Aggregate Industries UK Limited

Manor Farm Quarry, Washpool Lane, Kempsford.

Environmental Waste Recovery Permit: EPR/CB3934RB

Operating Techniques and Management System

October 2020 (Issue 3)

1.0 Site Description

1.1 Aggregate Industries (UK) Ltd owns and operates Manor Farm Quarry, Kempsford, Gloucestershire GL7 4NJ. The site is located at NGR SU168972.

1.2 The quarry comprises a processing plant, site offices and mineral stocking areas. In addition there are water management lagoons, soil storage areas, active mineral extraction and tipping operations.

1.3 Manor Farm Quarry lies approximately 8 km to the north of Swindon.

1.4 To the north of the quarry is the village of Fairford and to the west lies the village of Kempsford. Other compass points are dominated by arable land.

1.5 Planning Permission for the current operations including the importation of inert waste for restoration of the site was granted by Gloucestershire County Council on 20th February 2014 Ref No: ES.12/03/501MW.

2.0 Operating Techniques

2.1 The site is classed as a recovery operation.

2.2 In accordance with the extant Planning Permission, no tipping or site works are undertaken outside of the hours 0700 to 1900 hours Monday to Friday and 0800 to 1200 hours on Saturdays. No operations are undertaken on Sundays or Bank Holidays.

Waste Characterisation and Testing

2.3 In order to demonstrate acceptability of waste at the regulated facility, the three stages of waste acceptance will be followed:

- Basic characterization
- Compliance testing
- On site verification

2.4 Basic characterization will ensure that the waste is inert or be acceptable in line with the current HRA and Use of Total Soil Analyses as part of Soil Screening.

- Details of the waste source and origin.
- The applicable code for the waste under the EWC.
- Determination if the waste has any hazardous properties as determined by WM3.
- The process producing the waste (including description of the process, its SIC code and the characteristics of the raw materials).
- The waste treatment applied, or a statement of why treatment is not considered necessary.
- The appearance of the waste, including odour, colour, consistency and physical form.
- Confirmation of the level of testing required.
- Chemical analysis if required.
- Identification of any key variables for compliance testing for regularly generated wastes.
- Identification if the waste is suitable for use and that there will be no impact on the environment.
- Defined populations and sub populations.

2.5 Soils from greenfield sites will require analysis as demonstrated by Table .1 and OCPs from the POPs list, where the risk has been identified.

Additional Measures

(a) Use of a pH Range for Screening

Certain metals tend to become more mobile at more acidic conditions whereas others do so under more alkaline conditions. For this reason it is recommended that soils with pHs outside the range 6.0-9.0 are considered for WAC testing if their total soil concentrations exceed the 10th percentile total soil concentration screening limit.

(b) Use of the Total Soil Screen Values

There are three stages for checking the appropriateness to use imported soils for recovery:

- Basic characterisation;
- Compliance testing;
- On site verification.

It is recommended that the total soils screening values are used as part of basic characterisation to check those soils identified as potentially contaminated. Then:

- Soils which exceed the 10th percentile total soil concentration screening values should be monitored for their amounts (tonnes per year) and site management practices should avoid placement of large amounts in one concentrated area and / or over one concentrated period in time. This is a safeguard in case the actual Kds are as low as pessimistically assumed by these conservative 10%ile Kds.
- Soils which have pHs outside the range 6.0-9.0 and which exceed the 10th percentile total soil concentration screening values should be considered for WAC leaching tests where there is potentially a large amount of this material. Alternatively the relationship between pH and Kd for specific substances could be checked to see if leaching was likely worse below a pH of 6 or above a pH of 9.
- Soils which exceed the mean total soil screening concentration should be further evaluated using leaching tests or further desk studies (e.g. on solubility controls) to confirm their inert or not nature. The results from these tests should be used as part of checking (compliance testing) the continued suitability of the total soil screening values.

Site management procedures should report a rolling average concentration (pro-rata to tonnes received) for inert soils received against these two total soil concentration screening values.

(c) Note on Screening for Antimony, Barium, Chloride, Fluoride, Molybdenum and Selenium

It is noted that antimony, barium, chloride, fluoride, molybdenum and selenium total soils concentrations are not routinely tested by land developers as antimony, barium, molybdenum and selenium are not common contaminants and chloride concentrations are not typically high.
Rather than requiring all land developers to provide additional analyses, basic characterisation checks could be put in place to qualitatively screen out only those soils which are likely to have elevated concentrations of these substances. Such qualitative screening should take into account previous site activities (e.g. paper manufacture for barium). It should also make use of the UK Soil Observatory website (http://mapapps2.bgs.ac.uk/ukso/home.html - Soil Chemistry\NSI Topsoil) soil data which provides national mapping of many metal concentrations including antimony, barium, molybdenum and selenium as well as chloride (and sulphate). A post code can be entered onto this website to allow a check on concentrations (mg/kg) of these substances at a site.

