AGGREGATE INDUSTRIES

Mr D Bass
Environmental Health Dept.
Huntingdonshire District Council
Pathfinder House
St. Mary's Street
Huntingdon PE29 3TN

19 March 2013

Dear Mr Bass,

Application for a Permit for a Mobile Plant

I enclose an application from Aggregate Industries for an environmental permit to operate a mobile hot recycling plant.

Also enclosed with the application form are:

- Cheque for £1,579 to cover the application fee;
- Supporting information document;
- Plans for the Bardon Contracting site at Maltby where the machine will initially be located; and
- Environmental history document.

Should you require any further information, my contact details are below.

Yours sincerely,

Ian Holton

Dr Ian Holton
Permitting Manager

T: 01530 512162
M: 07738 134514
E: ian.holton@aggregate.com

AGGREGATE INDUSTRIES UK LIMITED

Bardon Hall Copt Oak Road Markfield
Leicestershire LE67 9PJ
United Kingdom
Telephone +44 (0)1530 816600
Facsimile +44 (0)1530 816666
www.aggregate.com

Huntingdonshire
DISTRICT COUNCIL

Application for a Permit for a Mobile Plant

Local Authority Pollution Prevention and Control
Pollution Prevention and Control Act, 1999
Environmental Permitting (England and Wales) Regulations 2010 as amended

When to use this form
This environmental permitting regime is known as and referred to as Local Authority Pollution Prevention and Control ('LAPPC'). Installations permitted under this regime are known as Part 'B' installations. Use this form if you are sending an application for a 'Part B mobile plant' permit to a Local Authority under the Environmental Permitting (England and Wales) Regulations 2010 ("the EP Regulations").

Before you start to fill in this form
You are strongly advised to read relevant parts of the Defra general guidance manual issued for LA-IPPC and LAPPC, regularly amended and available for free download at http://www.defra.gov.uk/environment/quality/industrial/las-regulations/guidance/. This contains a list of other documents you may need to refer to when you are preparing your application, and explains some of the technical terms used. You will also need to read the relevant Process Guidance note as relevant The EP Regulations can be obtained from The Office of Public Sector Information, or viewed on their website at: http://www.opsi.gov.uk/stat.htm.

Which parts of the form to fill in
You should fill in as much of this form as possible. The appropriate fee must be enclosed with the application to enable it to be processed further. When complete return to:

Environmental Protection Officer, Environmental Health Department, Huntingdonshire District Council, Pathfinder House, St. Mary's Street, Huntingdon PE29 3TN or e-mail envhealth@huntingdonshire.gov.uk.

If you require any help or advice on how to set out the information we need please contact us at the above address or telephone 01480 388363.

Other documents you may need to submit
There are number of other documents you may need to send us with your application. Each time a request for a document is made in the application form you will need to record a document reference number for the document or documents that you are submitting in the space provided on the form for this purpose. Please also mark the document(s) clearly with this reference number.

Using continuation sheets
In the case of the questions on the application form itself, please use a continuation sheet if you need extra space; but please indicate clearly on the form that you have done so by stating a document reference number for that continuation sheet. Please also mark the continuation sheet itself clearly with the information referred to above.

Copies
Please only send the original all other supporting material, to assist the Authority in conducting any necessary consultation process. If submitting the form electronically no duplicate copies are required. It is this Authority preference to receive the documents electronically.

A - Introduction

A1.1 Details of the plant

Make:	RSL Plant
Model:	VEB 10000 Hot recycler
Serial number:	VEB 10000 01-01-13TM-02

A1.3 Existing authorisations:

Please give details of any existing LAPC or IPC authorisation for the installation, or any waste management licences or water discharge consents, including reference number(s), type(s) and local authority:

The plant will be initially located at the Bardon Contracting site at Aven Industrial Park,

Tickill Road, Maltby, S66 7QR. The site has an S2 exemption (LH0810VF) for the storage of

Waste and a T5 exemption(TE5699UE) for the treatment of waste.

Please provide the information requested below about the "Operator", which means the person who it is proposed will have control over the installation in accordance with the permit (if granted)

A2.1 The Operator – Please provide the full name of company or corporate body

Name Aggregate Industries UK Limited

Trading/business name (if different) Bardon Contracting

Registered Office address Bardon Hall, Copt Oak Road, Markfield, Leicestershire

Postcode LE67 9PJ

Principal Office address (if different) Bardon Hill, Coalville, Leicestershire

Postcode LE67 1TL

Company registration number 00245717

A2.2 Holding Companies

Is the operator a subsidiary of a holding company within the meaning of Section 736 of the Companies Act 2006?

No [ ] Yes [X]

Name of ultimate holding company Holcim Limited

Registered office address Zurcherstrasse 156, CH-8465 Jona, Switzerland

Postcode

Principal Office address (if different)

Postcode

Company registration number CH – 160.3.003.050-5

A3.1 Who can we contact about your application?

It will help is to have someone who we can contact directly with any questions about your application. The person you name should have the authority to act on behalf of the operator. This could be an agent or consultant rather than the operator.

Name Dr Ian Holton

Position Permitting Manager, Aggregate Industries

Address Bardon Hall, Copt Oak Road, Markfield, Leicestershire

Postcode LE67 9PJ

Telephone number 01530 512162

Fax number 01530 816666

E. Mail address Ian.holton@aggregate.com

B About the mobile plant

B1.1 Why is the application being made?

X	The plant is new
	The plant is replacing an already permitted plant

Please state the permit number of the plant being replaced.

The prototype version of this machine is currently operating under permit ref. B17/08

Please provide written information about the aspects of your installation listed below. We need this information to determine whether you will operate the installation in a way in which all the environmental requirements of the EP Regulations are met.

B2.1 Describe the proposed methods to prevent dust escaping from the plant and stockpiles.

Doc Reference Supporting information

B2.2 What maintenance schedule is being proposed for the plant?

Doc Reference Maintenance schedule

B2.3 What monitoring will be undertaken of emissions from the plant?

Doc Reference Supporting information

B2.4 What training requirements are undertaken for operators of the plant?

Doc Reference Supporting information

B2.5 If you have a company environmental management system please provide detailed procedures and policies of your proposed environmental management techniques, in relation to the plant.

Doc Reference Supporting information

B3 Please supply any additional information that you would like us to take account of in considering this application.

Doc Reference Maltby location plan and site plan

C Fees and Charges, Information Handling, and Declaration

C1 Fees and Charges

The enclosed charging scheme leaflet gives details of how to calculate the application fee. Your application cannot be processed unless the application fee is correct and enclosed.

C1.1 Please state the amount enclosed as an application fee for this installation:

£1,579.00 (cheques should be made payable to **Huntingdonshire District Council**)

We will confirm receipt of this fee when we write to you acknowledging your application.

C2 Annual subsistence charges

If we grant you a permit, you will be required to pay an annual subsistence charge, failure to do so may result in the suspension or revocation of your permit and you will not be able to operate your installation. Also late payment of subsistence fees will result in a late payment charge being issued.

C2.1 Please provide details of the address you wish invoices to be sent to and details of someone we may contact about fees and charges within your finance section.

