

ASSOCIATED STEEL LTD

7140 Highway 132, Sainte-Catherine, Quebec

EMISSION AND DISCHARGE FOLLOW-UP RECORDS

Groundwater

ANALYSIS PARAMETERS	Unit	Reported Detection Limit	Criteria <sup>1</sup>		Analysis Results																		
			Drinking Purposes	Seepage into Surface Waters	2012	2013	2014	2015	2016	2017		2018		2019		2020			2021				
					October	October	October	November	October	July	September	April	September	March	November	RDL	March	October	RDL	April	-		
<b>Monitoring Well F-1</b>																							
Petroleum Hydrocarbons C <sub>10</sub> -C <sub>50</sub>	µg/l	100	-	2 800	<	<	130	<	<	<	<	<	<	<	<	<	<	100	<	<	100	<	-
<b>Metals &amp; Metalloids</b>																							
Cadmium	µg/l	0,5	5	1,1	<	<	<	<	0,6	<	<	<	<	<	<	<	<	1	<	<	1	<	-
Chromium (total)	µg/l	1	50	-	3	<	<	<	<	<	<	<	<	<	<	<	<	5	<	<	5	<	-
Chromium VI	µg/l	10	-	16	<	<	<	<	<	<	<	<	<	<	<	<	<	8	<	<	8	<	-
Copper	µg/l	1	1 000	7,3	1	<	<	2	3	<	<	<	<	1	2	2	<	3	<	<	3	<	-
Nickel	µg/l	1	70	260	9	4	6	5	6	14	11	10	10	11	10	10	10	10	<	12	10	12	-
Lead	µg/l	1	10	34	<	<	<	<	<	<	<	<	<	<	<	<	<	1	<	<	1	<	-
Zinc	µg/l	7	5 000	67	7	<	17	122	131	12	<	<	<	<	<	<	<	5	7	<	5	<	-
<b>Monitoring Well F-2</b>																							
Petroleum Hydrocarbons C <sub>10</sub> -C <sub>50</sub>	µg/l	100	-	2 800	347	<	<	<	<	290	385	461	<	<	<	<	<	100	<	<	100	<	-
<b>Metals &amp; Metalloids</b>																							
Cadmium	µg/l	0,5	5	1,1	<	<	<	<	<	<	<	<	<	<	<	<	<	1	<	<	1	<	-
Chromium (total)	µg/l	1	50	-	5	<	<	<	<	<	<	<	<	<	<	<	<	5	<	<	5	<	-
Chromium VI	µg/l	10	-	16	<	<	<	<	<	<	<	<	<	<	<	<	<	8	<	<	8	<	-
Copper	µg/l	1	1 000	7,3	1	1	1	3	6	6	5	1	<	3	<	<	<	3	<	<	3	<	-
Nickel	µg/l	1	70	260	28	6	11	2	2	3	2	5	2	1	11	10	<	10	<	<	10	<	-
Lead	µg/l	1	10	34	<	<	<	<	<	<	<	<	<	<	<	<	<	1	<	<	1	<	-
Zinc	µg/l	7	5 000	67	<	<	10	7	11	<	<	<	<	<	11	<	<	5	<	<	5	<	-
<b>Monitoring Well F-3</b>																							
Petroleum Hydrocarbons C <sub>10</sub> -C <sub>50</sub>	µg/l	100	-	2 800	<	<	<	<	<	<	<	<	<	<	<	<	<	100	<	<	100	<	-
<b>Metals &amp; Metalloids</b>																							
Cadmium	µg/l	0,5	5	1,1	<	<	<	<	<	<	<	<	<	<	<	<	<	1	<	<	1	<	-
Chromium (total)	µg/l	1	50	-	4	<	<	<	<	<	<	<	<	<	<	<	<	5	<	<	5	<	-
Chromium VI	µg/l	10	-	16	<	<	<	<	<	<	<	<	<	<	<	<	<	8	<	<	8	<	-
Copper	µg/l	1	1 000	7,3	<	<	<	<	<	<	<	<	<	2	<	<	<	3	<	<	3	<	-
Nickel	µg/l	1	70	260	10	10	11	7	41	7	8	7	5	5	<	10	<	10	<	<	10	11	-
Lead	µg/l	1	10	34	<	<	<	<	<	<	<	<	<	<	<	<	<	1	<	<	1	<	-
Zinc	µg/l	7	5 000	67	<	<	<	<	<	<	<	<	<	<	<	<	<	5	8	7,2	5	18	-
<b>Monitoring Well F-4</b>																							
Petroleum Hydrocarbons C <sub>10</sub> -C <sub>50</sub>	µg/l	100	-	2 800	140	<	<	<	<	643	<	222	<	<	<	<	<	100	<	<	100	<	-
<b>Metals &amp; Metalloids</b>																							
Cadmium	µg/l	0,5	5	1,1	<	<	<	<	<	<	<	<	<	<	<	<	<	1	<	<	1	<	-
Chromium (total)	µg/l	1	50	-	4	<	<	<	<	<	<	<	<	<	<	<	<	5	<	<	5	<	-
Chromium VI	µg/l	10	-	16	<	<	<	10	<	<	<	<	<	<	<	<	<	8	<	<	8	<	-
Copper	µg/l	1	1 000	7,3	1	<	<	<	5	<	<	<	<	<	<	<	<	3	<	<	3	<	-
Nickel	µg/l	1	70	260	5	5	2	2	3	3	2	3	6	6	<	10	<	10	<	<	10	<	-
Lead	µg/l	1	10	34	4	<	<	<	<	<	<	<	<	<	<	<	<	1	<	<	1	<	-
Zinc	µg/l	7	5 000	67	<	<	<	<	36	<	<	<	<	<	<	<	<	5	<	<	5	<	-