Additional desk studies could also be considered. For example, the low solubility of barium sulphate likely means barium, even if present, would not leach at high concentrations if there are significant amounts of sulphate present in the soil.
A risk / likelihood for fluoride could also be developed based on likely prevalence of fluoride containing minerals (or calcium containing minerals which would reduce fluoride leachability).

(d) Note on Total Dissolved Solids

The WAC test total dissolved solids leaching limits can be used instead of the values of chloride and sulphate, so it is presumed it follows that if criteria (or equivalent) are met for chloride and sulphate then the criteria is also met for total dissolved solids.

(e) Note on Dissolved Organic Carbon

Dissolved organic carbon (DOC) contents are linked to leaching tests and so their concentrations are not routinely reported by land developers. Very conservatively, if total organic carbon contents are reported then these should be assumed to be leachable organic = dissolved organic carbon contents.
Where total organic carbon contents are not reported or where reported they are higher than the DOC WAC limit of 500 mg/kg then an approach based on the following could be developed:

- Basic characterisation to rule out the chance of contamination by organic chemicals (e.g. fuel spill, industrial site) or organic matter such as a manure mound;

- Check that whatever organic analyses are reported (e.g. total TPHs) are at concentrations below the WAC total soils concentrations;
- Check the UK Soil Observatory website (http://mapapps2.bgs.ac.uk/ukso/home.html) CS Topsoil concentration (mg/kg) at the developer's site is below the WAC total carbon soil limit of 30,000 mg/kg.

Further work may be needed to justify the likely leachability of the organic carbon. This could include developing a database of results from more comprehensive analysis of soils and their leaching tests allowing comparison of total organic carbon on soils and dissolved organic carbon for leaching tests.

(f) Note on PCBs Total Limit

It is noted that PCBs are not always analysed by land developers for their site. This is most likely because the consultants advising those developers have carried out a site characterisation of the site and ruled out the chance of PCBs being present.
Site protocols could carry out an independent review of the likelihood of the land developer's soils containing PCBs by checking against a list of possible PCB sources / land uses. For example Wikipedia (https://en.wikipedia.org/wiki/Polychlorinated_biphenyl) provides a list of applications of PCBs including transformer oil, hydraulic, lubricating and cutting oils, carbonless copy paper, plasticisers, flame retardants, sealants and adhesives.
Use of mineral oil limits to screen for possible other contamination including PCBs could also be included.

(g) Further Development of Total Soils Screening Values

Where leaching tests are carried out on those soils which exceed the total soil concentration mean screening value, then a database (spreadsheet) should be maintained to allow comparison of the total concentrations and leached concentrations. Location, local geology and soil type (e.g. clay content), pH, organic carbon content, moisture content and bulk density should also be recorded where reported. This data collection will help inform the degree of conservativeness in the current soil screening values and potentially allow their revision in the future.

Table .1. Soil Acceptance Criteria.

Parameter	Unit	Limit	Source
Arsenic	Mg/kg	95.1	Use of Total Soil Analyses as part of Soil Screening.
Cadmium	Mg/kg	10.0	Use of Total Soil Analyses as part of Soil Screening.
Copper	Mg/kg	189.8	Use of Total Soil Analyses as part of Soil Screening.
Chromium	Mg/kg	631.0	Use of Total Soil Analyses as part of Soil Screening.
Lead	Mg/kg	751.8	Use of Total Soil Analyses as part of Soil Screening.
Nickel	Mg/kg	95.3	Use of Total Soil Analyses as part of Soil Screening.
Zinc	Mg/kg	601.5	Use of Total Soil Analyses as part of Soil Screening.
Mercury	Mg/kg	8	Use of Total Soil Analyses as part of Soil Screening.
TPH	Mg/kg	500	WAC
PAH	Mg/kg	100	WAC

2.6 Statistical interpretation of analytical data will be used to interrogate analytical data for waste streams. The statistical analysis will consist of the 95% confidence interval for the whole waste population as defined in *"Waste Classification, Guidance on the Classification and Assessment of Waste, 1st Edition v1.1), Technical Guidance WM3, Appendix D".*

2.7 To ensure statistical validity, sample numbers must be at the frequency as demonstrate in Table .2.

Table .2. Sample Frequency for Waste acceptance.

