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CONFIDENTIAL

CANADIAN COAST GUARD
520 Exmouth Road
Sarnia, ON
N7T 8B1

Attention: Ms. Leslie Anne Veldman, Project Officer, Marine Engineering, Central and Arctic

Subject: Lead and Mercury Sampling Report – CCGS Limnos, CCIW, Burlington, Ontario

INTRODUCTION

WSP was retained by the Canadian Coast Guard to collect and submit lead and mercury bulk paint and air samples from select areas throughout the Canadian Coast Guard Vessel Limnos, which was stationed at the Canadian Center for Inland Waters (CCIW) in Burlington, ON at the time of the assessment. The samples were collected at the request of the Canadian Coast Guard prior to scheduled maintenance aboard the vessel. Mr. Joey Mainwaring from WSP visited the site to collect samples on February 19th, 20th and 21th, 2020.

The purpose of this survey is to determine the presence/absence of lead and mercury within the paint finishes identified throughout the vessel in order to provide information pertaining to lead and mercury to any contractors at the time of tender to ensure complete and correct removal or handling of materials prior to any renovations to the vessel.

SAMPLING METHODOLOGY

LEAD

Bulk paint samples (paint chips) were collected from areas pre-selected by the client. Samples were collected with the aid of a thin-bladed knife, which was cleaned prior to each sampling event. Each paint chip sample was placed in a clear bag with a tight closure, uniquely labelled and then placed in a second, similar bag. A chain of custody form was completed and accompanied the bulk samples to an accredited, independent laboratory for analysis of lead content. Lead analysis was performed using the ICP/OES technique following the EPA SW 846 3050B & 6010C method.

Lead air samples were also collected from areas pre-selected by the client. Lead air samples were submitted to EMSL Canada (EMSL) for analysis of lead via analytical method National Institute for Occupational Safety and Health (NIOSH) 7303 (analytical certificates are attached).

MERCURY

Bulk paint samples (paint chips) were collected from areas pre-selected by the client. Samples were collected with the aid of a thin-bladed knife, which was cleaned prior to each sampling event. Each paint chip sample was placed in a clear bag with a tight closure, uniquely labelled and then placed in a second, similar bag. A chain of custody form was completed and accompanied the bulk samples to AGAT Laboratories for analysis of mercury content. Mercury analysis was performed using the Cold Vapor Atomic Absorption Spectrometry (CVAAS) technique following the EPA SW 846 7471A & 245.5.



Mercury air samples were also collected from areas pre-selected by the client. Mercury air samples were submitted to EMSL Canada (EMSL) for Mercury Analysis.

SAMPLING AND ANALYSIS

LEAD BULK SAMPLES

The Ontario Ministry of Labour (MOL) has not prescribed specific criteria for classification of lead-containing paints or other surface coatings and construction materials. The Surface Coating Materials Regulation (SOR/2016-193) made under the federal Hazardous Products Act (HPA) prescribes an acceptable level of 90 µg/g (90 ppm) lead by dry weight or less, as determined by bulk chemical analysis in accordance with good laboratory practises. Under the Surface Coating Materials Regulation (SOR/2005-109) Section 4.2, the following paints and surface coatings are excluded from the above noted acceptable lead level:

- 1 as an anti-corrosive or an anti-weathering coating applied on the interior or exterior surface of any building or equipment that is used for an agricultural or industrial purpose;
- 2 as an anti-corrosive or an anti-weathering coating applied on any structure other than a building, that is used for an agricultural, industrial or public purpose;
- 3 as a touch-up coating for metal surfaces;
- 4 on traffic signs;
- 5 for graphic art on billboards or similar displays;
- 6 for identification marks in industrial buildings; or
- 7 as materials for the purposes of arts, crafts or hobbies, other than material for use by children.

Based on a recent publication (EACO Lead Guideline For Construction, Renovation, Maintenance or Repair dated October 2014) from the Environmental Abatement Council of Ontario (EACO), an industry group representing consultants and contractors in the Ontario abatement industry, various control measures should be put in place when disturbing or removing “lead-containing paints”.

For the purpose of this sampling report, WSP has classified any material containing over 90 µg/g or 90 ppm of lead as “lead-containing” materials and recommends that all disturbances to these materials be conducted in accordance with the EACO or MOL document Guidelines, Lead on Construction Projects.

WSP collected a total of forty-nine (49) bulk lead sample from the surveyed areas and submitted them for laboratory analysis. Please refer to Table 1 below for the laboratory analytical results:

Table 1 Summary of Bulk Lead Sampling Results

MATERIAL DESCRIPTION	ASSESSMENT	PHOTO ²	ACTION ¹
Red paint – Monkey’s Island deck	Sample ID: 0001 Concentration: 223 µg/g Condition: Good	2	In general, the following procedures are recommended if/when removing lead-containing materials, coatings and paint applications:
Yellow paint – Monkey’s Island main mast	Sample ID: 0002 Concentration: 28400 µg/g Condition: Good	3	<ul style="list-style-type: none">– Follow Type 1 – if the coating is to be removed with a chemical gel or paste;– Follow Type 2a – if the coating is to be removed by scraping or sanding using non-powered hand tools, or

MATERIAL DESCRIPTION	ASSESSMENT	PHOTO ²	ACTION ¹
Red paint – Deckhead throughout the ship	Sample ID: 0003 Concentration: 25700 µg/g Condition: Good	-	manual demolition of lead-painted building components by striking with sledgehammer or similar tool; — Follow Type 3a – if the coating is to be removed using power tools; or, — Follow Type 3b – if the coating is to be removed by abrasive blasting. If lead-containing paint applications and surface coatings are not removed prior to demolition, ensure that demolition waste complies with the requirements of General – Waste Management Regulation, R.R.O. 1990, Regulation 347.
Red paint – Bridge deck (exterior deck)	Sample ID: 0004 Concentration: 117 µg/g Condition: Good	-	
White paint – Bridge deck (exterior bulkhead)	Sample ID: 0005 Concentration: 92 µg/g Condition: Good	-	
White paint – Bridge deck – Aft stair tower	Sample ID: 0006 Concentration: 37 µg/g Condition: Good	4	The concentration of lead was below 90 µg/g. Therefore, no further action is required.
White paint – Focsle deck (bulkhead)	Sample ID: 0007 Concentration: 30 µg/g Condition: Good	5	
White paint – Focsle deck linen locker	Sample ID: 0008 Concentration: 893 µg/g Condition: Good	-	In general, the following procedures are recommended if/when removing lead-containing materials, coatings and paint applications: — Follow Type 1 – if the coating is to be removed with a chemical gel or paste; — Follow Type 2a – if the coating is to be removed by scraping or sanding using non-powered hand tools, or manual demolition of lead-painted building components by striking with sledgehammer or similar tool; — Follow Type 3a – if the coating is to be removed using power tools; or, — Follow Type 3b – if the coating is to be removed by abrasive blasting. If lead-containing paint applications and surface coatings are not removed prior to demolition, ensure that demolition waste complies with the requirements of General – Waste Management Regulation, R.R.O. 1990, Regulation 347.
White paint – Focsle deck electronics room	Sample ID: 0009 Concentration: 262 µg/g Condition: Good	-	

MATERIAL DESCRIPTION	ASSESSMENT	PHOTO ²	ACTION ¹
White paint – Focsle deck stair tower	Sample ID: 0010 Concentration: 19 µg/g Condition: Good	6	The concentration of lead was below 90 µg/g. Therefore, no further action is required.
White paint – Focsle deck Egen Compartment (Inboard)	Sample ID: 0011 Concentration: 6780 µg/g Condition: Good	-	<p>In general, the following procedures are recommended if/when removing lead-containing materials, coatings and paint applications:</p> <ul style="list-style-type: none"> — Follow Type 1 – if the coating is to be removed with a chemical gel or paste; — Follow Type 2a – if the coating is to be removed by scraping or sanding using non-powered hand tools, or manual demolition of lead-painted building components by striking with sledgehammer or similar tool; — Follow Type 3a – if the coating is to be removed using power tools; or, — Follow Type 3b – if the coating is to be removed by abrasive blasting. <p>If lead-containing paint applications and surface coatings are not removed prior to demolition, ensure that demolition waste complies with the requirements of General – Waste Management Regulation, R.R.O. 1990, Regulation 347.</p>
White paint – Focsle deck Egen compartment (Outboard)	Sample ID: 0012 Concentration: 11100 µg/g Condition: Good	-	
White paint – Focsle deck lamp locker	Sample ID: 0013 Concentration: 9900 µg/g Condition: Good	-	
White paint – Focsle deck bulkhead (port)	Sample ID: 0014 Concentration: 120 µg/g Condition: Good	-	
White paint – Focsle deck bulkhead (starboard)	Sample ID: 0015 Concentration: 70 µg/g Condition: Good	-	The concentration of lead was below 90 µg/g. Therefore, no further action is required.
White paint – Focsle deck exterior bulwarks (port)	Sample ID: 0016 Concentration: 6360 µg/g Condition: Good	-	<p>In general, the following procedures are recommended if/when removing lead-containing materials, coatings and paint applications:</p> <ul style="list-style-type: none"> — Follow Type 1 – if the coating is to be removed with a chemical gel or paste; — Follow Type 2a – if the coating is to be removed by scraping or sanding using non-powered hand tools, or manual demolition of lead-painted building components by striking with sledgehammer or similar tool; — Follow Type 3a – if the coating is to be removed using power tools; or,
White paint – Focsle deck exterior bulwarks (starboard)	Sample ID: 0017 Concentration: 25100 µg/g Condition: Good	-	
Red paint – Focsle deck, FWD deck	Sample ID: 0018 Concentration: 275 µg/g Condition: Good	-	

MATERIAL DESCRIPTION	ASSESSMENT	PHOTO ²	ACTION ¹
Red paint – Focsle deck, AFT deck	Sample ID: 0019 Concentration: 9640 µg/g Condition: Good	-	<p>— Follow Type 3b – if the coating is to be removed by abrasive blasting.</p> <p>If lead-containing paint applications and surface coatings are not removed prior to demolition, ensure that demolition waste complies with the requirements of General – Waste Management Regulation, R.R.O. 1990, Regulation 347.</p>
Yellow paint – Focsle deck FWD mast	Sample ID: 0020 Concentration: 13800 µg/g Condition: Good	7	
Red paint – Main deck (AFT)	Sample ID: 0021 Concentration: 285 µg/g Condition: Good	-	
Red paint – Main deck (FWD)	Sample ID: 0022 Concentration: 1090 µg/g Condition: Good	-	
White paint – Main deck, Exterior funnel	Sample ID: 0023 Concentration: 9860 µg/g Condition: Good	8	
White paint – Main deck bulworks (port)	Sample ID: 0024 Concentration: <10 µg/g Condition: Good	-	<p>The concentration of lead was below 90 µg/g. Therefore, no further action is required.</p>
White paint – Main deck bulworks (starboard)	Sample ID: 0025 Concentration: 12 µg/g Condition: Good	-	