Name (if applicable) Dr Ian Holton

Department Permitting Manager, Aggregate Industries

Address Bardon Hall, Copt Oak Road, Markfield, Leicestershire

Postcode LE67 9PJ

Telephone number 01530 512162

E. Mail address Ian.holton@aggregate.com

C3 Confidentiality

C3.1 Is there any information in the application that you wish to justify being kept from the public register on the grounds of commercial or industrial confidentiality?

No [ ] Yes [X]

Please provide full justification, considering the definition of commercial confidentiality within the EP Regulations

Doc Reference Confidentiality request

C3.2 Is there any information in the application that you believe should be kept from the public register on the grounds of national security?

No [X] Yes [ ]

Do not write anything about this information on the form. Please provide full details on separate sheets, plus provide a copy of the application form to the Secretary of State/ Welsh Ministers for a direction to exclude information on grounds of national security

C4 Data Protection

The information you give will be used by the local authority to process your application. It will be placed on the relevant public register and used to monitor compliance with the permit conditions. We may also use and or disclose any of the information you give us in order to:

-Consult with the public, public bodies and other organisations
-Carry out statistical analysis, research and development on environmental issues
-Provide public register information to enquirers
-Make sure you keep to the conditions of your permit and deal with any matters relating to your permit
-Investigate possible breaches of environmental law and take any resulting action
-Prevent breaches of environmental law
-Offer you documents or services relating to environmental matters
-Respond to requests for information under the Freedom of Information Act 2000 and the Environmental Information Regulations 2004 (if the Data Protection Act allows)
-Assess customer service satisfaction and improve our service

We may pass on the information to agents/ representatives who we ask to do any of these things on our behalf.

It is an offence under regulation 38 of the EP Regulations, for the purpose of obtaining a permit (for yourself or anyone else), to:

-Make a false statement which you know to be false or misleading in a material particular
-Recklessly make a statement which is false or misleading in a material particular
-Intentionally to make a false entry in any record required to be kept under any environmental permit condition

-With intent to deceive, to forge or use a document issued or required for any purpose under any environmental permit condition

Make a false statement

-We may prosecute you, and
-If you are convicted, you are liable to a fine or imprisonment (or both).

C5 Declaration:

previous offences (delete whichever is inapplicable)

I/We certify

EITHER

~~No offences have been committed in the previous five years which are relevant to my/our competence to operate this installation in accordance with the EP Regulations.~~

OR

The following offences have been committed in the previous five years which may be relevant to my/our competence to operating this installation in accordance with the regulations:

Doc Reference Environmental history

Signature

Name Ian Holton

Position Permitting Manager Date 19/02/2013

Signature of current operator(s)*

I/We certify that the information in this application is correct. I/We apply for a permit in respect of the particulars described in this application (including supporting documentation) I/We have supplied.

Please note that each individual operator must sign the declaration themselves, even if an agent is acting on their behalf.

For the application from Aggregate Industries UK Limited

Installation name VEB 10000 Hot recycler

Signature

Name James Atherton-Ham

Position Director and General Counsel Date 20/02/2013

Signature

Name

Position Date

** Where more than one person is defined as the operator, all should sign. Where a company or other body corporate – an authorised person should sign and provide evidence of authority from the board the company or body corporate.*

Application for a Permit for a Mobile Plant – Supporting Information

Operator: Aggregate Industries UK Limited

Trading as: Bardon Contracting

1. Details of the plant

Make: RSL Plant

Model: VEB 10000 Hot recycler

Serial number: VEB 10000 01-01-13TM-02

2. Description of the activity

The activity involves collecting asphalt planings from construction projects, segregating and re-heating them to enable them to be re-used, and is defined in Schedule 1, Part 2, Section 6.3, Part B (a) (i) of the Environmental Permitting Regulations 2010.

The equipment used includes:

- Loading shovel;
- Conveyor;
- 10 tonne capacity mobile reheating plant comprising storage hopper, asphalt drum and gas heater; and
- Storage hopper for processed material.

Process type	Process duration	Fuel	Feedstock	Abatement	Load
Mobile reheating plant	30 – 40 minutes	Kerosene	Asphalt road planings	Bag filter	Maximum of 10 tonnes

The process is described briefly below, and a more detailed description and risk assessment are given in Appendices 1 and 2 respectively:

- Following inspection, suitable material is stockpiled in designated areas, with unsuitable material segregated for disposal. Material is taken from the appropriate stockpile and loaded into the machine hopper by conveyor. It is then gravity fed into the drum, where it is heated and mixed. The final product is then discharged and loaded onto sheeted vehicles and delivered to site for use.

3. Dust

Stockpiles will be positioned after consideration to local factors including prevailing winds, sheltered positions, proximity of neighbours and other site operations in order to avoid emissions of dust or odour leaving the site. If necessary, suitable dust suppression techniques will be used.

Where road vehicles are used to transport potentially dusty materials, they will be sheeted or otherwise totally enclosed as soon as possible after loading and before leaving the site.

4. Maintenance schedule

The manufacturer's generic maintenance schedule for this type of machine will be followed as given in Appendix 3.

5. Emission monitoring

Stack emission monitoring will be undertaken on an annual basis in accordance with BS ISO 9096:2003.

A report on the particulate emission monitoring undertaken to determine the levels of particulate emission from the prototype plant is included in Appendix 4, and summarised below.

Determined	Units	Results	Limit
Particulate Concentration (STP)	mg/m^3	9.2	50
Mass Emission (STP)	kg/hr	0.04	-
Stack Temperature	°C	255	-
Gas Velocity	m/s	29.82	-
Stack Volume Flow Rate (Actual)	m^3/hr	7339	-
Stack Volume Flow Rate (STP)	m^3/hr	3830	-

All results are reported at reference conditions of 273K, 101.3kPa, wet gas.

6. Training

Training of all staff with responsibility for operating the plant and process will include:

- Awareness of their responsibility under the permit;
- Minimising emissions on start up and shut down; and
- Actions to minimise emissions during abnormal conditions.

In addition, the training requirements for each operational post will be identified, and records of training received maintained.

7. Environmental management

Aggregate Industries operates a fully integrated management system which we have developed over a number of years. This system has been fundamental to achieving company registration to ISO 9001, ISO 14001 and OHSAS 18001. The system has a dedicated manager and is used by all operational sites within the business. The system is the home for environmental monitoring and other non-financial metrics as well as audits and incidents.

This system will be used as a repository for the detailed procedures, risk assessments and monitoring information for the plant.

In the case of any abnormal emissions, malfunctions or breakdowns leading to abnormal emissions, this system will also be used to record the events and actions taken.

8. Additional information

The prototype for this mobile plant is currently in operation under permit reference B17/08, issued by Huntingdonshire District Council on 10 March 2009.

Description of Activity

The activity involves screening and re-heating asphalt planings to enable them to be re-used.

Planings are initially delivered to the stocking area and checked for the presence of tar; any tar bound planings found are quarantined. The planings are then screened to produce materials with a range of gradings suitable for the production of Binder Course and Surface Course materials. Samples of the screened materials are taken to determine their binder content and stiffness, as well as grading. This allows products to be designed to comply with the required grading for specific applications, and the appropriate level of rejuvenator for either hand lay or machine lay operations to be determined.

