

**APPENDIX 4 - GROUNDWATER AND SURFACE WATER ASSESSMENT CRITERIA**

**Bedrock Groundwater Assessment Criteria**

Substance	units	Assessment criteria	Source
<b>Metals</b>			
Aluminium	mg/L	0.2	DWS
Arsenic	mg/L	0.01	DWS
Barium	mg/L	1	DWS
Calcium	mg/L	250	DWS
Cadmium	mg/L	0.005	DWS
Chromium	mg/L	0.05	DWS
Chromium VI	mg/L	-	-
Copper	mg/L	2	DWS
Iron	mg/L	0.2	DWS
Mercury	mg/L	0.001	DWS
Potassium	mg/L	12	DWS
Magnesium	mg/L	50	DWS
Manganese	mg/L	0.05	DWS
Sodium	mg/L	200	DWS
Nickel	mg/L	0.05	DWS
Phosphorous	mg/L	2.2	DWS
Lead	mg/L	0.01	DWS
Antimony	mg/L	-	-
Selenium	mg/L	-	-
Vanadium	mg/L	-	-
Zinc	mg/L	5	DWS
<b>PAHs</b>			
Benzo(a)pyrene	µg/L	0.01	DWS
Total PAH	µg/L	0.1*	DWS
<b>TPHs</b>			
Total Petroleum, GRO, DRO and MRO Range Hydrocarbons	mg/L	0.01	DWS
<b>SVOCs</b>			
Phenol	µg/L	0.5	DWS
2,4,5/2,4,6-Trichlorophenol	µg/L	2	EU DWS
Pentachlorophenol	µg/L	0.1	DWS
Hexachlorobenzene	µg/L	0.1	DWS
Benzo(a)pyrene	µg/L	0.01	DWS
<b>VOCs</b>			
1,1 – Dichloroethane	mg/L	0.003	DWS
1,1,1,2 Tetrachloroethane	mg/L	0.003	DWS
1,2 – Dibromo – 3 chloro – propane	mg/L	0.0001	DWS
1,2 – Dichloroethane	mg/L	0.003	DWS
2,2 – Dichloroethane	mg/L	0.0001	DWS
Benzene	mg/L	0.001	DWS
Cis – 1,3 – Dichloropropene	mg/L	0.0001	DWS
Trans – 1,3 – Dichloropropene	mg/L	0.0001	DWS

**APPENDIX 4 - GROUNDWATER AND SURFACE WATER ASSESSMENT CRITERIA**

Vinyl Chloride	mg/L	0.0005	DWS
<b>Pesticides</b>			
Aldrin	ng/L	0.03	DWS
Atrazine	ng/L	0.1	DWS
DDT	ng/L	0.1	DWS
Demeton-S	ng/L	0.1	DWS
Diazinon	ng/L	0.1	DWS
Dieldrin	ng/L	0.03	DWS
Disulfoton	ng/L	0.1	DWS
Endosulfan I	ng/L	0.1	DWS
Endosulfan II	ng/L	0.1	DWS
Endosulfan Sulphate	ng/L	0.1	DWS
Endrin	ng/L	0.1	DWS
Endrin Aldehyde	ng/L	0.1	DWS
Ethion	ng/L	0.1	DWS
Heptachlor Epoxide	ng/L	0.03	DWS
Malathion	ng/L	0.1	DWS
Methoxychlor	ng/L	0.1	DWS
Methoxychlor Olefin	ng/L	0.1	DWS
Methyl Azinphos	ng/L	0.1	DWS
Methyl Parathion	ng/L	0.1	DWS
p,p - DDD	ng/L	0.1	DWS
p,p - DDE	ng/L	0.1	DWS
Parathion	ng/L	0.1	DWS
Propazine	ng/L	0.1	DWS
Simazine	ng/L	0.1	DWS
<b>Others</b>			
Ammoniacal Nitrogen	mg/L	-	-
Boron	mg/L	1	DWS
Chloride	mg/L	250	DWS
Conductivity	us/cm	2500	DWS
Free Cyanide	mg/L	0.05	DWS
Hardness	mg/L	-	-
pH	n/a	6.5 – 9.5	DWS
Phenol	mg/L	0.5	DWS
Phosphate	mg/L	2.2	DWS
Thiocyanate	mg/L	-	-
Sulphate	mg/L	250	DWS
Sulphide	mg/L	-	-
Temperature	°C	-	-
Total Organic Carbon	mg/L	-	-
Total Alkalinity	mg/L	-	-
Total Cyanide	mg/L	0.05	DWS

**Notes:**

\* DWS for total PAHs relates to the sum of the individual concentrations of benzo(k)fluoranthene, benzo(ghi)perylene, indeno(1,2,3-cd)pyrene and benzo(b)fluoranthene.