MATERIAL DESCRIPTION	ASSESSMENT	PHOTO ²	ACTION ¹
White paint – Main deck, deck lockers	Sample ID: 0026 Concentration: 2230 µg/g Condition: Good	-	<p>In general, the following procedures are recommended if/when removing lead-containing materials, coatings and paint applications:</p> <ul style="list-style-type: none"> – Follow Type 1 – if the coating is to be removed with a chemical gel or paste; – Follow Type 2a – if the coating is to be removed by scraping or sanding using non-powered hand tools, or manual demolition of lead-painted building components by striking with sledgehammer or similar tool; – Follow Type 3a – if the coating is to be removed using power tools; or, – Follow Type 3b – if the coating is to be removed by abrasive blasting. <p>If lead-containing paint applications and surface coatings are not removed prior to demolition, ensure that demolition waste complies with the requirements of General – Waste Management Regulation, R.R.O. 1990, Regulation 347.</p>
Yellow paint – Arva crane	Sample ID: 0027 Concentration: 27 µg/g Condition: Good	9	The analyte was below 90 µg/g. Therefore, no further action is required.
White paint – Main deck bulkhead	Sample ID: 0028 Concentration: 60 µg/g Condition: Good	-	
White paint – AFT deck houseworks	Sample ID: 0029 Concentration: 9320 µg/g Condition: Good	-	<p>In general, the following procedures are recommended if/when removing lead-containing materials, coatings and paint applications:</p> <ul style="list-style-type: none"> – Follow Type 1 – if the coating is to be removed with a chemical gel or paste;
White paint – Sewage compartment (bulkhead)	Sample ID: 0030 Concentration: 825 µg/g Condition: Good	10	<ul style="list-style-type: none"> – Follow Type 2a – if the coating is to be removed by scraping or sanding using non-powered hand tools, or manual demolition of lead-painted building components by striking with sledgehammer or similar tool;
White paint – Sewage compartment (deckhead)	Sample ID: 0031 Concentration: 6890 µg/g Condition: Good	-	<ul style="list-style-type: none"> – Follow Type 3a – if the coating is to be removed using power tools; or, – Follow Type 3b – if the coating is to be removed by abrasive blasting.

MATERIAL DESCRIPTION	ASSESSMENT	PHOTO ²	ACTION ¹
Grey paint – Sewage compartment (deck)	Sample ID: 0032 Concentration: 332 µg/g Condition: Good	11	If lead-containing paint applications and surface coatings are not removed prior to demolition, ensure that demolition waste complies with the requirements of General – Waste Management Regulation, R.R.O. 1990, Regulation 347.
White paint – Sewage compartment (grey water tank)	Sample ID: 0033 Concentration: 67 µg/g Condition: Good	12	The concentration of lead was below 90 µg/g. Therefore, no further action is required.
White paint – Tank top stair tower	Sample ID: 0034 Concentration: 82 µg/g Condition: Good	-	
White paint – Tank top (cleaning locker)	Sample ID: 0035 Concentration: 33 µg/g Condition: Good	13	
White paint – Tank top (incinerator room)	Sample ID: 0036 Concentration: 20 µg/g Condition: Good	14	
White paint – Tank top (heads)	Sample ID: 0037 Concentration: 113 µg/g Condition: Good	15	In general, the following procedures are recommended if/when removing lead-containing materials, coatings and paint applications: <ul style="list-style-type: none"> – Follow Type 1 – if the coating is to be removed with a chemical gel or paste; – Follow Type 2a – if the coating is to be removed by scraping or sanding using non-powered hand tools, or manual demolition of lead-painted building components by striking with sledgehammer or similar tool; – Follow Type 3a – if the coating is to be removed using power tools; or, – Follow Type 3b – if the coating is to be removed by abrasive blasting. If lead-containing paint applications and surface coatings are not removed prior to demolition,
Grey paint – FWD void space	Sample ID: 0038 Concentration: 1420 µg/g Condition: Good	16	
Red paint – AFT void space	Sample ID: 0039 Concentration: 5040 µg/g Condition: Good	17	
Red paint – AFT cofferdam	Sample ID: 0040 Concentration: 27600 µg/g Condition: Good	18	

MATERIAL DESCRIPTION	ASSESSMENT	PHOTO ²	ACTION ¹
Red paint – Echo sunder compartment	Sample ID: 0041 Concentration: 62500 µg/g Condition: Good	19	ensure that demolition waste complies with the requirements of General – Waste Management Regulation, R.R.O. 1990, Regulation 347.
White paint – Engine room (port deckhead)	Sample ID: 0042 Concentration: 955 µg/g Condition: Good	-	
White paint – Engine room (starboard deckhead)	Sample ID: 0043 Concentration: 454 µg/g Condition: Good	-	
White paint – Engine room (bulkhead port)	Sample ID: 0044 Concentration: 3260 µg/g Condition: Good	-	
White paint – Engine room (bulkhead starboard)	Sample ID: 0045 Concentration: 7460 µg/g Condition: Good	-	
Old exhaust lagging	Sample ID: 0046 Concentration: <10 µg/g Condition: Good	20	The concentration of lead was below 90 µg/g. Therefore, no further action is required.
Green paint – MCR bulkhead	Sample ID: 0047 Concentration: 10700 µg/g Condition: Good	-	In general, the following procedures are recommended if/when removing lead-containing materials, coatings and paint applications: — Follow Type 1 – if the coating is to be removed with a chemical gel or paste;
White paint – Thrustmaster bulkhead (port)	Sample ID: 0048 Concentration: 2550 µg/g Condition: Good	-	

MATERIAL DESCRIPTION	ASSESSMENT	PHOTO ²	ACTION ¹
White paint – Thrustmaster bulkhead (starboard)	Sample ID: 0049 Concentration: 3920 µg/g Condition: Good	-	<ul style="list-style-type: none"> Follow Type 2a – if the coating is to be removed by scraping or sanding using non-powered hand tools, or manual demolition of lead-painted building components by striking with sledgehammer or similar tool; Follow Type 3a – if the coating is to be removed using power tools; or, Follow Type 3b – if the coating is to be removed by abrasive blasting. <p>If lead-containing paint applications and surface coatings are not removed prior to demolition, ensure that demolition waste complies with the requirements of General – Waste Management Regulation, R.R.O. 1990, Regulation 347.</p>

¹ For sample ID and concentration levels refer to Appendix A: Analytical Results – Lead and Mercury.

² For relevant photographs taken during the survey refer to Appendix B: Site Photographs, where available

Based on the laboratory results, thirty-six (36) of the forty-nine (49) paint samples collected and analyzed have detectable concentrations of lead.

LEAD AIR SAMPLING

In accordance with Ontario Regulation (O.Reg.) 833 and O. Reg. 490/09, WSP collected five (5) lead air samples, as well as one (1) field blanks from within the vessel. Lead air samples were submitted to EMSL Canada (EMSL) for analysis of lead by method NIOSH 7303 (analytical certificates are attached). A summary of the analytical results from the recent representative sampling program is summarized in **Table 2**.

Table 2 Summary of Lead Air Sampling Results

SAMPLE ID	LOCATION	SAMPLE VOLUME	LEAD CONCENTRATION ¹
Blank	Field Blank	N/A	<0.0040 mg/m ³
L-AS-01	Main Engine Room	1000L	<0.0040 mg/m ³
L-AS-02	Control Room	1000L	<0.0040 mg/m ³
L-AS-03	Tank Top Deck	1000L	<0.0040 mg/m ³
L-AS-04	Focsle Deck	1000L	<0.0040 mg/m ³
L-AS-05	Bridge Deck	1000L	<0.0040 mg/m ³

¹ For sample ID and concentration levels refer to Appendix A: Analytical Results – Lead and Mercury

Based on the laboratory results, all five (5) lead samples were observed to be below the analytical method's limit of detection and the regulatory limit of 0.05 mg/m³ as outlined in Ontario Regulation 833.

MERCURY BULK SAMPLING AND ANALYSIS

As per the Surface Coating Material Regulations (SOR/2016-193), a surface coating material (i.e. paint) must not contain more than 10 µg/g of mercury content. WSP collected a total of forty-nine (49) bulk mercury samples from the surveyed areas and submitted them to AGAT Laboratories for analysis.

Please refer to Table 3 below for the laboratory analytical results:

Table 3 Summary of Bulk Mercury Sampling Results

MATERIAL DESCRIPTION	ASSESSMENT	PHOTO	ACTION
Red paint – Monkey's Island deck	Sample ID: 0001 Concentration: 0.04 µg/g Condition: Good	2	Mercury is present, but below the 10µg/g regulatory limit. As such, no further action is recommended.
Yellow paint – Monkey's Island main mast	Sample ID: 0002 Concentration: 0.04 µg/g Condition: Good	3	Mercury is present, but below the 10µg/g regulatory limit. As such, no further action is recommended.
Red paint – Deckhead throughout the ship	Sample ID: 0003 Concentration: 1.4 µg/g Condition: Good	-	Mercury is present, but below the 10µg/g regulatory limit. As such, no further action is recommended.
Red paint – Bridge deck (exterior deck)	Sample ID: 0004 Concentration: 0.05 µg/g Condition: Good	-	Mercury is present, but below the 10µg/g regulatory limit. As such, no further action is recommended.
White paint – Bridge deck (exterior bulkhead)	Sample ID: 0005 Concentration: 0.02 µg/g Condition: Good	-	Mercury is present, but below the 10µg/g regulatory limit. As such, no further action is recommended.
White paint – Bridge deck – Aft stair tower	Sample ID: 0006 Concentration: 0.21 µg/g Condition: Good	4	Mercury is present, but below the 10µg/g regulatory limit. As such, no further action is recommended.
White paint – Focsl deck (bulkhead)	Sample ID: 0007 Concentration: 0.07 µg/g Condition: Good	5	Mercury is present, but below the 10µg/g regulatory limit. As such, no further action is recommended.

