Environmental Management Programme 2022 - 2023

Breedon Cement
Environmental Department

Kinnegad Cement Plant, County Meath

KEY PILLARS OF THE ENVIRONMENTAL MANAGEMENT PROGRAMME (EMP)

1. Being Good Neighbours
Minimization of fugitive dust emissions
To minimize noise pollution from site
To positively engage with local stakeholders
Minimization of transport impacts

2. Strategic Waste Management
To prevent and reduce waste going to landfill
To optimize thermal energy substitution from alternative fuels

3. Process Optimization and Control
To identify and implement opportunities for energy efficiency
To monitor Water Usage and Protect Water Quality
Reduction in Total Organic Carbon Emissions

BREEDON
MAKING A MATERIAL DIFFERENCE

OBJECTIVE 1 – MINIMIZATION OF FUGITIVE DUST EMISSIONS

Targets

1. To complete monthly sampling and analysis for fugitive dust emissions from site

2. Respond and address all dust related complaints and minimise occurrences of fugitive dust emissions

Rationale

To quantify dust emissions from site activities to enable better dust suppression activities onsite and ensure adherence to our IE licence limits. Utilize the learnings from nuisances from fugitive dust emissions to change activity onsite and prevent recurring issues

Methodology

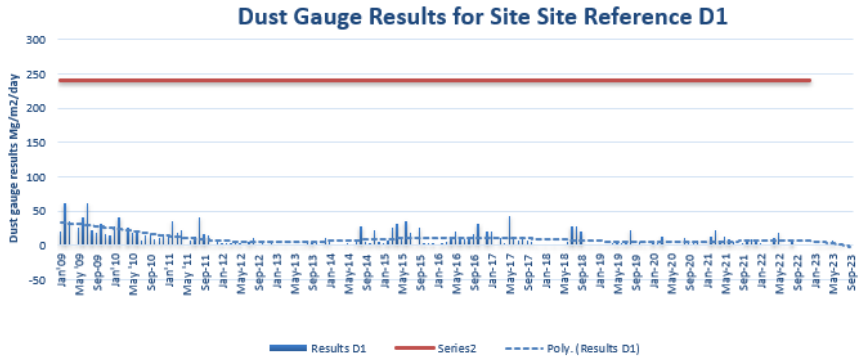
Complete Bergerhoff dust deposition gauge analysis every month and feedback any issues to relevant operational managers. Engage proactively with local stakeholders on any nuisance dust issues and implement new work initiatives to prevent recurrence if appropriate and feasible

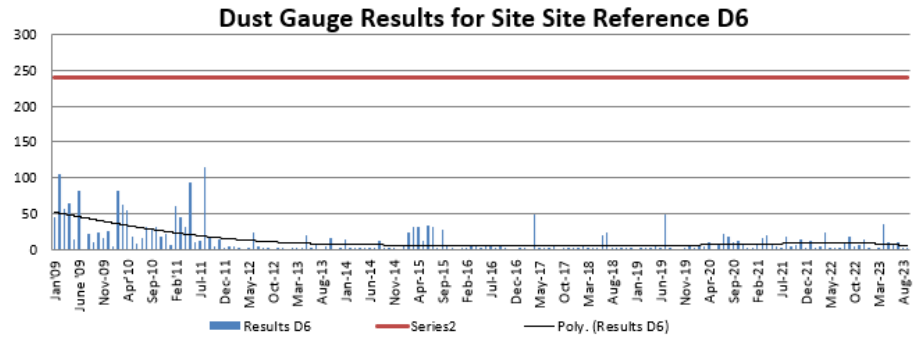
Evidence

Monthly dust deposition gauge results available on file for inspection. All dust related concerns are investigated and corrective and preventative action taken where possible

OBJECTIVE 1 – AMBIENT DUST RESULTS

- Two sites for ambient dust monitoring presented below
- Results representative of our overall trends for successful ambient dust suppression measures site wide over the last decade
- Monitoring and feedback to relevant operational personnel on dust trends ongoing and action taken as required
- IE licence require 8 sites to be monitored, Breedon go beyond this, by monthly analysis of 14 sites in total
- Monitored sites are all fully compliant
- All dust related neighbour concerns are fully investigated and closed out at the earliest opportunity