The VEB 10000 comprises a 10 tonne capacity rotating steel drum mounted on a standard “artic trailer chassis”, with a burner mounted on a slide rail assembly at the open end of the drum and an exhaust stack at the closed end. With the burner retracted, screened planings are fed into the drum through a loading chute fed by a conveyor and ground feed hopper. A “bucket weigher” on the loading shovel allows the operator to measure the quantity of planings loaded and ensure that the drum is not over loaded.

Once the drum is fully loaded, the burner is inserted into the drum and heating of the mixture commences. To assist with the heating and remixing process the drum has a number of steel plates fitted to the inside surface which both fold and turn the asphalt product as it is heated. This action, combined with careful control of the drum rotation speed minimises the volume of particulates produced.

The heating cycle is controlled via an external control panel at the rear of the drum; the operator is also provided with pendant hand controls to operate the drum during the discharge cycle. The control panel incorporates stop/start controls for the donkey engine, fan and burner controls, plus an adjustable timer for the heating cycle. Overheating of the drum and product is prevented by a temperature sensor which is located in the exhaust stack of the machine.

Ignition / flashing over of the bituminous material within the drum is avoided by ensuring the feedstock has a moisture content of approx 15-20%; this moisture within the mix creates a steam blanket within the drum. When the majority of water vapour has been evaporated and the product is at the correct temperature for transportation and laying, the drum is raised and the product discharged. The temperature of the product is checked using a calibrated hand held optical thermometer.

Waste gases from the machine are released to atmosphere through the exhaust stack. Potential emissions are odour and particulates from the process and fugitive particulate emissions from the activity.

Appendix 2: Risk assessment

AGGREGATE INDUSTRIES

Risk Assessment

Site:	Maltby	Task:	Use of Hot Asphalt Recycler	Risk Assessment No:	DEF 1 V5 April 2012	
Completed By:	Graham Pack	Assisted By:		Date:	16th August 2012	

(1) Hazard Description	(2) Risk	(3) Persons at Risk	(4) Existing control measures	(5) Frequency of Task	X	(6) Severity of Harm	X	(7) Likelihood of Occurrence	=	(8) Risk Rating	(9) Further control measures necessary	(10) Residual risk rating
Slips / trips / falls	Cuts, Broken limbs, Serious injury	All	Induction and Training Procedures, Maintenance and inspection procedures. Restricted access to area of plant limited to Plant Operator and Shovel Driver, the works area to be kept clean and tidy at all times	4	X	3	X	2	=	24	Daily inspection to be carried out, loose objects, stone etc to be cleared and inspection sheet signed off by plant operator	12
Falls from height	Broken limbs, serious injury or death	Employee	Access to high level platforms restricted to Plant Operator and Fitters, both have received inductions and training. Ladder access to hopper inspection platform, which has edge protection / hand rail	2	X	5	X	1	=	10		
Manual handling	Cuts, Broken limbs, Serious injury (MSI)	Employee	Site inductions, SSOW for lifting and moving	2	X	4	X	2	=	16		
Vehicle movements	Broken limbs, serious injury or death	Employee	Site Inductions, designated parking / waiting / loading areas for haulage	2	X	5	X	2	=	20		
Heat / fire / explosion	Serious injury	Employee	Site inductions and training, provision of SSOW for correct operation of Hot Recycler provision of fire fighting equipment	4	X	4	X	1	=	16		
Hot Material	Burns and Lost time injuries	Employee	Operators to have flame retardant PPE, trained and experienced personnel to be used for sampling testing and operation of plant and equipment	3	X	3	X	2	=	18		
Noise	Induced Hearing loss / pollution	Employee	Noise control zones established and provision of PPE	4	X	3	X	2	=	24	Noise survey to be carried out to determine noise levels generated by the Hot Recycler following on from vibrators being removed from the loading hopper	
Contact with moving parts / machinery	Entrapment / serious injury	Employee	Hot Recycler has moving parts fenced off / guarded and trip switches fitted to access points, conveyor loading system has a fully guarded belt with "head and tail" covers	5	X	4	X	1	=	20		
Fuel / Oil Leaks	Dermitous / Pollution	Employee	Bulk refuelling carried out by trained and experienced supplier, maintenance to hydraulic systems carried out by trained and experienced technicians from OEM. Spill kits are stored on site to deal with the consequences of accidental spillage. Vegetable oil for the mixing process to be used in accordance with manufacturers instructions by trained employees with appropriate PPE	4	X	2	X	2	=	16		
Loading Shovel	Serious injury / vehicle collions & plant damage	All	Pedestrians and vehicles / plant are segregated, the loading shovel operator is to be trained and competent and to hold the appropriate skill card (CSCS and CPCS). The yard area is level and well compacted.	4	X	4	X	1	=	16		
					X		X		=	0		
					X		X		=	0		
					X		X		=	0		

(11) Personnel undertaking the task - sign if you have read and understood the assessment

Print:	Graham Pack	Signed:		Date:	16th August 2012
Print:		Signed:		Date:	
Print:		Signed:		Date:	
Print:		Signed:		Date:	

(12) Comments / Review

Appendix 3: Generic maintenance schedule

RSL Generic Maintenance Schedule for Asphalt Recycling Machines - Master

Item	Maintenance instruction (	DAILY or Every 10 Hours of Use	WEEKLY or Every 50 Hours of Use	MONTHLY or Every 250 Hours of Use	6 MONTHLY or Every 500 Hours of Use	YEARLY or Every 1000 Hours of Use	Hours of use
A) General Maintenance							
Grease machine	See section 5	*					
Dust particle clean out	See section 6	*					
Are there any leaks from the Feed Hopper or Discharge Hopper			*				
Remove/Clean or replace Filters & Check Operation				*			
Clean Out Oil Lubricators, Refill & Check Operation				*			
Check Ladders, Guards, Walkways & Handrails				*			
Check Burner Carriage Mechanism				*			
Check condition of Identification Labels	Ensure information is readable and corrosion free					*	
B) Burner (Riello)	See section 8						
Follow the Maintenance Schedule as depicted in the Burner Manual							
C) Chassis							
Check Fixing Points	Visual check daily then comprehensive check monthly	*					
Check all Grease Points and grease	See section 5		*				
Check all Pivot Points for wear			*				
Check Fluid Levels		*					
Clean & check Operation Limit Switch			*				
Check Operation of E-Stop Buttons			*				
Check Bolts Throughout				*			
Check Condition of Welded and Bolted Joints					*		
Check and address any Corrosion					*		
Check Trunion Rollers for Ware	See section 16			*			
Check Structural Integrity					*		
Are Guards Fitted & In Good Condition				*			