Notes:

<sup>1</sup> Appendix 7 of the *Guide d'intervention - Protection des sols et réhabilitation des terrains contaminés*  
 For some samples, the reported detection limit for chromium VI was increased due to matrix interferences.  
 Each sampling campaign performed by Hudon Desbiens St-Germain Environnement was documented in a follow-up report.  
 All samples were analyzed by a laboratory certified by the Centre d'expertise en analyse environnementale du Québec.  
 Quality controls are performed during each sampling campaign. Overall, all results confirm the reliability and reproducibility of performed analyses

Legend

5	: Value > "Drinking Purposes" Criterion
5	: Value > "Seepage Into Surface Waters" Criterion
-	: Not analyzed or no criterion for this parameter
<	: Value < reported detection limit

ANALYSIS PARAMETERS	RDL <sup>1</sup> (µg/l)	CRITERIA <sup>2</sup> (µg/l)		NORMS <sup>3</sup> (µg/l)		SAMPLE IDENTIFICATION (date of sampling) ANALYTICAL RESULTS <sup>4</sup> (µg/l)						
		ALERT THRESHOLD (50%)	SEEPAGE INTO SURFACE WATERS	ALERT THRESHOLD (70%)	STORM SEWER OR WATERCOURSE	F1	2019-F-2	F3	DUP-1	Gap (%)	F4	2021-F-5
		(2021-07-19)	(2021-07-19)	(2021-07-19)	(2021-07-19)	(2021-07-19)	(2021-07-19)	(2021-07-19)	(2021-07-19)	(2021-07-19)	(2021-07-19)	(2021-07-19)
<b>Petroleum Hydrocarbons C<sub>10</sub>-C<sub>50</sub></b>	100	1 400	2 800	10 500	15 000	<	<	<	<	-	<	<
<b>Metal &amp; Metalloids</b>												
Aluminium (Al)	30	-	-	2 100	3 000	<	<	<	<	-	<	<
Antimony (Sb)	3	550	1 100	-	-	<	<	<	<	-	<	<
Silver (Ag)	0,3	0,31	0,62	84	120	<	<	<	<	-	<	<
Arsenic (As)	0,3	170	340	700	1 000	<	<	4	4	0%	0,7	<
Barium (Ba)	20	300	600	700	1 000	82	<	120	120	0%	44	50
Cadmium (Cd)	1	0,6	1,1	70	100	<	<	<	<	-	<	<
Total Chromium (Cr)	5	-	-	700	1 000	<	<	<	<	-	<	<
Hexavalent Chromium (Cr <sup>VI</sup> )	0,008	8	16	28	40	<	<	<	<	-	<	<
Cobalt (Co)	20	185	370	-	-	<	<	<	<	-	<	<
Copper (Cu)	3	3,7	7,3	700	1 000	<	<	<	<	-	<	<
Manganese (Mn)	3	1 150	2 300	70	100	1200	170	2200	2200	0%	370	41
Molybdenum (Mo)	10	14 500	29 000	-	-	<	<	<	<	-	<	<
Nickel (Ni)	10	130	260	700	1 000	20	<	<	<	-	<	<
Lead (Pb)	1	17	34	70	100	<	<	<	<	-	<	<
Selenium (Se)	1	31	62	14	20	<	<	<	<	-	<	<
Sodium (Na)	200	-	-	-	-	200 000	91 000	200 000	200 000	0%	26 000	50 000
Zinc (Zn)	5	34	67	700	1 000	<	<	<	<	-	<	<
<b>Polycyclic Aromatic Hydrocarbons</b>												
Acenaphthene	0,03	50	100	-	-	<	<	<	<	-	<	<
Benzo (a) anthracene	0,03	-	<sup>5</sup>	-	-	<	<	<	<	-	<	<
Benzo (b+j) fluoranthene	0,06	-	<sup>5</sup>	-	-	<	<	<	<	-	<	<
Benzo (k) fluoranthene	0,06	-	<sup>5</sup>	-	-	<	<	<	<	-	<	<
Benzo (a) pyrene	0,008	-	<sup>5</sup>	-	-	<	<	<	<	-	<	<
Chrysene	0,03	-	<sup>5</sup>	-	-	<	<	<	<	-	<	<
Dibenzo (a,h) anthracene	0,03	-	<sup>5</sup>	-	-	<	<	<	<	-	<	<
Fluoranthene	0,03	7	14	0,7	1	<	<	<	<	-	<	<
Fluorene	0,03	55	110	-	-	<	<	<	<	-	<	<
Indeno (1,2,3-c,d) pyrene	0,03	-	<sup>4</sup>	-	-	<	<	<	<	-	<	<
Naphtalene	0,03	50	100	105	150	<	<	<	<	-	<	<
Phenanthrene	0,03	2,35	4,7	44,1	63	<	<	<	<	-	0,11	<
Summation of PAHs <sup>(5)</sup>	0,06	0,9	1,8	-	-	<	<	<	<	-	<	<
<b>Monocyclic Aromatic Hydrocarbons</b>												
Benzene	0,2	475	950	0,7	1	<	<	<	<	-	<	<
Chlorobenzene	0,2	65	130	-	-	<	<	<	<	-	<	<
1,2-Dichlorobenzene	0,2	35	70	140	200	<	<	<	<	-	<	<
1,3-Dichlorobenzene	0,1	50	100	-	-	<	<	<	<	-	<	<
1,4-Dichlorobenzene	0,2	50	100	77	110	<	<	<	<	-	<	<
Ethylbenzene	0,1	80	160	133	190	<	<	<	<	-	<	<
Styrene	0,1	400	800	-	-	<	<	<	<	-	<	<
Toluene	1	100	200	140	200	<	<	<	<	-	<	<
Xylenes (total)	0,4	185	370	252	360	<	<	<	<	-	<	<