OBJECTIVE 2 – TO MINIMIZE NOISE POLLUTION FROM SITE

Targets

1. To address any exceeding noise limits identified in the annual surveillance monitoring
2. To respond and address all noise related complaints

Rationale

To eliminate any noise nuisance resulting from activities on-site for colleagues and surrounding neighbours

Methodology

Utilize an independent expert to complete annual noise monitoring and address any exceedances identified. Engage proactively with local stakeholders on any nuisance noise issues and implement new work initiatives to prevent recurrence if appropriate and feasible

Evidence

Annual noise monitoring results available on file for inspection. All noise related concerns are investigated, and corrective and preventative action taken where possible

OBJECTIVE 2 – ANNUAL NOISE MONITORING 2022

Daytime limits 55dB(A)

Date	Time	NSR	Period	LAeq T = 90mins
17.05.22	09:21	1	Day	50.6 (50.4, 50.4, 50.9)
17.05.22	12:37	2	Day	50.1 (50.6,49.6,50.2)
18.05.22	14:15	3	Day	54.8 (55.2,54.3,54.8)
18.05.22	12:58	4	Day	44.2 (45.1,43.6,44.0)
17.05.22	17:36	5	Day	48.5 (48.6,49,47.8)
17.05.22	09:55	6	Day	47.4 (48.2,46.6,47.2)
18.05.22	13:29	7	Day	53.3 (54.8,51.7,53.5)
17.05.22	14:55	8	Day	53.6 (54.2,53.4,53.1)
17.05.22	14:12	9	Day	46.3 (45.5,47.1,46.4)

- Sample of our 2022 daytime monitoring results is presented – ongoing high level of compliance with all daytime, evening and nighttime monitoring
- Numerous nuisance noise containment measures have been actioned site wide
- Any new plant commissioned onsite is assessed for noise emissions and suppression measures actioned where necessary
- All noise related concerns from local neighbours are fully investigated and closed out at the earliest opportunity
- All Breedon site personnel are trained on the importance of noise suppression and ensure noise nuisances to local stakeholders are avoided

OBJECTIVE 3 – TO PREVENT AND REDUCE WASTE GOING TO LANDFILL

Targets

1. Engage the work force at Breedon on proper waste management practices
2. Reduce waste consigned to landfill relative to activities onsite

Rationale

To reduce the quantity of waste being disposed to landfill facilities

Methodology

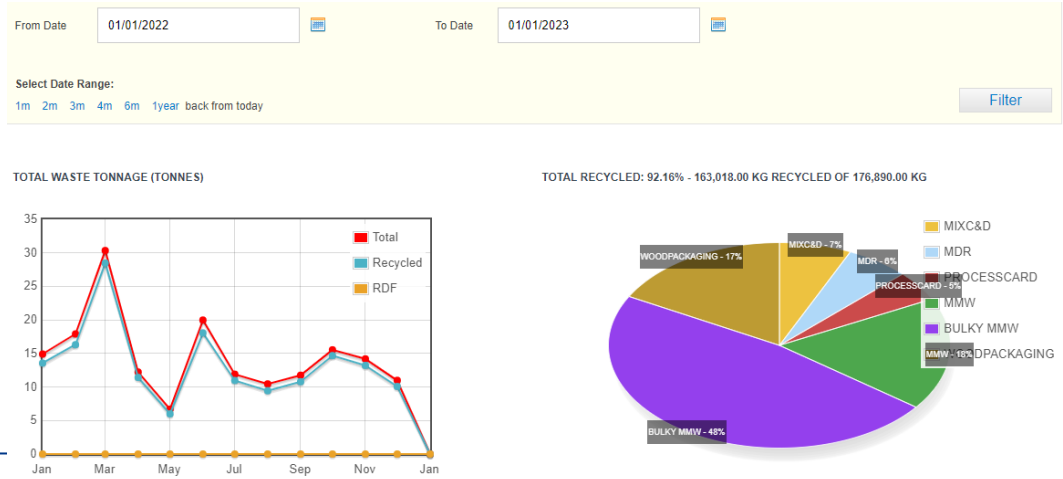
Use toolbox talks, site audits, site signage, site induction training for creating employee awareness on proper waste management. In 2020 Lean Six Sigma Consultant appointed to assist with driving improvements in waste management. This was continued throughout 2022 and into 2023

