ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Certificate of Analysis

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Report Date: 01-SEP-10 17:18 (MT)
Version: FINAL

Lab Work Order #: **L923109** **Date Received:** **23-AUG-10**

Project P.O. #: NOT SUBMITTED
Job Reference: RICHMOND ISLAND MARINA VANCOUVER, B.C
Legal Site Desc:
CofC Numbers:

Other Information:

Comments:

Can Dang
Account Manager

THIS REPORT SHALL NOT BE REPRODUCED EXCEPT IN FULL WITHOUT THE WRITTEN AUTHORITY OF THE LABORATORY.
ALL SAMPLES WILL BE DISPOSED OF AFTER 30 DAYS FOLLOWING ANALYSIS. PLEASE CONTACT THE LAB IF YOU
REQUIRE ADDITIONAL SAMPLE STORAGE TIME.

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ALS LABORATORY GROUP ANALYTICAL REPORT

	Sample ID	L923109-1	L923109-3	L923109-5	L923109-7	L923109-9
	Description					
	Sampled Date	19-AUG-10	19-AUG-10	19-AUG-10	19-AUG-10	19-AUG-10
	Sampled Time					
	Client ID	DBT RIM 1	DBT RIM 3	DBT RIM 5	DBT RIM 7	DBT RIM 9
Grouping	**Analyte**					
SOIL						
Physical Tests	Moisture (%)	49.0	47.0	42.7	42.9	43.8
Particle Size	% Gravel (>2mm) (%)	<1.0	<1.0	<1.0	<1.0	<1.0
	% Sand (2.0mm - 0.063mm) (%)	1.3	<1.0	1.0	2.6	2.9
	% Silt (0.063mm - 4um) (%)	77.2	81.6	81.5	81.9	84.1
	% Clay (<4um) (%)	21.4	18.0	17.5	15.1	13.0
Organic / Inorganic Carbon	Total Organic Carbon (%)	1.15	1.12	1.21	1.38	1.14
Metals	Cadmium (Cd) (mg/kg)	0.25	0.23	0.33	0.34	0.30
	Lead (Pb) (mg/kg)	12.1	12.1	13.1	12.6	11.1
	Mercury (Hg) (mg/kg)	0.0736	0.0703	0.0726	0.0846	0.0695
Polycyclic Aromatic Hydrocarbons	Acenaphthene (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	Acenaphthylene (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	Anthracene (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	Benz(a)anthracene (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	Benzo(a)pyrene (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	Benzo(b)fluoranthene (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	Benzo(g,h,i)perylene (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	Benzo(k)fluoranthene (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	Chrysene (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	Dibenz(a,h)anthracene (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	Fluoranthene (mg/kg)	0.058	<0.060 DLB	<0.050	0.078	<0.050
	Fluorene (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	Heavy Molecular Wt. Pah Sum (mg/kg)	<0.20	<0.20	<0.20	<0.20	<0.20
	Indeno(1,2,3-c,d)pyrene (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	Light Molecular Wt. Pah Sum (mg/kg)	<0.12	<0.12	<0.12	<0.12	<0.12
	Naphthalene (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	Total PAHs (mg/kg)	<0.20	<0.20	<0.20	<0.20	<0.20
	Phenanthrene (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	Pyrene (mg/kg)	<0.050	<0.050	<0.050	0.070	<0.050
	Surrogate: d10-Acenaphthene (SS) (%)	95	98	88	99	101
	Surrogate: d12-Chrysene (SS) (%)	95	101	70	101	101
	Surrogate: d8-Naphthalene (SS) (%)	89	89	73	93	95
	Surrogate: d10-Phenanthrene (SS) (%)	91	96	83	97	98
Polychlorinated Biphenyls	PCB-1016 (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	PCB-1221 (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	PCB-1232 (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS LABORATORY GROUP ANALYTICAL REPORT

