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1 Introduction

1.1 General

Grundon Waste Management Limited (the 'applicant') has requested that Reva Environmental Ltd (the 'agent') prepares an Environmental Permit (EP) variation application, for its Avonmouth MBT Facility at Kings Weston Lane, Avonmouth, Bristol, BS11 9FG.

1.2 Validation Process

The application has been picked up for an initial validation check, and the EA has asked that the application should identify all of the hazardous substances currently used and assess their likelihood for potential pollution risk. We have followed the steps in the EU Guidance concerning baseline reports (Article 22(2) of 2010/75/EU) and generated this review which should be read in conjunction with the other documentation in Appendix H of the variation application.

2 Review of Hazardous Substances

2.1 Scope

Article 22(2) of the EU Guidance specifies that a baseline report should contain at least the following:

- Information on the present use and, where available, on past uses of the site; and
- Where available, existing information on soil and groundwater measurement that reflect the state at the time the report is drawn up, or alternatively, new soil and groundwater measurements having regard to the possibility of soil and groundwater contamination by those hazardous substances to be used, produced or released by the installation concerned.

With respect to the past use of the site, this is addressed in the information provided in Appendix H, and the H5 Form and validation strategy documents provided in response to the validation request.

Hazardous substances are defined as being "substances or mixtures as defined in Article 3 of Regulation (EC) No. 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures."

2.2 Identification of Hazardous Substances

The EU Guidance notes the need for a baseline report to be drawn up 'where an activity involves the use, production or release of relevant hazardous substances.'

For the Avonmouth II Facility, the processes are all waste transfer and treatment. Nothing is 'produced'. The scope of this review is therefore limited to the hazardous wastes being received at the site, and any potential emissions or residues from the process of those wastes. There are no treatment processes that require the addition of hazardous substances as raw materials.

No fuel is stored on site; the fuel tank will be in the car park away from the facility, and outside the EP boundary.

Wastes are listed in Appendix J of the variation application, by EWC code, and are identified by which proposed listed activity/waste operation/DAA will be applied to them. Some 400 of these entries are 'absolute hazardous' entries.

Whilst these are all included in Appendix J as possible wastes that could and would be accepted at the site, it is noted that quantities are likely to be small of any one individual EWC code. The pre-acceptance and acceptance procedures that will be followed will enable the operator to identify the waste by hazard classification and waste streams of the same classification will be stored and processed together, noting the need for separation where mixing could cause reactions, and noting

any other specific storage and handling requirements needed to safely manage the incoming waste stream.

2.3 Relevant Hazardous Substances

Article 3 of the CLP Regulations (1272/2008) refers to Annex I of the same document, for a list of substances that are defined by their hazard classification.

As noted in 2.2 above, Grundon will accept, store, and process waste by type but also by hazard classification. Storage bays will be defined by hazard classification. For this reason, this review considers the waste stream by hazard classification.

Table 1 details the hazardous waste that will be 'used' at the facility.

Table 1: Relevant Hazardous Substances

CLP Regulations – Annex I Definition	Hazard Code(s)	Present Y/N?	Source
Explosives	H200, H201, H202, H203, H204, H205	Y	Incoming waste stream Multiple EWCs examples (not exhaustive) - 19 02; 16 03; 16 05
Flammable gases	H220 and H221	Y	Incoming waste stream Multiple EWCs examples (not exhaustive) – 19 02; 16 05
Flammable aerosols	H222 and H223	Y	Incoming waste stream Multiple EWCs examples (not exhaustive) – 19 02; 16 05
Oxidising gases	H270	Y	Incoming waste stream Multiple EWCs examples (not exhaustive) – 19 02; 16 05
Gases under pressure	H280 and H281	Y	Incoming waste stream Multiple EWCs examples (not exhaustive) – 19 02; 16 05
Flammable liquids	H224, H225 and H226	Y	Incoming waste stream Multiple EWCs examples (not exhaustive) – 08 01; 13 07; 19 02; 16 05; 14 06; 16 03; 16 05
Flammable solids	H228	Y	Incoming waste stream Multiple EWCs examples (not exhaustive) – 19 02; 08 01; 13 07; 16 05; 16 03; 16 05
Self-reactive substances and mixtures	H240, H241, and H242	Y	Incoming waste stream Multiple EWCs examples (not exhaustive) – 19 02; 16 05

