or
- 3. There is a power failure.

In the event of any of the above occurring, the telemetry system will call a specialist contractor who will respond to the incident.

The gas collection system has been designed so that if an area becomes blocked or filled with condensate that area can be isolated allowing the rest of the system to operate whilst the nature of the problem is identified and remedied. Condensate adjacent to the landfill area will be discharged back into the waste mass. Inspection chambers will be installed around the knock out pots to allow for maintenance. Condensate from the carrier system will drain by gravity to the flare compound where it will be pumped into the waste mass.

Should any of the pipework fail there is the potential for relatively small quantities of condensate to be discharged to the surrounding land. Any pipe failures are likely to trigger the alarms as they would also show an increase in O₂ at the flare or generator. The gas extraction system is also visually inspected on a daily basis and any flows of condensate from the vicinity of the pipe runs would be noted and investigated further.

If the power supply to the site fails out of hours, the site manager will be notified. The electricity supply company will be contacted and a timescale for reinstatement of the power determined. If the reinstatement of the power supply is likely to exceed 12 hours then a suitable generator will be hired to power the flare.

If additional landfill gas extraction capacity is required for a particular area of the site in order to control landfill gas migration then a mobile flare will be considered. Natural Resources Wales will be notified if landfill gas in external monitoring boreholes exceeds the trigger levels.

4.5.2 Making Wrong Connections to Drains or Other Systems

The landfill gas system is self-contained except for the pumped discharge of condensate back to the waste mass. Only fully trained personnel with the correct authorisation will make any connections to the discharge systems in accordance with prepared risk assessments. All drain connections will be clearly identified.

4.5.3 Vandalism

In addition to the site perimeter security fence, the flare and generation compound have 2.0m high steel palisade fencing installed to prevent unauthorised access. There will also be a mobile security patrol presence and CCTV cameras when the site is closed.

Any vandalism which damages the pipework is likely to lead to air ingress which will result in an automatic shut down of the system. All permanent pipework will be buried and all control valves outside secure compound will be locked. All fittings used will be designed to require tools to remove and be tightened to prevent hand operation/removal.

4.6 Leachate Treatment

4.6.1 Transfer of Substances

Leachate will be pumped out of the extraction points, and then transferred by a pipeline to the point of disposal to sewer. The leachate collection system will be inspected in accordance with the Operations Plan requirements to ensure that it has not been damaged.

4.6.2 Failure of Containment

Leachate treatment systems, when required, will be situated within the landfill engineered containment area. Leachate levels are checked regularly and heads are maintained below agreed trigger levels. The risk assessments show that it would be most unlikely for this primary containment to fail.

The condition of leachate storage tanks and treatment area will be checked daily and a note of the inspection made in the site diary.

4.6.3 Failure to Contain Firewater

In the event of a fire within the leachate treatment compound the most likely effect would be part treated leachate to escape into the landfill. In this event any fire is likely to be put out without the need for additional fire fighting water.

4.6.4 Making Wrong Connections to Drains or Other Systems

When established, the point of entry into the foul sewer will be identified with a sign. As the pipework is permanent and constructed under strict CQA, new pipework would be required to connect any other parts of the system to the sewer.

4.6.5 Preventing Incompatible Substances Coming into Contact

Only small quantities of dosing chemicals will be to be used and then only by trained personnel. All chemicals will be stored in a secure locker and be fully labelled in compliance with site COSHH procedures. Any substances which could react with each other will be stored in different areas of the store.

4.6.6 Emission of an Effluent before Adequate Checking of its Composition

The discharge of leachate will be continuously monitored as described in the Leachate Treatment Operational Plan and procedures. In the event of a parameter exceeding the discharge consent level the discharge will be closed down. This will signal an alarm and will be investigated. Treated leachate will not be discharged until it is within the consented quality.

4.6.7 Vandalism

The leachate treatment tank is situated within the main landfill area that is fenced to prevent unauthorised access. In addition, if circumstance dictates the need, there will be intruder alarms and/ or a roaming security patrol and/ or CCTV during the hours when the site is closed. All permanent pipework will be buried and all control valves outside secure compound will be locked. All fittings used will be designed to require tools to remove and be tightened to prevent hand operation/ removal.

5. Identification of Receptor at Risk

An assessment of the potential receptors at risk from the proposals has been carried out by way of the production of a number of accident risk assessments, as detailed below.

5.1 Assessment of Risks

An assessment of risks from accidents occurring at the site using the source – pathway- receptor model has been completed as part of the H1 Amenity and Health Risk Assessment in support of the Environmental Permit application (AMEC Report ref: 30030/R4170). A copy of this assessment in respect of accidents can be found at Appendix A. The assessment lists each potential accident associated with the operation of the landfill, all potential source-pathway-receptor linkages, impacts, mitigation measures and overall risk assessment.