	Sample ID	L923109-11	L923109-13	L923109-15	L923109-17	L923109-19
	Description					
	Sampled Date	19-AUG-10	19-AUG-10	19-AUG-10	19-AUG-10	19-AUG-10
	Sampled Time					
	Client ID	DBT RIM 11	DBT RIM 13	DBT RIM 15	DBT RIM 17	DBT RIM 19
Grouping	**Analyte**					
SOIL						
Physical Tests	Moisture (%)	41.6	41.0	48.4	48.6	52.0
Particle Size	% Gravel (>2mm) (%)	<1.0	<1.0	<1.0	<1.0	<1.0
	% Sand (2.0mm - 0.063mm) (%)	5.1	7.2	1.3	1.6	1.0
	% Silt (0.063mm - 4um) (%)	79.9	80.3	76.0	77.7	80.1
	% Clay (<4um) (%)	15.0	12.5	22.8	20.7	18.9
Organic / Inorganic Carbon	Total Organic Carbon (%)	0.98	1.40	1.69	1.20	1.34
Metals	Cadmium (Cd) (mg/kg)	0.24	0.26	0.29	0.25	0.31
	Lead (Pb) (mg/kg)	8.9	9.7	11.1	11.0	12.3
	Mercury (Hg) (mg/kg)	0.0543	0.0612	0.0706	0.0679	0.0769
Polycyclic Aromatic Hydrocarbons	Acenaphthene (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	Acenaphthylene (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	Anthracene (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	Benz(a)anthracene (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	Benzo(a)pyrene (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	Benzo(b)fluoranthene (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	Benzo(g,h,i)perylene (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	Benzo(k)fluoranthene (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	Chrysene (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	Dibenz(a,h)anthracene (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	Fluoranthene (mg/kg)	<0.050	0.062	<0.050	<0.050	0.061
	Fluorene (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	Heavy Molecular Wt. Pah Sum (mg/kg)	<0.20	<0.20	<0.20	<0.20	<0.20
	Indeno(1,2,3-c,d)pyrene (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	Light Molecular Wt. Pah Sum (mg/kg)	<0.12	<0.12	<0.12	<0.12	<0.12
	Naphthalene (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	Total PAHs (mg/kg)	<0.20	<0.20	<0.20	<0.20	<0.20
	Phenanthrene (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	Pyrene (mg/kg)	<0.050	0.053	<0.050	<0.050	0.052
	Surrogate: d10-Acenaphthene (SS) (%)	101	99	105	65	91
	Surrogate: d12-Chrysene (SS) (%)	102	101	103	64	92
	Surrogate: d8-Naphthalene (SS) (%)	94	93	99	60	81
	Surrogate: d10-Phenanthrene (SS) (%)	97	96	101	62	87
Polychlorinated Biphenyls	PCB-1016 (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	PCB-1221 (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	PCB-1232 (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050

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ALS LABORATORY GROUP ANALYTICAL REPORT

	Sample ID	L923109-21	L923109-23	L923109-25	L923109-27	L923109-29
	Description					
	Sampled Date	19-AUG-10	19-AUG-10	19-AUG-10	19-AUG-10	
	Sampled Time					
	Client ID	DBT RIM 21	DBT RIM 23	DBT RIM 25	DBT RIM 27	DBT RIM 1 METALS QC 1
Grouping	**Analyte**					
SOIL						
Physical Tests	Moisture (%)	48.0	53.4	45.9	39.6	
Particle Size	% Gravel (>2mm) (%)	<1.0	<1.0	<1.0	<1.0	
	% Sand (2.0mm - 0.063mm) (%)	2.0	2.5	10.2	26.8	
	% Silt (0.063mm - 4um) (%)	80.4	83.7	82.0	66.7	
	% Clay (<4um) (%)	17.6	13.8	7.8	6.5	
Organic / Inorganic Carbon	Total Organic Carbon (%)	1.22	1.64	0.98	0.83	
Metals	Cadmium (Cd) (mg/kg)	0.27	0.26	0.17	0.17	0.25
	Lead (Pb) (mg/kg)	11.3	12.0	8.5	7.1	12.2
	Mercury (Hg) (mg/kg)	0.0637	0.0723	0.0559	0.0672	0.0726
Polycyclic Aromatic Hydrocarbons	Acenaphthene (mg/kg)	<0.050	<0.050	<0.050	<0.050	
	Acenaphthylene (mg/kg)	<0.050	<0.050	<0.050	<0.050	
	Anthracene (mg/kg)	<0.050	<0.050	<0.050	<0.050	
	Benz(a)anthracene (mg/kg)	<0.050	<0.050	<0.050	<0.050	
	Benzo(a)pyrene (mg/kg)	<0.050	<0.050	<0.050	<0.050	
	Benzo(b)fluoranthene (mg/kg)	<0.050	0.059	<0.050	<0.050	
	Benzo(g,h,i)perylene (mg/kg)	<0.050	<0.050	<0.050	<0.050	
	Benzo(k)fluoranthene (mg/kg)	<0.050	<0.050	<0.050	<0.050	
	Chrysene (mg/kg)	<0.050	<0.050	<0.050	<0.050	
	Dibenz(a,h)anthracene (mg/kg)	<0.050	<0.050	<0.050	<0.050	
	Fluoranthene (mg/kg)	0.061	0.103	0.051	<0.050	
	Fluorene (mg/kg)	<0.050	<0.050	<0.050	<0.050	
	Heavy Molecular Wt. Pah Sum (mg/kg)	<0.20	0.25	<0.20	<0.20	
	Indeno(1,2,3-c,d)pyrene (mg/kg)	<0.050	<0.050	<0.050	<0.050	
	Light Molecular Wt. Pah Sum (mg/kg)	<0.12	<0.12	<0.12	<0.12	
	Naphthalene (mg/kg)	<0.050	<0.050	<0.050	<0.050	
	Total PAHs (mg/kg)	<0.20	0.31	<0.20	<0.20	
	Phenanthrene (mg/kg)	<0.050	0.054	<0.050	<0.050	
	Pyrene (mg/kg)	0.051	0.091	<0.050	<0.050	
	Surrogate: d10-Acenaphthene (SS) (%)	85	91	88	89	
	Surrogate: d12-Chrysene (SS) (%)	82	91	86	85	
	Surrogate: d8-Naphthalene (SS) (%)	77	81	80	81	
	Surrogate: d10-Phenanthrene (SS) (%)	81	88	83	83	
Polychlorinated Biphenyls	PCB-1016 (mg/kg)	<0.050	<0.050	<0.050	<0.050	
	PCB-1221 (mg/kg)	<0.050	<0.050	<0.050	<0.050	
	PCB-1232 (mg/kg)	<0.050	<0.050	<0.050	<0.050	