MATERIAL DESCRIPTION	ASSESSMENT	PHOTO	ACTION
White paint – Focsle deck linen locker	Sample ID: 0008 Concentration: 0.55 µg/g Condition: Good	-	Mercury is present, but below the 10µg/g regulatory limit. As such, no further action is recommended.
White paint – Focsle deck electronics room	Sample ID: 0009 Concentration: 0.36 µg/g Condition: Good	-	Mercury is present, but below the 10µg/g regulatory limit. As such, no further action is recommended.
White paint – Focsle deck stair tower	Sample ID: 0010 Concentration: 0.04 µg/g Condition: Good	6	Mercury is present, but below the 10µg/g regulatory limit. As such, no further action is recommended.
White paint – Focsle deck Egen Compartment (Inboard)	Sample ID: 0011 Concentration: 0.94 µg/g Condition: Good	-	Mercury is present, but below the 10µg/g regulatory limit. As such, no further action is recommended.
White paint – Focsle deck Egen compartment (Outboard)	Sample ID: 0012 Concentration: 0.94 µg/g Condition: Good	-	Mercury is present, but below the 10µg/g regulatory limit. As such, no further action is recommended.
White paint – Focsle deck lamp locker	Sample ID: 0013 Concentration: 0.14 µg/g Condition: Good	-	Mercury is present, but below the 10µg/g regulatory limit. As such, no further action is recommended.
White paint – Focsle deck bulkhead (port)	Sample ID: 0014 Concentration: 0.02 µg/g Condition: Good	-	Mercury is present, but below the 10µg/g regulatory limit. As such, no further action is recommended.
White paint – Focsle deck bulkhead (starboard)	Sample ID: 0015 Concentration: <0.01 µg/g Condition: Good	-	Mercury was not detected in the sample.
White paint – Focsle deck exterior bulwarks (port)	Sample ID: 0016 Concentration: 0.63 µg/g Condition: Good	-	Mercury is present, but below the 10µg/g regulatory limit. As such, no further action is recommended.
White paint – Focsle deck exterior bulworks (starboard)	Sample ID: 0017 Concentration: 1.5 µg/g Condition: Good	-	Mercury is present, but below the 10µg/g regulatory limit. As such, no further action is recommended.

MATERIAL DESCRIPTION	ASSESSMENT	PHOTO	ACTION
Red paint – Focsle deck, FWD deck	Sample ID: 0018 Concentration: 0.04 µg/g Condition: Good	-	Mercury is present, but below the 10µg/g regulatory limit. As such, no further action is recommended.
Red paint – Focsle deck, AFT deck	Sample ID: 0019 Concentration: 3.0 µg/g Condition: Good	-	Mercury is present, but below the 10µg/g regulatory limit. As such, no further action is recommended.
Yellow paint – Focsle deck FWD mast	Sample ID: 0020 Concentration: 0.05 µg/g Condition: Good	7	Mercury is present, but below the 10µg/g regulatory limit. As such, no further action is recommended.
Red paint – Main deck (AFT)	Sample ID: 0021 Concentration: 0.11 µg/g Condition: Good	-	Mercury is present, but below the 10µg/g regulatory limit. As such, no further action is recommended.
Red paint – Main deck (FWD)	Sample ID: 0022 Concentration: 0.03 µg/g Condition: Good	-	Mercury is present, but below the 10µg/g regulatory limit. As such, no further action is recommended.
White paint – Main deck, Exterior funnel	Sample ID: 0023 Concentration: 0.09 µg/g Condition: Good	8	Mercury is present, but below the 10µg/g regulatory limit. As such, no further action is recommended.
White paint – Main deck bulworks (port)	Sample ID: 0024 Concentration: 0.04 µg/g Condition: Good	-	Mercury is present, but below the 10µg/g regulatory limit. As such, no further action is recommended.
White paint – Main deck bulworks (starboard)	Sample ID: 0025 Concentration: 0.02 µg/g Condition: Good	-	Mercury is present, but below the 10µg/g regulatory limit. As such, no further action is recommended.
White paint – Main deck, deck lockers	Sample ID: 0026 Concentration: 0.83 µg/g Condition: Good	-	Mercury is present, but below the 10µg/g regulatory limit. As such, no further action is recommended.
Yellow paint – Arva crane	Sample ID: 0027 Concentration: 0.07 µg/g Condition: Good	9	Mercury is present, but below the 10µg/g regulatory limit. As such, no further action is recommended.

MATERIAL DESCRIPTION	ASSESSMENT	PHOTO	ACTION
White paint – Main deck bulkhead	Sample ID: 0028 Concentration: 0.29 µg/g Condition: Good	-	Mercury is present, but below the 10µg/g regulatory limit. As such, no further action is recommended.
White paint – AFT deck houseworks	Sample ID: 0029 Concentration: 0.71 µg/g Condition: Good	-	Mercury is present, but below the 10µg/g regulatory limit. As such, no further action is recommended.
White paint – Sewage compartment (bulkhead)	Sample ID: 0030 Concentration: 1.2 µg/g Condition: Good	10	Mercury is present, but below the 10µg/g regulatory limit. As such, no further action is recommended.
White paint – Sewage compartment (deckhead)	Sample ID: 0031 Concentration: 2.2 µg/g Condition: Good	-	Mercury is present, but below the 10µg/g regulatory limit. As such, no further action is recommended.
Grey paint – Sewage compartment (deck)	Sample ID: 0032 Concentration: 0.08 µg/g Condition: Good	11	Mercury is present, but below the 10µg/g regulatory limit. As such, no further action is recommended.
White paint – Sewage compartment (grey water tank)	Sample ID: 0033 Concentration: 0.15 µg/g Condition: Good	12	Mercury is present, but below the 10µg/g regulatory limit. As such, no further action is recommended.
White paint – Tank top stair tower	Sample ID: 0034 Concentration: 0.09 µg/g Condition: Good	-	Mercury is present, but below the 10µg/g regulatory limit. As such, no further action is recommended.
White paint – Tank top (cleaning locker)	Sample ID: 0035 Concentration: 0.08 µg/g Condition: Good	13	Mercury is present, but below the 10µg/g regulatory limit. As such, no further action is recommended.
White paint – Tank top (incinerator room)	Sample ID: 0036 Concentration: 0.03 µg/g Condition: Good	14	Mercury is present, but below the 10µg/g regulatory limit. As such, no further action is recommended.
White paint – Tank top (heads)	Sample ID: 0037 Concentration: 0.10 µg/g Condition: Good	15	Mercury is present, but below the 10µg/g regulatory limit. As such, no further action is recommended.

MATERIAL DESCRIPTION	ASSESSMENT	PHOTO	ACTION
Grey paint – FWD void space	Sample ID: 0038 Concentration: 0.16 µg/g Condition: Good	16	Mercury is present, but below the 10µg/g regulatory limit. As such, no further action is recommended.
Red paint – AFT void space	Sample ID: 0039 Concentration: 1.5 µg/g Condition: Good	17	Mercury is present, but below the 10µg/g regulatory limit. As such, no further action is recommended.
Red paint – AFT cofferdam	Sample ID: 0040 Concentration: 0.25 µg/g Condition: Good	18	Mercury is present, but below the 10µg/g regulatory limit. As such, no further action is recommended.
Red paint – Echo sounder compartment	Sample ID: 0041 Concentration: 0.49 µg/g Condition: Good	19	Mercury is present, but below the 10µg/g regulatory limit. As such, no further action is recommended.
White paint – Engine room (port deckhead)	Sample ID: 0042 Concentration: 1.8 µg/g Condition: Good	-	Mercury is present, but below the 10µg/g regulatory limit. As such, no further action is recommended.
White paint – Engine room (starboard deckhead)	Sample ID: 0043 Concentration: 8.7 µg/g Condition: Good	-	Mercury is present, but below the 10µg/g regulatory limit. As such, no further action is recommended.
White paint – Engine room (bulkhead port)	Sample ID: 0044 Concentration: 2.0 µg/g Condition: Good	-	Mercury is present, but below the 10µg/g regulatory limit. As such, no further action is recommended.
White paint – Engine room (bulkhead starboard)	Sample ID: 0045 Concentration: 3.8 µg/g Condition: Good	-	Mercury is present, but below the 10µg/g regulatory limit. As such, no further action is recommended.
Old exhaust lagging	Sample ID: 0046 Concentration: 0.10 µg/g Condition: Good	20	Mercury is present, but below the 10µg/g regulatory limit. As such, no further action is recommended.
Green paint – MCR bulkhead	Sample ID: 0047 Concentration: 7.4 µg/g Condition: Good	-	Mercury is present, but below the 10µg/g regulatory limit. As such, no further action is recommended.

MATERIAL DESCRIPTION	ASSESSMENT	PHOTO	ACTION
White paint – Thrustmaster bulkhead (port)	Sample ID: 0048 Concentration: 2.7 µg/g Condition: Good	-	Mercury is present, but below the 10µg/g regulatory limit. As such, no further action is recommended.
White paint – Thrustmaster bulkhead (starboard)	Sample ID: 0049 Concentration: 7.3 µg/g Condition: Good	-	Mercury is present, but below the 10µg/g regulatory limit. As such, no further action is recommended.

1 For sample ID and concentration levels refer to Appendix A: Analytical Results – Lead and Mercury

2 For relevant photographs taken during the survey refer to Appendix B: Site Photographs, where available

Based on the laboratory results, mercury was detected in all samples collected with the exception of one. However, the concentration of mercury all the samples were well below the prescribed limit of 10 µg/g outlined in SOR/2016-193. Therefore, no further action is recommended.

MERCURY AIR SAMPLING AND ANALYSIS

WSP collected five (5) mercury air samples, as well as one (1) field blank from within the vessel. Mercury air samples were submitted to EMSL Canada (EMSL) for analysis of mercury by OSHA Method ID-145 (analytical certificates are attached). A summary of the analytical results from the recent representative sampling program is summarized in **Table 4**.

Table 4 Summary of Mercury Air Sampling Results

SAMPLE ID	LOCATION	SAMPLE VOLUME	LEAD CONCENTRATION ¹
Blank	Field Blank	N/A	<0.0208 mg/m ³
M-AS-01	Main Engine Room	480L	<0.0208 mg/m ³
M-AS-02	Control Room	480L	<0.0208 mg/m ³
M-AS-03	Tank Top Deck	480L	<0.0208 mg/m ³
M-AS-04	Focsle Deck	480L	<0.0208 mg/m ³
M-AS-05	Bridge Deck	480L	<0.0208 mg/m ³

1 For sample ID and concentration levels refer to Appendix A: Analytical Results – Lead and Mercury

Based on the laboratory results, all five (5) mercury air samples were observed to be below the laboratory limit of detection and the occupational exposure limit of 0.025 mg/m³ as outlined in O. Reg. 833.