	Population (tonnes)	**Homogeneous (number of samples)**	**Heterogeneous and new wastes (number of samples)**
Level 1 Characterisation for Descriptive, Total Concentration & Leaching Tests	<100 t < 500 t <1000 t 10,000 t plus per additional 10,000 t	2 3 5 11 +5 (pro rata)	5 8 14 22 +10 (pro rata)
Level 2 Compliance for regularly generated wastes. (Total Concentration and Leaching Tests Required)		1 per defined waste sub- population to a targeted suite per year or as defined in the Basic Characterisation	3 per defined waste sub-population to a targeted suite per year or as defined in the Basic Characterisation
Level 3 Verification Delivery document & visual check. Sample using Level 2 Testing suite or as identified from Basic Characterisation		Visual - Each load Chemical - 1 per year per waste stream or source / carrier >2,000T/a	Visual - Each load Chemical - 3 per year per waste stream or source /carrier > 2,000T/a

Note: Council Decision 2003/33/EC requires a minimum of one sample to be taken annually for Level 2 testing of regularly generated wastes

2.8 The list of permitted wastes and analytical requirements is shown in Table 3.

Table .3. Permitted Wastes and Analytical Requirements.

Code	Description	Level of Testing
01	Waste Resulting from Exploration, Mining, Quarrying and Physical and Chemical Treatment of Mineral	
01 01	**Wastes from Mineral Excavation**	
01 01 02	Waste from mineral non-metalliferous excavation	Not required
01 04	Waste from physical and chemical processing of non-metalliferous minerals	
01 04 08	Waste gravel and crushed rocks other than those containing dangerous substances	Not required
01 04 09	Waste sand and clays	Not required
10	Waste from Thermal Processing	
10 12	Waste from manufacture of ceramics, bricks, tiles and construction products (after thermal processing|)	
10 12 08	Waste ceramics, bricks, tiles and construction products (after thermal processing)	Not required
17	Construction and Demolition Waste (including excavated soil from contaminated sites)	
17 01	Concrete, bricks, tiles and ceramics	
17 01 01	Concrete	Not required
17 01 02	Bricks	Not required
17 01 03	Tiles and ceramics	Not required
17 01 07	Mixtures of concrete, bricks, tiles and ceramics, other than those mentioned in 17 01 06	Not required
17 05	Soil (including excavated soil from contaminated sites), stones and dredging spoil	
17 05 04	Soil and stones other than those mentioned in 17 05 03	Table 1, however testing is not required from greenfield sites
19	Waste from Waste Management Facilities, Off-Site Waste Water Treatment Plants and Preparation of Water Intended for Human Consumption/Industrial Use	
19 12	Wastes from the mechanical treatment of wastes (for example sorting, crushing, compacting, pelletising) not otherwise specified	
19 12 09	Minerals (for example sand, stones)	Not required
20	Municipal wastes (household waste and similar commercial, industrial and institutional wastes) including separately collected fractions	
20 02	Garden and park wastes (including cemetery waste)	
20 02 02	Soil and stones from gardens and parks	Not required

2.9 Compliance testing will be performed at a rate of one sample per sub population per year for all waste streams, populations and sub-populations will be identified in the pre-assessment information.

2.10 Each load of waste delivered to the site shall be inspected at the weighbridge and at the point of deposit, to ensure that it matches the delivery documentation and the basic characterization information. A record will be made of all inspections and samples taken.

2.11 All vehicles delivering waste will be registered waste carriers and each delivery will be accompanied by a relevant waste transfer note. An annual waste transfer note will be acceptable for regular arisings from a single source.

2.12 Duty of Care records will be kept for a minimum of six years.

2.13 A record of the quantity, characteristics, LOW code, origin, delivery date and identity of the producer will be made at the weighbridge.

2.14 In the event that a waste does not meet the relevant information, it will be rejected and the Environment Agency informed.

2.15 In the event that the load has been deposited and does not comply with the relevant information, it will be reloaded onto the vehicle and rejected. The Environment Agency will be informed.

2.16 In the event that the load has been rejected and the vehicle exited the site, the load will be quarantined, details recorded in the site diary and the Environment Agency informed.

2.17 Rejected loads will be notified to the producer and measures taken to prevent re-occurrence.

2.18 For small quantities of paper, plastic, wood and metal a skip will be located near to the operational area.

2.19 Wastes will be deposited and fanned out to form a layer not exceeding 300 mm.

3.0 Site Infrastructure

3.1 The operation comprises a processing plant, a ready mix concrete plant and a pre-cast concrete block factory, site offices ,and mineral stocking areas. In addition there are water management lagoons, soil storage areas, active mineral extraction and tipping operations.

3.2 Site engineering is to be constructed in line with the CQA plan and engineers instuctions.

3.3 All wastes are received at the site weighbridge at the entrance to the operational area.

3.4 A wheel wash is provided to ensure that mud and dirt is not tracked onto the public highway. This is supported as necessary by a mechanical rotary brush.

