

Princes Ltd - H1 Assessment of Emissions to Foul Water S1



Acronyms / Abbreviations
AA = Annual Average
Est = Estimated
EQS = Environmental Quality Standard
LT = Long-term
MAC = Maximum Allowable Concentration
RC = Release Concentration
ST = Short-term

Define Release Point for Releases to Water:

Description	Location	Activity	Final Discharge Point	Discharge to Sewer	Mean Effluent Flow Rate m ³ /s (A)	Max Effluent Flow Rate m ³ /s
S1	Discharge from S1 to Welsh Water Effluent Treatment Plant	Process Effluent	Bristol Channel	Yes	0.138889	0.138889

Release Concentrations of Substances Present in Discharges To Water:

Substance	Substance Details	Assessment Measure	Operating Mode (% of year)	EQS MAC ^(C)	EQS AA ^(C)	RC ^(D) (µg/l)	Annual Rate kg/yr	Sewage Treatment Factor	Significant Load (PHS Only)	RC as a % of EQS (MAC)	RC as a % of EQS (AA)	ST RC Significant? (E)	LT RC Significant? (E)
				(ST)	(LT)					(ST)	(LT)	(MAC >100%)	(AA >100%)
Cadmium	Cadmium and its compounds (B)	Est	100	0.44	0.20	0.005129	0.002246	1	5	1.17%	2.56%	No	No
Mercury	Mercury and its compounds (B)	Est	100	0.07	n/a	0.017951	0.007862	1	1	25.64%	n/a	No	n/a

Notes to H1:

Guidance used: *Surface water pollution risk assessment for your environmental permit*, available online via:

<https://www.gov.uk/guidance/surface-water-pollution-risk-assessment-for-your-environmental-permit#screening-tests-estuaries-and-coastal-waters>

- (A) Maximum estimated effluent flow provided by Princes Ltd. In the absence of mean effluent flow, the maximum estimated effluent flow has been used to be conservative.
- (B) When <40mg/l calcium carbonate present
- (C) EQS MAC / AA (where applicable) obtained from either the Environment Agency's: 'Estuaries and coastal waters specific pollutants and operational environmental quality standards (EQS)' or from the Environment Agency's: 'Estuaries and coastal waters priority hazardous substances, priority substances and other pollutants' or from EA's H1 Tool
- (D) The RC values for cadmium and mercury were calculated from mass balance calculations undertaken by Princes Ltd. Calculations are provided in 'Effluent Caustic Data' tab.
- (E) In accordance with the guidance (as outlined above) concentrations of the tested discharge water that are less than 100% of the EQS do not require further assessments as they are not considered to pose a risk to the environment.

Princes Mass Balance Calculations

Effluent Flow

Total Flow m3/year 438000 m3/day 1200 data required to be entered
 calculating cells

Litres Effluent 438000000 438000 m3 Eff **F9 to update formulae**

Caustic Usage for Year

MIP C 0
 MIP CIP 0
 Caustak30 748800

Caustic 0.035 ppm Mercury
 0.01 ppm Cadmium
 MIP C 0.002 ppm Mercury
 0.001 ppm Cadmium

Caustak 30 30% Caustic

0.0105 ppm Mercury
0.003 ppm Cadmium

MIP C

7862.4 mg Mercury
2246.4 mg Cadmium
 64%
0.002 ppm Mercury
0.001 ppm Cadmium

MIP CIP 70% caustic

0 mg Mercury
0 mg Cadmium
0 ppm Mercury
0 ppm Cadmium

Total

0 mg Mercury
0 mg Cadmium
7862.4 mg Mercury 7.8624 g Mercury 0.0078624 kg
2246.4 mg Cadmium 2.2464 g Cadmium 0.0022464 kg

Effluent

1.80E-05 mg/l mercury 0.01795 ug/l Mercury
5.13E-06 mg/l cadmium 0.00513 ug/l Cadmium