Notes:

- <sup>1</sup> RDL: Reported Detection Limit
- <sup>2</sup> Appendix 7 of *Guide d'intervention - Protection des sols et réhabilitation des terrains contaminés*
- <sup>3</sup> Appendix 1 of *Règlement 2008-47 sur l'assainissement des eaux*
- <sup>4</sup> Certificate(s) of analysis: Bureau Veritas : C136433
- <sup>5</sup> Summation of PAHs (Appendix 7 *Guide d'intervention*): benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, chrysene, dibenzo(a,h)anthracene, indeno(1,2,3-c,d)pyrene.

Legend:

5	: Value > Alert Threshold
5	: Value > Criteria « Seepage into Surface Waters »
<	: Value < RDL
-	: Non analysed or no criteria/norm for that parameter
DUP-1	: Duplicate of Sample F3

ANALYSIS PARAMETERS	RDL <sup>1</sup> (µg/l)	CRITERIA <sup>2</sup> (µg/l)		NORMS <sup>3</sup> (µg/l)		SAMPLE IDENTIFICATION (date of sampling) ANALYTICAL RESULTS <sup>4</sup> (µg/l)						
		ALERT THRESHOLD (50%)	SEEPAGE INTO SURFACE WATERS	ALERT THRESHOLD (70%)	STORM SEWER OR WATERCOURSE	F1	2019-F-2	DUP-1	Gap (%)	F3	F4	2021-F-5
						(2021-07-19)	(2021-07-19)	(2021-07-19)		(2021-07-19)	(2021-07-19)	(2021-07-19)
<b>Petroleum Hydrocarbons C<sub>10</sub>-C<sub>50</sub></b>	100	1 400	2 800	10 500	15 000	<	<	<	-	<	<	<
<b>Metal &amp; Metalloids</b>												
Aluminium (Al)	30	-	-	2 100	3 000	<	<	<	-	<	<	<
Antimony (Sb)	3	550	1 100	-	-	<	<	<	-	<	<	<
Silver (Ag)	0,3	0,31	0,62	84	120	<	<	<	-	<	<	<
Arsenic (As)	0,3	170	340	700	1 000	0,32	<	0,32	-	1,9	0,33	<
Barium (Ba)	20	300	600	700	1 000	69	<	<	-	100	28	28
Cadmium (Cd)	1	0,6	1,1	70	100	<	<	<	-	<	<	<
Total Chromium (Cr)	5	-	-	700	1 000	<	<	<	-	<	<	<
Hexavalent Chromium (Cr <sup>VI</sup> )	0,008	8	16	28	40	<	<	<	-	<	<	<
Cobalt (Co)	20	185	370	-	-	<	<	<	-	<	<	<
Copper (Cu)	3	3,7	7,3	700	1 000	<	<	15	-	<	<	<
Manganese (Mn)	3	1 150	2 300	70	100	1200	180	220	20%	2500	140	69
Molybdenum (Mo)	10	14 500	29 000	-	-	<	<	<	-	<	<	<
Nickel (Ni)	10	130	260	700	1 000	16	<	<	-	<	<	<
Lead (Pb)	1	17	34	70	100	<	<	<	-	<	<	<
Selenium (Se)	1	31	62	14	20	<	<	<	-	<	<	<