Evidence

Site signage and records available for inspection onsite. Waste data recorded and trends reviewed

OBJECTIVE 3 – MINIMIZE WASTE TO LANDFILL

1. Landfilling waste from site is a key aspect of Breedon Cement operations
2. All waste onsite is segregated appropriately to maximize recovery options
3. The company is continually looking for new and innovative means to recover value from waste streams
4. Breedon have engaged a Lean Six Sigma consultant and REPAK on driving waste management improvements for the site
5. One metric on our successful waste management is waste sent offsite for recycling by Thornton's waste company, 2022 breakdown of recycling and landfilled materials below



OBJECTIVE 4 – TO OPTIMIZE THERMAL ENERGY SUBSTITUTION FROM ALTERNATIVE FUELS

Targets

1. To increase the thermal energy generated from alternative fuels
2. To maintain reduced levels of net carbon dioxide emissions

Rationale

To reduce the overall carbon content of the product by utilizing greener energy sources in the production process

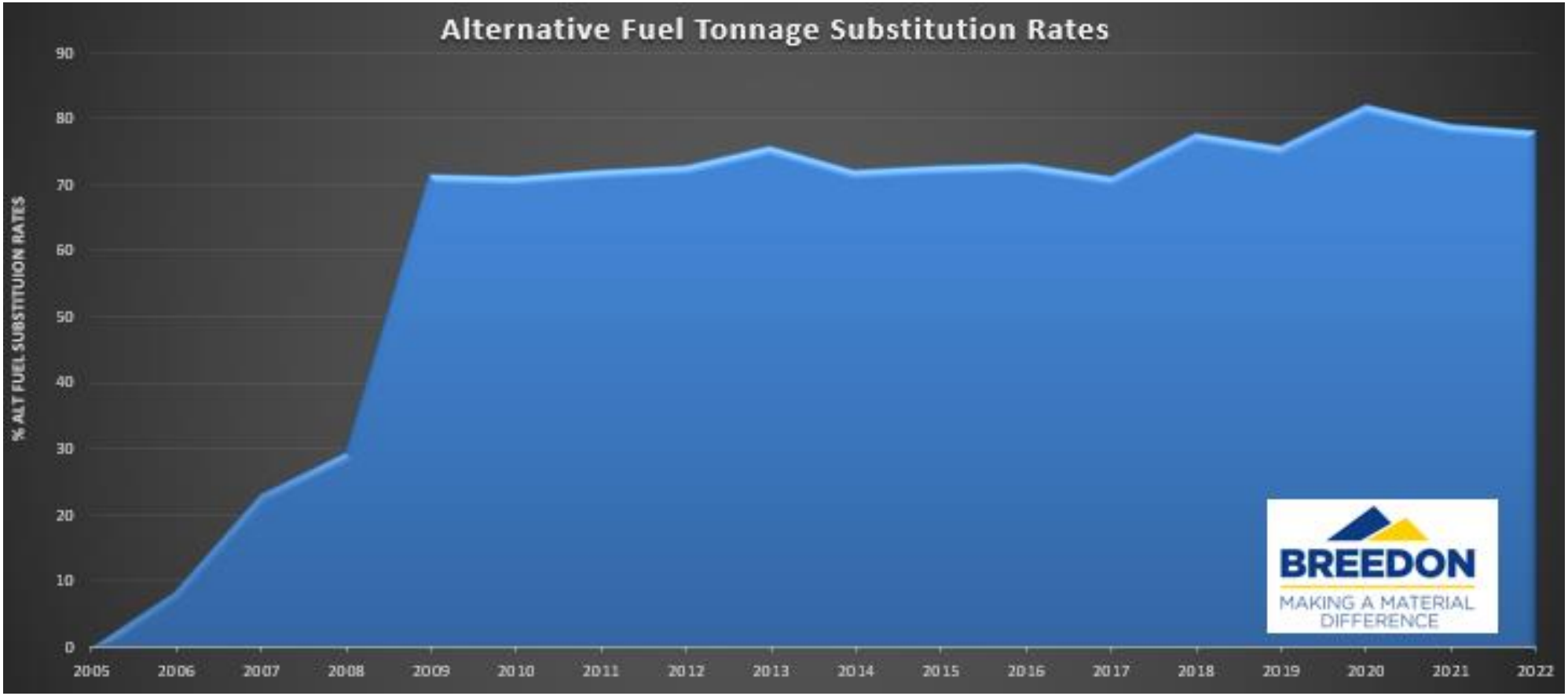
Methodology

Substitute fossil fuels with alternative fuels in the manufacturing process

Evidence

Alternative fuel consumption data available through EPA audited Greenhouse Gas figures and data. Carbon emissions data reported annually to the EPA

OBJECTIVE 4 – ALTERNATIVE FUEL SUBSTITUTION



OBJECTIVE 4 – TYPES OF ALTERNATIVE FUEL USED