RSL Generic Maintenance Schedule for Asphalt Recycling Machines - Master

Item	Maintenance instruction (	DAILY or Every 10 Hours of Use	WEEKLY or Every 50 Hours of Use	MONTHLY or Every 250 Hours of Use	6 MONTHLY or Every 500 Hours of Use	YEARLY or Every 1000 Hours of Use	Hours of use
Check Condition of Feed Chute	See Section 10			*			
D) Drum							
Inspect the main roller path and fixings around the Drum for wear & fatigue fractures	See section 17	*					
Check condition of Drum	See section 17		*				
Check condition of Flights / Lifters	See section 15		*				
Check and grease Roller Path (20 Pumps)	See section 16	*					
Check Roller Path Support Brackets	See section 16		*				
E) Gearbox	See section 19						
Tighten Screws			*				
Is Gear Box and Mountings structurally sound			*				
Check Drive Couplings & V' Belts			*				
Check Guards are fitted & in good condition (V-Belts and Pulleys)			*				
Check Gear Box oil level			*				
1st Oil Change							150
Future Oil Changes						*	
F) Feeder Bin & Discharge Hopper	See section 10						
Is the Feeder and Discharge Hopper free from internal and external build up		*					
Is the Feeder and Discharge Hopper structurally sound			*				
Is the Feeder securely suspended under all conditions of load			*				
G) Reciprocating Feeder	See section 10			*			
Is the Feeder free from external build up			*				
Is the Feeder secure under all conditions of load			*				
Clean around Rams / Cylinders			*				
Clean Feeder Support Wheels			*				

RSL Generic Maintenance Schedule for Asphalt Recycling Machines - Master

Item	Maintenance instruction (	DAILY or Every 10 Hours of Use	WEEKLY or Every 50 Hours of Use	MONTHLY or Every 250 Hours of Use	6 MONTHLY or Every 500 Hours of Use	YEARLY or Every 1000 Hours of Use	Hours of use
Are there any leaks from the Hydraulic Hoses			*				
Is the Feeder corrosion free & clean			*				
Repair any Hydraulic Leaks			*				
Is the Reciprocating feeder structurally sound	Carry out visual check			*			
H) Engine and Generator (Please refer to the operating manual for full details)	See section 9						
Check and top-up Engine Coolant		*					
Check indicators on Electrical Equipment		*					
Check Engine Oil level		*					
Check and refill Fuel Tank level		*					
Check Fuel Filter / Water Separator		*					
Overall visual check daily		*					
Check and adjust cooling fan V-Belt			* 1st Time	* 2nd Time and after			
Check Battery			*				
Drain and fill Engine Oil			* 1st Time	* 2nd Time and after			
Replace Engine Oil Filter			* 1st Time	* 2nd Time and after			
Drain Fuel Filter / Water separator			*				
Drain and Clean Fuel Tank						*	
Clean and replace Air Cleaner Element				*	*		
Clean Fuel Filter/ Water Separator					*		
Replace Fuel Filter					*		
Drain, Flush and refill Cooling system with new Coolant						*	

PLANT MANUFACTURING AND SOLUTIONS IN RECYCLING

SPECIALISTS IN THE MANUFACTURE AND MAINTENANCE OF
- Recycling Plant including Hot Asphalt Recyclers and Patchers
- Road Maintenance Plant
- Quarry Equipment
- Crushers and Screens
- Plant Site Engineering
- Plant Refurbishment
- Plant Spares

RSL Generic Maintenance Schedule for Asphalt Recycling Machines - Master

Item	Maintenance instruction (	DAILY or Every 10 Hours of Use	WEEKLY or Every 50 Hours of Use	MONTHLY or Every 250 Hours of Use	6 MONTHLY or Every 500 Hours of Use	YEARLY or Every 1000 Hours of Use	Hours of use
Contact Engine dealer or distributer to carry out yearly+ Maintenance as detailed within the Operation Manual						*	
Replace Fuel System and Cooling System Hoses							2000 or every 2 years
I) Hydraulics System	See section 12						
Check oil level		*					
Check Hydraulic Rams & Safety Lock Valves			*				
Check for Hydraulic Leaks			*				
Check Condition of Filter				*			
Check Condition Breather Filter				*			
J) Fuel Filters	See section 21						
Visual check and drain water if required		*					
Check all electrical connections for corrosion and all fuel fittings for leaks						*	

Appendix 4: Particulate emission monitoring results

GRINDLE HOUSE,
CHURCH LANE,
CLYST ST MARY,
EXETER, DEVON EX5 1AB
TEL 01392 877770
FAX 01392 874041

ADVANCE
ENVIRONMENTAL

PARTICULATE EMISSION MONITORING
AGGREGATE INDUSTRIES UK LTD.
BARDON CONTRACTING
SITE AT AVEN INDUSTRIAL PARK
MALTBY
SOUTH YORKSHIRE

REPORT ON PARTICULATE EMISSION MONITORING

to

DETERMINE THE LEVELS OF PARTICULATE EMISSION

from the

HOT ASPHALT RECYCLER

at

AGGREGATE INDUSTRIES UK LTD.
BARDON CONTRACTING
SITE AT AVEN INDUSTRIAL PARK
MALTBY
SOUTH YORKSHIRE

Report Submitted To:

AGGREGATE INDUSTRIES UK LTD.
BARDON CONTRACTING
SITE AT AVEN INDUSTRIAL PARK
MALTBY
SOUTH YORKSHIRE

Report Prepared by:

K Gough
Company Principal

A Yelland
Associate

Date: 18.04.12

CONTENTS

SUMMARY INFORMATION

Determined	Units	Results	Limit
Particulate Concentration (STP)	mg/m^3	9.2	50
Mass Emission (STP)	kg/hr	0.04	-
Stack Temperature	°C	255	-
Gas Velocity	m/s	29.82	-
Stack Volume Flow Rate (Actual)	m^3/hr	7339	-
Stack Volume Flow Rate (STP)	m^3/hr	3830	-

All results are reported at reference conditions of 273K, 101.3kPa, wet gas.

1. INTRODUCTION

On 18 April 2012, particulate emission testing was undertaken by Advance Environmental, on the hot asphalt recycling plant at Aggregate Industries UK Limited, Maltby.

The purpose of the emission testing was to ensure compliance with the requirements of the permit issued by the Local Authority under The Environmental Permitting (England and Wales) Regulations 2010.

2. BACKGROUND INFORMATION

The environmental Permitting (England and Wales) Regulations 2010 (EPR), came into force on 6 April 2010. The regulations combine Pollution Prevention and Control and Wate Management Licensing.

Environmental Permits automatically replaced previously issued Pollution Prevention and Control permits (PPC) permits with effect from April 2010. As with PPC permits, to continue operations, all sites operating scheduled processes must obtain an EPA permit from their Local Authority and comply with the conditions contain therein. The conditions will include a requirement to monitor emissions to air both periodically and continuously in accordance with relevant clauses of following process guidance note:-

* Process Guidance Note PG3/15a(04) Secretary of State's Guidance for Roadstone Coating Processess.

3. MONITORING CONTRACTOR

The emission monitoring was co-ordinated by Mr K Gough, Company Principal, Advance Environmental. Mr Gough has 22 years experience of undertaking particulate emission testing on plant used in the quarrying aand allied industries.

The lead engineer managing the on site testing is MCERTS Level 2 accredited.

4. MONITORING PROTOCOL

4.1 Test Method and references

Isokinetic sampling of the contained emission sources was undertaken using the APEX Instruments Inc Method Five isokinetic sampling apparatus in accordance with the main procedural requirements within the following British Standards and Technical Guidance Notes:-

* BS ISO 9096:2003 - Stationary source emissions. Manual Dertermination of mass concentration of particulate matter.

* Environment Agency - Technical Guidance Document (Monitoring) M1 Sampling requirements for monitoring stack emissions to air from industrial installations; and

* Environment Agency - Technical Guidance Document (Monitoring) M2 Monitoring of Stack Emissions to Air.