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ALS LABORATORY GROUP ANALYTICAL REPORT

	Sample ID	L923109-30	L923109-31	L923109-32	L923109-33	L923109-34
	Description					
	Sampled Date					
	Sampled Time					
	Client ID	DBT RIM 1 METALS QC 2	DBT RIM 1 METALS QC 3	DBT RIM 1 METALS QC 4	DBT RIM 27 METALS QC 1	DBT RIM 27 METALS QC 2
Grouping	**Analyte**					
SOIL						
Physical Tests	Moisture (%)					
Particle Size	% Gravel (>2mm) (%)					
	% Sand (2.0mm - 0.063mm) (%)					
	% Silt (0.063mm - 4um) (%)					
	% Clay (<4um) (%)					
Organic / Inorganic Carbon	Total Organic Carbon (%)					
Metals	Cadmium (Cd) (mg/kg)	0.26	0.24	0.23	0.18	0.17
	Lead (Pb) (mg/kg)	11.8	11.6	11.3	7.6	7.4
	Mercury (Hg) (mg/kg)	0.0697	0.0670	0.0748	0.0430	0.0419
Polycyclic Aromatic Hydrocarbons	Acenaphthene (mg/kg)					
	Acenaphthylene (mg/kg)					
	Anthracene (mg/kg)					
	Benz(a)anthracene (mg/kg)					
	Benzo(a)pyrene (mg/kg)					
	Benzo(b)fluoranthene (mg/kg)					
	Benzo(g,h,i)perylene (mg/kg)					
	Benzo(k)fluoranthene (mg/kg)					
	Chrysene (mg/kg)					
	Dibenz(a,h)anthracene (mg/kg)					
	Fluoranthene (mg/kg)					
	Fluorene (mg/kg)					
	Heavy Molecular Wt. Pah Sum (mg/kg)					
	Indeno(1,2,3-c,d)pyrene (mg/kg)					
	Light Molecular Wt. Pah Sum (mg/kg)					
	Naphthalene (mg/kg)					
	Total PAHs (mg/kg)					
	Phenanthrene (mg/kg)					
	Pyrene (mg/kg)					
	Surrogate: d10-Acenaphthene (SS) (%)					
	Surrogate: d12-Chrysene (SS) (%)					
	Surrogate: d8-Naphthalene (SS) (%)					
	Surrogate: d10-Phenanthrene (SS) (%)					
Polychlorinated Biphenyls	PCB-1016 (mg/kg)					
	PCB-1221 (mg/kg)					
	PCB-1232 (mg/kg)					