Meat and Bonemeal (MBM) first utilized 2006

Liquid Recovered Fuel (LRF) first utilized 2012

Solid Recovered Fuel (SRF) first utilized 2011

OBJECTIVE 5 - TO IDENTIFY AND IMPLEMENT OPPORTUNITIES FOR ENERGY EFFICIENCY

Targets

1. Retain certification to the ISO 50001 standard
2. To reduce the electrical consumption in kilowatt hours per tonne of production by 1% on 2022 baseline levels

Rationale

To reduce energy use and costs for the plant

Methodology

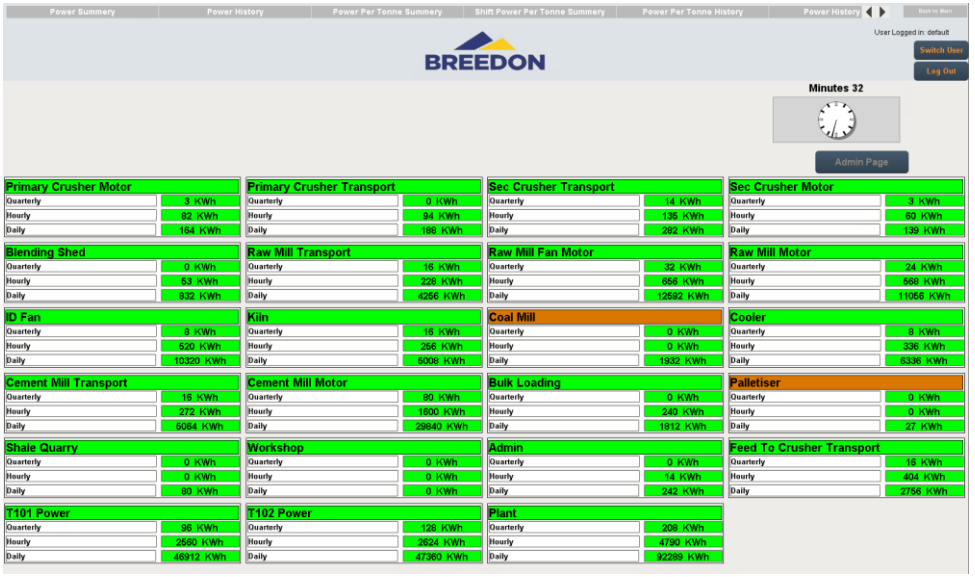
Engage with external certification body for the 50001 standard, individually plant areas monitored for energy use and specific targets sought

Evidence

ISO 50001 Certification audit reports available and electrical use trends available onsite for inspection

OBJECTIVE 5 – REDUCTION OF ELECTRICAL USE

1. Electrical energy efficiency is a key priority of Breedon Cement
2. Each section of the Kinnegad facility is metered, managed and specific targeted improvements sought for energy use using energy management software using a traffic light system as shown below
3. The company uses the ISO:50001 energy management system as the external certification system of our processes, procedures and targets
4. Upstream of our operations, all new electrical equipment purchased for site requires high energy efficiency as standard
5. All electrical energy used onsite are sourced from renewable power sources