4.2 Sampling Procedure

The work carried out was, as far as was reasonably practical, in accordance with BS ISO 9096.

Isokinetic flow means that sample gases laden with particulates are drawn off at the same velocity as the free stream velocity in the flue. Isokinetic sampling thus avoids possible inertial effects of particulates approaching the vicinity of the inlet nozzle which may result in significant error.

The Apex Instruments test equipment was designed to meet the sampling requirements of US EPA Method 5 and with a modified nozzle design, meets the sampling requirements of BS ISO 9096.

The principle of the standard is to draw a known volume of dust laden gas isokinetically through a filter. The weight gain on the filter, after sampling, divided by the gas sample volume equates to the particulate concentration, which in turn can be used to calculate a mass emission.

4.3 Sampling equipment

The test equipment is inspected prior to use and it's calibration status observed. This includes:-

* *Pitot Tube* - All pitot tubes are checked for damage, alignment and that there are no blockages;

* *Manometer* - Check of oil levels, connectors and orientation level;

* *Thermocouple* - Temperature is measured using k type thermocouples. Each thermocouple is inspected for calibration and damage. Digital temperature meters are used in conjunction with k type thermocouples which are also checked for calibration dates;

* Gas meter - The calibration of the gas meter is checked before and after sampling using a critical orifice.

* *Nozzles* - All nozzles used have been constructed in accordance with BS ISO 9096. Each nozzle is checked for damaged and measured using a vernier caliper on at least 3 planes. Non conforming nozzles will be rejected.

* *Balance* - A Mettler Toledo balance is used to weigh filters. It is calibrated yearly by the manufacturer and checked daily by in-house weights.

* *Filters* - Pall quartz membrane filters with a collection efficieny of >99.5% at 0.3microns.

4.4 Preparation for sampling

4.4.1 Filter Preparation

Filters are pre-conditioned before arrival on site. The filters are dried in an oven at 180°C for a period of at least one hour and then placed to cool in a dessicator for at least four hours. The filters are then weighed on a five figure balance and placed in individual transport containers. Spare Filters are prepared to obtain blank values.

4.4.2 Sampling Location

No site visit was undertaken prior to undertaking the sampling procedure, as monitoring had previously been undertaken at the site, during which time the sampling position, working platform, sampling ports, access and safety precautions were found to be satisfactory.

The internal dimension of the flue was known from previous monitoring undertaken. However, further measurements were taken to check that the internal diamerter had not changed.

Prior to sampling a pressure and temperature survey, using a pitot static tube, a micromanometer, a digital thermometer and a nickel-chromium/nickel-aluminium thermocouple, is carried out to check whether the flow conditions meet with the requirements of BS ISO 9096. From this initial survey sample locations, isokinetic flow rates, nozzle size, and sample period can be worked out.

4.5 Sample Collection

A leak check is carried out before and after sampling to confirm all the suction is drawn through the nozzle.

With the required isokinetic flow rates known the sample probe is inserted into the stack at 90° to the gas flow, this is to stop any particulate matter impinging on the filter before

The filter head and probe were allowed to obtain the stack gas temperature.

The initial gas meter reading was noted and the suction device and timer started. The correct flow rate for isokinetic sampling was set and the nozzle positioned to face parallel to the gas flow.

Sampling was then carried out for the planned duration and number of sample points, recording all the necessary data for final calculations. On completion, the suction device and timer were stopped and the final gas meter volume recorded.

The probe was removed from the process stack and a further leak test carried out prior to removal of the filter, which was subsequently removed and placed in a storage container.

Any residual particulates upstream of the filter was washed with acetone into an appropriate beaker.

At all times during the sampling procedure the sampling technicians were in contact with the process operator to ensure that the plant was in full production and there were no changes in the process that might affect the representative nature of the samples collected.

4.6 Analysis of samples

On returning to the laboratory, the used filters were dried in an oven at 160°C for a minimum of one hour and then desiccated and weighed as before. The water/acetone washings are first evaporated, without boiling, then dried and weighed as above. The total particulate mass is the sum of the differential filter weight added to the differential water/acetone rinsings component.

4.7 Calculation of results

The calculations were made using the formula specified in BS ISO 9096.

The recorded filter weights, velocity, temperature, sampling duration and internal flue dimensions were then used to calculate:-

* the mass rate of solids emission in kg/hr; and
* the solids concentration in mg/m^3.

4.8 Sampling Results

A particulate emission test was carried out, under continuous operating conditions, to assess the emission concentration in the exhaust gases. The sample time of the test was 32 minutes.

At the time of sampling, a particulate matter of $9.2mg/m^3$ at reference conditions was measured. It can be concluded, therefore, that the emission from this plant was found to comply with the emission limit currently imposed.

4.9 Comments

Full test data demonstrating procedural compliance with BS ISO 9096 for total particulate monitoring is provided in following sections.

5. SAMPLING RECORDS

5.1 Process Conditions

Arrestment Plant:	None
Particulate Type:	Sand
Plant Loading:	10 tonne batch process @ 40mins/batch
Appearance of plume:	Steam

5.2 Sampling Results

	Test Run No. 1.
Time of Test:	11.05 - 11.37
Sampling Duration: (mins)	32
Gas Temperature (°C)	255
Mean Velocity at Sampling Points: (m/s)	31.23
Gas Flow Rate at STP (1): (m^3/min)	65.0
Particulate Loading at STP (1): (mg/m^3)	9.22
Particulate at Normalised Conditions (2): (mg/m^3)	----- -----

(1) Particulate stated at 273K, 101.3kPa without correction for water vapour.

(2) State normalised conditions (eg 11% O_2, etc).

5.3 - Calculations Sample Run No. 1

On-site measurements

O2 = 13.4 % CO2 = 4.2 % N2 = 82.4 %

Bws = 0.04 Ps = 102.3 kPa Ts = 528.0 K

Md = Molecular weight of gas at DGM (g/g mole)

Md = (0.44 x %CO_2) + (0.32 x %O_2) + (0.28 x %N_2)

= 29.21 g/g mole

Ms = Molecular weight of gas wet (g/g mole)

= 28.76 g/g mole

Stack gas velocity at sample points

V = Kp x Cp x Ö(Ts.DP/Ps.Ms)

= 31.23 m/s

Kp = 4.07

DP = 330.0 av. Dp at sample plane

Cp = 1.00 pitot tube coefficient

Stack gas volume at sample points

Q = V x A x 60

= 128.1 m^3/min

A = 0.07 area of stack m^2

Volume of water vapour collected, standard conditions (m^3)

Vwstd = 0.00124 x Vlc

= 0.0177 m^3

Vlc = 14 ml

Volume of gas metered, standard conditions (m^3)

$$Vmstd = \frac{2.695 \times Vm \times (Pa + (DH/102)) \times Yd}{(T + Tm)}$$

= 0.6117 m^3

Tm = 8 °C

Vm = 0.6217 m^3

Pa = 102.10 kPa

DH = 38.7 mm H_2O

Yd = 1.001

Moisture content

Bwo = Vwstd/(Vwstd +Vmstd)

= 0.0282

Dry total flow of stack gas, standard conditions (m^3/min)

$$Qstd = \frac{Q \times Ps(2.695)(1 - Bwo)}{Ts + 273}$$

= 65 m^3/min

Ts = 255.0 °C

Ps = 102.3 kPa

Percent isokinetic

$$\%I = \frac{(6.184 \times 10^5)(Ts + 273) \times Vmstd}{Ps \times V \times Aa \times t \times (1-Bwo)}$$

= 102.4 %

Aa = 19.6 area of nozzle m^2

5.3 - Calculations Sample Run No. 1 Cont.

