

HyNet Hydrogen Production Plant 1 – Technical Note

EPR Response 15b - Demineralisation Plant Effluent-Confirmation for Nil Content

Summary

Confirm the whether the symbol ‘ - ’ in Table 6-3 of the Permit Application Supporting Document means ‘nil’.

Background

Snapshots of table 6-3 along with respective section paragraphs are provided below for ready reference:

Table 6-3 Proposed Emission Values for HPP Discharges to Water

Ref.	Source	Grid Reference	Parameter	Proposed Discharge Value (mg/l) unless otherwise stated)	Existing W3 Limit (Table S3b)
TBD	Uncontaminated Surface Water	TBD	No limit proposed	-	-
T1	Water Demineralization Plant concentrate	344022, 375296	Temperature	24.2 °C	32.5 °C
			pH	7.59	6-9
			Flow (actual)	42.37 m ³ /h	3750 m ³ /h
			Flow (design)	50.85 m ³ /h	3750 m ³ /h
			TSS	0.00	25
			COD	8.030	125
			BOD	5.996	-
			Ammonia	-	20 (as Total N)
			Methane	-	-
			Ethylene - Pentane	-	-
			Methanol	-	-
			Ethanol	-	-
			Amine	-	-
			Phosphates	≤3 (Total P)	-
			Chlorides	TBD	-
			Iron	TBD	-
			Chromium	≤0.025	-
			Copper	≤0.05	-
			Zinc	≤0.3	-

6.3 Discharges to Water

6.3.1 Discharges to water comprise:

- Discharge of uncontaminated site drainage to the wider refinery drainage system, which runs to the west of the HPP site [exact location(s) to be determined later in detailed design] and is transferred to the United Utilities (UU) water treatment plant at existing transfer point S1; and,
- Discharge of demineralizer plant concentrate at point T1 (at CT2, already included in the existing permit) This will then flow from CT2 to discharge through point N38 to existing permitted discharge point W3.

6.3.2 Proposed discharges are shown in Table 6-3.

		Nickel	≤0.02	0.02
		Hydrocarbon oil	-	10
		Hydrocarbon oil index	-	2.5
		Benzene, toluene, ethyl benzene, xylene(BTEX)	-	Benzene 0.05 mg/l
		Cadmium	-	0.002
		Mercury	-	0.0002
		Lead	-	0.002
		Vanadium	-	-
		Cyanide	-	0.02
		Sulphide	-	1

Response:

Yes, the “-” in table 6-3 means nil or zero concentration of the corresponding component. The stream coming into the demineralisation plant also does not contain these components. Hence, the “-” components shall be zero (0) in the brine leaving the demineralisation plant. This is our understanding of this phase of engineering.

In the next phase of engineering, we shall re-check the composition of river feed water, treated water from MBR and brine from demineralisation plant for the components listed in table 6-3. It shall be ensured that all components in treated water and brine are within the approved discharge limits.

References:

1. UFD – Demin Water Treatment (5194812-000-49DG02-4-0004-01, Rev. 06)
2. Water Balance (5194812-300-49EL-4-0002, Rev. 03)
3. Demineralisation Plant Datasheet (5194812-000-45ED-4-0006, Rev. 03)