OBJECTIVE 6 - MONITOR WATER USAGE AND PROTECT WATER QUALITY

Targets

1. To monitor water levels and use on a monthly basis and follow up investigation if results are outside the expected range
2. To ensure the effectiveness of all bunds and manhole pipe connections on site to prevent unnecessary water loss and contamination to the environment

Rationale

To conserve water where possible and ensure high water quality is maintained

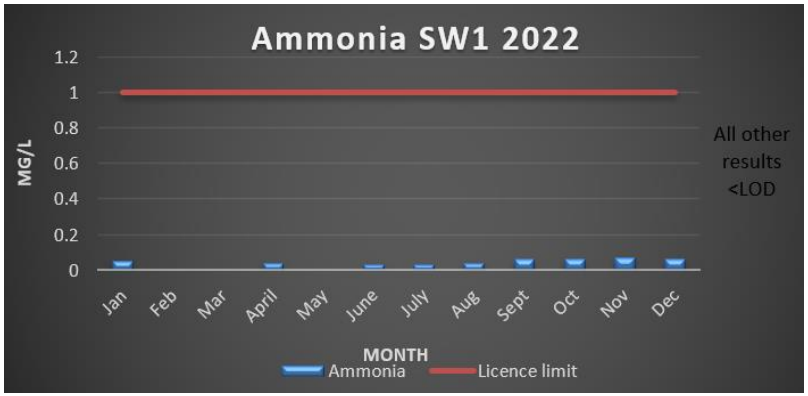
Methodology

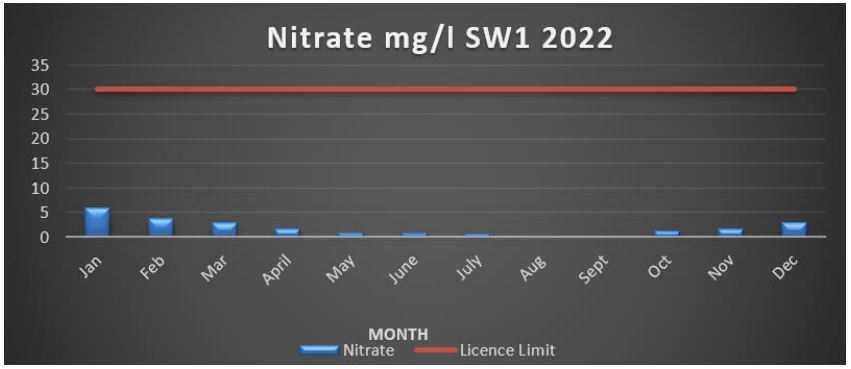
Water levels and use monitoring recorded monthly and any unusually high-water consumption results investigated. Bunds and pipes inspected regularly and water quality parameters monitored above requirements of IE licence

Evidence

Groundwater level readings, water gauge readings, water quality results and inspection checksheets available onsite for inspection