**APPENDIX 4 - GROUNDWATER AND SURFACE WATER ASSESSMENT CRITERIA**

**Superficial Groundwater and Surface Water Assessment Criteria**

<b>Substance</b>	<b>units</b>	<b>Assessment criteria</b>	<b>Source</b>
<b>Explosives</b>			
Picrite	µg/L	5200	PNEC
RDX	µg/L	47	PNEC
TNT	µg/L	0.5	PNEC
EGDN	µg/L	ND	PNEC
Nitroglycerine	µg/L	3	PNEC
Picric Acid	µg/L	100	PNEC
Tetryl	µg/L	ND	PNEC
2,4-DNT	µg/L	2	PNEC
2,6-DNT	µg/L	1.2	PNEC
HMX	µg/L	ND	PNEC
Nitrocellulose	µg/L	320	PNEC
HNS	µg/L	ND	PNEC
PETN	µg/L	ND	PNEC
<b>Metals</b>			
Aluminium	mg/L	0.01	EQS
Arsenic	mg/L	0.05	EQS
Beryllium	mg/L	-	-
Calcium	mg/L	-	-
Cadmium	mg/L	0.005	EQS
Chromium	mg/L	0.01	EQS
Chromium VI	mg/L	-	-
Copper	mg/L	0.01	EQS
Iron	mg/L	1	EQS
Mercury	mg/L	0.001	EQS
Potassium	mg/L	-	-
Magnesium	mg/L	-	-
Manganese	mg/L	0.03	EQS
Sodium	mg/L	170	EQS
Nickel	mg/L	0.1	EQS
Phosphorous	mg/L	0.065**	GV
Lead	mg/L	0.01	EQS
Antimony	mg/L	-	-
Selenium	mg/L	-	-
Vanadium	mg/L	0.02	EQS
Zinc	mg/L	0.05	EQS
<b>PAHs</b>			
Fluoranthene	µg/L	0.02	EQS
Naphthalene	µg/L	10	EQS
Benzo(a)pyrene	µg/L	0.03	EQS
<b>SVOCs</b>			
Phenol	µg/L	30	EQS
2-Chlorophenol	µg/L	50	EQS
2-Methylphenol	µg/L	100	EQS
4-Methylphenol	µg/L	100	EQS
2,4-Dichlorophenol	µg/L	20	EQS
4-Chloro-3-methylphenol	µg/L	40	EQS
Pentachlorophenol	µg/L	2	EQS
1,2-Dichlorobenzene	µg/L	20*	EQS
1,3-Dichlorobenzene	µg/L	20*	EQS

**APPENDIX 4 - GROUNDWATER AND SURFACE WATER ASSESSMENT CRITERIA**

Substance	units	Assessment criteria	Source
1,4-Dichlorobenzene	µg/L	20*	EQS
1.2.4-Trichlorobenzene	µg/L	0.4	EQS
Naphthalene	µg/L	10	EQS
Hexachloro- 1,3-butadiene	µg/L	0.1	EQS
Hexachlorobenzene	µg/L	0.03	EQS
Di-n-butyl phthalate	µg/L	8	EQS
Butyl benzyl phthalate	µg/L	20	EQS
Di-n-octyl phthalate	µg/L	20	EQS
Benzo(a)pyrene	µg/L	0.03	EQS
<b>VOCs</b>			
Chloroform	mg/L	0.012	EQS
1,1,1 - Trichloroethane	mg/L	0.1	EQS
Benzene	mg/L	0.03	EQS
1,2 - Dichloroethane	mg/L	0.01	EQS
Toluene	mg/L	0.05	EQS
1,1,2 - Trichloroethane	mg/L	0.4	EQS
m,p-xylene	mg/L	0.03	EQS
o-xylene	mg/L	0.03	EQS
Styrene	mg/L	0.05	EQS
1,2,4 - Trichlorobenzene	mg/L	0.0004	EQS
Hexachlorobutadiene	mg/L	0.0001	EQS
Naphthalene	mg/L	0.01	EQS
1,2,3 - Trichlorobenzene	mg/L	0.0004	EQS
<b>Others</b>			
Ammoniacal Nitrogen	mg/L	0.015	EQS
Boron	mg/L	2	EQS
Butanol	mg/L	-	-
Chloride	mg/L	250	EQS
Conductivity	us/cm	-	-
Ethanol	mg/L	-	-
Ethylene Glycol	mg/L	-	-
Free Cyanide	us/cm	0.001	EQS
Glycols	mg/L	-	-
Hardness	mg/L	-	-
Methanol	mg/L	-	-
pH	n/a	6 – 9	EQS
Phenol	mg/L	30	EQS
Phosphate	mg/L	-	-
Propanol	mg/L	-	-
Thiocyanate	mg/L	-	-
Sulphate	mg/L	400	EQS
Sulphide	mg/L	-	-
Temperature	°C	-	-
Total Organic Carbon	mg/L	-	-
Total Organic Nitrogen	mg/L	-	-
Total Alkalinity	mg/L	-	-
Total Cyanide	mg/L	0.001	EQS

**Notes:**

\* DWS for total PAHs relates to the sum of the individual concentrations of benzo(k)fluoranthene, benzo(ghi)perylene, indeno(1,2,3-cd)pyrene and benzo(b)fluoranthene.

\*\* Guidance value for salmonid waters