CONCLUSIONS/RECOMMENDATIONS

Based on the laboratory results, thirty-six (36) of the forty-nine (49) paint samples collected and analyzed have concentrations of lead above the recommended 90 µg/g criteria. These materials were observed to be in good condition.

Work that will disrupt and/or pulverize (including drilling, cutting, grinding or abrading) confirmed or suspected lead-containing materials must follow the recommendations provided in the EACO Lead Abatement Guidelines (dated 2014) or Ministry of Labour Guideline for Lead on Construction Projects, dated September 2004 (Revised April 2011). In addition, the aforementioned painted surfaces (containing lead) should be handled with appropriate health and safety precautions so as to comply with requirements of the Designated Substances regulation, O. Reg. 490/09, and disposal of these materials must also comply with the requirements of O. Reg. 347 – General – Waste Management.

Based on the laboratory results, mercury was detected in all samples collected with the exception of one. However, the concentration of mercury in each of the samples was well below the prescribed limit of 10 µg/g outlined in SOR/2016-193. Therefore, no further action is recommended.

Based on the laboratory results, all five (5) mercury air samples were observed to be below the laboratory limit of detection and the occupational exposure limit of 0.025 mg/m³ as outlined in O. Reg. 833.

LIMITATIONS

This report is prepared for the sole use of the Canadian Coast Guard. Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of the third party. The conclusions and recommendations contained in this letter report are based upon professional opinions with regard to the subject matter. These opinions are in accordance with currently accepted industry practices for asbestos surveys, regulatory requirements for sampling and identifying lead-containing materials and are subject to the following inherent limitations:

- 2 The data and findings presented in this report are valid as of the date(s) of the investigation only. The passage of time, manifestation of latent conditions or occurrence of future events may warrant further exploration of the Site, analysis of the data, and re-evaluation of the findings, observations, and conclusions expressed in this report.
- 3 The findings, observations, conclusions, and recommendations expressed by WSP in this report do not represent an opinion concerning compliance of any past or present owner or operator of the Site with any federal, provincial or local laws or regulations.
- 4 WSP's assessment presents professional opinions and findings of a scientific and technical nature. While attempts were made to relate the data and findings to applicable environmental and occupational health & safety laws and regulations, the report shall not be construed to offer legal opinion or representations as to the requirements of, nor compliance with, environmental and occupational health and safety laws, rules, regulations or policies of federal, provincial, or local governmental agencies. WSP's liability extends only to its client and not to other parties who may obtain this assessment report. Issues raised by the report should be reviewed by appropriate legal counsel.



We trust that the above is satisfactory for your purposes at this time. Please contact the undersigned should you have any questions or concerns.

Yours Truly,

A handwritten signature in black ink, appearing to read 'J. Mainwaring', with a long horizontal stroke extending to the right.

Joey Mainwaring, B.A.
Project Coordinator, Built Environment

A handwritten signature in black ink, appearing to read 'J. Bosnjak', with a long horizontal stroke extending to the right.

Josip Bosnjak, B.Sc.
Project Manager, Built Environment

A handwritten signature in blue ink, appearing to read 'E. Kennealy', with a long horizontal stroke extending to the right.

Erin Kennealy, CIH
Team Lead, Built Environment

APPENDIX

A

LABORATORY RESULTS



CLIENT NAME: WSP CANADA INC.
100 COMMERCE VALLEY DRIVE WEST
THORNHILL, ON L3T0A1
(905) 882-1100

ATTENTION TO: Marc St.Germain

PROJECT: CCGS Limnos/171-09529-62

AGAT WORK ORDER: 20T576548

OCCUPATIONAL HYGIENE REVIEWED BY: Yris Verastegui, Report Reviewer

DATE REPORTED: Feb 28, 2020

PAGES (INCLUDING COVER): 11

VERSION*: 1

Should you require any information regarding this analysis please contact your client services representative at (905) 712-5100

*Notes

Disclaimer:

- All work conducted herein has been done using accepted standard protocols, and generally accepted practices and methods. AGAT test methods may incorporate modifications from the specified reference methods to improve performance.
- All samples will be disposed of within 30 days following analysis, unless expressly agreed otherwise in writing. Please contact your Client Project Manager if you require additional sample storage time.
- AGAT's liability in connection with any delay, performance or non-performance of these services is only to the Client and does not extend to any other third party. Unless expressly agreed otherwise in writing, AGAT's liability is limited to the actual cost of the specific analysis or analyses included in the services.
- This report shall not be reproduced or distributed, in whole or in part, without the prior written consent of AGAT Laboratories.
- The test results reported herewith relate only to the samples as received by the laboratory.
- Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to, warranties of merchantability, fitness for a particular purpose, or non-infringement. AGAT assumes no responsibility for any errors or omissions in the information contained in this document.
- All reportable information as specified by ISO/IEC 17025:2017 is available from AGAT Laboratories upon request.



Certificate of Analysis

AGAT WORK ORDER: 20T576548

PROJECT: CCGS Limnos/171-09529-62

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
TEL (905)712-5100
FAX (905)712-5122
<http://www.agatlabs.com>

CLIENT NAME: WSP CANADA INC.

ATTENTION TO: Marc St.Germain

SAMPLING SITE:

SAMPLED BY:

Lead and Mercury in Paint by ICP-OES

DATE RECEIVED: 2020-02-20

DATE REPORTED: 2020-02-28

				0001-Red paint-Monkeys island deck	0002-Yellow paint-Monkeys island main mast	0003-Red paint-Deckhead Paint	0004-Red paint-Bridge deck Paint	0005-White paint-Exterior Bulkhead Bridge Paint	0006-White paint-Bridge AFT stair Tower Paint	0007-White paint-Focsle Deck-Bulkhead Paint	0008-White paint-Focsle Deck-Irnen locker Paint
				SAMPLE DESCRIPTION:	SAMPLE DESCRIPTION:	SAMPLE DESCRIPTION:	SAMPLE DESCRIPTION:	SAMPLE DESCRIPTION:	SAMPLE DESCRIPTION:	SAMPLE DESCRIPTION:	SAMPLE DESCRIPTION:
				SAMPLE TYPE:	SAMPLE TYPE:	SAMPLE TYPE:	SAMPLE TYPE:	SAMPLE TYPE:	SAMPLE TYPE:	SAMPLE TYPE:	SAMPLE TYPE:
				DATE SAMPLED:	DATE SAMPLED:	DATE SAMPLED:	DATE SAMPLED:	DATE SAMPLED:	DATE SAMPLED:	DATE SAMPLED:	DATE SAMPLED:
Parameter	Unit	G / S	RDL	958623	958627	958628	958629	958630	958631	958632	958633
Lead	µg/g		10	223	28400	25700	117	92	37	30	893
Mercury	µg/g		0.01	0.04	0.04	1.4	0.05	0.02	0.21	0.07	0.55
				0009-White paint-Focsle Deck- Electronics Rm	0010-White paint-Focsle Deck-Stair Tower	0011-White paint-Focsle Deck-Egen compartment- inboard	0012-White paint-Focsle Deck-Egen compartment- outboard	0013-White paint-Focsle Deck-Lamp Locker	0014-White paint-Focsle Deck-part bulkhead	0015-White paint-Focsle Deck-STBD Bulkhead	0016-White paint-Focsle Deck-exterior bulworks (port)
				SAMPLE DESCRIPTION:	SAMPLE DESCRIPTION:	SAMPLE DESCRIPTION:	SAMPLE DESCRIPTION:	SAMPLE DESCRIPTION:	SAMPLE DESCRIPTION:	SAMPLE DESCRIPTION:	SAMPLE DESCRIPTION:
				SAMPLE TYPE:	SAMPLE TYPE:	SAMPLE TYPE:	SAMPLE TYPE:	SAMPLE TYPE:	SAMPLE TYPE:	SAMPLE TYPE:	SAMPLE TYPE:
				DATE SAMPLED:	DATE SAMPLED:	DATE SAMPLED:	DATE SAMPLED:	DATE SAMPLED:	DATE SAMPLED:	DATE SAMPLED:	DATE SAMPLED:
Parameter	Unit	G / S	RDL	958634	958635	958636	958671	958672	958673	958674	958675
Lead	µg/g		10	262	19	6780	11100	9900	120	70	6360
Mercury	µg/g		0.01	0.36	0.04	0.94	0.94	0.14	0.02	<0.01	0.63
				0017-White paint-Focsle Deck-exterior bulworks (stbd)	0018-Red paint-Focsle Deck-Fwd Deck	0019-Red paint-Focsle Deck-Aft Deck	0020-Yellow paint-Focsle Deck-FWD mast	0021-Red paint-Main Deck-AFT	0022-Red paint-Main Deck-FWD	0023-White paint-Main Deck-Funnel- Ext.	0024-White paint-Main Deck-Bulworks (port)
				SAMPLE DESCRIPTION:	SAMPLE DESCRIPTION:	SAMPLE DESCRIPTION:	SAMPLE DESCRIPTION:	SAMPLE DESCRIPTION:	SAMPLE DESCRIPTION:	SAMPLE DESCRIPTION:	SAMPLE DESCRIPTION:
				SAMPLE TYPE:	SAMPLE TYPE:	SAMPLE TYPE:	SAMPLE TYPE:	SAMPLE TYPE:	SAMPLE TYPE:	SAMPLE TYPE:	SAMPLE TYPE:
				DATE SAMPLED:	DATE SAMPLED:	DATE SAMPLED:	DATE SAMPLED:	DATE SAMPLED:	DATE SAMPLED:	DATE SAMPLED:	DATE SAMPLED:
Parameter	Unit	G / S	RDL	958676	958677	958678	958679	958680	958681	958698	958699
Lead	µg/g		10	25100	275	9640	13800	285	1090	9860	<10
Mercury	µg/g		0.01	1.5	0.04	3.0	0.05	0.11	0.03	0.09	0.04

Certified By:

José Verástegui



AGAT Laboratories

Certificate of Analysis

AGAT WORK ORDER: 20T576548

PROJECT: CCGS Limnos/171-09529-62

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
TEL (905)712-5100
FAX (905)712-5122
<http://www.agatlabs.com>

CLIENT NAME: WSP CANADA INC.

