****Document ref: 5701-401

**MEG Derby Ltd**

**Dove Valley Park Soft drinks production facility**

**EPR Application**

**Reference: EPR/LP3607PT/A001**

**B3 Supporting Information**

The following supporting information should also be read in conjunction with the following three drawings – all of which are attached:

WIL\_01\_FPAW\_4\_AW\_UP\_PF\_xx\_ABW\_3f (Effluent Plant PFD)

WIL\_01\_FPAW\_4\_AW\_UP\_LA\_xx\_ENTWG\_3f (Effluent Plant Layout)

WIL\_01\_FPAW\_4\_AW\_UP\_WB\_xx\_xx 3f (Water balance)

**Table 1a Types of Activities**

**Description of the activity:**

Section 6.8 Part A(1) (d) (ii) – Treating and processing materials intended for the production of food products from vegetable raw materials at plant with a finished product production capacity of more than 300 tonnes per day

**Activity capacity**

Mineral water and soft drinks bottling facility with a capacity of approximately 1,300 m3/day

**Directly associated activities**

Section 5.4 Part A(1)(a)(ii) Disposal of non-hazardous waste in a facility with a capacity exceeding 50 tonnes per day by physico-chemical treatment

**Activity Capacity**

The total treatment capacity is based on an anticipated maximum daily volume of effluent of 388 m3/day

This will be split as follows:

172 m3/day to public sewer

216 m3/day to surface water discharge (if EA grant permission)

**Table 2**

**Emission to water**

**Emission point 1 (W1)** will be the discharge to the surface water drainage system as shown on drawing reference: WIL\_01\_FPAW\_4\_AW\_UP\_LA\_xx\_ENTWG\_3f (Effluent Plant Layout).

At this point, the ‘clean’ effluent streams will have been further diluted with rain water from the attenuation pond.

Section 3 below shows the calculations which predict the discharge quality at W1

It is proposed that there will be an up-stream sampling point for the clean effluent streams (ie prior to dilution with surface water) to ensure that only water streams of a suitable quality will be discharged to the attenuation pond.

Measured parameters will be COD (or online as TOC), TSS, Temperature and pH (and other parameters as may be required by the EA).

It is further proposed that EP1 will satisfy the Emission Benchmark as advised in Table 6 of the Food and Drink Sector guidance document (reference EPR 6.10) which advises a benchmark value for BOD5 of 10-20 mg/l

Discharge volume will be a maximum of 216 m3/day (excluding rain water – see later in section 3)

**Emission point 2 (SW1)** will be the discharge from the effluent plant to the Seven Trent Water (STW) sewer. Discharge volume will be a maximum of 172 m3/day

It will join the public sewer at manhole 2303 as shown on ARL drawing WIL\_01\_FPAW\_4\_AW\_UP\_LA\_xx\_ENTWG\_3f (Effluent Plant Layout).

Measured parameters will be COD, pH, TSS and discharge rate, all as defined in the STW consent to discharge.

**Section 3: Operating Techniques**

 **Table 3 a – Technical Standards**

Reference document: **Food and drink sector EPR guidance S6.10**

1. **Discharges to the public sewer (SW1)**

It is recognised that certain effluent streams generated on site are best disposed of to public sewer. These are generally from CIP cleaning and general rinsing operations within the process. These streams will be treated using the standard and recognised (as BAT) techniques of balancing and pH correction, utilising a 1,500 m3 balancing tank, with an additional divert tank (of 300 m3 capacity) for emergency or out of specification influent conditions.

There will be online monitoring of temperature, TOC and pH

Final discharge will be into the Severn Trent public sewer at SW1 according to an existing trade effluent discharge consent. The trade effluent will then ultimately be treated at the Claymills STW according to BAT guidance.

1. **Discharges to the surface water drains (W1)**

Certain effluent streams have been identified as high quality, and it is proposed that these streams are monitored (for BOD/TOC, pH and temperature) and discharged into the site attenuation pond. These will combine with surface water before being discharged from site into the existing surface water system at W1.

It is important to note that these streams are not related to the processing or bottling activities employed on site, but are just streams that are generated from the management of the clean water inlets to site, in particular:

* Final rinse from the water treatment plant that pre-treats the ground water
* Reverse Osmosis (RO) plant that treats the ground water or the towns mains supply

Therefore the proposal is that these ‘clean’ streams are segregated from any processing streams (eg CIP effluent and general cleaning water) and are therefore of very high quality which can be returned to the environment.

It is estimated that the average volume of the ‘clean’ streams is likely to be 216 m3/day (as shown on the water balance drawing).

