

## HyNet Hydrogen Production Plant 1 – Technical Note

### EPR Response 14b - Specification of WWTP-Denitrification Stage

#### Summary

Confirm whether this process will include a denitrification stage, as suggested by the 'nil' nitrogen content stated in the treated effluent specification (table 2-5 of Permit Application Supporting Document).

#### Response

A denitrification stage is included in the WWTP. Nitrogen in the waste water will be removed by Membrane Bioreactor (MBR). MBR is the last stage of water treatment in the WWTP.

Phosphoric acid and micro-nutrients will be mixed into the waste water upstream of MBR. The MBR will use a combination of techniques involving aeration, bioreactors, membranes, etc. Nitrogen, along with other impurities will be removed in the MBR. Treated, clean water will be sent to Clarified Water Tank (10-BAF-T-004). Waste sludge from MBR would be routed to Sludge Blending Tank (10-BAG-T-002). MBR outlet treated water will be continuously quality checked through an analyser installed on the outlet pipe. The treated water not meeting specifications will not be sent to Clarified Water Tank. This off-spec water will be re-routed to another destination and later sent off-site for treatment.

#### References:

1. Equipment Datasheet - Water Treatment Packages (5194812-000-45ED-4-0001, Rev. 03): Pages 4 and 10
2. Utility Flow Diagram – Closed Drains Drum and Wastewater Blending Tank (5194812-000-49DG02-4-0006-01, Rev. 06): Stream nos. 3111, 3406, 3407, 3409, 3411, 3414
3. Utility Flow Diagram – Membrane Bioreactor-MBR (5194812-000-49DG02-4-0006-02, Rev. 01): Stream nos. 3416, 3417
4. Water Balance (5194812-300-49EL-4-0002, Rev. 03): Page 5 (stream 3111), page 8 (streams 3406, 3407, 3409, 3411, 3414), page 9 (streams 3416, 3417)