Sodium (Na)	200	-	-	-	-	210 000	82 000	85 000	4%	170 000	27 000	50 000
Zinc (Zn)	5	34	67	700	1 000	<	<	<	-	<	<	<
<b>Polycyclic Aromatic Hydrocarbons</b>												
Acenaphthene	0,03	50	100	-	-	<	<	<	-	<	<	<
Benzo (a) anthracene	0,03	-	<sup>5</sup>	-	-	<	<	<	-	<	<	<
Benzo (b+j) fluoranthene	0,06	-	<sup>5</sup>	-	-	<	<	<	-	<	<	<
Benzo (k) fluoranthene	0,06	-	<sup>5</sup>	-	-	<	<	<	-	<	<	<
Benzo (a) pyrene	0,008	-	<sup>5</sup>	-	-	<	<	<	-	<	<	<
Chrysene	0,03	-	<sup>5</sup>	-	-	<	<	<	-	<	<	<
Dibenzo (a,h) anthracene	0,03	-	<sup>5</sup>	-	-	<	<	<	-	<	<	<
Fluoranthene	0,03	7	14	0,7	1	<	<	<	-	<	<	<
Fluorene	0,03	55	110	-	-	<	<	<	-	<	<	<
Indeno (1,2,3-c,d) pyrene	0,03	-	<sup>4</sup>	-	-	<	<	<	-	<	<	<
Naphtalene	0,03	50	100	105	150	0,042	<	<	-	<	<	<
Phenanthrene	0,03	2,35	4,7	44,1	63	<	<	<	-	<	<	0,031
Summation of PAHs <sup>(5)</sup>	0,06	0,9	1,8	-	-	<	<	<	-	<	<	<
<b>Monocyclic Aromatic Hydrocarbons</b>												
Benzene	0,2	475	950	0,7	1	<	<	<	-	<	<	<
Chlorobenzene	0,2	65	130	-	-	<	<	<	-	<	<	<
1,2-Dichlorobenzene	0,2	35	70	140	200	<	<	<	-	<	<	<
1,3-Dichlorobenzene	0,1	50	100	-	-	<	<	<	-	<	<	<
1,4-Dichlorobenzene	0,2	50	100	77	110	<	<	<	-	<	<	<
Ethylbenzene	0,1	80	160	133	190	<	<	<	-	<	<	<
Styrene	0,1	400	800	-	-	<	<	<	-	<	<	<
Toluene	1	100	200	140	200	<	<	<	-	<	<	<
Xylenes (total)	0,4	185	370	252	360	<	<	<	-	<	<	<

Notes:

- <sup>1</sup> RDL: Reported Detection Limit
- <sup>2</sup> Appendix 7 of *Guide d'intervention - Protection des sols et réhabilitation des terrains contaminés*
- <sup>3</sup> Appendix 1 of *Règlement 2008-47 sur l'assainissement des eaux*
- <sup>4</sup> Certificate(s) of analysis: Bureau Veritas : C150147/Rapport #R2694671
- <sup>5</sup> Summation of PAHs (Appendix 7 *Guide d'intervention*): benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, chrysene, dibenzo(a,h)anthracene, indeno(1,2,3-c,d)pyrene.

Legend:

5	: Value > Alert Threshold
5	: Value > Criteria « Seepage into Surface Waters »
<	: Value < RDL
-	: Non analysed or no criteria/norm for that parameter
DUP-1	: Duplicate of Sample 2019-F2