ATTENTION TO: Marc St.Germain

SAMPLING SITE:

SAMPLED BY:

Lead and Mercury in Paint by ICP-OES

DATE RECEIVED: 2020-02-20

DATE REPORTED: 2020-02-28

Parameter	Unit	G / S		0025-White		0026-White		0027-Yellow		0028-White		0029-White		0030-White		0031-White		0032-Grey	
				paint-Main		paint-Main		paint-Arva		paint-Main		paint-AFT Deck		paint-sewage		paint-sewage		paint-sewage	
				Deck-Bulworks		Deck-Deck		Crane		Deck-Bulkhead		houseworks		bulkhead		deckhead		Deck	
				Paint		Paint		Paint		Paint		Paint		Paint		Paint		Paint	
		DATE SAMPLED:		2020-02-20		2020-02-20		2020-02-20		2020-02-20		2020-02-20		2020-02-20		2020-02-20		2020-02-20	
		RDL		958700		958701		958702		958703		958704		958705		958706		958707	
Lead	µg/g	10		12		2230		27		60		9320		825		6890		332	
Mercury	µg/g	0.01		0.02		0.83		0.07		0.29		0.71		1.2		2.2		0.08	
Parameter	Unit	G / S		0033-White		0034-White		0035-White		0036-White		0037-White		0038-Grey		0039-Red		0040-Red	
				paint-sewage		paint-Tank		paint-Tank		paint-Tank		paint-Tank		paint-FWD Void		paint-AFT Void		paint-AFT coffer	
				compartment-		Top-stair Tower		Top-cleaning		Top-Incinerator		Top-Heads		Space		Space		dom	
				grey water tank		Locker		Locker		Rm		Paint		Paint		Paint		Paint	
		DATE SAMPLED:		2020-02-20		2020-02-20		2020-02-20		2020-02-20		2020-02-20		2020-02-20		2020-02-20		2020-02-20	
		RDL		958708		958789		958790		958791		958792		958793		958794		958795	
Lead	µg/g	10		67		82		33		20		113		1420		5040		27600	
Mercury	µg/g	0.01		0.15		0.09		0.08		0.03		0.10		0.16		1.5		0.25	
Parameter	Unit	G / S		0041-Red		0042-White		0043-White		0044-White		0045-White		0046-old		0047-Green		0048-White	
				paint-Echo		paint-Engine		paint-Engine		paint-Engine		paint-Engine		Exhaust lagging		paint-MCR		paint-Thrust	
				sounder		Rm-Deck head		Room-Deck		Room-Bulkhead		Room-Bulkhead		Paint		Bulkhead		Bulkhead (port)	
				compartment		(port)		head (STBD)		(port)		(STBD)		Paint		Paint		Paint	
		DATE SAMPLED:		2020-02-20		2020-02-20		2020-02-20		2020-02-20		2020-02-20		2020-02-20		2020-02-20		2020-02-20	
		RDL		958796		958797		958798		958799		958807		958808		958809		958810	
Lead	µg/g	10		62500		955		454		3260		7460		<10		10700		2550	
Mercury	µg/g	0.01		0.49		1.8		8.7		2.0		3.8		0.10		7.4		2.7	

Certified By:

Iris Veraistegui



AGAT Laboratories

Certificate of Analysis

AGAT WORK ORDER: 20T576548

PROJECT: CCGS Limnos/171-09529-62

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
TEL (905)712-5100
FAX (905)712-5122
<http://www.agatlabs.com>

CLIENT NAME: WSP CANADA INC.

ATTENTION TO: Marc St.Germain

SAMPLING SITE:

SAMPLED BY:

Lead and Mercury in Paint by ICP-OES

DATE RECEIVED: 2020-02-20

DATE REPORTED: 2020-02-28

0049-White paint-Thrust Master Bulkhead (STBD) SAMPLE DESCRIPTION: SAMPLE TYPE: Paint DATE SAMPLED: 2020-02-20 958811				
Parameter	Unit	G / S	RDL	
Lead	µg/g		10	3920
Mercury	µg/g		0.01	7.3

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard
Analysis performed at AGAT Toronto (unless marked by *)

Certified By:

Iris Veraístegui

Quality Assurance

CLIENT NAME: WSP CANADA INC.

PROJECT: CCGS Limnos/171-09529-62

SAMPLING SITE:

AGAT WORK ORDER: 20T576548

ATTENTION TO: Marc St.Germain

SAMPLED BY:

Occupational Hygiene Analysis

RPT Date: Feb 28, 2020			DUPLICATE			Method Blank	REFERENCE MATERIAL		METHOD BLANK SPIKE			MATRIX SPIKE			
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper

Lead and Mercury in Paint by ICP-OES

Lead	958623	958623	223	259	14.9%	< 10	89%	80%	120%	91%	80%	120%	107%	70%	130%
Mercury	958623	958623	0.04	0.04	NA	< 0.01	103%	90%	110%	101%	80%	120%	100%	70%	130%

Lead and Mercury in Paint by ICP-OES

Lead	958707	958707	332	368	10.3%	< 10	89%	80%	120%	94%	80%	120%	108%	70%	130%
Mercury	958797	958797	1.8	1.6	11.8%	< 0.01	101%	90%	110%	99%	80%	120%	116%	70%	130%

Lead and Mercury in Paint by ICP-OES

Lead	966556		<10	<10	NA	< 10	89%	80%	120%	104%	80%	120%	104%	70%	130%
Mercury	958698	958698	0.09	0.09	0.0%	< 0.01	97%	90%	110%	99%	80%	120%	103%	70%	130%

Comments: NA signifies Not Applicable.

Duplicate Qualifier: As the measured result approaches the RL, the uncertainty associated with the value increases dramatically, thus duplicate acceptance limits apply only where the average of the two duplicates is greater than five times the RL.

Certified By:



Method Summary

CLIENT NAME: WSP CANADA INC.

AGAT WORK ORDER: 20T576548

PROJECT: CCGS Limnos/171-09529-62

ATTENTION TO: Marc St.Germain

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Occupational Hygiene Analysis			
Lead	MET-93-6106	EPA SW 846 3050B & 6010C	ICP/OES
Mercury	MET-93-6101	EPA SW 846 7471A & 245.5	CVAAS



AGAT

Laboratories

Red Bin

5835 Coopers Avenue
Mississauga, Ontario L4Z 1Y2
Ph: 905.712.5100 Fax: 905.712.5122
webearth.agatlabs.com

Chain of Custody Record

If this is a Drinking Water sample, please use Drinking Water Chain of Custody Form (potable water consumed by humans)

Report Information:

Company: WSP Canada Inc.
Contact: Joey Mainwaring
Address: 100 Commerce Valley Dr W
Thornhill ON
437-928-5596 Fax: _____
Reports to be sent to:
1. Email: Joey.mainwaring@wsp.com
2. Email: _____

Project Information:

Project: CCGS Linnos / 171-09529-62
Site Location: CCIW
Sampled By: Joey Mainwaring
AGAT Quote #: _____ PO: _____
Please note: If quotation number is not provided, client will be billed full price for analysis.

Invoice Information:

Bill To Same: Yes ☒ No ☐
Company: _____
Contact: _____
Address: _____
Email: _____

Regulatory Requirements:

(Please check all applicable boxes)

☐ Regulation 153/04

Table _____

☐ Ind/Com

☐ Res/Park

☐ Agriculture

Soil Texture (Check One)

☐ Coarse

☐ Fine

☐ Sewer Use

☐ Sanitary

☐ Storm

Region _____

Indicate One

☐ MISA

☐ Regulation 558

☐ CCME

☐ Prov. Water Quality
Objectives (PWQO)

☐ Other

Indicate One

Is this submission for a
Record of Site Condition?

☐ Yes

☒ No

Report Guideline on
Certificate of Analysis

☐ Yes

☐ No

Sample Matrix Legend

B Biota
GW Ground Water
O Oil
P Paint
S Soil
SD Sediment
SW Surface Water

Field Filtered - Metals, Hg, CVI

Q. Reg 153

All Metals ☐ 153 Metals (excl. Hydrides)

Hydride Metals ☐ 153 Metals (incl. Hydrides)

ORPs: ☐ B-HWS ☐ Cl ☐ CN

☐ Cr⁶⁺ ☐ EC ☐ FOC ☐ Hg

☐ pH ☐ SAR

Full Metals Scan

Regulation/Custom Metals

Nutrients: ☐ TP ☐ NH₃ ☐ TKN

☐ NO₃ ☐ NO₂ ☐ NO₃+NO₂

Volatiles: ☐ VOC ☐ BTEX ☐ THM

PHCs F1 - F4

ABNs

PAHs

PCBs: ☐ Total ☐ Aroclors

Organochlorine Pesticides

TCLP: ☐ M&I ☐ VOCs ☐ ABNs ☐ BioJP ☐ PCBs

Sewer Use

Lead & Mercury

Potentially Hazardous or High Concentration (Y/N)

Laboratory Use Only

Work Order #: 201576548

Cooler Quantity: 1 Bag

Arrival Temperatures: _____

Custody Seal Intact: ☐ Yes ☐ No ☐ N/A

Notes: _____

Turnaround Time (TAT) Required:

Regular TAT ☒ 5 to 7 Business Days

Rush TAT (Rush Surcharges Apply)

☐ 3 Business Days ☐ 2 Business Days ☐ Next Business Day

OR Date Required (Rush Surcharges May Apply): _____

Please provide prior notification for rush TAT
*TAT is exclusive of weekends and statutory holidays

For 'Same Day' analysis, please contact your AGAT CPM

Sample Identification	Date Sampled	Time Sampled	# of Containers	Sample Matrix	Comments/ Special Instructions	Y / N	Metals and Inorganics	Field Filtered - Metals, Hg, CVI	Regulation/Custom Metals	Nutrients	Volatiles	PHCs F1 - F4	ABNs	PAHs	PCBs: Total Aroclors	Organochlorine Pesticides	TCLP: M&I VOCs ABNs BioJP PCBs	Sewer Use	Potentially Hazardous or High Concentration (Y/N)
0001 - Red paint - Monkeys Island deck	Feb. 20/20	N/A	1	P	Please analyze for lead & mercury.														
0002 - Yellow paint - Monkeys Island main deck	"	"	"	"	"														
0003 - Red paint - Deckhead	"	"	"	"	"														
0004 - Red paint - Bridge deck	"	"	"	"	"														
0005 - White paint - Exterior Bulkhead	"	"	"	"	"														
0006 - White paint - Bridge Deck	"	"	"	"	"														
0007 - White paint - Foredeck Bulkhead	"	"	"	"	"														
0008 - White paint - Foredeck Inner locker	"	"	"	"	"														
0009 - White paint - Foredeck Electronics Rm	"	"	"	"	"														
0010 - White paint - Foredeck Stair tower	"	"	"	"	"														
0011 - White paint - Foredeck Egon compartment - Inboard	"	"	"	"	"														

