FMC THINK. SAFE.

Environmental Report for 2019

Permit Site: FMC Agro Ltd, Pentre, Flintshire. CH5 2DH
Permit No. EPR/FP3031CW
Written By: Carl Rowe
Date: 29/01/2020

Requirement
Section 4.2.2 – A Report or reports on the performance of the activities over the previous year shall be submitted to Natural Resources Wales by 31st January (or other date agreed in writing by Natural Resources Wales) each year. The report(s) shall include as a minimum:
(a) A review of the results of the monitoring and assessment carried out in accordance with the permit including an interpretive review of that data.

We recognise that many of our activities have an impact on the environment and we aim to conduct our business and operations to reflect best environmental practice.

FMC Agro Ltd is committed to the prevention of pollution, compliance with environmental legislation and the continual improvement of its environmental performance through the implementation of its Environmental Management System.

Production Values

In 2018, FMC Agro Limited manufactured 10,178,668 litres of product, compared to 10,143,654 litres in 2017, which is a 0.34 % increase based on the previous year's results.

FMC Agro Ltd continues to conclude that our significant environmental aspects are the natural resources and energy we use, the chemicals we handle, use and store and finally the waste we generate.

This report focuses

- Energy & Natural Resources
- Chemical Handling, Storage and Use
- Waste

Energy & Natural Resources

- In 2019 FMC Agro Limited used 412200 KWH* of grid electricity for most site operations, this was further supplemented using diesel generator(s) which produced a further 235865.1 KWH, therefore a total of 648065.1 KWH of Electricity was used on site in 2019. Although more Grid Electricity was used in 2019 than 2018, diesel generator produced energy was reduced and thereby reducing total electricity consumption by 6518.7 KWH for the year

A reduced amount of fuel oil was used for the generation of electricity of the site in 2019 as a result of two factors. In 2019 the site changed it's shift pattern to run mirrored shifts from 6-2 and 2-10pm at night. This then reduced the amount of power required to run all of the site's equipment with several weeks with the site running on grid electricity only. In late 2019 after several months of legal negotiations the site's own dedicated Sub Station was switched on for use, as a result of this, the Diesel Generators were switched off and subsequently in December 2019 were removed from site, this not only made the site use more efficient/greener electricity but also removed an environmental hazard of transferring and storing diesel fuel on site.
The site continues to monitor it's electricity usage and train and remind individuals to be more mindful and ensure to switch off when equipment not in use. The site has already installed many auto detection switches to assist with reduction in electricity wastage.
More Grid Electricity was used in 2019 as a result of the introduction of Electrical Fork Lift Trucks and Pallet Trucks to site, this move was required to reduce the amount of flammable and non-renewable LPG from site and also to eliminate/reduce the amount of Carbon Monoxide generation which was created and emitted into the working environment. In 2020 additional electrical equipment will be purchased in order to develop future growth including a new automated filling line and a new high speed dispersion mixing vessel with powder transfer, it is expected that Grid Electricity usage will therefore increase accordingly, however it is the site's intention to purchase energy efficient equipment to reduce unnecessary wastage.

- LPG Gas usage at the end of 2019 stood at 96194 KWH, LPG (Propane) was used on site only for the fuel for Fork Lift Truck movements.
- Compared with 206026 KWH LPG usage in 2018 this is a decrease by 53.30 %

As documented in the 2018 report the site moved to introduce Electric Handling equipment instead of LPG powered handling equipment and exchanged 8 out of 10 Fork Lift Trucks to Electrical in 2019. The site still retains 2 LPG Fork Lift Trucks which are routinely used for external activities as these Fork Lift Trucks are seen as a more suitable equipment for the tasks conducted, however this will be reviewed in 2020 to see if we can move wholly to Electricity and thereby eliminate LPG from site, thus reducing consumption of non-renewable material and eliminate a safety hazard.

- In 2019 the site used 5734 cubic metres of town's water for the manufacture of its products including cleaning and domestic use.
- This is an increase of 147 cubic metres or 2.6% on 2018 data where 5587 cubic metres was recorded.

The largest part of the increase in water usage was due to the composition of production in previous years large parts of the total volume of production was based on 3rd party or Corporate formulated products being filled in 2019 this significantly dropped and the site formulated more material (Micronutrition) than ever before therefore using more water within it's products. Another element to the increase in water usage is also down to the delay in commissioning the new hot water system used in the Filling area for reducing water usage and improving cross contamination cleaning. Water Meters are soon to be fitted to the filling and the Formulation area to provide exact data on high users in order to calculate and determine where additional water savings can be made.

- 16927 cubic metres of Natural Gas was used in 2019 to provide heating and hot water to the Filling Department this is a significant increase from the 2018 data of 7967 or 112%

Natural Gas usage is included on it's own in 2019 as changes to use of natural gas occurred at the end of 2018 and used in 2019. The site introduced a new heating boiler system in order to provide additional heating for additional office areas, reducing electrical heating and also the creation of hot water use for the filling plant to be used for more efficient cleaning of equipment and due to higher levels of cleaning required from a cross contamination quality aspect.
Due to the delay in fully commissioning the hot water system correctly potential that processes are using more hot water than required. Commissioning started later in 2019 and improvements are expected in 2020 results.

- CO2 generation from Total Energy Usage in 2019 (inclusive of Office heating and Van use)

The CO2 emissions recorded by FMC Agro Limited at the end of 2019 stood at 266.45 tonnes of CO2. This compared to the 271.929 tonnes reported from 2018 usage. The site therefore seen a decrease of 2.05 %.