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ALS LABORATORY GROUP ANALYTICAL REPORT

	Sample ID Description Sampled Date Sampled Time Client ID	L923109-35 DBT RIM 27 METALS QC 3	L923109-36 DBT RIM 27 METALS QC 4	L923109-37 DBT RIM 9 PAH QC	L923109-38 DBT RIM 23 PAH QC	L923109-39 DBT RIM 11 PCB QC
Grouping	**Analyte**					
SOIL						
Physical Tests	Moisture (%)			44.9	37.6	49.7
Particle Size	% Gravel (>2mm) (%)					
	% Sand (2.0mm - 0.063mm) (%)					
	% Silt (0.063mm - 4um) (%)					
	% Clay (<4um) (%)					
Organic / Inorganic Carbon	Total Organic Carbon (%)					
Metals	Cadmium (Cd) (mg/kg)	0.17	0.18			
	Lead (Pb) (mg/kg)	7.3	7.7			
	Mercury (Hg) (mg/kg)	0.0451	0.0496			
Polycyclic Aromatic Hydrocarbons	Acenaphthene (mg/kg)			<0.050	<0.050	
	Acenaphthylene (mg/kg)			<0.050	<0.050	
	Anthracene (mg/kg)			<0.050	<0.050	
	Benz(a)anthracene (mg/kg)			<0.050	<0.050	
	Benzo(a)pyrene (mg/kg)			<0.050	<0.050	
	Benzo(b)fluoranthene (mg/kg)			<0.050	<0.050	
	Benzo(g,h,i)perylene (mg/kg)			<0.050	<0.050	
	Benzo(k)fluoranthene (mg/kg)			<0.050	<0.050	
	Chrysene (mg/kg)			<0.050	0.057	
	Dibenz(a,h)anthracene (mg/kg)			<0.050	<0.050	
	Fluoranthene (mg/kg)			<0.050	0.075	
	Fluorene (mg/kg)			<0.050	<0.050	
	Heavy Molecular Wt. Pah Sum (mg/kg)			<0.20	<0.20	
	Indeno(1,2,3-c,d)pyrene (mg/kg)			<0.050	<0.050	
	Light Molecular Wt. Pah Sum (mg/kg)			<0.12	<0.12	
	Naphthalene (mg/kg)			<0.050	<0.050	
	Total PAHs (mg/kg)			<0.20	<0.20	
	Phenanthrene (mg/kg)			<0.050	<0.050	
	Pyrene (mg/kg)			<0.050	0.066	
	Surrogate: d10-Acenaphthene (SS) (%)			88	89	
	Surrogate: d12-Chrysene (SS) (%)			92	92	
	Surrogate: d8-Naphthalene (SS) (%)			73	79	
	Surrogate: d10-Phenanthrene (SS) (%)			84	86	
Polychlorinated Biphenyls	PCB-1016 (mg/kg)					<0.050
	PCB-1221 (mg/kg)					<0.050
	PCB-1232 (mg/kg)					<0.050

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS LABORATORY GROUP ANALYTICAL REPORT

	Sample ID	L923109-40				
	Description					
	Sampled Date					
	Sampled Time					
	Client ID	DBT RIM 17 PCB QC				
Grouping	**Analyte**					
SOIL						
Physical Tests	Moisture (%)	50.4				
Particle Size	% Gravel (>2mm) (%)					
	% Sand (2.0mm - 0.063mm) (%)					
	% Silt (0.063mm - 4um) (%)					
	% Clay (<4um) (%)					
Organic / Inorganic Carbon	Total Organic Carbon (%)					
Metals	Cadmium (Cd) (mg/kg)					
	Lead (Pb) (mg/kg)					
	Mercury (Hg) (mg/kg)					
Polycyclic Aromatic Hydrocarbons	Acenaphthene (mg/kg)					
	Acenaphthylene (mg/kg)					
	Anthracene (mg/kg)					
	Benz(a)anthracene (mg/kg)					
	Benzo(a)pyrene (mg/kg)					
	Benzo(b)fluoranthene (mg/kg)					
	Benzo(g,h,i)perylene (mg/kg)					
	Benzo(k)fluoranthene (mg/kg)					
	Chrysene (mg/kg)					
	Dibenz(a,h)anthracene (mg/kg)					
	Fluoranthene (mg/kg)					
	Fluorene (mg/kg)					
	Heavy Molecular Wt. Pah Sum (mg/kg)					
	Indeno(1,2,3-c,d)pyrene (mg/kg)					
	Light Molecular Wt. Pah Sum (mg/kg)					
	Naphthalene (mg/kg)					
	Total PAHs (mg/kg)					
	Phenanthrene (mg/kg)					
	Pyrene (mg/kg)					
	Surrogate: d10-Acenaphthene (SS) (%)					
	Surrogate: d12-Chrysene (SS) (%)					
	Surrogate: d8-Naphthalene (SS) (%)					
	Surrogate: d10-Phenanthrene (SS) (%)					
Polychlorinated Biphenyls	PCB-1016 (mg/kg)	<0.050				
	PCB-1221 (mg/kg)	<0.050				
	PCB-1232 (mg/kg)	<0.050				