Samples Relinquished By (Print Name and Sign): <u>Joey Mainwaring</u>	Date: <u>Feb. 20/20</u>	Time: <u>15:30</u>	Samples Received By (Print Name and Sign): <u>Neil Ramnarain</u>	Date: <u>Feb 20/20</u>	Time: <u>N/A</u>
Samples Relinquished By (Print Name and Sign):	Date:	Time:	Samples Received By (Print Name and Sign):	Date:	Time:
Samples Relinquished By (Print Name and Sign):	Date:	Time:	Samples Received By (Print Name and Sign):	Date:	Time:

20 FEB 20 3:39 PM

Page 1 of 5

Nº: **T099983**



Chain of Custody Record

If this is a Drinking Water sample, please use Drinking Water Chain of Custody Form (potable water consumed by humans)

Report Information:

Company: WSP Canada Inc
Contact: Joey Mainwaring
Address: 100 Commerce Valley Dr W,
Thornhill ON
437-928-5596 Fax:
Phone:
Reports to be sent to:
1. Email: joey.mainwaring@wsp.com
2. Email:

Project Information:

Project: CCGS Limnos 171-09529-62
Site Location: CCIW
Sampled By: Joey Mainwaring
AGAT Quote #: PO:

Invoice Information:

Bill To Same: Yes ☒ No ☐
Company:
Contact:
Address:
Email:

Regulatory Requirements:

☐ No Regulatory Requirement

(Please check all applicable boxes)

☐ Regulation 153/04

☐ Sewer Use

☐ Regulation 558

Table Indicate One

☐ Ind/Com

☐ Sanitary

☐ CCME

☐ Res/Park

☐ Storm

☐ Prov. Water Quality
Objectives (PWQO)

☐ Agriculture

☐ Other

Soil Texture (Check One)

Region Indicate One

☐ Coarse

☐ MISA

 Indicate One

☐ Fine

Is this submission for a
Record of Site Condition?

☐ Yes

☒ No

Report Guideline on
Certificate of Analysis

☐ Yes

☐ No

Sample Matrix Legend

B Biota
GW Ground Water
O Oil
P Paint
S Soil
SD Sediment
SW Surface Water

Field Filtered - Metals, Hg, CrVI

0. Reg 153

Metals and Inorganics

☐ All Metals ☐ 153 Metals (excl. Hydrides)

☐ Hydride Metals ☐ 153 Metals (incl. Hydrides)

ORPs: ☐ B-HWS ☐ Cl ☐ CN

☐ Cr⁶⁺ ☐ EC ☐ FOC ☐ Hg

☐ pH ☐ SAR

Full Metals Scan

Regulation/Custom Metals

Nutrients: ☐ TP ☐ NH₄ ☐ TKN

☐ NO₃ ☐ NO₂ ☐ NO₃+NO₂

Volatiles: ☐ VOC ☐ BTEX ☐ THM

PHCs F1 - F4

ABNs

PAHs

PCBs: ☐ Total ☐ Aroclors

Organochlorine Pesticides

TCLP: ☐ M&I ☐ VOCs ☐ ABNs ☐ B(a)P ☐ PCBs

Sewer Use

Lead + Mercury

Potentially Hazardous or High Concentration (Y/N)

Sample Identification	Date Sampled	Time Sampled	# of Containers	Sample Matrix	Comments/ Special Instructions	Y / N	Field Filtered - Metals, Hg, CrVI	Metals and Inorganics	ORPs	Nutrients	Volatiles	PHCs F1 - F4	ABNs	PAHs	PCBs	Organochlorine Pesticides	TCLP	Sewer Use	Potentially Hazardous or High Concentration (Y/N)
0012- White paint - Focle Deck - Egen	Feb 20/20	N/A	1	P															
0013- White paint - Focle Deck - Lamp Locker	"	"	"	"															
0014- White paint - Focle Deck - Focle Deck	"	"	"	"															
0015- White paint - Focle Deck - Focle Deck	"	"	"	"															
0016- White paint - Focle Deck - Focle Deck	"	"	"	"															
0017- White paint - Focle Deck - Focle Deck	"	"	"	"															
0018- Red paint - Focle Deck - Focle Deck	"	"	"	"															
0019- Red paint - Focle Deck - Focle Deck	"	"	"	"															
0020- Yellow Paint - Focle Deck - Focle Deck	"	"	"	"															
0021- Red Paint - Main Deck - AF1	"	"	"	"															
0022- Red Paint - Main Deck - FWD	"	"	"	"															

Samples Relinquished By (Print Name and Sign): <u>Joey Mainwaring</u>	Date: <u>Feb 20/20</u>	Time: <u>15:30</u>	Samples Received By (Print Name and Sign): <u>Nel Ramnaraj</u>	Date: <u>20FEB20</u>	Time: <u>3:39PM</u>
Samples Relinquished By (Print Name and Sign):	Date:	Time:	Samples Received By (Print Name and Sign):	Date:	Time:
Samples Relinquished By (Print Name and Sign):	Date:	Time:	Samples Received By (Print Name and Sign):	Date:	Time:



Chain of Custody Record

If this is a Drinking Water sample, please use Drinking Water Chain of Custody Form (potable water consumed by humans)

Report Information:

Company: WSP Canada Inc
Contact: Jocelyn Mainwaring
Address: 100 Commerce Valley Drw,
Thornhill ON
Phone: 437-928-5596 Fax: _____
Reports to be sent to:
1. Email: jocelyn.mainwaring@wsp.com
2. Email: _____

Project Information:

Project: CCGS Limnos / 171-09529-62
Site Location: CCIW
Sampled By: Jocelyn Mainwaring
AGAT Quote #: _____ PO: _____
Please note: If quotation number is not provided, client will be billed full price for analysis.

Invoice Information:

Bill To Same: Yes ☒ No ☐
Company: _____
Contact: _____
Address: _____
Email: _____

Regulatory Requirements:

☐ No Regulatory Requirement

☐ Regulation 153/04

☐ Sewer Use

☐ Regulation 558

Table Indicate One

☐ Ind/Com

☐ Sanitary

☐ CCME

☐ Res/Park

☐ Storm

☐ Prov. Water Quality

☐ Agriculture

Region Indicate One

☐ Objectives (PWQO)

Soil Texture (Check One)

☐ Coarse

☐ MISA

☐ Fine

Indicate One

Is this submission for a
Record of Site Condition?

☐ Yes

☐ No

Report Guideline on
Certificate of Analysis

☐ Yes

☐ No

Sample Matrix Legend

B Biota
GW Ground Water
O Oil
P Paint
S Soil
SD Sediment
SW Surface Water

Field Filtered - Metals, Hg, CrVI

0. Reg 153

☐ All Metals

☐ 153 Metals (excl. Hydrides)

☐ Hydride Metals

☐ 153 Metals (incl. Hydrides)

☐ ORPs

☐ B-HWS

☐ Cl

☐ CN

☐ Cr⁶⁺

☐ EC

☐ FOC

☐ Hg

☐ pH

☐ SAR

Full Metals Scan

Regulation/Custom Metals

Nutrients: ☐ TP ☐ NH₃ ☐ TKN

☐ NO₃ ☐ NO₂ ☐ NO₃+NO₂

Volatiles: ☐ VOC ☐ BTEX ☐ THM

PHCs F1 - F4

ABNs

PAHs

PCBs: ☐ Total ☐ Aroclors

Organochlorine Pesticides

TCLP: ☐ M&I ☐ VOCs ☐ ABNs ☐ B(a)P ☐ PCBs

Sewer Use

Lead & Mercury

Potentially Hazardous or High Concentration (Y/N)

Sample Identification	Date Sampled	Time Sampled	# of Containers	Sample Matrix	Comments/ Special Instructions	Y / N	Metals and Inorganics	0. Reg 153	Field Filtered - Metals, Hg, CrVI	Regulation/Custom Metals	Nutrients: <input type="checkbox"/> TP <input type="checkbox"/> NH ₃ <input type="checkbox"/> TKN	Volatiles: <input type="checkbox"/> VOC <input type="checkbox"/> BTEX <input type="checkbox"/> THM	PHCs F1 - F4	ABNs	PAHs	PCBs: <input type="checkbox"/> Total <input type="checkbox"/> Aroclors	Organochlorine Pesticides	TCLP: <input type="checkbox"/> M&I <input type="checkbox"/> VOCs <input type="checkbox"/> ABNs <input type="checkbox"/> B(a)P <input type="checkbox"/> PCBs	Sewer Use	Potentially Hazardous or High Concentration (Y/N)
0023- White Paint- main Deck	Feb. 20	N/A	1	P																
0024- White Paint- main Deck	"	"	"	"																
0025- White Paint- main Deck	"	"	"	"																
0026- White Paint- main Deck	"	"	"	"																
0027- Yellow Paint- Arva Crane	"	"	"	"																
0028- White Paint- main Deck	"	"	"	"																
0029- White Paint- main Deck	"	"	"	"																
0029- White Paint- AFT Deck	"	"	"	"																
0030- White Paint- sewage compartment	"	"	"	"																
0031- White Paint- sewage compartment	"	"	"	"																
0032- Gray Paint- sewage compartment	"	"	"	"																

Samples Relinquished By (Print Name and Sign):

Jocelyn Mainwaring

Samples Relinquished By (Print Name and Sign):

Samples Relinquished By (Print Name and Sign):

Date:

Feb. 20/20

Time:

15:30

Samples Received By (Print Name and Sign):

Neil Namnaja

Samples Received By (Print Name and Sign):

Samples Received By (Print Name and Sign):

Date:

20 FEB 20

Date:

Date:

Time:

3:40 PM

Time:

Time:

20 FEB 20 3:40 PM

Page 3 of 5

Nº: T099985



Chain of Custody Record

If this is a Drinking Water sample, please use Drinking Water Chain of Custody Form (potable water consumed by humans)

Report Information:

Company: WSP Canada Inc
Contact: Jocely Mainwaring
Address: 100 Commerce Valley Drw
Thornhill ON
437-928-5596 Fax: _____
Phone: _____
Reports to be sent to:
1. Email: jocely-mainwaring@wsp.com
2. Email: _____

Project Information:

Project: CCGS Limnos/171-04529-62
Site Location: CCIW
Sampled By: Jocely Mainwaring
AGAT Quote #: _____ PO: _____

Please note: If quotation number is not provided, client will be billed full price for analysis.