5.2 Accident Risk Reduction Techniques

There is a comprehensive Health and Safety Policy in place for operations. A company Health and Safety officer will carry out regular checks and audits to ensure compliance with this document.

The Health and Safety Manual includes procedures to ensure that staff are trained for their role and that they undertake their duties in a safe manner. A procedure for Reporting Accidents and Dangerous Occurrences Investigations, details the steps that the company will undertake in the event of an accident. Forms will be used to investigate any incidents and include an analysis of why the accident occurred and preventative measures to be taken in the future. For any preventative measures required this may involve reviewing the health and safety manual for the site or the group.

The emphasis of the system is accident prevention and where accidents do occur lessons will be learned and procedures developed to reduce the risk of accidents occurring in the future. In order to achieve this health and safety inspections will be carried out as described in Quality Assurance Procedures. Information from the safety inspections will be used to provide statistical information which is presented to the Board of Directors. This will be used to ensure that health and safety and working practices are kept under constant review.

5.3 Spillage Action Plan

5.3.1 Introduction

A Spillage Action Plan is provided at Appendix B which details the actions, recording and reporting of any spillages which take place within the confines of the site.

6. Investigation

All near misses and accidents will be investigated thoroughly by the site manager as soon as possible after the event has been recorded. Any corrective measures deduced to be appropriate to prevent re-occurrence will be implemented as soon as possible after the investigation and any WI procedures updated and amended accordingly.

Any environmental complaints received shall be handled initially by the Site Manager who shall carry out an initial investigation. All environmental complaints shall be recorded in the site diary and a report made to the General Manager. All Environmental Complaints shall be recorded, and reported in the Annual Environmental Audit.

The annual environmental audit will include a review of all accident and near miss records and comment on the remedial or corrective actions taken and implemented.

7. Reporting

All accidents will be recorded on the Accident and Incident Recording Form (Appendix B) as part of the site operational management system. The Annual Environmental Audit will record and report summary information about accidents, near misses, non-compliance, complaints and incidents and make an assessment of the follow up actions. The Audit Report will be sent to the Site Manager, the General Manager, the RJS Managing Director and a copy be made available for the site operatives.

Any notifiable incidents will be reported to Natural Resources Wales as soon as reasonably practicable after the event with details of the incident, the action taken and the remedial and follow up action to be taken.

Appendix A

Assessment of Risks

Table A1 Accidents with Potential Environmental Consequences

Hazard	Location	Receptor	Pathway	Probability of Exposure	Consequence	What is the Overall Risk?	Risk Management	Residual Risk
Loss of containment or spillage of fuel oil. Including over filling and transfer of fuel oil.	Possible contamination of land, surface and groundwater.	Surface water/ groundwater	Direct run-off from site across ground surface, infiltration and via surface water drains.	Low – due to distance of surface water receptor and risk management measures.	Low – due to preventative measures in place	Low	All fuel storage tanks will be bunded and spill kits will be kept on site. The surface water lagoon will have a cut off valve to isolate the system in the event of a spill. Action Plans and mitigation measures are outlined in the EMS. The Site Manager will be responsible for implementing risk management measures.	Negligible to Low
Build up of landfill gas and migration - explosions	Operational and restored areas	Receptors as listed in Table 2.1 and shown in drawing 30030/EISD/13B	Land, Air	Low – due to procedures in place	Harm and nuisance to local population, emergency services and site staff.	Low	Operating procedures will be in place to minimise the potential for explosions on site which would restrict the severity to a maximum. The operation and maintenance of active gas extraction and management systems will be carried out as described in the LFGRA. The Site Manager will be responsible for implementing risk management measures.	Negligible to Low
Major breach of the landfill liner during the installation of the liner	Groundwater	Groundwater	Land – leakage of leachate: pollution of groundwater and leakage of landfill gas.	Low – due to mitigation practices in place.	Harm and nuisance to local population, emergency services and site staff.	Low	Any defects will be detected during the installation phase and damaged sections will be removed and replaced. A robust engineering design will be supported by liner installation in the CQA procedures.	Negligible to Low

Table A1 (continued) Accidents with Potential Environmental Consequences

Hazard	Location	Receptor	Pathway	Probability of Exposure	Consequence	What is the Overall Risk?	Risk Management	Residual Risk
Major breach of installation liner during the placement of waste	Groundwater	Groundwater	Land – leakage of leachate; pollution of groundwater and leakage of landfill gas.	Low – due to mitigation practices in place.	Harm and nuisance to local population, emergency services and site staff.	Low	Minimise leachate heads in affected cell Inspect visible liner for any signs of problems Revise liner design to increase robustness Inspect waste mass to look for signs of instability or inappropriate waste deposits Agree remedial measures with Environment Agency The Site Manager will be responsible for implementing risk management measures.	Negligible to Low

