



Breedon Cement LTD

EOP 11 - Environmental accident prevention & management

Business Management System - Environmental Operating Procedure

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Scope

The purpose of this procedure is to detail how Hope Cement Works carries out an overarching high-level assessment of pollution risks

This document will ensure that pollution risks are categorised and assessed to ensure the level of severity and significance is understood. The associated assessment will describe the potential risks of materials or situations on site and how they may affect the environment

Responsibilities

EHS Department

The EHS Department shall ensure that this procedure is maintained current and up to-date and communicated to all relevant personnel.

Employees

It is the responsibility of all Breedon Cement LTD personnel to report any incident or occurrence that has caused or has the potential to cause pollution to the environment.

Definitions

Pollution:

Any contamination of water, air or land by substances or energy not naturally occurring, or in amounts of an unnatural level. Where a receptor (human, plant, animal, land, water) is harmed then pollution is deemed to have occurred.

Pollutant:

A substance or condition that contaminates air, water, or soil. Pollutants can be artificial substances, such as pesticides, or naturally occurring substances, such as oil or carbon dioxide, that occur in harmful concentrations in a given environment. Pollutants can also arise as part of normal activity and may be defined by the receptor where harm or nuisance results. Examples of nuisance may include (but will not be limited to) Fugitive Dust, noise, light and odour.

Procedure

Identification of pollution risks

The potential pollution issues relating to Hope Works include but are not limited to: -

- Fire - the control of smoke and firewater
- Flood
- Oil / Fuel / Chemical Spills (E.g. Ammonia, Gas Oil, Lubricants)

- Waste – storage & disposal, waste leachates
- Water contamination – Ponds / Groundwater
- Mud and material deposition on public highways.
- Noise
- Odour
- Emission abatement failure
- Emissions to air
- Fugitive dust
- Loss of process control

Hazardous substances and materials

The cement manufacturing process and the associated quarrying and maintenance activities requires the use and storage of a variety of hazardous substances.

Local site operating procedures are in place that detail the operation of plant to minimise the risk of pollution incidents

Some of the key hazardous substances that are stored in bulk on site are listed below and locations can be seen on the site plan in Appendix C

- Hydrated Lime
- Ammonia
- Kerosene
- Pulverised coal
- Gas oil
- Waste derived fuels e.g. tyres
- Lubricants / oils
- Cement
- Raw Meal
- Grinding aids (liquid)
- FeSO₄

A list of substances, used on site, COSHH assessments and their associated safety data sheets are maintained within the online COSHH management system.

<https://cms.sypol.com/>

Emergency preparedness and response

Site standard operating procedures, clearly set out local procedures relating to the operation of plant in emergency situations. These are retained electronically.

<G:\Hope\Data\Document\OperatingProcedures\Hope Works Operating Procedures>

Key environmental drawings relating to emission points, spill control, drainage, and site waste stations are maintained and stored electronically, these can be found in;

<V:\Works P&ID Plan Process Flow\Works PLAN\Environmental PDFs>

Pollution risk assessment

A pollution risk assessment as set out in *Appendix B*. The pollution risk assessment takes into consideration,

- The source of pollution potential pollution
- The method of pollution is then identified
 - e.g. *Air emissions, Land contamination, Damage to ecosystems*
- The pollution risk is then assessed using the prioritisation matrix. (*Appendix A*). A1 would be a low pollution risk, whilst an assessment rated D3 would be a high pollution risk.
- Pollution preventative measures are identified and assigned to each pollution category.
- Residual risk is given, taking into consideration the control measures listed within the table.

Recording Incidents

All environmental pollution incidents, or, occurrences with the potential to cause pollution must be reported immediately to line management.

All Environmental incidents shall be record in the SHE Assure online software <https://sheassure.net/breedongroup>

A thorough investigation must take place with appropriate corrective and preventative measures recorded and put in place to prevent reoccurrence

Any Environmental incidents that constitutes a breach of Hope Cement Works environmental permit EPR/BP3731VJ v004 will require the submission of a schedule 5 notification. Submission must take place in accordance with *EOP 2 - Notification to regulatory authority*

Related Documents

- Standard operating procedures – HO - Emergency procedure / Environment
- Environmental Operating Procedures
- Emergency spill procedure
- Ammonia spill emergency procedure
- Hope Cement Works environmental permit EPR/BP3731VJ v004