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ALS LABORATORY GROUP ANALYTICAL REPORT

	Sample ID	L923109-1	L923109-3	L923109-5	L923109-7	L923109-9
	Description					
	Sampled Date	19-AUG-10	19-AUG-10	19-AUG-10	19-AUG-10	19-AUG-10
	Sampled Time					
	Client ID	DBT RIM 1	DBT RIM 3	DBT RIM 5	DBT RIM 7	DBT RIM 9
Grouping	**Analyte**					
SOIL						
Polychlorinated Biphenyls	PCB-1242 (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	PCB-1248 (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	PCB-1254 (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	PCB-1260 (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	PCB-1262 (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	PCB-1268 (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	Total Polychlorinated Biphenyls (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS LABORATORY GROUP ANALYTICAL REPORT

	Sample ID	L923109-11	L923109-13	L923109-15	L923109-17	L923109-19
	Description					
	Sampled Date	19-AUG-10	19-AUG-10	19-AUG-10	19-AUG-10	19-AUG-10
	Sampled Time					
	Client ID	DBT RIM 11	DBT RIM 13	DBT RIM 15	DBT RIM 17	DBT RIM 19
Grouping	**Analyte**					
SOIL						
Polychlorinated Biphenyls	PCB-1242 (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	PCB-1248 (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	PCB-1254 (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	PCB-1260 (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	PCB-1262 (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	PCB-1268 (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	Total Polychlorinated Biphenyls (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS LABORATORY GROUP ANALYTICAL REPORT

	Sample ID	L923109-21	L923109-23	L923109-25	L923109-27	L923109-29
	Description					
	Sampled Date	19-AUG-10	19-AUG-10	19-AUG-10	19-AUG-10	
	Sampled Time					
	Client ID	DBT RIM 21	DBT RIM 23	DBT RIM 25	DBT RIM 27	DBT RIM 1 METALS QC 1
Grouping	**Analyte**					
SOIL						
Polychlorinated Biphenyls	PCB-1242 (mg/kg)	<0.050	<0.050	<0.050	<0.050	
	PCB-1248 (mg/kg)	<0.050	<0.050	<0.050	<0.050	
	PCB-1254 (mg/kg)	<0.050	<0.050	<0.050	<0.050	
	PCB-1260 (mg/kg)	<0.050	<0.050	<0.050	<0.050	
	PCB-1262 (mg/kg)	<0.050	<0.050	<0.050	<0.050	
	PCB-1268 (mg/kg)	<0.050	<0.050	<0.050	<0.050	
	Total Polychlorinated Biphenyls (mg/kg)	<0.050	<0.050	<0.050	<0.050	

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS LABORATORY GROUP ANALYTICAL REPORT

	Sample ID	L923109-30	L923109-31	L923109-32	L923109-33	L923109-34
	Description					
	Sampled Date					
	Sampled Time					
	Client ID	DBT RIM 1 METALS QC 2	DBT RIM 1 METALS QC 3	DBT RIM 1 METALS QC 4	DBT RIM 27 METALS QC 1	DBT RIM 27 METALS QC 2
Grouping	**Analyte**					
SOIL						
Polychlorinated Biphenyls	PCB-1242 (mg/kg)					
	PCB-1248 (mg/kg)					
	PCB-1254 (mg/kg)					
	PCB-1260 (mg/kg)					
	PCB-1262 (mg/kg)					
	PCB-1268 (mg/kg)					
	Total Polychlorinated Biphenyls (mg/kg)					

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS LABORATORY GROUP ANALYTICAL REPORT