Invoice Information:

Bill To Same: ☒ Yes ☐ No
Company: _____
Contact: _____
Address: _____
Email: _____

Regulatory Requirements: ☐ No Regulatory Requirement

(Please check all applicable boxes)

☐ Regulation 153/04

Table Indicate One

☐ Ind/Com

☐ Res/Park

☐ Agriculture

Soil Texture (Check One)

☐ Coarse

☐ Fine

☐ Sewer Use

☐ Sanitary

☐ Storm

Region Indicate One

☐ MISA

☐ Regulation 558

☐ CCME

☐ Prov. Water Quality Objectives (PWQO)

☐ Other

Indicate One

Is this submission for a
Record of Site Condition?

☐ Yes

☒ No

Report Guideline on
Certificate of Analysis

☐ Yes

☐ No

Sample Matrix Legend

B Biota
GW Ground Water
O Oil
P Paint
S Soil
SD Sediment
SW Surface Water

Field Filtered - Metals, Hg, CrVI

0. Reg 153

Metals and Inorganics

☐ All Metals ☐ 153 Metals (excl. Hydrides)

☐ Hydride Metals ☐ 153 Metals (incl. Hydrides)

ORPs: ☐ B-HWS ☐ Cl ☐ CN

☐ Cr⁶⁺ ☐ EC ☐ FOC ☐ Hg

☐ pH ☐ SAR

Full Metals Scan

Regulation/Custom Metals

Nutrients: ☐ TP ☐ NH₃ ☐ TKN

☐ NO₃ ☐ NO₂ ☐ NO₃+NO₂

Volatiles: ☐ VOC ☐ BTEX ☐ THM

PHCs F1 - F4

ABNs

PAHs

PCBs: ☐ Total ☐ Aroclors

Organochlorine Pesticides

TCLP: ☐ M&I ☐ VOCs ☐ ABNs ☐ B(a)P ☐ PCBs

Sewer Use

Potentially Hazardous or High Concentration (Y/N)

Sample Identification	Date Sampled	Time Sampled	# of Containers	Sample Matrix	Comments/ Special Instructions	Y / N	Metals and Inorganics	Regulation/Custom Metals	Nutrients	Volatiles	PHCs F1 - F4	ABNs	PAHs	PCBs	Organochlorine Pesticides	TCLP	Sewer Use	Potentially Hazardous or High Concentration (Y/N)
0033 - White Paint - Sewage compartment - greywater tank	N/A	"	1	P														
0034 - White Paint - Tank Top - Spill Tower	Feb 20	"	"	"														
0035 - White Paint - Tank Top - Cleaning Locker	"	"	"	"														
0036 - White Paint - Tank Top - Incinerator RM	"	"	"	"														
0037 - White Paint - Tank Top - Heads	"	"	"	"														
0038 - Grey Paint - FVD Void Space	"	"	"	"														
0039 - Red Paint - AFT Void Space	"	"	"	"														
0040 - Red Paint - AFT Cofferdam	"	"	"	"														
0041 - Red Paint - Echo Sounder compartment	"	"	"	"														
0042 - White Paint - Engine RM - Deck head (port)	"	"	"	"														
0043 - White Paint - Engine Room - Deck Head (Starboard)	"	"	"	"														

20 FEB 20 3:40 PM

Samples Relinquished By (Print Name and Sign): <u>Jocely Mainwaring</u>	Date: <u>Feb. 20/20</u>	Time: <u>15:30</u>	Samples Received By (Print Name and Sign): <u>Neil Mainwaring</u>	Date:	Time:
Samples Relinquished By (Print Name and Sign):	Date:	Time:	Samples Received By (Print Name and Sign):	Date:	Time:
Samples Relinquished By (Print Name and Sign):	Date:	Time:	Samples Received By (Print Name and Sign):	Date:	Time:

Page 4 of 5

Nº: **T099986**



Chain of Custody Record

If this is a Drinking Water sample, please use Drinking Water Chain of Custody Form (potable water consumed by humans)

Report Information:

Company: WSP Canada Inc
Contact: Joey Mainwaring
Address: 100 Commerce Valley Dr W
Thornhill ON
437-928-5596 Fax: _____
Reports to be sent to:
1. Email: joey.mainwaring@wsp.com
2. Email: _____

Project Information:

Project: CCGS Limnos / 171-09529-62
Site Location: CCIW
Sampled By: Joey Mainwaring
AGAT Quote #: _____ PO: _____
Please note: If quotation number is not provided, client will be billed full price for analysis.

Invoice Information:

Bill To Same: Yes ☒ No ☐

Company: _____
Contact: _____
Address: _____
Email: _____

Regulatory Requirements:

☐ No Regulatory Requirement

(Please check all applicable boxes)

☐ Regulation 153/04

☐ Sewer Use

☐ Regulation 558

Table _____

Indicate One

☐ Ind/Com

☐ Sanitary

☐ CCME

☐ Res/Park

☐ Storm

☐ Prov. Water Quality
Objectives (PWQO)

☐ Agriculture

Soil Texture (Check One)

Region _____

☐ Other

☐ Coarse

Indicate One

☐ Fine

☐ MISA

Indicate One

Is this submission for a
Record of Site Condition?

☐ Yes ☒ No

Report Guideline on
Certificate of Analysis

☐ Yes ☐ No

Sample Matrix Legend

B Biota
GW Ground Water
O Oil
P Paint
S Soil
SD Sediment
SW Surface Water

Field Filtered - Metals, Hg, CrVI

0. Reg 153

Metals and Inorganics
☐ All Metals ☐ 153 Metals (excl. Hydrides)
☐ Hydride Metals ☐ 153 Metals (incl. Hydrides)

ORPs: ☐ B-HWS ☐ Cl ☐ CN
☐ Cr ☐ EC ☐ FOC ☐ Hg
☐ pH ☐ SAR

Full Metals Scan

Regulation/Custom Metals

Nutrients: ☐ TP ☐ NH₃ ☐ TKN
☐ NO₃ ☐ NO₂ ☐ NO₃+NO₂

Volatiles: ☐ VOC ☐ BTEX ☐ THM

PHCs F1 - F4

ABNs

PAHs

PCBs: ☐ Total ☐ Aroclors

Organochlorine Pesticides

TCLP: ☐ M&I ☐ VOCs ☐ ABNs ☐ B(a)P ☐ PCBs

Sewer Use

Lead & Mercury

Potentially Hazardous or High Concentration (Y/N)

Laboratory Use Only

Work Order #: _____

Cooler Quantity: _____

Arrival Temperatures: _____

Custody Seal Intact: ☐ Yes ☐ No ☐ N/A

Notes: _____

Turnaround Time (TAT) Required:

Regular TAT ☒ 5 to 7 Business Days

Rush TAT (Rush Surcharges Apply)

☐ 3 Business Days ☐ 2 Business Days ☐ Next Business Day

OR Date Required (Rush Surcharges May Apply): _____

Please provide prior notification for rush TAT
*TAT is exclusive of weekends and statutory holidays

For 'Same Day' analysis, please contact your AGAT CPM

Sample Identification	Date Sampled	Time Sampled	# of Containers	Sample Matrix	Comments/ Special Instructions	Y / N	Field Filtered - Metals, Hg, CrVI	Metals and Inorganics	ORPs	Full Metals Scan	Regulation/Custom Metals	Nutrients	Volatiles	PHCs F1 - F4	ABNs	PAHs	PCBs	Organochlorine Pesticides	TCLP	Sewer Use	Potentially Hazardous or High Concentration (Y/N)
0044- White Paint - Engine Room - Bulkhead (port)	Feb. 20	N/A	1	P																	
0045- White Paint - Engine Room - Bulkhead (starboard)	"	"	"	"																	
0046- Old Exhaust Lagging	"	"	"	"																	
0047- Green Paint - MCR Bulkhead	"	"	"	P																	
0048- White Paint - Thrustmaster Bulkhead (port)	1/	1/	"	"																	
0049- White Paint - Thrustmaster Bulkhead (starboard)	1/	1/	"	"																	

Samples Relinquished By (Print Name and Sign): <u>Joey Mainwaring</u>	Date: <u>Feb. 20/20</u>	Time: <u>15:30</u>	Samples Received By (Print Name and Sign): <u>Neil Namanya</u>	Date: <u>20 FEB 20</u>	Time: <u>3:40 PM</u>
Samples Relinquished By (Print Name and Sign):	Date:	Time:	Samples Received By (Print Name and Sign):	Date:	Time:
Samples Relinquished By (Print Name and Sign):	Date:	Time:	Samples Received By (Print Name and Sign):	Date:	Time:

**EMSL Canada Inc.**

2756 Slough Street, Mississauga, ON L4T 1G3

Phone/Fax: (289) 997-4602 / (289) 997-4607

<http://www.EMSL.com>torontolab@emsl.com

EMSL Canada Or 552002032
CustomerID: 55WPTH42
CustomerPO: 171-09529-62
ProjectID:

Attn: **Joey Mainwaring**
WSP Canada, Inc.
100 Commerce Valley Road
Thornhill, ON L3T 0A1

Phone: (905) 882-1100
Fax:
Received: 02/20/20 4:26 PM
Collected: 2/20/2020

Project: **CCGS Limnos / 171-09529-62****Test Report: Lead in Air by Flame AAS (NIOSH 7082)***

<i>Client Sample</i>	<i>Description</i>	<i>Collected</i>	<i>Analyzed</i>	<i>Volume</i>	<i>RDL</i>	<i>Lead Concentration</i>
Blank		2/20/2020	2/24/2020	N/A	0.0040 mg/filter	<0.0040 mg/filter
552002032-0001	Site: Field Blank					
L-AS-01		2/20/2020	2/24/2020	1000 L	0.0040 mg/m ³	<0.0040 mg/m ³
552002032-0002	Site: Main Engine Room					
L-AS-02		2/20/2020	2/24/2020	1000 L	0.0040 mg/m ³	<0.0040 mg/m ³
552002032-0003	Site: Control Room					
L-AS-03		2/20/2020	2/24/2020	1000 L	0.0040 mg/m ³	<0.0040 mg/m ³
552002032-0004	Site: Tank Top Deck					
L-AS-04		2/20/2020	2/24/2020	1000 L	0.0040 mg/m ³	<0.0040 mg/m ³
552002032-0005	Site: Focsle Deck					
L-AS-05		2/20/2020	2/24/2020	1000 L	0.0040 mg/m ³	<0.0040 mg/m ³
552002032-0006	Site: Bridge Deck					

Rowena Fanto, Lead Supervisor
or other approved signatory

*Analysis following Lead in Air by EMSL SOP/Determination of Environmental Lead by FLAA. Reporting limit is 4 µg/filter. ug/filter = µg/m³ x volume sampled (m³). OSHA PEL - 50 µg/m³. OSHA action level - 30 µg/m³. Unless otherwise noted, results in this report are not blank corrected. EMSL maintains liability limited to cost of analysis. Interpretation and use of test results are the responsibility of the client. This report relates only to the samples reported above, and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. The report reflects the samples as received. When the information supplied by the customer can affect the validity of the results, it will be noted on the report. "<" (less than) result signifies that the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request. The QC data associated with the sample results included in this report meet the recovery and precision requirements unless specifically indicated otherwise. Definitions of modifications are available upon request.

