Application to vary an existing Environmental Permit

Application made by Dairy Partners Limited, for the following site:

The Creamery
Aberarad
Newcastle Emlyn
Carmarthenshire
SA38 9DQ

The variation relates to Environmental Permit

EPR/WP3231NB

Contents

Summary of Application

This application is an update to the current environmental permit in place for the Dairy Partners facility named below;

The Creamery
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SA38 9DQ

Dairy Partners Ltd is making this application for a standard variation to Natural Resources Wales (NRW) in respect of Permit EPR/WP3231NB.

The variation to the permit is to cover the upgrade to the existing effluent treatment plant, with the installation of new treatment equipment and utilities. Once the new installation is complete the current asset will be decommissioned and removed from service.

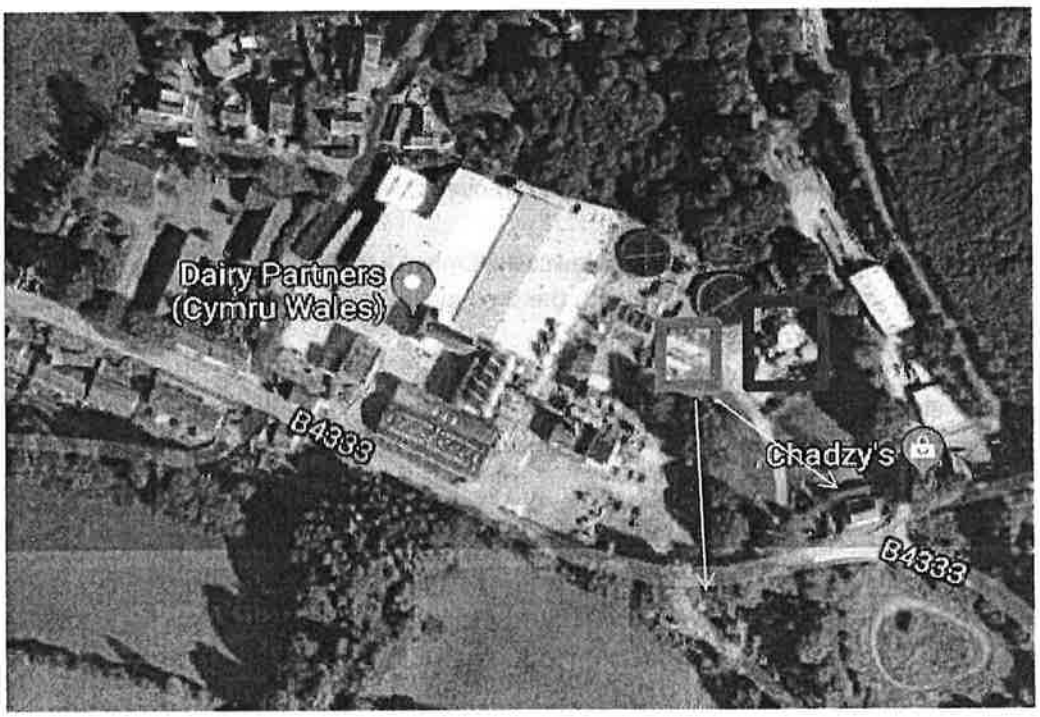
The creamery is positioned in Aberarad, Newcastle Emlyn, with main entry to the site off the B4333, the River Arad runs through the plant, with the site having permission on the permit for disposal of surface water discharge into this water course.

The sites main discharge point is into the River Teifi which is reached by a pipeline running from the site effluent treatment plant, with discharge parameter limits already outlined within the environmental permit.

The site is located at grid reference SN 31672 40106 (SN316401), with the closest residential receptors located within 20 meters of the site boundary, but approximately 150 metres any equipment related to the production facility/process.

The proposed location for the new effluent treatment facility would see the distance from the closest residential receptors increased when based on the current position of the ETP to approximately 80m to 100m.

The current asset is indicated in the site aerial picture below by the red box, the proposed new location is indicated by the blue box, the yellow arrows indicate the position of the closest neighbouring residential properties.



The company wishes to use a standard variation to update the current permit in relation to the following:

Update topic	Current permit situation	Proposed variation
Effluent Treatment Plant	Discharge consent is currently in place for the current ETP. Consent limits are in place as follows: Flow – 1050m3 / day COD – 120mg/l TSS – 50mg/l Ammonia – 22mg/l Temp – 25 Nitrite – 3mg/l Mercury – 0.3ug/l Cadmium – 0.1mg/l	Aging asset in place is to be replaced by a new ETP system using better technology and increasing the automation within the treatment process. There are no proposed changes planned to the discharge point, the new ETP will continue to pump effluent via the current pipeline to the River Teifi. DP would propose a change to the discharge consent limits as follows: Flow – 1050m3 / day COD – 110mg/l TSS – 40mg/l Ammonia – 20mg/l Nitrite, mercury and Cadmium to remain the same

New pipework, monitoring and electrical systems will improve the level of environmental safety the system offers, leaks, spillages and changes to the final effluent quality can be detected early and automatically rather than reliance on human intervention.

The inclusion of balance tanks will allow the creamery to manage any spillages and will also act as a buffer to the main system meaning treatment can be completed before feeding into the main system for further processing.