Table A1 (continued) Accidents with Potential Environmental Consequences

Hazard	Location	Receptor	Pathway	Probability of Exposure	Consequence	What is the Overall Risk?	Risk Management	Residual Risk
Subsidence and landslides	Operational and restored areas	Receptors as listed in Table 2.1 and shown in drawing 30030/EISD/13B	Land	Low – due to mitigation design features and contingency plans	Harm and nuisance to local population, emergency services and site staff.	Low	Regular topographical surveys will be carried out at least annually to assess settlement and compare the results against design assumptions. Visual inspection will also be carried out weekly to look for signs of instability or differential settlement. Leachate levels will be monitored at least monthly to check for any sudden unexplained drop in levels. In the event that stability or settlement problems are discovered, appropriate remedial action will be taken. Measures will include: -reducing leachate heads, -reduction of waste gradients, -adjustment of phasing to allow slopes to be remediated, engineering work to increase factors of safety, supporting earthworks, The Site Manager will be responsible for implementing risk management procedures.	Negligible to Low

Table A1 (continued) Accidents with Potential Environmental Consequences

Hazard	Location	Receptor	Pathway	Probability of Exposure	Consequence	What is the Overall Risk?	Risk Management	Residual Risk
Fire – Landfill	Operational and restored areas	Groundwater and local air quality	Air transport of smoke, spillages and contaminated firewater by direct run off from site and via surface water drains.	Low – due to mitigation practices in place.	Harm and nuisance to local population, emergency services and site staff.	Low	All completed areas of the landfill will be capped as soon as practicable. Any fires will be notified to the Fire Brigade and extinguished as soon as possible. The burning area / waste will be isolated and attempts will be made to extinguish the fire using the on-site fire extinguishers and water bowser. All fires will be reported to Natural Resources Wales as soon as practicable. The Site Manager will be responsible for implementing risk management measures.	Negligible to Low
Vandalism/unauthorised access causing loss of containment or fire.	Non specific		Land, Air.	Low – due to mitigation practices in place.	Harm and nuisance to local population, emergency services and site staff. Contamination of land and surface water.	Low	The site will be securely fenced and security lighting used. Security measures are in place and include padlocks for all access points to the fuel storage tanks. The security measures are designed to prevent unauthorised access. Any signs of vandalism will be investigated and any repairs required will be carried out as soon as practicable and within a suitable timescale to prevent any impact on the environment. The Site Manager will be responsible for implementing risk management measures.	Negligible to Low

Table A1 (continued) Accidents with Potential Environmental Consequences

Hazard	Location	Receptor	Pathway	Probability of Exposure	Consequence	What is the Overall Risk?	Risk Management	Residual Risk
Flooding	Surface water	Land and surface water	Flood waters over land	Low	Contaminated flood waters may contaminate buildings and land.	Minor	In order to reduce the risk and minimise the potential impact of flooding offsite, RJS will employ the following measures: - RJS would register to receive flood alerts from Natural Resources Wales' existing service. - Check weather conditions daily for any adverse weather conditions, storm events; - Make weekly inspections of the surface water management system for any signs of damage or blockages and clear where necessary. In the event of an incident or event that could potential lead to flooding offsite or in the event of receiving a flood alert from Natural Resources Wales, RJS will employ the following measures: - Pumping from the attenuation lagoon will be reduced to the existing consented rate of 14 l/s for the duration of the Flood Alert or event, or - Reduced to zero if Natural Resources Wales deemed it necessary to ensure the safety of people located downstream.	Negligible to Low

Appendix B

Spillage Action Plan

Objective

The objective of this procedure is to ensure that any spillages which occur are dealt with promptly in a safe manner which will reduce the environmental impact to a minimum and that they are reported properly.

In order to achieve this, the nature and quantity of the spilled material needs to be established. The procedure is split into different categories and it is essential that the incident is assessed quickly and the appropriate response is taken. This should be done in accordance with the Health and Safety Policy and the company environmental policy and having regard for COSHH data for the spilled substance (if applicable).

This procedure covers response, cleanup, and reporting for all types of spills. It applies to all workers discovering and responding to spills and their managers at the site.

