

Sediment Quality Verification Dataset - Summary

North Saskatchewan River Release

Please Note: Sediment samples were initially sent to SRC for analysis but are now being sent to ALS.
 SRC is not accredited for PAH analysis in sediments and has higher detection limits for PAHs than ALS
 Many of the PAH compounds detected in samples sent to ALS are below the SRC detection limits
 The higher sensitivity of ALS analyses results in more PAH detections than SRC
 A table comparing detection limits is given below the data

Sample Date	Sample Time	Location	Sample Type	ID	Lab	Substance	Result	Unit	CCME ISQG Exceedance ¹	CCME PEL Exceedance ²
WSA Sediment Sampling										

Point of Entry

05-Aug-16	11:15	Point of Entry South Bank	Sediment	23698	SRC	2-Methylnaphthalene	0.1	mg/kg	0.0202	0.201
						Phenanthrene	0.2	mg/kg	0.0419	0.515
						Ethylbenzene	0.01	mg/kg	NS	NS
						Toluene	0.13	mg/kg	NS	NS
						F2 hydrocarbons	14	mg/kg	NS	NS
						F3 hydrocarbons	290	mg/kg	NS	NS
08-Aug-16	14:20	Point of Entry South Bank	Sediment	L1811886-6	ALS	F4 hydrocarbons	86	mg/kg	NS	NS
						Toluene	1.64	mg/kg	NS	NS
						F2 hydrocarbons	48	mg/kg	NS	NS
						F3 hydrocarbons	310	mg/kg	NS	NS
						TEH (C23-C60)	460	mg/kg	NS	NS
						F4 hydrocarbons	163	mg/kg	NS	NS
						Total Hydrocarbons	520	mg/kg	NS	NS
						Benzo(a)pyrene	0.011	mg/kg	0.0319	0.782
						Benzo(b&j)fluoranthene	0.031	mg/kg	NS	NS
						Benzo(g,h,i)perylene	0.024	mg/kg	NS	NS
						Fluoranthene	0.018	mg/kg	0.111	2.355
						Fluorene	0.013	mg/kg	0.0212	0.144
						1-Methylnaphthalene	0.052	mg/kg	NS	NS
						2-Methylnaphthalene	0.075	mg/kg	0.0202	0.201
Naphthalene	0.027	mg/kg	0.0346	0.391						
Phenanthrene	0.076	mg/kg	0.0419	0.515						
Pyrene	0.028	mg/kg	0.053	0.875						
05-Aug-16	12:35	POE Centre Channel	Sediment	23699	SRC	Toluene	0.14	mg/kg	NS	NS
05-Aug-16	13:45	Point of Entry North Bank	Sediment	23700	SRC	Toluene	0.03	mg/kg	NS	NS
08-Aug-16	15:20		Sediment	L1811886-7	ALS	Toluene	0.116	mg/kg	NS	NS
			2-Methylnaphthalene			0.01	mg/kg	0.0202	0.201	
						Phenanthrene	0.013	mg/kg	0.0419	0.515

Highway #21

04-Aug-16	18:45	Highway #21 South Bank	Sediment	23504	SRC	2-Methylnaphthalene	0.2	mg/kg	0.0202	0.201
						Phenanthrene	0.3	mg/kg	0.0419	0.515
						Toluene	0.67	mg/kg	NS	NS
						F2 hydrocarbons	16	mg/kg	NS	NS
						F3 hydrocarbons	240	mg/kg	NS	NS
						F4 hydrocarbons	61	mg/kg	NS	NS
12-Aug-16	9:10	Highway #21 South Bank	Sediment	L1813360-2	ALS	Toluene	1.05	mg/kg	NS	NS
						F3 hydrocarbons	237	mg/kg	NS	NS
						F3-PAH	237	mg/kg	NS	NS
						F4 hydrocarbons	73	mg/kg	NS	NS
						Total Hydrocarbons	310	mg/kg	NS	NS
						Benzo(a)pyrene	0.01	mg/kg	0.0319	0.782
						Benzo(b&j)fluoranthene	0.029	mg/kg	NS	NS
						Benzo(g,h,i)perylene	0.024	mg/kg	NS	NS
						Fluoranthene	0.02	mg/kg	0.111	2.355
						Fluorene	0.02	mg/kg	0.0212	0.144
						1-Methylnaphthalene	0.076	mg/kg	NS	NS
						2-Methylnaphthalene	0.109	mg/kg	0.0202	0.201
						Naphthalene	0.034	mg/kg	0.0346	0.391
						Phenanthrene	0.108	mg/kg	0.0419	0.515
Pyrene	0.032	mg/kg	0.053	0.875						