Pyrophoric liquids	H250	Y	Incoming waste stream Multiple EWCs examples (not exhaustive) – 19 02; 16 05
Pyrophoric solids	H250	Y	Incoming waste stream Multiple EWCs examples (not exhaustive) – 19 02; 16 05
Self-heating substances and mixtures	H251 and H252	Y	Incoming waste stream Multiple EWCs examples (not exhaustive) – 19 02; 16 05; 15 02
Substances that emit flammable gases when in contact with water	H260 ad H261	Y	Incoming waste stream Multiple EWCs examples (not exhaustive) – 19 02; 16 05
Oxidising liquids	H271 and H272	Y	Incoming waste stream Multiple EWCs examples (not exhaustive) – 19 02; 16 09; 16 05; 16 03; 08 04
Oxidising solids	H271 and H272	Y	Incoming waste stream Multiple EWCs examples (not exhaustive) – 19 02; 16 09; 16 05; 16 03; 08 04
Organic peroxides	H240, H241 and H242	Y	Incoming waste stream Multiple EWCs examples (not exhaustive) – 19 02; 16 09; 16 05; 16 03; 08 04
Substances corrosive to metals	H290	Y	Incoming waste stream Multiple EWCs examples (not exhaustive) – 19 02; 06 01; 06 02; 16 05; 16 03

2.4 Assessment of Potential for Contamination

For each of the groups that have been identified as relevant to the facility, in Table 1 above, an assessment has been made of the actual possibility for soil or groundwater contamination.

This is summarised in Table 2 which considers the quantities likely to be stored/processed, where they will be stored, how they will be handled, where they pose a risk of release, and the pollution prevention measures that are in place to mitigate this. To keep the table as simple as possible, it is noted that the 'use' for all those listed are their presence as accepted waste streams. In addition, the

release risk for all those listed is from the storage and loading/unloading of the waste stream and would result from accidental spillage/fugitive release.

Table 2: Potential for Contamination

CLP Regulations – Annex I Definition	Maximum stored on site (t)	Storage arrangements	Handling	Pollution prevention measures	Pollution risk Y/N
Explosives	<1	Will be stored within a cabinet within the lab smalls area Following site acceptance checks	Moved by forklift, remains in original container.	Site acceptance checks. Stored in a cabinet within the lab small area. Only very small quantities will be stored on site. Stored in appropriate UN approved containers within the building. Each storage bay is sloped to the rear to capture a minimum of 1100 litres. Daily Environmental checks to be carried out to ensure the integrity of the containers. ATEX rated equipment to be used within the localised area. Fire detection and prevention in place. Unloading is within the building, management controls in place. Impermeable hardstanding within the building, sealed drainage for fire waters. No link to site drainage system. Weekly Inspection programme on the floor surface with an annual CQA inspection	N
Flammable gases	10	Cylinders will be stored within cages or in transportable 1 m^3 tanks Following site acceptance checks	Secured and moved by forklift, remains in original container.	Site acceptance checks Stored in a cabinet within the lab small area or in cylinder cage within a storage bay. Stored in original containers and within appropriate UN approved containers (if required) within the building. Each storage bay is sloped to the rear to capture a minimum of 1100 litres.	N