Procedure

Emergency Spills - A spill is an emergency when it poses a serious threat to human health or the environment. In the event of discovering an emergency spill, the actions specified in Table B1 should be taken:

Table B1 Category 2 Spillage Actions – Minor Spillage of Fuel, Oils and Coolants more than 1 litre

Area	Action
Fuel Storage Compound	Use absorbent booms and absorbent granules as directed by the manufacturer. Create earthwork bunds where necessary. Call out specialist contractor or if there is a fire risk call the Fire Brigade.
Flare and Generator Compound	Assess fire risk. If the risk is greater than low then switch off the flare and generator. Use absorbent booms and granules as directed by the manufacturer. Create earthwork bund if necessary to prevent discharge to other parts of the site or to surface water course. Call out a specialist contractor or if there is a risk of fire call the Fire Brigade.
Leachate Treatment Compound	If the spillage is likely to enter the leachate treatment discharge area then close off the discharge point and shut down the leachate collection system to prevent overflows. Use absorbent booms and absorbent granules as directed by the manufacturer. Call out a specialist contractor or if there is a risk of fire call the Fire Brigade.
General Infrastructure Area and Site Roads	Stop traffic entering the area of the spillage. Assess the fire risk and if necessary call the Fire Brigade. Assess whether or not the spillage is likely to enter any watercourse. Where this is likely place absorbent boom(s) at locations in the watercourse to prevent any spillage spreading. Use absorbent booms and granules as directed by the manufacturer or call out a specialist contractor.
Within Landfill Containment Area	Whilst it is likely that any spillage will soak into the waste any excess should be dealt with by placing absorbent granules on the spillage as directed by the manufacturer. If the fire risk is considered to be high then the Fire Brigade should be called.
Anywhere else within the landfill boundary	Assess the likelihood of the spillage entering a watercourse. If there is potential for the spillage to enter a watercourse then place absorbent boom(s) at locations in the watercourse to prevent any spillages spreading. Use absorbent booms and granules as directed by the manufacturer. Call out a specialist contractor or if there is a risk of fire call the Fire Brigade. Create bunds or ditches to catch the spillage.

In all cases of a major spill, the following actions should also be taken:

1. Contact Natural Resources Wales and report the incident immediately;
2. Wear appropriate personal protective equipment (PPE) having regard to COSHH data;
3. Store all wastes and clean up materials in a suitable container on an impermeable surface for removal to an appropriately permitted facility;
4. Clean down affected areas (if applicable) disposing of all waste waters to a suitable disposal facility.
5. Always follow the site safety rules.

Non-Emergency spills - A spill is a non-emergency when it is not life threatening and will not result in serious environmental damage. In the event of discovering an emergency spill, the actions specified in Table B2 should be taken:

Table B2 Category 1 Spillage Actions – Minor Spillage of Fuel, Oils and Coolants less than 1 litre

Area	Action
Fuel Storage Compound	Use absorbent granular materials and collect for disposal. Ensure that compound is cleaned.
Flare and Generator Compound	Use absorbent granular materials and collect for disposal. Ensure that the compound area is cleaned.
Leachate Treatment Compound	Use absorbent granular materials and collect for disposal.
General Infrastructure Area and Site Roads	Use absorbent granular material or an absorbent boom to prevent the spread of the spill. Clean the area and put out a sign to warn drivers that the surface is slippery. Collect the absorbent materials and booms for disposal.
Within Landfill Containment Area	If the spillage takes place on uncovered waste it is not possible to absorb the spillage. If the spillage takes place on an area that has been covered ensure that the spilled material is surrounded by a temporary bund to prevent escape. Use absorbent granules and then collect them for disposal.
Anywhere else within the landfill boundary	Form a temporary bund to prevent escape. If the spillage enters a watercourse then place an absorbent boom downstream.

In all cases of a minor spill, the following actions should also be taken:

1. Wear appropriate personal protective equipment (PPE) ;
2. Store all wastes and clean up materials in a suitable container on an impermeable surface for removal to an appropriately permitted facility;
3. Always follow the site safety rules.

Reporting

All emergency spills should be reported to the site operator and Natural Resources Wales. All non emergency spills should be reported to the site operator.

Forms

Following the incident complete the necessary paperwork noting that the escape of 1000 litres of any flammable substance or pathogen will require a R.I.D.D.O.R. report. When the spillage incident is under control the Accident and Incident Form should be completed. The form will be used to assess why the spillage occurred and whether or not the action taken was successful. In the light of this assessment process changes will be made to the spillage procedure and equipment available on site.

Accident and Incident Record Form

Date and time of the incident:	
What happened; what was it about?	
Was anyone else aware of this – other witnesses? If so, who?	
What caused it?	
What action did you take to fix the problem? Were external agencies involved?	
What have you done to make sure that it does not happen again?	
Was there any significant pollution? For example: oil entering a surface water drain. If so, what?	

If there was, then you must notify Natural Resources Wales on 0800 807060 ASAP. Have you done so?

Yes/No/not applicable

Time:

Date:

NRW Incident number:

Please print your name and sign