Characteristics of Discharge- Permit 11678

Dated Nov 29th 2015

PH	
Min	6.0pH Units
Max	9.5pH Units
Total Suspended Solids	
Max	15mg/L
Total Sulphates	
Max	720 mg/L
Total Ammonia (as N)	
Max	0.41mg/L
Total Nitrate	
Max	9.7mg/L
Total Phosphorus	
Max	0.090mg/L
Total Arsenic	
Max	0.0034mg/L
Total Chromium	
Max	0.0011mg/L
Total Copper	
Max	0.012mg/L
Total Iron	
Max	0.11mg/L
Total Molybdenum	
Max	0.20mg/L
Total Selenium	
Max	0.060mg/L
Total Vanadium	
Max	0.0081mg/L
Total Zinc	
Max	0.0083mg/L
Rainbow Trout 96hrLC50	
	50% (mortality in
Max	100% effluent)
Daphnia Magna 48hrLC50	
	50% (mortailty in
Max	100% effluent)

Note Cadmium is not permitted

Characteristics of Discharge - Permit 11678 PROBLEM

Dated April 7th 2017

Interim at HAD03		Final at HAD03		IDZ at QUL58		If Diluted 100 Times= mg/L
PH		**PH**				
Min	6.0pH Units	Min	6.0pH Units			
Max	9.5pH Units	Max	9.5pH Units			
Total Suspended Solids		**Total Suspended Solids**				
30mg/L and 15mg/L Monthly Average		30mg/L and 15mg/L Monthly Average			TOO HIGH	
Total Sulphates		**Total Sulphates**		**Total Sulphates**		
Max	720 mg/L	Max	1100 mg/L	Max	218 mg/L	11
Total Ammonia (as N)		**Total Ammonia (as N)**		**Total Ammonia (as N)**		
Max	0.41mg/L	Max	1.3mg/L	Max	0.81mg/L	0.013
Total Nitrate		**Total Nitrate**		**Total Nitrate**		
Max	9.7mg/L	Max	34mg/L	Max	3.0mg/L	0.34
Total Nitrite (as N)		**Total Nitrite (as N)**		**Total Nitrite (as N)**		
Max	0.78mg/L	Max	0.78mg/L	Max	0.02mg/L	0.0078
Total Phosphorus		**Total Phosphorus**		**Total Phosphorus**		
Max	0.090mg/L	Max	0.090mg/L	Max	0.010mg/L	0.0009
Flouride		**Flouride**		**Flouride**		
Max	17mg/L		17.0mg/L		1.0mg/L	0.17
Total Arsenic		**Total Arsenic**		**Total Arsenic**		
Max	0.0034mg/L		0.028mg/L		0.005mg/L	0.00028
Total Chromium		**Total Chromium**		**Total Chromium**		
Max	0.0011mg/L		0.004mg/L		0.001mg/L	0.00004
Total Copper		**Total Copper**		**Total Copper**		
Max	0.12mg/L		0.33mg/L		0.0022mg/L	0.0033
Total Iron		**Total Iron**		**Total Iron**		
Max	1.0mg/L		1.0mg/L		1.0mg/L	0.01
Dissolved Iron		**Dissolved Iron**		**Dissolved Iron**		
Max	0.35mg/L		0.35mg/L		0.35mg/L	0.0035
Total Manganese		**Total Manganese**		**Total Manganese**		
Max	3.4mg/L		3.4mg/L		0.84mg/L	0.034
Total Molybdenum		**Total Molybdenum**		**Total Molybdenum**		
Max	0.36mg/L		0.36mg/L		0.05mg/L	0.0036
Total Silver		**Total Silver**		**Total Silver**		
Max	0.00024mg/L		0.00024mg/L		0.00005mg/L	0.0000024
Total Selenium		**Total Selenium**		**Total Selenium**		
Max	0.060mg/L		0.075mg/L		0.002mg/L	0.00075
Total Zinc		**Total Zinc**		**Total Zinc**		
Max	0.059mg/L	Max	0.059mg/L	Max	0.0075mg/L	0.00059
Dissolved Aluminum		**Dissolved Aluminum**		**Dissolved Aluminum**		
Max	0.75mg/L	Max	0.75mg/L	Max	0.05mg/L	0.0075
Dissolved Cadmium		**Dissolved Cadmium**		**Dissolved Cadmium**		
Max	0.00034mg/L	Max	0.00034mg/L	Max	0.00013mg/L	0.0000034
Rainbow Trout 96hrLC50		**Rainbow Trout 96hrLC50**				
	50% (mortality in		50% (mortality in			
Max	100% effluent)	Max	100% effluent)			
Rainbow Trout 96hrLC50		**Rainbow Trout 96hrLC50**				
	50% (mortailty in		50% (mortailty in			
Max	100% effluent)	Max	100% effluent)			

1ug/L = 0.001mg/L

Acute and Chronic Toxicity Testing

ACUTE Bioassay	Frequency	Source for Sample Collection
96-hr LC50 Rainbow Trout	Monthly-1	HAD-03 Effluent discharged to Hazeltine Creek or Quesnel Lake (E304230)
48-hr LC50 Daphnia magna	Monthly-1	

CHRONIC Bioassay	Frequency	Source for Sample Collection
7 day Ceriodaphnia survival and reproduction, and 7 day ELS toxicity test with a salminoid fish and or other tests specified by the Director	Quarterly or as required by the approval CEMP	HAC-12- Intake to Scondary Point to Quesnel Lake (E304351) when discharging to Hazeltine Creek or as specified in the approved CEMP when discharging direct Quesnel Lake

BC WQG for Aquatic Life

All mg/L	Maximum	30 Day Average Max
Hardness - as CaCO3	-	-
Total Suspended solids	"+ 25 from background	+5 from background
Nitrates- as N	32.8	3
Copper - as Cu	see note 1	see note 1
Molybdenum- as Mo	2	1
Selenium- as Se	No Max	0.002
Sulphate	No max	see note 2
Cadmium- as Cd	see note 3,4	see note 3

Note 1
Hardness dependant Cu guideline: BC max WQG (mg/L) = (0.094 (hardness) =2/100
BC 30D WQG (mg/L0 = 0.002 at hardness ≤50mg/L at hardness >50mg/L= 0.04*hardness/1000

Note 2
Hardness dependant sulphur guideline: BC30d WQG (mg/L) =128 at hardness, 30mg/L at hardness 31-75mg/L= 218, at hardness 76-180mg/L=309, at hardness 181-250mg/L=429, at hardness 250mg/L determine base on site water

Note 3
Hardness dependant dissolved Cd guideline: mx BC WQG (mg/L)= (exp(1.03*hardness)-5.274))/1000;
BC 30D WQG (mg/L) = (exp(0.736*In(hardness)-4.943))/1000

Note 4
Water quality guidelines are for dissolved cadmium