The anticipated quality of the combined streams is likely to be:

pH: 7

BOD5 : Less than 5 mg/l

TSS: Less than 5 mg/l

As these clean streams will first pass into the site attenuation pond, there will be further dilution of these concentrations with surface water. Whilst this dilution effect will obviously depend on the weather conditions at any particular point in time, the average effect can be calculated as follows:

According to the CIRIA 736 UK rainfall map (page 45) Dove Valley Park would be in region 2, with a rainfall average of 600-800 mm/day.

Thus, on average, this equates to 2.2 mm/day.

Based on a site area of approximately 12 Ha (or 120,000 m2) rain water volume would be 0.0022 x 120,000 = 264 m3/d (excluding any inflation for climate change).

The theoretical dilution volume would therefore be ((264 + 216)/216) – or 2.2.

Therefore the average values for the concentration at W1 would still be:

pH: 7

BOD5 : less than 5 mg/l

TSS: less than 5 mg/l

1. **Infrastructure and Containment**

The design of the treatment plant will take into account the fundamental requirement to protect the environment in case of any minor or catastrophic tank failure.

Any spills associated with the off loading of bulk chemicals for pH adjustment will be in the area of the treatment plant which is segregated from all other surface water drains. All surface water in this area will pass to the physico-chemical treatment plant prior to discharge to the STW sewer. There will be no access or drainage route to the environment.

Any major or catastrophic plant failure will result in the consequential effluent flow being directed, using appropriate kerbing and grading, along the hard standing (ie impervious) route to the attenuation pond. At the attenuation pond, an emergency valve will be closed on the outlet which will ensure that no contaminated effluent/surface water can leave site. The contaminated water within the attenuation pond would subsequently be removed by tankers for off-site disposal.

1. **Chemical usage**

Caustic soda (NaOH) will be used for pH correction. It will be stored in a 10m3 self-bunded storage tank. There will be no greater than 10m3 stored on site at any one time, and annual usage is anticipated to be in the order of 100 m3.

Acid (HCl or H2SO4) will be used but because the anticipated usage is so much less than for caustic soda, it will be stored in, and dosed directly from a 1,000 litre IBC container sited on a dedicated IBC bund tray. Storage is anticipated to be 3 x 1,000 litre IBCs and usage is anticipated to be in the order of 10 m3 per annum.

Raw materials associated with production are shown in document 5701-409

**Section 4: Monitoring**

Emission points, to STW sewer and to the environment, will be monitored as follows:

4.1 The ‘clean’ effluent streams will be monitored at the collection sump – sump B. This monitoring will utilise appropriate instrumentation (including pH and Brix – as an online indication of COD and BOD) which allows for diversion of the effluent should there be any issues with the quality.

Depending on the actual issue, the effluent stream can be:

* Diverted to the main divert tank prior to controlled introduction back to the main balance tank or off site tankering.
* Diverted to sump A prior to passing to the trade effluent sewer.

There will also be a flow meter and a sampling point in the discharge from sump B which will include a flow proportional automatic sampler.

4.2 The ‘clean’ effluent streams, now combined with the surface water (excluding surface water from the ‘at risk’ area of the ETP) in the attenuation pond, will leave site and pass into the surface water sewer (manhole 2302) via a sampling point, at W1. The sampling point immediately prior to W1 will include for an automatic sampler and will also allow for the collection of grab samples.

4.3 The trade effluent will discharge from the balance tank following pH correction and will be monitored utilising appropriate instrumentation (including pH and TOC – as an online indication of COD and BOD) and a flow meter. There will also be a sampling point which will include for an automatic flow proportional sampler. The treated effluent will then combine with site domestic waste and ‘at risk’ surface water from the ETP area and pass into the STW foul sewer (manhole 2303) at SW1.

4.4 Stack emissions will be sampled according to ‘M1 sampling requirements for stack emission monitoring’

**Section 5: Environmental Impact Assessment**

 A number of documents have been prepared that undertake an assessment of the environmental impact of the proposed development. The following documents form part of this application and are attached:

* Dove Valley Park Flood Risk and Drainage Strategy
* Dove Valley Park Noise Impact Assessment
* Dove Valley Park Preliminary Ecological Assessment
* Dove Valley Park Work Place Travel Plan
* Dove Valley Park Ground Conditions Assessment
* Dove Valley Park Environmental Health memorandum on noise
* WIL-01-FPTG-GA-210125-EnergyStrategyReport\_F3
* Site BREF review
* 8726 – Noise data summary – Data for Environment Agency – V1.0

**Section 7: Combustion Plant**

The on-site boiler will be rated at 2.2 MWth and is therefore classified as a Medium Combustion Plant process.