Sample ID	L923109-35	L923109-36	L923109-37	L923109-38	L923109-39
Description					
Sampled Date					
Sampled Time					
Client ID	DBT RIM 27 METALS QC 3	DBT RIM 27 METALS QC 4	DBT RIM 9 PAH QC	DBT RIM 23 PAH QC	DBT RIM 11 PCB QC
Grouping / **Analyte**					
SOIL					
Polychlorinated Biphenyls / PCB-1242 (mg/kg)					<0.050
PCB-1248 (mg/kg)					<0.050
PCB-1254 (mg/kg)					<0.050
PCB-1260 (mg/kg)					<0.050
PCB-1262 (mg/kg)					<0.050
PCB-1268 (mg/kg)					<0.050
Total Polychlorinated Biphenyls (mg/kg)					<0.050

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS LABORATORY GROUP ANALYTICAL REPORT

	Sample ID	L923109-40				
	Description					
	Sampled Date					
	Sampled Time					
	Client ID	DBT RIM 17 PCB QC				
Grouping	**Analyte**					
SOIL						
Polychlorinated Biphenyls	PCB-1242 (mg/kg)	<0.050				
	PCB-1248 (mg/kg)	<0.050				
	PCB-1254 (mg/kg)	<0.050				
	PCB-1260 (mg/kg)	<0.050				
	PCB-1262 (mg/kg)	<0.050				
	PCB-1268 (mg/kg)	<0.050				
	Total Polychlorinated Biphenyls (mg/kg)	<0.050				

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

Reference Information

Qualifiers for Individual Parameters Listed:

Qualifier	Description
DLB	Detection limit was raised due to detection of analyte at comparable level in Method Blank.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
C-TOT-ORG-LECO-SK	Soil	Organic Carbon by combustion method	SSSA (1996) p. 973

Total Organic Carbon (C-TOT-ORG-LECO-SK, C-TOT-ORG-SK)

Total C and inorganic C are determined on separate samples. The total C is determined by combustion and thermal conductivity detection, while inorganic C is determined by weight lass after addition of hydrochloric acid. Organic C is calculated by the difference between these two determinations.

Reference for Total C:
Nelson, D.W. and Sommers, L.E. 1996. Total Carbon, organic carbon and organic matter. P. 961-1010 In: J.M. Bartels et al. (ed.) Methods of soil analysis: Part 3 Chemical methods. (3rd ed.) ASA and SSSA, Madison, WI. Book series no. 5

Reference for Inorganic C:
Loeppert, R.H. and Suarez, D.L. 1996. Gravimetric Method for Loss of Carbon Dioxide. P. 455-456 In: J.M. Bartels et al. (ed.) Methods of soil analysis: Part 3 Chemical methods. (3rd ed.) ASA and SSSA, Madison, WI. Book series no. 5

HG-CCME-CVAFS-VA	Soil	CVAFS Hg in Soil (CCME)	BCMELP CSR SALM METHOD 8/EPA 245.7

This analysis is carried out using procedures from CSR Analytical Method 8 "Strong Acid Leachable Metals (SALM) in Soil", BC Ministry of Environment, Lands and Parks, 26 June 2001, and procedures adapted from "Test Methods for Evaluating Solid Waste", SW-846 Method 3050B United States Environmental Protection Agency (EPA). The sample is manually homogenized, dried at 60 degrees Celsius, sieved through a 2 mm (10 mesh) sieve, and a representative subsample of the dry material is weighed. The sample is then digested at 90 degrees Celsius for 2 hours by block digester using a 1:1 ratio of concentrated nitric and hydrochloric acids. Instrumental analysis is by atomic fluorescence spectrophotometry (EPA Method 7000 series).

Method Limitation: This method is not a total digestion technique. It is a very strong acid digestion that is intended to dissolve those metals that may be environmentally available. By design, elements bound in silicate structures are not normally dissolved by this procedure as they are not usually mobile in the environment.

MET-CSR-MS-VA	Soil	Metals in Soil by ICPMS (CSR SALM)	BCMELP CSR SALM Method 8

This analysis is carried out using procedures from CSR Analytical Method 8 "Strong Acid Leachable Metals (SALM) in Soil", BC Ministry of Environment, Lands and Parks, 26 June 2001, and procedures adapted from "Test Methods for Evaluating Solid Waste", SW-846 Method 3050B United States Environmental Protection Agency (EPA). The sample is manually homogenized, dried at 60 degrees Celsius, sieved through a 2 mm (10 mesh) sieve, and a representative subsample of the dry material is weighed. The sample is then digested at 90 degrees Celsius for 2 hours by either hotplate or block digester using a 1:1 ratio of concentrated nitric and hydrochloric acids. Instrumental analysis is by inductively coupled plasma - mass spectrometry (EPA Method 6020A).