Better management of sludge will impact on the total number of road tankers that are involved in the process, a reduction in road tankers reduces the impact on the roads around the creamery and Newcastle Emlyn.

Current ETP Process

The current system in brief, relies on a small dissolved air filtration unit which takes out the solids, chemical dosing to remove the finer solids, and final biological treatment within two settlement beds, the solids are sent to a sludge tank which is emptied by road tanker up to three times per day.

Planned system overview

Physical / Chemical Pre-treatment
The waste water from Dairy Partners will be screened by an existing mesh filter and will be collected in a pump pit. From this pump pit it will be fed to the new balance tank by existing pumps. In the balance tank 2-way pH correction is foreseen.

From the balance tank the water will be pumped to the coagulation/flocculation/flotation system. In the pipe flocculator, a coagulant, a neutraliser and a flocculant will be dosed for coagulation and flocculation of the suspended and emulsified pollution.

The flocks which are formed are separated by a DAF unit. The sludge which is generated by the DAF unit will be pumped into the sludge tanks. The Redox DAF unit will be equipped with an automatic micro bubble diffuser cleaning system and is therefore clog-free.

The DAF unit will be equipped with a cover, operated by gas springs.

The treated water after the DAF system will be pumped to the biological treatment system. A transfer tank and transfer

FBR (Flotation Bio Reactor) biological treatment
In the biological treatment system, the pollution is decomposed by aerobic biological bacteria that live in flock-like colonies, called activated sludge.

The effluent from the DAF is fed into a selector which is built inside the aeration tank. In the feed line to the selector, the turbidity of the water will be monitored. In case a pre-set level is exceeded, an alarm will be generated.

In the selector the water is mixed with a set amount of activated sludge. In the selector tank the proper conditions exist for the activated sludge to absorb most of the dissolved pollution, which prevents excessive concentrations of filamentous bacteria to be formed. Phosphoric acid and urea will be dosed into the selector in order to obtain a correct nutrient balance.

From the selector tank the water flows into the aeration tank. In the aeration tank the activated sludge bacteria utilise oxygen to decompose pollution into mainly carbon dioxide and water. The required oxygen is supplied by a bottom aeration system fed by blowers. The aeration grids can be lifted out for maintenance purposes.

The separation of treated water and biomass is done by a second DAF unit. In the feed line to this DAF unit polymer will be dosed to enhance the separation of the activated sludge. Most of the activated sludge will be returned to the selector tank and aeration tank. A part of the sludge will be directed to the sludge tank as waste activated sludge, based on MLSS measurement in the aeration tank.

The effluent quality of the DAF will be monitored continuously. In case either the pre-set COD, TSS or ammonia level is exceeded, the water will be led to a transfer tank, from where it will be pumped into the out of spec tanks. The present 250 m^3 and 150 m^3 tanks with mixers will be used for this purpose.

Environmental Management System

Dairy Partners have reviewed, updated and are now in the process of implementing their environmental management system. The environmental management system although not certified to an external standard has been developed with the ISO 14001 standard for environmental management in mind, and in its completed format will be a system auditable to ISO 14001.

The system is made up of a number of internal procedures with the aim of creating a process that puts in the systems required to ensure good environmental performance and prevents environmental damage caused by the normal and abnormal operations of the plant

Documentation within the system includes clear policies and procedures which allow Dairy Partners to allocate responsibility to key people within the site, it also allows for measures to be implemented, and these measures to be formally monitored for effectiveness, the following documentation makes up the Dairy Partners EMS:

- Aspects / Impacts register
- Environmental communications procedure
- Checking and corrective action procedure
- Monitoring procedure
- Non-conformity and corrective action procedure
- Internal audit procedure
- Internal audit schedule
- Legal Register
- Objectives and targets
- Roles and responsibilities
- Operational control procedure
- Emergency preparedness procedure
- Control of records procedure
- Management review procedure

Energy Efficiency Measures

As part of the planning stage of the redevelopment of the site, the energy and resource efficiency of all new plant and equipment has been evaluated. Dairy Partners are aware that more reliable and efficient equipment is not only better for the environment but will also likely lead to a significant cost save for the site in respect of raw materials and energy use.

Key efficiency projects have been aimed at reducing wastage of raw materials, this has led to the use of more energy efficient pumps, and the use of energy saving lights etc.

As part of the environmental management system employed by Dairy Partners energy efficiency is a key requirement of the policy/statement and the senior people within the organisation are committed to ensuring that all equipment is reviewed prior to a project being signed off, further information can be found within the EMS system.

Monitoring Measures

All site water discharges are via named discharge points in accordance with the current permit requirements, monitoring is completed using calibrated flow meters, and manual sampling methods.

As part of its annual review all equipment in relation to the discharge of water is subject to audit under a third party MCERTS review, in addition to the external review, internal audits in accordance with the audit schedule are completed and reported to key persons.

The electrical control panel will be equipped with a Siemens S7-1500 series PLC including 12" Full color HMI to control, adjust and monitor the complete process in the most user-friendly way, including **eWon** modem with GSM functionality, for remote support and which can send an SMS text message for each alarm.

The HMI can be taken over remotely via a device running VNC connected to the PLC network e.g. a mobile phone, tablet or PC.

The ETP will also be integrated into the site Scada system.