Filter & rinsing weights sample no. 1

weight gain on filters =	5.64 mg
weight of acetone wash =	mg
total weight gain (M) =	5.64 mg

Particulate concentration (mg/m^3)

C = M/Vmstd

= 9.22 mg/m^3

M = 5.64 mg

Particulate emission rate (kg/hr)

E = (C x Qstd x 60)/1000

= 0.04 kg/hr

5.4 - Sample Blank

An overall sample blank was taken after the measurement series, following the sampling procedure in the methodology without starting the suction device and keeping the blank in the duct for 15 minutes with the sampling nozzle 180o from the direction of flow. This leads to an estimation of the the dispersion of results related to the whole procedure.

weight gain on filters =	0.00003	mg
weight of acetone wash =		mg
total weight gain (M) =	0.00003	mg

Particulate concentration (mg/m^3)

$C = M/Vmstd$ $\qquad M = 0.03$ mg

$= 0.05\ mg/m^3$

5.5 - On Site Velocity and Flow Data

Company	AGGREGATE INDUSTRIES UK LTD.	Stack Diameter	0.30	m
Site	BARDON CONTRACTING	Area	0.07	m^2
Location	HOT ASPHALT RECYCLER	Barometric Pressure	102.1	kPa
Job No	439	Stack Pressure	0.16	kPa
Operators	AJY/MJR	Pitot Tube Coefficient	0.997	

Preliminary readings taken before sampling				
			Pitot Traverse B	
Pitot Settings	D P pa	Temp °C	D P pa	Temp °C
1	98	255	98	255
2	132	255	132	255
3	187	255	187	255
4	201	255	201	255
5	225	255	225	255
6	289	255	289	255
7	363	255	363	255
8	475	255	475	255
9	584	255	584	255
10	682	255	682	255

av temp (K)=((average temp traverse A+average temp traverse B)/2)+273	528
av press (Pa)=((average press traverse A+average press traverse B)/2)	324

Suitability of sampling positions & Required No. of sample points	Actual Stack Conditions
Permitted highest to lowest pressure range = 9:1	7.0 : 1
Negative pressure	Not permitted
Differential pressure minimum > 5 Pa	98
No. of sampling points	1

5.6 - Sampling Conditions

	Sample Run No. 1		
Sample Position	Stack Temp °C	Velocity Pressure DP (Pa)	Nozzle Area mm^2
1	255	330	19.6

5.7 - Weighing Results

The below filters and acetone rinsings were weighed on a balance in a temperature

Sample Run No.1.	Ref No.	Weight gms Before	After	Collected	Sample time at each point (mins)	% weight gain
Filter	16	0.05447	0.06011	0.00564	32.0	10.4%
Acetone						
Total weight = 0.00564						
Sample Blank	Ref No.	Weight gms Before	After	Collected	Sample time at each point (mins)	
Filter	17	0.05462	0.05465	0.00003	n/a	0.1%
Acetone						
Total weight = 0.00003						

5.8 - Main conditions for compliance with BS ISO 9096:2003

The following requirements must be met:

Preliminary Velocity Survey

		Pass	Fail
	No negative flow at sampling points	*	
	Direction of gas flow within 15° of flue axis	*	
	Pitot-static pressure differential greater than 5 Pa (3m/s)	*	
	Ratio of highest to lowest pitot-static readings less than 9:1	*	

Sampling procedure

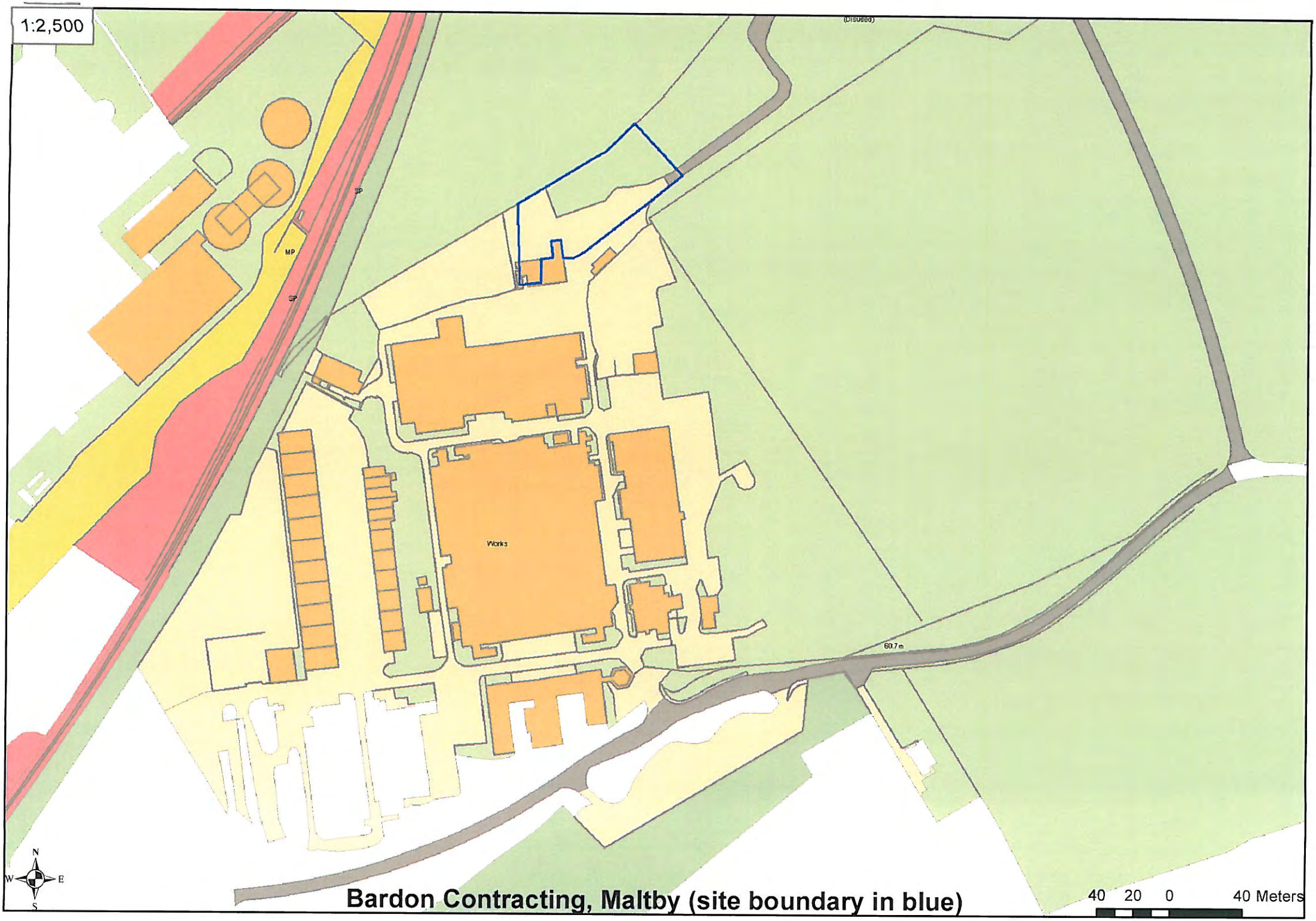
	Sampling plane was corectly positioned	*	
	Sampling centroids of equal area	*	
	Nozzle was facing upstream to within $\pm$ 10°	*	
	Leak check performed	*	
	Constant 'at' during cumulative sampling	*	