OBJECTIVE 6 – WATER QUALITY MONITORING

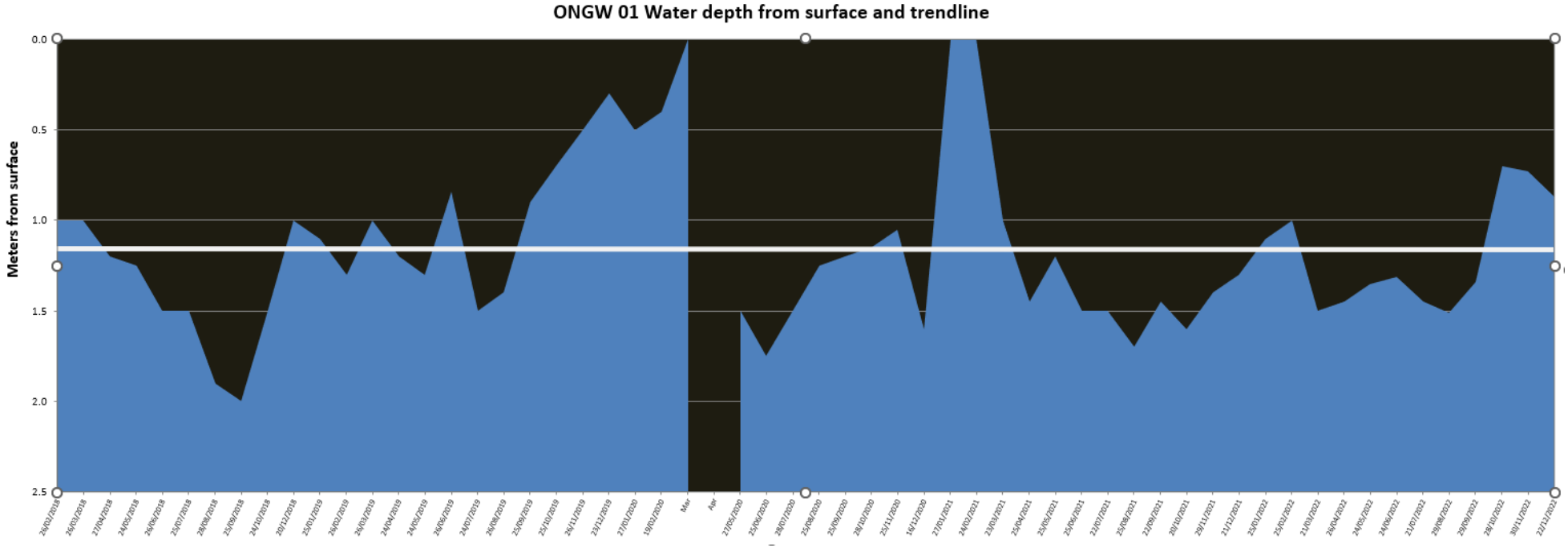




- Breedon Cement have comprehensive water quality monitoring process in place above and beyond licence requirements
- There are ongoing very high standards of water quality compliance with licence limits, as per these parameters shown
- All water quality monitoring is reported publicly through our AER and online monitoring equipment calibrated and verified
- Stakeholder engagement on water supply issues is a key focus of the Environmental Management Programme and monthly monitoring is completed instead of licence required biannual monitoring

OBJECTIVE 6 – WATER LEVEL MONITORING

- Groundwater levels for 26 separate monitoring points are recorded on a monthly basis – licence requires only 22 sites to be monitored biannually
- This dataset allows the company to be proactive in liaising with local stakeholder concerns regarding water supply
- As an example, one site monitored monthly since 2002 is given below*



* No data recorded in Mar/Apr 2020 due to Covid 19 restrictions

OBJECTIVE 7 - TO POSITIVELY ENGAGE WITH LOCAL STAKEHOLDERS

Targets

1. To publish at least two newsletters per annum
2. To encourage school tours and groups visiting the facility throughout the year

Rationale

To engage positively with our local stakeholders and engage them on developments in the plant

Methodology

Publish newsletters and circulate by post to local stakeholders and engage local schools for tours at the plant

Evidence

Hardcopies of the newsletters available for inspection, numbers of visits to the plant retained on file

OBJECTIVE 7 – COMMUNITY ENGAGEMENT

- Breedon engages with our local stakeholders through several platforms
- Examples of these relations are illustrated through our biannual newsletter and number of group visits to the site
- The company employs a large number of its workforce from the local area and also contributes to numerous clubs, schools and societies in the locality
- Stakeholder engagement is always a key focus of the Environmental Department to ensure locals are not overlooked by day-to-day operations at the plant

OBJECTIVE 8 MINIMIZATION OF TRANSPORT IMPACTS

Targets

1. To source the maximum amount of raw materials for pro-duction on site
2. To engage hauliers on Health & Safety and Environmental responsibilities of the plant

Rationale

As far as practical, to limit the effects of transport impacts on the local and wider environment and stakeholders