CLP Regulations – Annex I Definition	Maximum stored on site (t)	Storage arrangements	Handling	Pollution prevention measures	Pollution risk Y/N
				ATEX rated equipment to be used within the localised area. Daily Environmental checks to be carried out to ensure the integrity of the containers. Fire detection and prevention in place. Unloading is within the building, management controls in place. Impermeable hardstanding within the building, sealed drainage for fire waters. No link to site drainage system. Weekly Inspection programme on the floor surface with an annual CQA inspection	
Flammable aerosols	10	Stored within storage bays with meshed roof and doors Following site acceptance checks	Moved by forklift, remains in original container. Manually screened before storage	Site acceptance checks Stored in storage bays within the storage building. The bays will have meshed roof and doors to prevent any projectiles within the building – fire detection and prevention in place. Each storage bay is sloped to the rear to capture a minimum of 1100 litres. ATEX rated equipment to be used within the localised area. Daily Environmental checks to be carried out to ensure the integrity of the containers. Unloading is within the building, management controls in place. Impermeable hardstanding within the building, sealed drainage for fire waters. No link to site drainage system. Weekly Inspection	N

CLP Regulations – Annex I Definition	Maximum stored on site (t)	Storage arrangements	Handling	Pollution prevention measures	Pollution risk Y/N
				programme on the floor surface with an annual CQA inspection	
Oxidising gases	<1	Cylinders will be stored within cages in accordance with HSG71 Following site acceptance checks	Secured and moved by forklift, remains in original container.	Site acceptance checks Stored in a cabinet within the lab small area or in cylinder cage within a storage bay. Stored in original containers and within appropriate UN approved containers (if required) within the building. Each storage bay is sloped to the rear to capture a minimum of 1100 litres. ATEX rated equipment to be used within the localised area. Daily Environmental checks to be carried out to ensure the integrity of the containers. Fire detection and prevention in place. Unloading is within the building, management controls in place. Impermeable hardstanding within the building, sealed drainage for fire waters. No link to site drainage system. Weekly Inspection programme on the floor surface with an annual CQA inspection	N
Gases under pressure	<1	Cylinders will be stored within cages in accordance with HSG71 Following site acceptance checks	Secured and moved by forklift, remains in original container.	Site acceptance checks Stored in a cabinet within the lab small area or in cylinder cage within a storage bay. Stored in original containers and within appropriate UN approved containers (if required) within the building. Each	N

CLP Regulations – Annex I Definition	Maximum stored on site (t)	Storage arrangements	Handling	Pollution prevention measures	Pollution risk Y/N
				storage bay is sloped to the rear to capture a minimum of 1100 litres. ATEX rated equipment to be used within the localised area. Daily Environmental checks to be carried out to ensure the integrity of the containers. Fire detection and prevention in place. Unloading is within the building, management controls in place. Impermeable hardstanding within the building, sealed drainage for fire waters. No link to site drainage system. Weekly Inspection programme on the floor surface with an annual CQA inspection	
Flammable liquids	49	Stored in individual bays in accordance with HSG71 Following site acceptance checks	Moved by forklift, remains in original container. Decanted manually for bulking	Site acceptance checks Stored in appropriate UN approved containers, within the building Each storage bay is sloped to the rear to capture a minimum of 1100 litres. Environmental checks to be carried out to ensure the integrity of the containers. ATEX rated equipment to be used within the localised area. Fire detection and prevention in place. Unloading is within the building, management controls in place. Impermeable hardstanding within the building, sealed drainage for fire waters. No link to site	N

CLP Regulations – Annex I Definition	Maximum stored on site (t)	Storage arrangements	Handling	Pollution prevention measures	Pollution risk Y/N
				drainage system. Weekly Inspection programme on the floor surface with an annual CQA inspection	
Flammable solids	49	Stored in individual bays in accordance with HSG71 Following site acceptance checks	Moved by forklift, remains in original container.	Site acceptance checks Stored in appropriate UN approved containers, within the building Each storage bay is sloped to the rear to capture a minimum of 1100 litres. Daily environmental checks to be carried out to ensure the integrity of the containers. ATEX rated equipment to be used within the localised area. Fire detection and prevention in place. Unloading is within the building, management controls in place. Impermeable hardstanding within the building, sealed drainage for fire waters. No link to site drainage system. Inspection programme.	N
Self-reactive substances and mixtures	<1	Will be stored within a cabinet within the lab smalls area in accordance with HSG71 Following site acceptance checks	Moved by forklift, remains in original container.	Site acceptance checks Stored in a cabinet within the lab small area. Only very small quantities will be stored on site. Stored in appropriate UN approved containers within the building. Each storage bay is sloped to the rear to capture a minimum of 1100 litres. Daily Environmental checks to be carried out to ensure the integrity of the containers.	N

