CSG Avonmouth - Technical Description and Operating Techniques

Introduction

Cleansing Service Group Ltd operate 8 facilities across England similar to CSG Avonmouth and have many decades of experience of accepting and treating wastes through them.

CSG Avonmouth is being constructed to replace CSG Bristol which has operated as an installation since 2006 (EPR AP3336SD) and prior to that under a Waste Management Licence since 1988 (EAWML 27076). The operating techniques and staff employed at CSG Bristol will move to the Avonmouth facility upon its completion and commissioning. CSG Bristol has operated with a good compliance record for its duration. CSG Bristol holds ISO 14001 and ISO 9001 accreditations and CSG Avonmouth will be accredited to these standards within the first year of operation. All procedures are adapted from those successfully employed and honed at CSG Bristol. These procedures are fully compliant with the Chemical Waste Appropriate Measures for permitted facilities and the Non-Hazardous and Inert Waste Appropriate Measures. The adaptations required for the change to Avonmouth are the tighter discharge consent limits required under BAT-AEL and the slight changes to infrastructure references.

Facility Design

CSG Avonmouth has been designed to ensure that the risk to the environment from the activities is minimal. The entire site is constructed of sealed concrete, the bund is formed from impermeable concrete and there is an impermeable membrane beneath the concrete surfaces. The bund has been designed in accordance with CIRIA 736 and has a capacity that exceeds 110% of the entire tank capacity.

Below ground infrastructure has been kept to an absolute minimum and consists of two drainage channels, sumps and the foul sewer line for the effluent discharge.

The entire installation drains back to the treatment plant via sumps and pumps, this ensures that any spillage is retained and treated.

The storage and treatment tanks are constructed from 6mm Carbon Steel to BSEN 10025 S275. They will be inspected prior to commissioning and then undergo routine internal and external inspection in accordance with EEMUA 159/API 653.

The rotary screen is raised up above a reception vessel which itself sits within the reception containment area. Previously many treatment plants have had a below ground reception vessels that are more difficult to inspect for potential leaks and damage.

The tanker washout facility is also all above ground and based within the reception containment area. Similar to the reception vessel, the high tip washout facility does away with the need for a below ground reception of tanker solids and tips them directly into a RoRo bin after they have been dewatered for transport offsite.

The process

The process itself is simple and relies mostly on gravitational separation. This description of the process should be read in conjunction with Schematic Diagram B3.3a(ii).

Waste is assessed in accordance with the Pre-Acceptance procedures for the installation prior to being booked in for treatment.

Booked waste is assessed upon arrival following the Waste Acceptance procedures.

Booked waste arrives almost entirely by bulk road tanker and is weighed on a weighbridge outside of the permit boundary. Waste documentation is checked prior to the vehicle being directed to the reception containment area, this is Area A on the Site Drainage Plan.

Within the containment area a sample of the waste is taken and analysed within the site laboratory against the pre-acceptance information and to ensure suitability for treatment.

If the waste is unacceptable it is rejected in accordance with EPR Hazardous Note guidance / Duty of Care Regulations and our Non-conformance procedures.

Tankers containing accepted waste connect to the reception point for discharge into the rotary screen. The rotary screen removes all solids above 6mm, these are swept into a bin at the front of the screen and then tipped into the roro bin appropriate to whether the waste is hazardous or non-hazardous.

If treatment chemicals (such as Ferrous Sulphate) are required they are added to the reception vessel via the screen. The screened waste is collected in the reception vessel below the screen from where it is pumped into a treatment tank.

All tanks have a high-level alarm and automatic cut off to the reception vessel pump. Once a treatment tank is full it is left to settle, and another treatment tank is selected for filling.

The treatment tanks settle at different rates according to the wastes accepted; however, tanks are usually left overnight which is more than sufficient to allow an adequate settlement and phase separation between the oil/water and sludge.

Once settled the oil phase is drawn off to the oil storage tank, the aqueous phase is checked against the discharge consent and then moved to the effluent storage tank and the sludge is pumped to the sludge tank. Both the sludge tank and the oil storage tank are further ‘dewatered’.

All tanks vent to a carbon adsorption unit to ensure that VOC emissions from the waste are collected.

Removal of Waste

Sludge and Oil are collected by road tanker for further processing offsite at suitably permitted facilities. Tankers collecting either of these wastes are positioned within Area B on the Site Drainage Plan whilst loading.

Effluent from the treatment plant is analysed prior to discharge to ensure it complies with the discharge consent. The effluent passes from the effluent tank and through a final separator to ensure no oil and solids that might have eluded the initial treatments will discharge to sewer. The effluent flow is measured using a V-Notch gauge, there is no MCERTS for a V-Notch gauge. The V-Notch gauge is calibrated in accordance with BS3680. The MCERTS standard seeks to ensure that the effluent flow recorded is within +/- 8% of true flow, BS3680 seeks to ensure that the effluent flow recorded is within +/- 5% of true flow, this method of flow measurement has previously been

approved by the Agency. The effluent flow of the discharge is retained on a data logger and a flow proportional sample is taken by an auto sampler for use by the sewage undertaker.

Other Control Measures.

The whole site will be fenced and have continual CCTV monitoring and lighting. The area surrounding the permit perimeter is also concreted with rainwater going through a full retention interceptor prior to discharged to surface water. This area and the surface water discharge is beyond this application area. The interceptor has a penstock valve should any spillage occur anywhere on site that risks going into the drains.