3.5 Fuel is not stored in the permitted area.

3.6 All visitors to the site are required to sign in and out.

3.7 A sign is located at the site entrance detailing the name, address, contact telephone numbers for the Permit holder, statement that the site is Permitted by the Environment agency, Permit Number and contact telephone numbers of the Environment Agency.

3.8 A notice board is located in the weighbridge and the site office, a copy of the Environmental Permit is displayed.

3.9 The site is secured by means of a lockable gate and stock fencing around the perimeter of the site.

3.10 The operator employs overnight security to deter trespassers.

4.0 Accidents

Fire

4.1 It is essential that all necessary measures are taken to prevent accidents which may have an environmental consequences and have procedures in place to limit the consequences should they occur.

4.2 The risk of landfill gas and leachate generation is kept to a minimum, by the sites waste acceptance criteria and controls.

4.3 There may be a fire risk from plant onsite, this is kept to a minimum regular servicing and maintenance in line with the manufacturers recommendations.

4.4 All site staff affected by the Environmental Permit receive regular fire training.

4.5 In the event of a major fire involving infrastructure, the Environment Agency will be informed and a record made in the site diary.

Spillage

4.6 There is no fuel storage within the permitted area.

4.7 Spillages may occur from plant and machinery, the risk is minimized by regular servicing and maintenance in line with the manufacturers recommendations.

4.8 All spillages will be cleaned up and the material collected for compliant waste disposal.

4.9 Spill kits are maintained at the site and replenished as necessary.

Flooding

4.10 The site has several areas prone to flooding, should flooding occur the Site Manager will, if necessary, temporarily close the site.

4.11 Site materials may be used to create temporary bunds to divert floodwater away from the operational area.

4.12 Pumps will be utilized as necessary to reduce floodwater levels via the sites discharge point.

5.0 Competence and Training

5.1 The waste recovery operation is managed by a technically competent manager subscribing to an approved competency scheme.

5.2 A technically competent manager will attend site at least 20% of the operational hours.

5.3 The company has an ISO14001 certified Environmental Management System.

5.4 All staff are appropriately trained in matters relating to the Environmental Permit as it reflects their role.

5.5 Employees are only permitted to perform tasks that they have been trained to perform.

5.6 A record of all staff training is kept at the site office.

6.0 Procedures

6.1 Procedures are in place to cover all aspects of operations that may have an adverse impact upon the environment. Documented procedures for responding to external complaints and non conformances are provided in the company integrated management system and in site specific procedures.

6.2 Operational procedures are reviewed and may be amended under the following scenarios:

- Periodic review identifies an improved method of operation
- A need to amend procedures is identified following a near miss investigation.
- A need to amend procedures is identified following an incident investigation.
- Legislative requirements change resulting in an amendment to site procedures.

7.0 Maintenance

7.1 Aggregate Industries undertake a programme of planned preventative maintenance, which seeks to minimise environmental risks. This is done by ensuring that all appropriate items are serviced and maintained within the manufacturers recommendations where available.

7.2 A programme of daily inspections is in place at the site, with detailed records of all inspections. Any item of plant found to be defective, is not used until repairs have been made.

7.3 All records of daily inspections, servicing, repairs and maintenance is kept in the site office be available for inspection upon request.

8.0 Incidents and Non-Conformance

8.1 Aggregate Industries has procedures for investigating incidents and non-conformances as well as taking corrective action.

8.2 Incidents which require investigation include any malfunction, breakdown of plant, equipment, techniques, and near misses and any complaints from third parties.

8.3 All near misses, accidents, incidents and are reported, recorded and investigated, with a record of the issue being kept on file at the site office.

9.0 Management of Documentation and Records

9.1 All relevant records and documents are kept at the site office and are available for inspection upon request.

9.2 A site diary is maintained and includes the following:

- The name of the technically competent person in attendance.
- Weather conditions
- Details of maintenance.
- Damage to site infrastructure and plant.
- Details of any complaints.

9.3 The site will undergo regular compliance inspections and audits to determine the level of compliance.

9.4 The Site Manager is responsible for the review, status, recording and distribution of any management system documents.

10.0 Complaints

In the event of a complaint being received from an external party, which relates to the waste management operation, the following procedure will be followed:

10.1 Details of the complaint will be recorded in the site diary, including name/address of the complainant, the nature of the complaint, and the date and time.

10.2 The source of the complaint will be investigated and where appropriate, photographs will be taken as a record.

10.3 Measures will be taken to rectify the situation, with a record being made.

10.4 Where appropriate, procedures will be revised, implemented or amended to ensure that the incident does nor reoccur.

10.5 The complainant will be contacted to advise of measures taken.

10.6 A permanent record will be made of all action taken.

11.0 Monitoring

11.1 Monitoring will be conducted in line with the current Manor Farm Environmental Permit.