Method Limitation: This method is not a total digestion technique. It is a very strong acid digestion that is intended to dissolve those metals that may be environmentally available. By design, elements bound in silicate structures are not normally dissolved by this procedure as they are not usually mobile in the environment.

MOISTURE-VA	Soil	Moisture content	ASTM METHOD D2974-00

This analysis is carried out gravimetrically by drying the sample at 105 C for a minimum of six hours.

PAH-HIGHLOW-CALC-VA	Soil	Sum of low,high PAH's	CALCULATION

The concentrations of individual PAH compounds are added together, based on molecular size; 2 and 3 ring PAHs constitute low-weight PAHs, 4 to 6 ring PAHs are the high-weight compounds.

PAH-SUM-CALC-VA	Soil	Sum of PAH's	CALCULATION

Total PAH represents the sum of all PAH analytes reported for a given sample. Note that regulatory agencies and criteria differ in their definitions of Total PAH in terms of the individual PAH analytes to be included.

PAH-SURR-MS-VA	Soil	PAH Surrogates for Soils	EPA METHODS 3570, 3545A & 8270
PAH-TUMB-H/A-MS-VA	Soil	PAH by Tumbler HEX/ACE with GCMS	EPA METHODS 3570 & 8270.

Polycyclic Aromatic Hydrocarbons in Sediment/Soil
This analysis is carried out using procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846, Methods 3570 & 8270, published by the United States Environmental Protection Agency (EPA). The procedure uses a mechanical shaking technique to extract a subsample of the sediment/soil with a 1:1 mixture of hexane and acetone. The extract is then solvent exchanged to toluene. The final extract is analysed by capillary column gas chromatography with mass spectrometric detection (GC/MS). Surrogate recoveries may not be reported in cases where interferences from the sample matrix prevent accurate quantitation.

PCB-SE-ECD-ED	Soil	PCB by Extraction with GCECD	EPA 3630/8082 GCECD

This analysis is carried out using procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846, Methods 3500, 3620, 3630, 3660, 3665 & 8082, published by the United States Environmental Protection Agency (EPA). The procedure involves a solid-liquid extraction of a subsample of the sediment/soil using a mixture of hexane and acetone. Water is added to the extract and the resulting hexane extract undergoes one or more of

Reference Information

the following clean-up procedures (if required): florisil clean-up, silica gel clean-up, sulphur clean-up and/or sulphuric acid clean-up. The final extract is analysed by capillary column gas chromatography with electron capture detection (GC/ECD).

PSA-PIPET+GRAVEL-SK Soil Particle size - Sieve and Pipette FORESTRY CANADA (1991) P. 46-48 MOD

Particle size analysis involves the measurement of the proportions of the various primary soil particle sizes (ie. clay < 0.004 mm, silt 0.004-0.063 mm, sand 0.063-2.0 mm and gravel > 2.0 mm). In this method, the gravel and sand portions are determined by sieving, while the clay portion is determined by sedimentation using Stokes Law, which relates the radius of the particles to the velocity of the sedimentation in water. Silt is calculated as 100% - (sand% + clay%)
Pretreatment of the soil with Calgon (sodium hexametaphosphate) is used to ensure the complete dispersion of the primary soil particles. Additional pretreatment may be necessary to remove cementing materials such as CaCO3 and organic matter.

Reference
Y.P. Kalra, and D.G. Maynard, 1991. Methods Manual For Forest Soil and Plant Analysis,Northwest Region. Forestry Canada (modified sand, silt and clay size ranges)

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
ED	ALS LABORATORY GROUP - EDMONTON, ALBERTA, CANADA
VA	ALS LABORATORY GROUP - VANCOUVER, BC, CANADA
SK	ALS LABORATORY GROUP - SASKATOON, SASKATCHEWAN, CANADA

Chain of Custody Numbers:

