

HyNet Hydrogen Production Plant 1 – Technical Note

EPR Response - 8b - BAT for prevention/reduction of emissions of Volatile Organic Compounds (VOC)

Summary

Advice on the operating techniques that will be implemented to prevent, minimise, collect, and if applicable, abate VOC emissions from the operation of the wastewater treatment plant.

Response

Review of the water balance and UFDs:

There are no VOCs entering the process through Raw water import, Raw water clarification, Dual Media Filtration, and the Demin Water Treatment plant. These streams are consequently free of VOCs, as is the Corrugated Plate Interceptor and Sludge Dewatering System process water from the open drains. The water collected in these areas will largely arise from collected precipitation, with leaks from units considered to be unusual events. If any oil does enter the system, it will be removed by skimmer and taken away by tanker. Low level residual oil in the de-oiled water will be treated in the Membrane Bioreactor (10-BAG-U-001).

Closed Drain and Effluent Processing: Organics such as ammonia, methanol and amine will arise from streams originating in Closed Drains Waste Water, Mixed Waste Water from Johnson Matthey Process Units and CO₂ Condensate, and are expected in the Waste Water Blending Tank and Membrane Bioreactor Plant.

The Mixed Waste Water and Closed Drains Waste Water are routed through the Closed Drains Drum and then onward to the Waste Water Blending Tank before treatment in the Membrane Bioreactor. The system is closed, with no atmospheric venting. The closed drains drum is connected to the flare header and volatile components that evaporate here will be routed to the flare system for combustion.

The Membrane Bioreactor will treat the feed effluent to achieve the concentrations identified in Table 2-5 of the Environmental Permit Supporting Document (reproduced below).

Table 2-5 MBR Influent and Treated Effluent Stream Compositions

Component	Composition (mg/l)	
	MBR Feed	MBR Treated Effluent
Total Suspended Solids (TSS)	241.7	0.0
COD	5,155.3	33.5
BOD	4,055.3	25.0
Ammonia	182.9	0.0
Methane	6.5	0.0
CO ₂	1,114.2	0.0
Nitrogen	13.3	0.0
Methanol	3,308.7	0.0
Amine	18.7	0.0