Post Sampling Operations

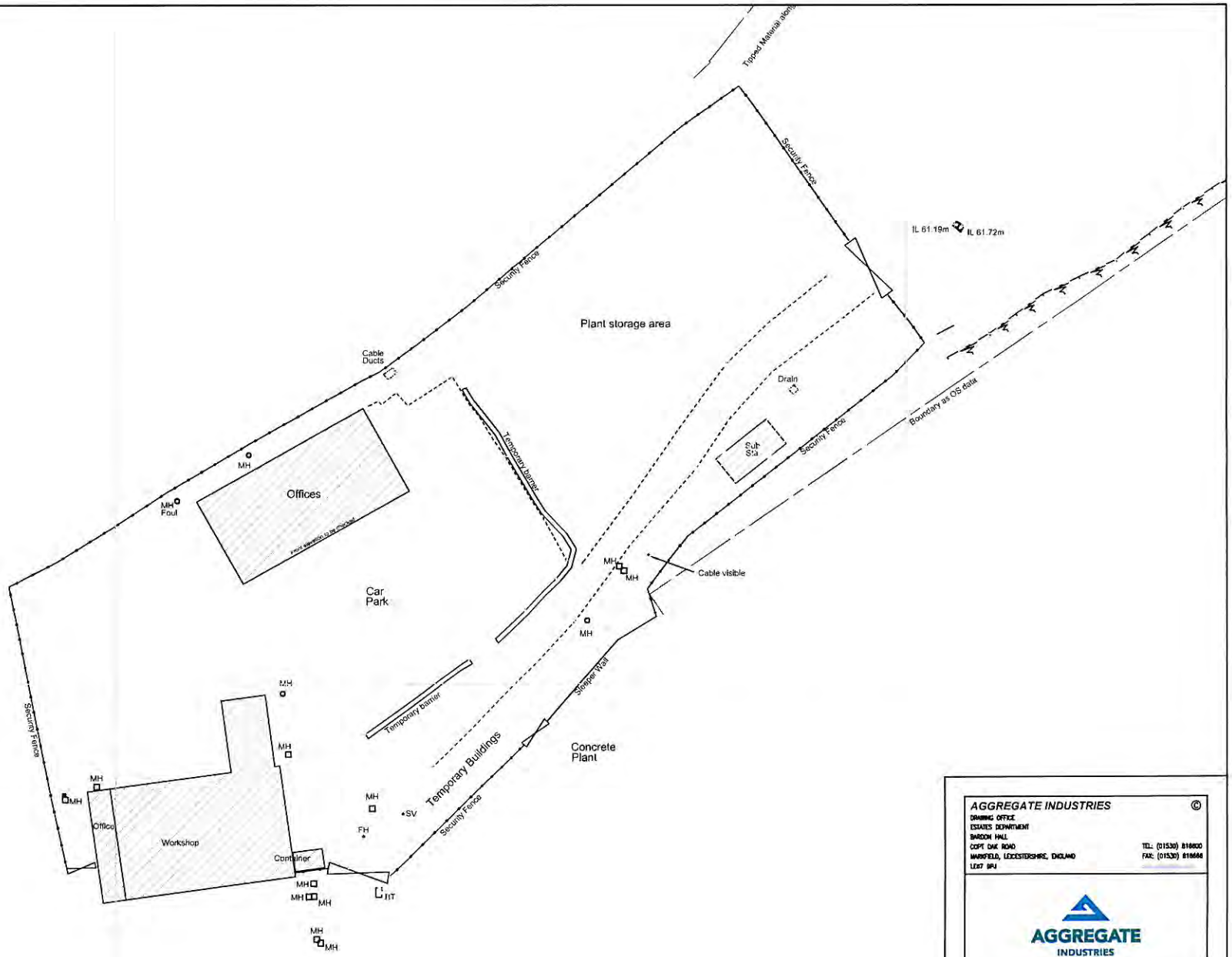
	Leak test performed	*	
	Isokinetic rate 95 % to 115 %	*	
	Samples achieved stable weights	*	

Note :

A single tick in the "fail" column indicates that this test does not comply with the full provisions of BS ISO 9096:2003. Due to site/sampling locations it is not always practically possible for all the conditions to be met. Best practical means are employed to try and achieve a representative result.



Bardon Contracting, Maltby (site boundary in blue)



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AGGREGATE INDUSTRIES

Site Name	MALTBY
Drawing Title	SITE LAYOUT
Scale: 1:500	Size: A3
Date: 30/10/2012	Document No: 10410-3
Drawn: ARD	Ch: IH
File: \\ais-appfs\groups\Drawings\SITES\NORTH\Maltby_10410\01_ENGINEER\01_CAD	

Aggregate Industries operates in over 300 locations and produces over 40 million tonnes of products per year. The incidents described below were a great disappointment to the business and a slight on its commitment to sustainable development. All incidents (however small) are investigated and actions implemented to prevent reoccurrences, including improvements to the internal processes where relevant. Where applicable, the incident investigation is distributed amongst the business to ensure lessons are shared with all units.

Location:	St Georges Down, Isle of Wight
Business Unit:	Bardon Aggregates (Bardon Vectis)
Offence:	Waste Management
Legislation:	s.85 Water Resources Act 1991
Court:	Isle of Wight Magistrates Court
Date of prosecution:	10 March 2008
Fine:	£12,000

Overview

Aggregate Industries UK Limited was prosecuted for contravening the conditions of a discharge consent. On the 3 April 2007, water discharged from our quarry operations was found to be above the consented limit of 50mg/1 suspended solids. The incident caused by a series of contributory events including a pump failure which caused process water to build up a catch put before overflowing at speed into a filter bed system. The filter bed failed to cope with the excessive volume and the water was discharged to a controlled watercourse without full treatment.

Action taken

This incident has resulted in a significant review of planned maintenance arrangements of equipment on site, additional training and awareness of site personnel regarding emergency arrangements, the replacement of pump units and installation of an alarm system.

The incident has also prompted a full review of water management across all AI UK sites and the establishment of a water management group. This group will provide guidance on the design of water management systems and consider the effects of a changing climate on our operations.

Location:	Dumbuckhill Quarry
Business Unit:	Bardon Aggregates
Offence:	Water pollution - breach of consent conditions
Legislation:	Water Environment (Controlled Activities) (Scotland) Regulations 2005 Regulation 40(1)(d) Water Environment and Water Services Scotland Act 2003 Section 20(1)
Court:	Dumbarton Sheriffs Court
Date of prosecution:	19 December 2006
Fine:	£4,000

Overview

Aggregate Industries UK Limited pleaded guilty to allowing a poor water quality discharge to enter an unnamed tributary of the Clyde estuary downstream of Dumbuckhill Quarry, Dumbarton at Dumbarton Sheriff Court on the 19 December 2006.