On understanding that the decrease, is as a result of two factors reduction and elimination of diesel fuel powered generators and significant reduction in LPG for the Fork Lift Trucks

Chemical Handling, Storage and Use

Releases to Air
The site continues to use the environmental emission abatement equipment in the form of the nitric acid scrubber system (A006), for the manufacture of Manganese Dinitrate production from Mixer 3 in the New Formulation Department. The sampling of the scrubber was carried out by SOCOTEC (previously ESG) as previous

years and was carried out on 10th April 2019. SOCOTEC continue to use the monitoring methods US EPA M7D for Nitric Acid Mist, BS EN 14792 for oxides of Nitrogen, BS EN 14790 for water and BS EN ISO16911-1 for Velocity

The sampling was carried out on 10th April 2019 when the production of Manganese Dinitrate (Headland Jett) in Mixer 3 was being carried out. The scrubber was fully operational and the results from the sampling were as follows:
59 mg/m3 of Nitric Acid Mist, 37 mg/m3 of Oxides of Nitrogen and 1.6% Moisture. These results are well within the 200 mg/m3 of Oxides of Nitrogen Limits set out within the Site's Bespoke Environmental Permit FP3031CW

Further to the emission by abatement, Process Safety improvements have identified that each of the site's 4 mixer vessels requires additional vessel venting. In 2019 suitably sized vents were installed but not commissioned to Mixers 1, 2 and 4 and an environmental permit variation was raised with NRW to implement these additional vents. The site is still waiting to hear back from NRW whether the vents are acceptable to be used without conditions. Due to the delay in the decision, it was required that the site contact the local inspector to request usage of these vents as a more stringent internal corporate process safety examination determined that these needed to be in place in order to produce. Should these vents not be in use then this would have significantly disrupted production to the facility and the potential of customer losses. It was decided as an interim measure that the vents would be allowed to be used on certain conditions including a detailed risk assessment being carried out which was produced and is constantly reviewed on a monthly basis in accordance with requirements by the local inspector. The site awaits final conclusion from NRW.

Loss of Containment/Flooding

To prevent and reduce releases of dangerous for the environment material on and off site, ALL FMC Agro Ltd staff are made aware of the importance of protecting the environment. The site continues investing in terms of CAPEX to reduce all aspects of loss of containment on site.
In 2019 CAPEX was approved to continue with tertiary bunding on site, in particular the area at the side and rear of the facility were upgraded, further work in 2020 will upgrade the north side. However, elimination aspects were also completed including the removal of Herbicide tanker offloading and storage in the site's External Herbicide tanks, the removal of Diesel Fuel Oil tank from the site as the Generator was removed. The site continues to monitor and conduct basic tests to it's external rainwater collection to ensure no contamination before releasing to the drainage ditch.

In 2019 localised pluvial flooding occurred in the area which affected houses in nearby Church Close in Pentre, it was pleasing to note that the site's emergency response and site drainage and containment aspects were tested and that full control and removal of rain water from site was conducted with only minimal disruption to site activities (Use of Loading Bay for Loading Activities was unavailable for 2 days) and no breaches of containment.

Project work on a new type of intermediate liquid transfer container continued in 2019. The site is looking to reduce loss of containment from IBC's and is currently in the process of trialling and conducting a business finance case for this project. More work will continue on this in 2020 to improve reliability of equipment and reduce the potentials of LOC events at FMC Agro Ltd

In 2019 there were no recorded incidents of unpermitted release of dangerous for the environment materials off site.

Waste

The nature of our work generates waste on site and at consumer sites, in 2019 work continued with the review of packaging material used in our products

- In 2019 the site disposed of 1185 tonnes of waste material offsite an increase in waste of 117 tonnes or a 10.95% on 2018
- Recycling of site waste however continues to increase in 2019 with 398 tonnes of recyclable material transferred off site against 363 tonnes of recyclable material transferred off site in 2018, an increase of 9.6%.

The site's largest waste producer continues to be the micronutrient waste washings and the herbicide/pesticide waste washings with a combined total of 375 tonnes. This is lower than previous years as a result of two factors better production planning reducing washing frequency, the use of hot water, the reduction in Herbicide and Pesticide packaging which uses lots of water for cleaning.
The biggest increase in waste streams was in disposal of own products either out of date/efficacy or out of spec material this accounted for over 70 tonnes increase.

Avoidance of Waste Creation

Improvements to Warehouse stock rotation, Quality Assurance and customer communication has been undertaken to reduce these numbers going forward. Further work on reducing waste creation will continue in 2020 with the site requesting less packaging from the suppliers

Reduce and Recycle

Increased recycling aspects have been undertaken by selecting a direct disposal facility now to process the majority of the site's micronutrient waste streams, this work started in late 2018 and final approval of the waste contractor was done at the beginning of Q2 2019. It is anticipated that 2020 recycling figures will increase as a result of using this contractor. More work with the contractor to be done to work with all elements of micronutrition waste streams.

Environmental Management Systems

The management system continues to be developed and improved. It is still the intention of the site to move towards ISO14001 accreditation, originally this was to occur in 2019 however when undertaking the first stage assessment with Bureau Veritas it was clear that the site was required to undertake a full suite of audits against the standard and a management review, not all of this had been done and therefore it was postponed to go for the 2nd stage until 2020 during which time a full suite of audits can be completed. However, in 2019 organisational changes to the Environmental, Health and Safety Department and Plant Manager occurred whereby individuals left the business, individuals were promoted and new individuals also started. As a result this has caused a further delay into the site's overall goal to obtain ISO14001 in early 2020, this may be an ambitious approach for 2020 and the site will look to obtain this accreditation in Early 2021.

Document Approvals

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