CLP Regulations – Annex I Definition	Maximum stored on site (t)	Storage arrangements	Handling	Pollution prevention measures	Pollution risk Y/N
				ATEX rated equipment to be used within the localised area. Fire detection and prevention in place. Unloading is within the building, management controls in place. Impermeable hardstanding within the building, sealed drainage for fire waters. No link to site drainage system. Weekly Inspection programme on the floor surface with an annual CQA inspection	
Pyrophoric liquids	<1	Will be stored within a cabinet within the lab smalls area in accordance with HSG71 Following site acceptance checks	Moved by forklift, remains in original container. Decanted manually for bulking	Site acceptance checks Stored in a cabinet within the lab small area. Only very small quantities will be stored on site. Stored in appropriate UN approved containers within the building. Each storage bay is sloped to the rear to capture a minimum of 1100 litres. Daily Environmental checks to be carried out to ensure the integrity of the containers. ATEX rated equipment to be used within the localised area. Fire detection and prevention in place. Unloading is within the building, management controls in place. Impermeable hardstanding within the building, sealed drainage for fire waters. No link to site drainage system. Weekly Inspection programme on the floor surface with an annual CQA inspection	N

CLP Regulations – Annex I Definition	Maximum stored on site (t)	Storage arrangements	Handling	Pollution prevention measures	Pollution risk Y/N
Pyrophoric solids	<1	Will be stored within a cabinet within the lab smalls area in accordance with HSG71 Following site acceptance checks	Moved by forklift, remains in original container.	Site acceptance checks Stored in a cabinet within the lab small area. Only very small quantities will be stored on site. Stored in appropriate UN approved containers within the building. Each storage bay is sloped to the rear to capture a minimum of 1100 litres. Daily Environmental checks to be carried out to ensure the integrity of the containers. ATEX rated equipment to be used within the localised area. Fire detection and prevention in place. Unloading is within the building, management controls in place. Impermeable hardstanding within the building, sealed drainage for fire waters. No link to site drainage system. Weekly Inspection programme on the floor surface with an annual CQA inspection	N
Self-heating substances and mixtures	20	Will be stored within a cabinet within the lab smalls area in accordance with HSG71 Following site acceptance checks	Moved by forklift, remains in original container.	Site acceptance checks Stored in appropriate containers, within the building Each storage bay is sloped to the rear to capture a minimum of 1100 litres. Environmental checks to be carried out to ensure the integrity of the containers. Fire detection and prevention in place. Unloading is within the building, management controls in place. Impermeable hardstanding within the building,	N

CLP Regulations – Annex I Definition	Maximum stored on site (t)	Storage arrangements	Handling	Pollution prevention measures	Pollution risk Y/N
				sealed drainage for fire waters. No link to site drainage system. Weekly Inspection programme on the floor surface with an annual CQA inspection	
Substances that emit flammable gases when in contact with water	<1	Will be stored within a cabinet within the lab smalls area in accordance with HSG71 Following site acceptance checks	Moved by forklift, remains in original container.	Site acceptance checks Stored in a cabinet within the lab small area. Only very small quantities will be stored on site. Stored in appropriate UN approved containers within the building. Each storage bay is sloped to the rear to capture a minimum of 1100 litres. Daily Environmental checks to be carried out to ensure the integrity of the containers. ATEX rated equipment to be used within the localised area. Fire detection and prevention in place. Unloading is within the building, management controls in place. Impermeable hardstanding within the building, sealed drainage for fire waters. No link to site drainage system. Weekly Inspection programme on the floor surface with an annual CQA inspection	N
Oxidising liquids	20	Stored in individual bays in accordance with HSG71 Following site acceptance checks	Moved by forklift, remains in original container. Decanted manually for bulking	Site acceptance checks Stored in appropriate UN approved containers, within the building Each storage bay is sloped to the rear to capture a minimum of 1100 litres.	N

