

HyNet Hydrogen Production Plant 1 – Technical Note

EPR Response – 13c – Secondary Containment Sludge

Summary

Problem Statement

Provide adequate justification of why you have considered that secondary containment is not required for the sludge tanks and the micronutrient storage tanks, or amend the design as appropriate.

Notes: We consider these might have the potential to harm the environment if released to controlled water.

Response

Contents of Tanks

The following provides the composition of the contents of the tanks from the Water Balance, 5194812-300-49EL-4-0002, rev 03.

Stream Description	Dewatered sludge for removal offsite	Micronutrient Dose
Temperature	30.7	15.0
pH	7.00	5.00
Pressure	1.00	1.00
Actual Volume Flow	3.29	0.05
Design Flow	50.00	0.06
Mass Flow	3437.0	72.27
Mass Density	1044.78	1498.00
TSS	142500.00	0.000
TSS	344.49	0.000
COD	0.000	0.000
COD	0.000	0.000
BOD	0.000	0.000
BOD	0.000	0.000

Sludge

The solids from the river water constitutes about a third of the sludge.

The balance is coming from the MBR (stream 3107). This is the biological sludge generated from the treatment of effluent. The solids in this stream are based on a 1:1 yield of BOD:TSS (the source of BOD is the methanol in the effluent).

Micronutrient

The composition of the micronutrients would be confirmed in detailed design. The following is a typical composition:

- Total Nitrogen (N) 6.00%
- Magnesium (Mg) 1.00%
- Sulphur (S) 8.00%
- Iron (Fe) 10.00%
- Manganese (Mn) 2.50%
- Fertilizer salts and inert ingredients 72.50%

Environmental Assessment

If a spill from the Sludge Tank was to occur there is potential for sludge to enter the water courses. As such the design will be updated to include a bund around the Sludge Tank and Sludge Blending Tank.

As per response 13a, the Table 2-9 of Permit Application Supporting Document has been updated as per the below.

Equipment Name	Duty / Capacity (m3)	Type of Fluid	Type of Containment	Secondary Containment Material of Construction
Sludge Blending Tank		Sludge	Not required – but Bund will be provided	Note 1. Liner = HDPE
Thickened Sludge Holding Tank		Sludge	Not required - but Bund will be provided	Note 1. Liner = HDPE

Secondary Containment Technical Note as also been updated as per the attached.