04-Aug-16	18:00	Highway #21 North Bank	Sediment	23503	SRC	Toluene	0.16	mg/kg	NS	NS	
							F3 hydrocarbons	19	mg/kg	NS	NS
12-Aug-16	8:40			Sediment	L1813360-3	ALS	Benzene	0.0176	mg/kg	NS	NS
							Ethylbenzene	0.067	mg/kg	NS	NS
							Toluene	84.4	mg/kg	NS	NS
							o-Xylene	0.054	mg/kg	NS	NS
							m+p-Xylene	0.186	mg/kg	NS	NS
							Xylenes	0.24	mg/kg	NS	NS
							F1 Hydrocarbons	92	mg/kg	NS	NS
							F3 hydrocarbons	56	mg/kg	NS	NS
							F3-PAH	56	mg/kg	NS	NS
							Total Hydrocarbons	148	mg/kg	NS	NS
							Benzo(b&j)fluoranthene	0.01	mg/kg	NS	NS
1-Methylnaphthalene	0.016	mg/kg	NS	NS							
2-Methylnaphthalene	0.022	mg/kg	0.0202	0.201							
Phenanthrene	0.021	mg/kg	0.0419	0.515							
Pyrene	0.01	mg/kg	0.053	0.875							

Paynton Ferry

05-Aug-16	17:00	Paynton Southwest Bank	Sediment	23701	SRC	Toluene	0.06	mg/kg	NS	NS	
05-Aug-16	17:20	Paynton Centre Channel	Sediment	23702	SRC	ND	--	--	--	--	
05-Aug-16	18:05	Paynton Northeast Bank	Sediment	23703	SRC	Toluene	0.04	mg/kg	NS	NS	
							F3 hydrocarbons	16	mg/kg	NS	NS
08-Aug-16	14:00		Sediment	L1811886-5	ALS	Toluene	0.066	mg/kg	NS	NS	
							TEH (C23-C60)	140	mg/kg	NS	NS
12-Aug-16	12:35			Sediment	L1813360-1	ALS	Toluene	25	mg/kg	NS	NS
							F3 hydrocarbons	72	mg/kg	NS	NS
							F3-PAH	72	mg/kg	NS	NS
							Total Hydrocarbons	72	mg/kg	NS	NS
							Benzo(b&j)fluoranthene	0.023	mg/kg	NS	NS
							Benzo(g,h,i)perylene	0.017	mg/kg	NS	NS
							Fluoranthene	0.012	mg/kg	0.111	2.355
		1-Methylnaphthalene					0.034	mg/kg	NS	NS	
		2-Methylnaphthalene					0.048	mg/kg	0.0202	0.201	
Naphthalene	0.02	mg/kg	0.0346	0.391							
Phenanthrene	0.049	mg/kg	0.0419	0.515							
Pyrene	0.021	mg/kg	0.053	0.875							

North Battleford near water intake

04-Aug-16	12:55	North Battleford intake Southwest Bank	Sediment	23501	SRC	Toluene	0.02	mg/kg	NS	NS
04-Aug-16	14:15	North Battleford intake Northeast Bank	Sediment	23502	SRC	Toluene	0.04	mg/kg	NS	NS
						F3 hydrocarbons	10	mg/kg	NS	NS

Prince Albert near water intake

04-Aug-16	15:30	Prince Albert north bank	Sediment	251311	SRC	ND	--	--	--	--	
08-Aug-16	13:20		Sediment	L1811860-2	ALS	ND	--	--	--	--	
11-Aug-16	12:25		Sediment	L1813374-2	ALS	Toluene	0.052	mg/kg	NS	NS	
04-Aug-16	14:18	Prince Albert south bank	Sediment	251308	SRC	Toluene	0.49	mg/kg	NS	NS	
							F3 hydrocarbons	37	mg/kg	NS	NS
							F4 hydrocarbons	14	mg/kg	NS	NS
08-Aug-16	12:00			Sediment	L1811860-1	ALS	Toluene	0.122	mg/kg	NS	NS
							Benzo(b&j)fluoranthene	0.011	mg/kg	NS	NS
							Fluoranthene	0.014	mg/kg	0.111	2.355
							2-Methylnaphthalene	0.01	mg/kg	0.0202	0.201
							Phenanthrene	0.017	mg/kg	0.0419	0.515
Pyrene	0.014		mg/kg	0.053	0.875						
11-Aug-16	11:12	Sediment	L1813374-1	ALS	2-Methylnaphthalene	0.011	mg/kg	0.0202	0.201		
					Phenanthrene	0.014	mg/kg	0.0419	0.515		