APPENDIX A – Pollution risk assessment matrix

Hope Cement Works POLLUTION RISK ASSESSMENT MATRIX					
Certain Constantly in normal conditions	4				
Likely Intermittent in normal conditions e.g. monthly or weekly	3				
Occasional Possibly may occur e.g. annually. May be due to staff or equipment failure	2				
Unlikely to occur under normal operations, no evidence of occurring, extreme situations only	1				
		A	B	C	D
Severity of pollution	Scale & Impact	Minimal reversible pollution, Local, not exceeding site boundary	Minor pollution, short-term localised impact reversible in 1 year, not exceeding site boundary .	Moderate pollution, short term implications not reversible in 1 year, exceeds site boundary	Major pollution, long-term impacts reversible in >1year. impacts health/ toxic etc, exceeds site boundary
	Legal/ Policy/ Other		Policy/ performance standard aspiration	Potential breach of permit / legislation	Actual breach of permit / legislation
	Business Issues Litigation/ clean up costs	Potential for minimal loss (£)	Potential for minor loss (£)	Potential for moderate loss (£) 50 – 100k	Potential for major loss (£) >£100k
	Reputation		Potential for internal complaint/ non conformance	Potential for external complaint	Potential prosecution, external complaints / protests, negative media interest



APPENDIX B – Pollution risk assessment

Issue	Potential risk	Risk Rating	Prevention Measures	Mitigation Measures	Residual Risk
FIRE (Offices).	<ul style="list-style-type: none"> ▪ Discharge to water courses - firewater ▪ Air emissions (Smoke) ▪ Land Contamination - firewater ▪ Odour 	B2	<ul style="list-style-type: none"> ▪ Fire cabinet for Storage of Chemicals. ▪ Enforced No smoking policy. ▪ 6 monthly Electrical Appliance Safety Inspections. ▪ Weekly fire alarm testing ▪ Fire risk assessment ▪ Trained fire wardens ▪ Contractor visitor site induction 	<ul style="list-style-type: none"> ▪ Fire plan & procedures ▪ Fire extinguishers and alarm system ▪ Emergency response training ▪ Pond 2 automated penstock valve 	B1
FIRE (Plant etc)	<ul style="list-style-type: none"> ▪ Discharge to water courses - firewater ▪ Air emissions (Smoke) ▪ Land Contamination - firewater ▪ Odour 	C2	<ul style="list-style-type: none"> ▪ Storage of Chemicals ▪ Signage for visitors ▪ Contractor visitor site induction ▪ Safe working practices ▪ Area fire risk assessment ▪ Plant maintenance schedules ▪ Site audit 	<ul style="list-style-type: none"> ▪ Fire plan & procedures ▪ Firefighting equipment ▪ Emergency response training ▪ Pond 2 automated penstock valve ▪ Penstock valve ▪ Automated deluge system in high risk areas (explosive) 	C1

				atmospheres, fuel storage, Tyres, PSP)	Waste SWF,
Oil / Chemical Spill or leak (Fixed Location – storage e.g. Ammonia / kerosene)	<ul style="list-style-type: none"> ▪ Discharge to reservoirs ▪ Discharge to river Noe ▪ Emission to soils / land ▪ Emission public sewer/highway ▪ Risk to reservoir flora and fauna 	C2	<ul style="list-style-type: none"> ▪ Double skinned tanks ▪ All chemicals and fuels are secondary contained ▪ Hard paved roads in storage locations ▪ Main Site Interceptor & closed drainage system, including maintenance regime ▪ Maintenance schedules / audits ▪ Emergency response procedure & training (includes Emergency maps) ▪ Emergency spill drills 	<ul style="list-style-type: none"> ▪ Emergency response procedures & training ▪ Site drainage oil interceptors ▪ Pond 2 automated penstock valve ▪ Spill materials 	C1
Oil / Chemical Spill or leak (Fugitive escape)	<ul style="list-style-type: none"> ▪ Discharge to reservoirs ▪ Discharge to river Noe ▪ Emission to soils / land ▪ Emission public sewer/highway ▪ Risk to reservoir flora and fauna 	C2	<ul style="list-style-type: none"> ▪ Hard paved roads in most vehicular access areas ▪ Main Site Interceptor & closed drainage system, including maintenance regime ▪ Vehicle checks, inspections & maintenance (Internal & external requirements) ▪ Emergency response procedure & training, includes induction for visitors and contractors ▪ Emergency spill drills 	<ul style="list-style-type: none"> ▪ Emergency response procedures & training ▪ Isolation valves (Site Interceptor) ▪ Pond 2 automated penstock valve isolation ▪ Spill materials 	C1