Methodology

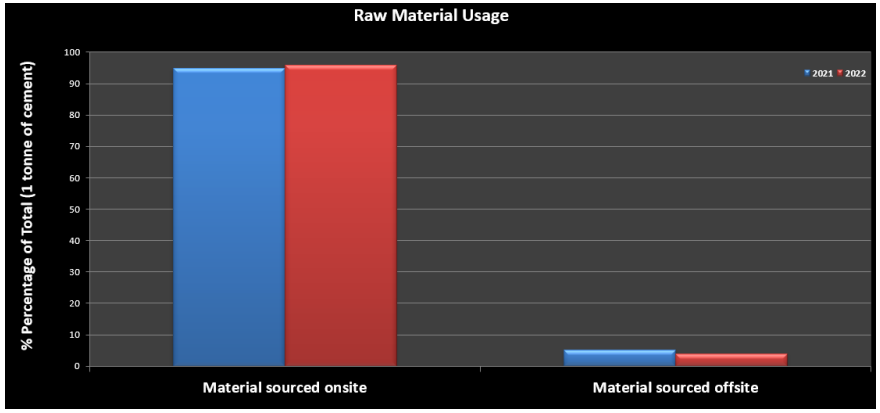
Source the maximum amount of raw materials for the process onsite to reduce HGV transport impacts and engage with hauliers through training and engagements

Evidence

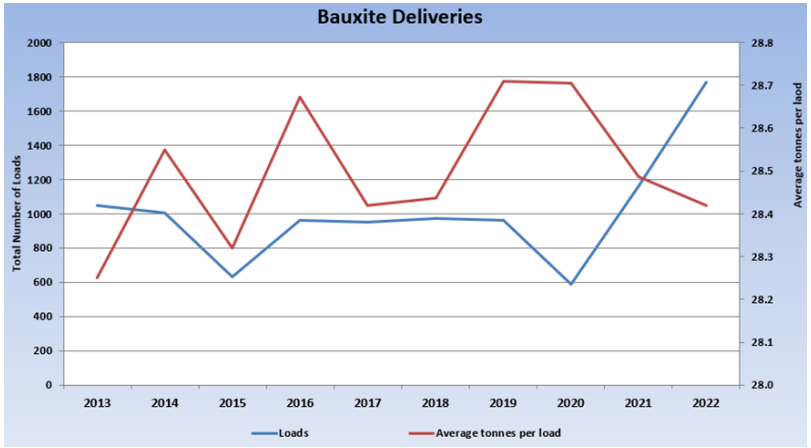
Tracking of raw materials tonnages recorded and onsite use of materials maximized by quality control department. Training and inspection records for hauliers retained onsite for inspection

OBJECTIVE 8 – TRANSPORT IMPACTS

- Sourcing the maximum quantity of raw materials onsite to minimize impacts of HGV transport impacts is a key aspect of our EMP
- These graphs indicate how the company has sought to achieve this target, through ongoing thorough quality control processes and transport metrics
- Engagement of hauliers and haulage companies is reviewed at least monthly through our Safety Management meetings and there is an ongoing ‘Step in’ culture for Safety and Environmental concerns practiced by all Breedon colleagues onsite with contracted hauliers



Raw Materials Sourced offsite – transport metrics



OBJECTIVE 9 REDUCTION IN TOTAL ORGANIC CARBON EMISSIONS

Targets

1. To continuously monitor TOC emissions for IEL 487-07 emission point A2-01

2. To employ a programme of TOC emission reductions, if possible, through process optimization and raw material selection.

Rationale

To ensure TOC emissions comply with the IE licence limit and identify, if possible, further reductions in concentration

Methodology

ABB continuous emissions monitor at IEL p0487-07 point A2-01 and to reduce TOC through process optimization and raw material selection

Evidence

Continuous emissions monitoring data results available onsite and in Annual Environmental Report. Raw material usage available in Quality Departments ‘blend pile’ tracker log

OBJECTIVE 9 – TOC REDUCTION

- TOC reduction is primarily controlled through our Quality Control, Quarry and Production departments
- Raw material inputs and process conditions are monitored continuously with plant production
- The output of our TOC is measured at our main emission stack, EPA reference p0487-07, with results for 2022 given below