Near Hwy#6 - Wapiti reach

10-Aug-16	12:25	Hwy#6 S Bank	Sediment	L1813396-1	ALS	1-Methylnaphthalene	0.013	mg/kg	NS	NS
						2-Methylnaphthalene	0.019	mg/kg	0.0202	0.201
						Phenanthrene	0.018	mg/kg	0.0419	0.515
10-Aug-16	13:12	Hwy#6 N Bank	Sediment	L1813396-2	ALS	ND	--	--	--	--
10-Aug-16	14:10	Hwy#6 Center	Sediment	L1813396-3	ALS	Toluene	0.17	mg/kg	NS	NS
						F3 hydrocarbons	62	mg/kg	NS	NS
						F3-PAH	62	mg/kg	NS	NS
						Total Hydrocarbons	62	mg/kg	NS	NS
						Benzo(b&j)fluoranthene	0.017	mg/kg	NS	NS
						Benzo(g,h,i)perylene	0.013	mg/kg	NS	NS

1-Methylnaphthalene	0.02	mg/kg	NS	NS
2-Methylnaphthalene	0.028	mg/kg	0.0202	0.201
Naphthalene	0.013	mg/kg	0.0346	0.391
Phenanthrene	0.026	mg/kg	0.0419	0.515
Pyrene	0.013	mg/kg	0.053	0.875

Nipawin

10-Aug-16	16:20	Hwy#55 E Bank	Sediment	L1813396-4	ALS	ND	--	--	--	--
10-Aug-16	16:50	Hwy#55 W Bank	Sediment	L1813396-5	ALS	Toluene	0.111	mg/kg	NS	NS
10-Aug-16	17:30	Hwy#55 Center	Sediment	L1813396-6	ALS	ND	--	--	--	--

Notes:

- ND Not Detected
- Exceeds guideline - CCME Sediment Quality Guidelines for Protection of Aquatic Life
- NS No Standard
 - 1 Interim Sediment Quality Guidelines
 - 2 Probable Effect Level

Saskatchewan Research Council - Environmental Analytics Laboratories
 Legal sample continuity protocol followed.

Contaminant	Detection Limit (mg/kg)		CCME ISQC	CCME PEL
	SRC ug/g and mg/kg	ALS *		
Benzene	0.005	0.005	NS	NS
Ethylbenzene	0.01	0.01	NS	NS
m+p-Xylene	0.04	0.05	NS	NS
o-Xylene	0.04	0.05	NS	NS
Total Xylene	0.04	0.1	NS	NS
Toluene	0.02	0.05	NS	NS
1-Methylnaphthalene		0.01	NS	NS
2-Methylnaphthalene	0.1	0.01	0.0202	0.201
Acenaphthene	0.1	0.005	0.00671	0.0889
Acenaphthylene	0.1	0.005	0.00587	0.128
Acridine		0.01	NS	NS
Anthracene	0.1	0.004	0.0469	0.245
Benzo(a)anthracene	0.2	0.01	0.0317	0.385
Benzo(a)pyrene	0.2	0.01	0.0319	0.782
Benzo(b)fluoranthene	0.2		NS	NS
Benzo(b+j)fluoranthene		0.01	NS	NS
Benzo(e)pyrene	0.2		NS	NS
Benzo(g,h,i)perylene	0.2	0.01	NS	NS
Benzo(k)fluoranthene	0.2	0.01	NS	NS
Chrysene	0.2	0.01	0.0571	0.862
Dibenzo(a,h)anthracene	0.2	0.005	0.00622	0.135
Fluoranthene	0.1	0.01	0.111	2.355
Fluorene	0.1	0.01	0.0212	0.144
Indeno(1,2,3-c,d)pyrene	0.2	0.01	NS	NS
Naphthalene	0.1	0.01	0.0346	0.391
Perylene	0.2		NS	NS
Phenanthrene	0.1	0.01	0.0419	0.515
Pyrene	0.1	0.01	0.053	0.875
Quinoline	0.1	0.01	NS	NS
Styrene		0.05	NS	NS
Hydrocarbons, F1 (C6-C10)		10	NS	NS
Hydrocarbons, F1 (BTEX)		10	NS	NS
Hydrocarbons, F1	10		NS	NS
Hydrocarbons, F2	3.9	30	NS	NS
TEH (C11-C22)		50	NS	NS
Hydrocarbons, F3	5	50	NS	NS
TEH (C23-C60)		100	NS	NS
Hydrocarbons, F4 (C34-C50)		50	NS	NS
Hydrocarbons, F4 (C32-C50)	5		NS	NS
Total Hydrocarbons		50	NS	NS

* Detection limits are sometimes raised for specific parameters during individual analyses