Flood	<ul style="list-style-type: none"> ▪ Discharge to water course (lake, river) – increased sediments, water levels ▪ Emission to soils / land 	C1	<ul style="list-style-type: none"> ▪ Site Interceptors, silt traps & Closed drainage systems, including maintenance regime ▪ Settlement lagoons within the reservoir system ▪ Weekly pond depth measurements taken ▪ Annual reservoir inspecting engineer visits ▪ Regular reservoir area inspections. 	<ul style="list-style-type: none"> ▪ Emergency response procedures & training ▪ Pond 2 automated penstock valve isolation 	C1
Shale quarry water (Elevated pH)	<ul style="list-style-type: none"> ▪ Discharge to reservoirs ▪ Discharge to river Noe ▪ Risk to reservoir flora and fauna 	C2	<ul style="list-style-type: none"> • Daily pH monitoring of water • Flow of pumped water directed to ensure water neutralisation prior to pond entry (limestone weirs) • Training of quarry operatives • Site operating procedures, water is only pumped during supervised hours 	<ul style="list-style-type: none"> ▪ Pump shutdown procedure ▪ Pond 2 automated penstock valve isolation ▪ Emergency response procedures & training 	C1
Fuels storage (coal & wastes)	<ul style="list-style-type: none"> ▪ Emissions to air – particulates, odour ▪ Emissions to soils / land – sediments, spillage ▪ Emissions to water courses ▪ Cross contamination of fuels 	B3	<ul style="list-style-type: none"> ▪ Covered storage – silo or yard ▪ Silo identification / numbering ▪ Vented storage arrangements, dust plants etc ▪ Plant operating procedures ▪ Silt Traps ▪ Maintenance schedules & inspections 	<ul style="list-style-type: none"> ▪ Plant shut down procedures ▪ Supervisor training & presence ▪ Emergency response procedures & training ▪ Isolation valves (Site Interceptor) 	B2

			<ul style="list-style-type: none"> ▪ Supervised deliveries ▪ Site interceptors, silt traps & closed drainage systems ▪ Emergency procedures & training 	<ul style="list-style-type: none"> ▪ Pond 2 penstock valve isolation ▪ Spill materials ▪ Silt removed when necessary 	
Material Transport (including loading / unloading)	<ul style="list-style-type: none"> ▪ Emissions to air – dust, spillage ▪ Cross contamination of materials through incorrect filling 	B2	<ul style="list-style-type: none"> ▪ Covered transportation systems – airslides, ducts & lines, sheeted conveyors & vehicles, ▪ Contained storage systems ▪ Maintenance schedules, inspections ▪ Silo identification system ▪ Loading and discharge procedures ▪ Hard paved roads in main factory areas ▪ Use of water bowser as routine procedure in quarry & on unpaved roads ▪ Use of road sweeper on paved roads around factory site ▪ Dust suppression systems on conveyors ▪ Mist air suppression system in situ on clinker shed ▪ Specialist haulage contractors and delivery firms utilised 	<ul style="list-style-type: none"> ▪ Plant shut down procedures ▪ Silo/tanker isolation & quarantine procedures ▪ Immediate repair, prior to permanent maintenance ▪ Extra use of Road sweeper ▪ Extra use of Water bowser in extreme conditions ▪ Stop vehicular movement (eg Shale Quarry) 	B1

Raw material and product storage	<ul style="list-style-type: none"> ▪ Emissions to air – dust, spillage ▪ Cross contamination of materials through incorrect filling 	B2	<ul style="list-style-type: none"> ▪ Contained storage systems – silos, tanks for powder, fine particle materials, includes venting, dust filtration equipment, alarms ▪ Fill / overfill procedures & alarms ▪ Silo identification ▪ Maintenance schedules & inspections ▪ Dust suppression systems 	<ul style="list-style-type: none"> ▪ Plant shut down procedures ▪ Silo/tanker isolation & quarantine procedures ▪ Immediate patch & repair, prior to permanent maintenance ▪ Housekeeping team for spillage clean up & control 	B1
Material / mud deposition on public highway	<ul style="list-style-type: none"> ▪ Contamination of public highway – nuisance, traffic hazard 	B2	<ul style="list-style-type: none"> ▪ Lorry wash on factory site ▪ Restrict movement of quarry plant to quarry areas only ▪ Visual vehicle inspections ▪ Correct loading procedures 	<ul style="list-style-type: none"> ▪ Hire of road sweeper to clean roads 	B1
Lorry wash (oils, greases, detergent)	<ul style="list-style-type: none"> ▪ Discharge to reservoirs ▪ Discharge to river Noe ▪ Risk to reservoir flora and fauna 	B2	<ul style="list-style-type: none"> ▪ Interceptor built into lorry wash system ▪ Closed loop drainage system – no emission to drains ▪ Maintenance / cleaning routine of filters and drainage system ▪ Restrict use of detergent COSHH controls ▪ Secondary containment of water 	<ul style="list-style-type: none"> ▪ Pond 2 Isolation valve ▪ Site drainage interceptors and silt traps 	B1