GLOSSARY OF REPORT TERMS
Surrogate A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.
mg/kg milligrams per kilogram based on dry weight of sample.
mg/kg wwt milligrams per kilogram based on wet weight of sample.
mg/kg lwt milligrams per kilogram based on lipid-adjusted weight of sample.
mg/L milligrams per litre.
< - Less than.
D.L. The reported Detection Limit, also known as the Limit of Reporting (LOR).
N/A Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as receieved by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

L923109

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CHAIN OF CUSTODY / ANALYTICAL REQUEST FORM

PAGE 1 OF 1

SEND REPORT TO:

COMPANY:	D.B. Technical Services Inc.				
ADDRESS:	4663 Woodridge Place				
CITY:	West Vancouver	PROV:	B.C.	POSTAL CODE:	V7S 2X1
CONTACT:	Duane Brothers			TELEPHONE:	604-926-0675
	Tom Finnbogason				604-805-1024
PROJECT NAME/#:	Richmond Island Marina			SAMPLER:	Duane Brothers
	Vancouver, B.C.			ALSE CONTACT:	Can Dang

SEND INVOICE TO: (complete if different from Report To at left) Require copy of Report? ○ Yes ● No

COMPANY:				CONTACT:	
ADDRESS:				P.O. #:	
CITY:		PROV:		POSTAL CODE:	TEL:

ANALYSIS REQUESTED:

REPORT FORMAT:
- ☑ Hardcopy ☐ Fax #:
- ☑ E-mail Specify file type: PDF and XL
- E-mail Address:

INVOICE FORMAT:
- ● Hardcopy ○ Fax #:
- ○ E-mail (pdf format)
- E-mail Address:

● Routine Turn Around
○ Rush (Surcharges May Apply) Specify Due Date: 2009 July 06

WO #	SAMPLE IDENTIFICATION				DATE / TIME COLLECTED YYYY-MM-DD	Time	MATRIX	Cd	Hg	PAH	PCB	TOC	Partical Size	NOTES (sample specific comments, due dates, etc.)
FOR LAB USE ONLY	DBT	RIM		1	2010-08-19	AM	sed./soil	X	X	X	X	X	X	
	DBT	RIM		3	2010-08-19	AM	sed./soil	X	X	X	X	X	X	
	DBT	RIM		5	2010-08-19	AM	sed./soil	X	X	X	X	X	X	Each of
	DBT	RIM		7	2010-08-19	AM	sed./soil	X	X	X	X	X	X	
	DBT	RIM		9	2010-08-19	AM	sed./soil	X	X	X	X	X	X	these samples
	DBT	RIM		11	2010-08-19	AM	sed./soil	X	X	X	X	X	X	
	DBT	RIM		13	2010-08-19	AM	sed./soil	X	X	X	X	X	X	submitted in
	DBT	RIM		15	2010-08-19	AM	sed./soil	X	X	X	X	X	X	
	DBT	RIM		17	2010-08-19	AM	sed./soil	X	X	X	X	X	X	three jars labled
	DBT	RIM		19	2010-08-19	AM	sed./soil	X	X	X	X	X	X	
	DBT	RIM		21	2010-08-19	AM	sed./soil	X	X	X	X	X	X	a, b, & c
	DBT	RIM		23	2010-08-19	AM	sed./soil	X	X	X	X	X	X	
	DBT	RIM		25	2010-08-19	AM	sed./soil	X	X	X	X	X	X	
	DBT	RIM		27	2010-08-19	AM	sed./soil	X	X	X	X	X	X	
	DBT	RIM	2,4,6,8,10,12,14,16,18,20,22,24,26,28..				sed./soil	Each of these samples submitted in two jars labled a & b							HOLD

RELINQUISHED BY:				RECEIVED BY:			
NAME:		DATE:		NAME:		DATE:	
OF:		TIME:		OF:		TIME:	
NAME:		DATE:		NAME:	RC	DATE:	20/08
OF:		TIME:		OF:	ALS Environmental	TIME:	10:45

Special Instructions / Comments (billing details, QC reporting, etc.):

Disposl at Sea for Dredged Material; e-mail draft data to Duane and Tom Finnbogason asap
Further analyses may be required; Archive all remaining samples

FOR LAB USE ONLY Cooler Seal Intact? Yes ✓ No___ N/A___ Sample Temperature: 16.6°C Frozen? Yes___ No ✓ Cooling Method? Icepacks___ Ice___ None ✓

G:/QUALITY/00_DOCUMENTS/10_AUTHORIZED/FORMS/ALSEVC_CHNCSTDY_ECOPY_R02.XLS