CLP Regulations – Annex I Definition	Maximum stored on site (t)	Storage arrangements	Handling	Pollution prevention measures	Pollution risk Y/N
				Environmental checks to be carried out to ensure the integrity of the containers. Fire detection and prevention in place. Unloading is within the building, management controls in place. Impermeable hardstanding within the building, sealed drainage for fire waters. No link to site drainage system. Weekly Inspection programme on the floor surface with an annual CQA inspection	
Oxidising solids	20	Stored in individual bays in accordance with HSG71 Following site acceptance checks	Moved by forklift, remains in original container.	Site acceptance checks Stored in appropriate UN approved containers, within the building Each storage bay is sloped to the rear to capture a minimum of 1100 litres. Environmental checks to be carried out to ensure the integrity of the containers. Fire detection and prevention in place. Unloading is within the building, management controls in place. Impermeable hardstanding within the building, sealed drainage for fire waters. No link to site drainage system. Weekly Inspection programme on the floor surface with an annual CQA inspection	N
Organic peroxides	5	Stored within the refrigeration unit Following site acceptance checks	Moved by forklift, remains in original container.	Site acceptance checks Stored in appropriate UN approved containers, within the refrigeration unit. Ensuring that the unit temperature is below the self-accelerating decomposition temperature (SADT) building.	N

CLP Regulations – Annex I Definition	Maximum stored on site (t)	Storage arrangements	Handling	Pollution prevention measures	Pollution risk Y/N
				Daily environmental checks to be carried out to ensure the integrity of the containers. ATEX rated equipment to be used within the localised area. Fire detection and prevention in place. Unloading is within the building, management controls in place. Impermeable hardstanding within the building, sealed drainage for fire waters. No link to site drainage system. Inspection programme.	
Substances corrosive to metals	30	Stored in individual bays in accordance with HSG71 Following site acceptance checks	Moved by forklift, remains in original container.	Site acceptance checks Stored in appropriate UN approved containers, within the building Each storage bay is sloped to the rear to capture a minimum of 1100 litres. Environmental checks to be carried out to ensure the integrity of the containers. Fire detection and prevention in place. Unloading is within the building, management controls in place. Impermeable hardstanding within the building, sealed drainage for fire waters. No link to site drainage system. Weekly Inspection programme on the floor surface with an annual CQA inspection	N

2.5 Comparison with Historical Data

The historical use of the site is detailed in the documents provided in Appendix H of the variation application, supplemented by the SCR (H5 form) and validation strategy report provided in response to the validation information request in July 2024.

The historical information for the site confirms it use by Britannia Zinc for the smelting of metals since the 1920s, with smelting operations ceasing in 2003. The works were dismantled, and the area used temporarily for the uncovered storage of feed and recycled materials from the smelting/refining processes. Caesium contaminated material was temporarily stored in the NW section and was partially remediated during the early 1990s. The site has been subject to several investigations, the most recent being in May 2009. That SI identified the presence of heavy metals (particularly cadmium, lead and arsenic) and caesium. This was in the made ground and remediation was undertaken in the form of providing a cover over the ground to eliminate the pollutant linkages. The cover was a 450 mm thick cover comprising suitable material, pavement and floor slabs (concrete).

New Earth Solutions took on the site and operated a mechanical biological treatment (MBT) plant, receiving and sorting municipal solid waste and composting the organic fraction to produce compost like output (CLO) for use on land.

With reference to the previous uses, it is considered that neither of them present possible pollution sources from hazardous substances that will be present on site for the proposed use. The heavy metals from Brittania Zinc are very specific (i.e. traceable) but have also been remediated by way of cover. This is not being impacted by the Grundon development. The municipal waste and MBT process operated by New Earth Solutions were all within the confines of the existing building and were non-hazardous.