During a period of exceptional heavy rainfall SEPA officers received a complaint from a member of the public early in April 2006, reporting alleged pollution of a watercourse near Dumbuckhill Quarry.

Officers visited the site on 4 April and witnessed discoloured water discharging from a pipe that served Dumbuckhill Quarry. The quarry had an authorisation to discharge treated water from the pipe but analysis of discharge samples, taken by SEPA officers during their visit, showed the quality of water did not comply with the conditions on this occasion.

Action taken

Significant improvements made to water retention and treatment facilities to cope with increase volume and intensive rainfall. System includes automated dosing, monitoring and early warning technologies. Emergency arrangement on site improved and regular liaison with SEPA officers continues.

Location:	Barrow ready mix concrete plant
Business Unit:	Bardon Concrete
Offence:	Dust release - Non compliance with conditions of permit
Legislation:	Environmental Protection Act 1990
Court:	Magistrates
Date of prosecution:	6 August 2003
Fine:	£13,000

Overview

Aggregate Industries UK Limited was prosecuted for commencing operations of a new ready mix plant prior to the receipt of the permit to operate from the local authority. The prosecution was brought following complaints from local community regarding emission of limestone dust and the lack of dust suppression on site.

Action taken

Dust suppression equipment installed to prevent further dust emissions. Corporate procedures improved to ensure that any new plant development is assessed and signed off prior to commission/operation.

Other AI Companies – not wholly owned

Location:	Midlands
Business Unit:	Witherley Services Limited
Offence:	Waste Management
Legislation:	Sections 33 and 34 The Environmental Protection Act 1990.
Court:	Leicester Magistrates Court
Date of prosecution:	10 August 2007
Fine:	£1,695

Overview

Section 33 - In 2005 Witherley Services were contracted to remove inert excavation waste from a construction project. The material was transported from the point of production to its final destination – a site registered with the Environment Agency as exempt from the need for a waste management licence under paragraph 19, schedule 3, *The Waste Management Licensing Regulations 1994.*

The company had systems and procedures in place to ensure that it would comply with its environmental obligations. The company, however, failed to appreciate the change in the regulations during 2005 which meant that the original paragraph 19 exemption was no longer applicable. The site owner [a third party] had failed to renew the activity under paragraph 19A with the Agency and operations continued under the old legislative regime to Spring 2006. The site owner subsequently made application for registration under paragraph 19A which was granted and operations continued thereafter.

The Court accepted that there were no aggravating features and in particular that there was no harm to the environment nor to human health. It was accepted that there was extensive mitigation and that this was not a serious offence. This was put in context by the fact that the maximum fine for the offence is £50,000 but the fine imposed on the Company was only £1,000.

Section 34 – During the Environment Agency investigation into the incident above it was noted that although full waste management records were available for inspection, a small number of transfer notes had not been completed in full. Some European Waste Catalogue codes and waste descriptions had been omitted. The prosecution accepted that the nature of the offence was 'minimal' and a penalty of £500 was imposed.

Action taken

Section 33 - A full internal review of the company waste management systems and procedures was conducted by the senior management team and staff briefed on the changes in legislation. Details of exempt sites are checked thoroughly by staff to ensure that they are valid and remain in date during the period of a contract. A full copy of the exemption is now required before any loads can be deposited. If staff have any concerns they have been instructed not to proceed and to refer the issue to the company directors.

Section 34 – Witherley waste transfer documentation has been reviewed and revised to make them easier to complete and to ensure that all relevant information required by law is provided. All drivers have been given instruction on the use of transfer notes and how to complete them. Completed transfer notes are closely monitored to ensure that they are being completed correctly.

Other Enforcement Action

Location:	Martell's Quarry Landfill Site, Ardleigh, Essex
Business Unit:	Site operated by MWM under AI licence
Offence:	Discharge consent limits breached
Legislation:	Environmental Protection Act 1990 – Section 34(1)(b)
Enforcement option:	Caution
Date of incident:	26 April 2011

Summary

On a routine Environment Agency visit to the site, the leachate lagoon levels were found to be excessively high and lack of freeboard caused serious concern. The company was instructed to reduce the leachate lagoon levels and to fully document the procedure used for managing leachate at the site.

Action taken

Levels in the lagoon were reduced to re-establish freeboard through removal of leachate. Procedures for leachate management were reviewed to improve inspection and monitoring. Roles and

responsibilities under the license arrangements were clearly defined and procedures established to support management practices.

Location:	Meldon Quarry, Okehampton, Devon
Business Unit:	Bardon Aggregates
Offence:	Discharge consent limits breached
Legislation:	Environmental Protection (England and Wales) Regulations 2010 – Regulation 38(1)(2)
Enforcement option:	Caution
Date of incident:	25 November 2010

Summary

The discharge consent provides that no sample of the discharge shall contain more than 500 micrograms per litre of dissolved Aluminium and shall not have a pH of less than 6. A routine Environment Agency visit at a time of minimal discharge flow, identified the discharge contained 3,350 micrograms per litre of dissolved Aluminium and have a pH of 5.3.

Action taken

Improvements to the site water treatment system were undertaken including changes to the collection, treatment and monitoring of acidic water draining from the quarry prior to the controlled discharge of treated water in accordance with the discharge consent. Management procedures reviewed and updated to reflect recommendations and observations from the incident investigation process.

Site water management plans were reviewed across AI businesses to ensure that these reflected the issues identified during the EA's investigation.

Location:	Warmwell Quarry
Business Unit:	Bardon Aggregates
Offence:	Illegal discharge from site
Legislation:	Water Resources Act 1991 [s.85(1)]
Enforcement option:	Caution
Date of incident:	9 December 2009

Summary

Discharge of overflow water during excessive rainfall caused elevated suspended solid concentrations in onsite fisherman's pond with flows into Tadnoll Brook.

Action taken

Immediate action taken to prevent discharge including lowering of the water levels in the fisherman's pond (used as a holding/ settling pond).

Review of onsite procedures and water management plan completed to prevent reoccurrence. Discharge consent reviewed and flood risk assessment works completed to identify risk of repeat overflows and installation of increased capacity to reduce overflows during similar rainfall events.

Location:	Bordesley Green Ready Mix
Business Unit:	Bardon Concrete
Offence:	Failure to submit quarterly abstraction returns
Legislation:	Water Resources Act 1991 [s.24]
Enforcement option:	Warning Letter
Date of incident:	15 April 2008

Summary

Failure to submit quarterly returns for borehole abstraction.

Action taken

Responsibilities confirmed and procedures amended to ensure returns are now submitted in a timely manner.

Location:	Stoke Ready Mix
Business Unit:	Bardon Concrete
Offence:	Visible emissions to air
Legislation:	Pollution Prevention and Control regulations 2000, Reg 24
Enforcement option:	Enforcement Notice
Date of incident:	2 October 2006

Summary

Enforcement notice issued due to non completion of actions identified during previous visit by Newcastle under Lyme Borough Council EHO regarding controlling the emissions to air during silo filling and cement deliveries to site.

Action taken

Actions as outlined in the enforcement notice completed. A return visit by the EHO in November 2006 confirmed that sufficient actions been taken to close out notice.