Waste storage & Transportation	<ul style="list-style-type: none"> ▪ Emission to land (landfill) ▪ Illegal waste transfer operations ▪ Leachate of waste substances ▪ Fugitive dust 	C3	<ul style="list-style-type: none"> ▪ Clear signage and waste skips for different waste streams ▪ Secondary contained hazardous waste and waste oil storage facility ▪ Training & awareness communication to all personnel ▪ Visual inspections / audits ▪ Licensed carriers and brokers only are used ▪ Waste duty of care audits ▪ Appropriate waste storage and covers available if appropriate ▪ Waste acceptance criteria testing if appropriate 	<ul style="list-style-type: none"> ▪ Waste contractor relationship to collect / retrieve contaminated skips, materials ▪ Contractor used is zero waste to landfill ▪ Licensed waste carriers and brokers used ▪ Minimize waste on site by regular waste transfers 	C2
Quarry (vibrations / noise)	<ul style="list-style-type: none"> ▪ Emissions to land – rock deposition outside site boundary ▪ Noise / vibration nuisance to neighbours ▪ Breach of planning consent ▪ Disturbance of nearby wildlife, new venture mine 	B2	<ul style="list-style-type: none"> ▪ Quarry blasting procedures, including blast design & monitoring ▪ Geotechnical understanding of blast areas – site boundary & local properties well away from blast location – flyrock unlikely to exit ▪ Blasting warning sirens, boundary checks & inspections ▪ Communications to neighbours of blasts ▪ Blast vibration monitoring 	<ul style="list-style-type: none"> ▪ Blast monitoring, investigation techniques to improve (nuisance issues) ▪ Communication procedures to provide early warnings ▪ Bunding, tree lines etc as noise abatement, flyrock protection 	B1

			<ul style="list-style-type: none"> ▪ White noise reversing alarms fitted to mobile plant ▪ Boundary monitoring conducted every 3 years 		
<p>Failure of emissions abatement equipment & Monitoring equipment (ABB IED analysers, durag dust monitors, dust filtration systems & monitoring equipment, Ammonia system)</p>	<ul style="list-style-type: none"> ▪ Emissions to air – gaseous, dust, ammonia ▪ Emissions to water courses ▪ Emissions to soils / land ▪ Permit breach 	D2	<ul style="list-style-type: none"> ▪ Maintenance schedules, inspections, routine parts replacements ▪ Routine service & calibration contracts ▪ Back up equipment available (standby IED analysers) ▪ Standby dust monitors on site ▪ Computer system controls & alarms to warn of early problems prior to failure ▪ Plant operating procedures ▪ Performance monitoring ▪ Training & competence methodology for key staff response to monitoring equipment failures 	<ul style="list-style-type: none"> ▪ Emergency callout service embedded within contracts ▪ Alternative / replacement equipment held in stores or available within 24hrs ▪ Plant shut down procedures ▪ Bund arrangement – ammonia ▪ Emergency response procedures & training ▪ RCA process to understand issues & problems, identification of remedial actions etc. ▪ Regulator Notification 	D1
<p>Loss of process control (unstable kiln & combustion)</p>	<ul style="list-style-type: none"> ▪ Emissions to air – gaseous & particulate 	C3	<ul style="list-style-type: none"> ▪ Process control checks & inspections 	<ul style="list-style-type: none"> ▪ Plant operating procedures for abnormal circumstances 	C2

<p>process, kiln flush etc)</p>	<ul style="list-style-type: none"> ▪ Fugitive emissions - flush ▪ Plant failure ▪ Product quality ▪ Permit breach 		<ul style="list-style-type: none"> ▪ Performance monitoring through computer network, PI CEMS monitoring etc ▪ Plant operating procedures, 24-hour cover in control, call out rota for support out of hours ▪ Maintenance schedules, inspections, including kiln shutdown for maintenance etc ▪ Audits & Support etc ▪ Computer system controls & alarms to warn of early problems prior to failure ▪ Plant operating procedures ▪ Training & competence methodology for key staff ▪ Planned upgrades/replacement of plant & equipment ▪ Building containment etc 	<ul style="list-style-type: none"> ▪ Plant shut down procedures ▪ Emergency procedures, training & response ▪ Technical support in all areas on site & by call out rota at all times ▪ RCA process to understand issues & problems, identification of remedial actions etc ▪ Regulator notification procedure 	
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