Samples analyzed by EMSL Canada Inc. Mississauga, ON AIHA-LAP, LLC - ELLAP #196142

Initial report from 02/27/2020 10:32:25



EMSL Analytical, Inc.

6340 CastlePlace Dr., Indianapolis, IN 46250

Phone: (317) 803-2997 Fax: (317) 803-3047 Email: indianapolislaboratory@emsl.com

Attn:

Joey Mainwaring
WSP Canada, Inc.
100 Commerce Valley Road
Thornhill, ON L3T 0A1

Phone: (905) 882-1100

Fax:

2/28/2020

The following analytical report covers the analysis performed on samples submitted to EMSL Analytical, Inc. on 2/21/2020. The results are tabulated on the attached data pages for the following client designated project:

171-09529-62

The reference number for these samples is EMSL Order #162003697. Please use this reference when calling about these samples. If you have any questions, please do not hesitate to contact me at (317) 803-2997.

Approved By:

Doug Wiegand, Laboratory Manager

The samples associated with this report were received in good condition unless otherwise noted. This report relates only to those items tested as received by the laboratory. The QC data associated with the sample results meet the recovery and precision requirements unless specifically indicated. The final results are not blank corrected unless specifically indicated. The laboratory is not responsible for final results calculated using air volumes that have been provided by non-laboratory personnel. This report may not be reproduced except in full and without written approval by EMSL Analytical, Inc.

**EMSL Analytical, Inc.**

6340 CastlePlace Dr., Indianapolis, IN 46250

Phone/Fax: (317) 803-2997 / (317) 803-3047

<http://www.EMSL.com>indianapolislabs@emsl.com

EMSL Order: 162003697
 CustomerID: WPTH42
 CustomerPO: 171-09529-62
 ProjectID:

Attn: **Joey Mainwaring**
WSP Canada, Inc.
100 Commerce Valley Road
Thornhill, ON L3T 0A1

Phone: (905) 882-1100
 Fax:
 Received: 02/21/20 10:00 AM
 Collected: 2/19/2020

Project: 171-09529-62

Analytical Results

Client Sample Description BLANK
FIELD BLANK
Collected: 2/19/2020
Lab ID: 162003697-0001

Method	Parameter	Result	RL	Units	Prep Date & Analyst	Analysis Date & Analyst
--------	-----------	--------	----	-------	---------------------	-------------------------

METALS

ID-145	Mercury	<0.0208	0.0208	µg/m³	2/27/2020 WF	2/27/2020 WF
--------	---------	---------	--------	-------	--------------	--------------

Client Sample Description M-AS-01
MAIN ENGINE ROOM
Collected: 2/19/2020
Lab ID: 162003697-0002

Method	Parameter	Result	RL	Units	Prep Date & Analyst	Analysis Date & Analyst
--------	-----------	--------	----	-------	---------------------	-------------------------

METALS

ID-145	Mercury	<0.0208	0.0208	µg/m³	2/27/2020 WF	2/27/2020 WF
--------	---------	---------	--------	-------	--------------	--------------

Client Sample Description M-AS-02
CONTROL ROOM
Collected: 2/19/2020
Lab ID: 162003697-0003

Method	Parameter	Result	RL	Units	Prep Date & Analyst	Analysis Date & Analyst
--------	-----------	--------	----	-------	---------------------	-------------------------

METALS

ID-145	Mercury	<0.0208	0.0208	µg/m³	2/27/2020 WF	2/27/2020 WF
--------	---------	---------	--------	-------	--------------	--------------

Client Sample Description M-AS-03
TANK TOP DECK
Collected: 2/19/2020
Lab ID: 162003697-0004

Method	Parameter	Result	RL	Units	Prep Date & Analyst	Analysis Date & Analyst
--------	-----------	--------	----	-------	---------------------	-------------------------

METALS

ID-145	Mercury	<0.0208	0.0208	µg/m³	2/27/2020 WF	2/27/2020 WF
--------	---------	---------	--------	-------	--------------	--------------

Client Sample Description M-AS-04
FOCSLE DECK
Collected: 2/19/2020
Lab ID: 162003697-0005

Method	Parameter	Result	RL	Units	Prep Date & Analyst	Analysis Date & Analyst
--------	-----------	--------	----	-------	---------------------	-------------------------

METALS

ID-145	Mercury	<0.0208	0.0208	µg/m³	2/27/2020 WF	2/27/2020 WF
--------	---------	---------	--------	-------	--------------	--------------

Client Sample Description M-AS-05
BRIDGE DECK
Collected: 2/19/2020
Lab ID: 162003697-0006

Method	Parameter	Result	RL	Units	Prep Date & Analyst	Analysis Date & Analyst
--------	-----------	--------	----	-------	---------------------	-------------------------

METALS

**EMSL Analytical, Inc.**

6340 CastlePlace Dr., Indianapolis, IN 46250

Phone/Fax: (317) 803-2997 / (317) 803-3047

<http://www.EMSL.com>indianapolislab@emsl.com

EMSL Order: 162003697
CustomerID: WPTH42
CustomerPO: 171-09529-62
ProjectID:

Attn: **Joey Mainwaring**
WSP Canada, Inc.
100 Commerce Valley Road
Thornhill, ON L3T 0A1

Phone: (905) 882-1100
Fax:
Received: 02/21/20 10:00 AM
Collected: 2/19/2020

Project: 171-09529-62

Analytical Results

Client Sample Description M-AS-05
BRIDGE DECK
Collected: 2/19/2020
Lab ID: 162003697-0006

Method	Parameter	Result	RL	Units	Prep Date & Analyst	Analysis Date & Analyst
METALS						
ID-145	Mercury	<0.0208	0.0208	µg/m ³	2/27/2020 WF	2/27/2020 WF

Definitions:

MDL - method detection limit

J - Result was below the reporting limit, but at or above the MDL

ND - indicates that the analyte was not detected at the reporting limit

RL - Reporting Limit (Analytical)

D - Dilution Sample required a dilution which was used to calculate final results

APPENDIX

B

SITE PHOTOGRAPHS





PHOTO NO.	MATERIAL DESCRIPTION & LOCATION	PHOTO
1	Representative photo of the CCGS Limnos docked at the Canadian Centre for Inland Waters (CCIW) in Burlington ON.	
2	Representative photo of red paint observed on the Monkey's Island deck.	



PHOTO NO.	MATERIAL DESCRIPTION & LOCATION	PHOTO
<u>3</u>	Representative photo of yellow paint observed on the Monkey's Island main mast.	
<u>4</u>	Representative photo of white paint observed on the bridge deck, AFT stair tower.	



PHOTO NO.	MATERIAL DESCRIPTION & LOCATION	PHOTO
<u>5</u>	Representative photo of white paint observed on the Focsle deck bulkhead.	
<u>6</u>	Representative photo of white paint observed on the Focsle deck stair tower.	



PHOTO NO.	MATERIAL DESCRIPTION & LOCATION	PHOTO
<u>7</u>	Representative photo of yellow paint on the Focsle deck FWD mast.	 <p>A photograph of the Focsle deck FWD mast. A yellow arrow points to a section of the mast, indicating yellow paint. The ship is red and white, with various equipment and cranes visible on the deck. The name 'Béchies et Océans' is visible on the side of the ship.</p>
<u>8</u>	Representative photo of white paint observed on the main deck exterior funnel.	 <p>A photograph of the main deck exterior funnel. A yellow arrow points to a section of the funnel, indicating white paint. The ship is red and white, with various equipment and cranes visible on the deck. The name 'Béchies et Océans' is visible on the side of the ship.</p>



PHOTO NO.	MATERIAL DESCRIPTION & LOCATION	PHOTO
<u>9</u>	Representative photo of the yellow paint observed on the Arva crane.	
<u>10</u>	Representative photo of white paint observed on the sewage compartment bulkhead.	



PHOTO NO.	MATERIAL DESCRIPTION & LOCATION	PHOTO
<u>11</u>	Representative photo of the grey paint observed on the sewage compartment deck.	
<u>12</u>	Representative photo of the white paint observed on the grey water tank in the sewage compartment.	



PHOTO NO.	MATERIAL DESCRIPTION & LOCATION	PHOTO
<u>13</u>	Representative photo of the white paint observed in the tank top cleaning locker.	
<u>14</u>	Representative photo of the white paint observed in the tank top incinerator room.	



PHOTO NO.	MATERIAL DESCRIPTION & LOCATION	PHOTO
<u>15</u>	Representative photo of the white paint observed in the tank top heads (washrooms).	
<u>16</u>	Representative photo of the grey paint in the FWD void space.	



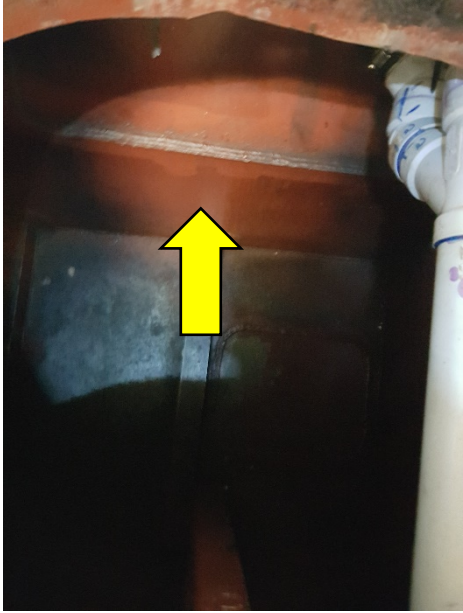

PHOTO NO.	MATERIAL DESCRIPTION & LOCATION	PHOTO
<u>17</u>	Representative photo of the red paint in the AFT void space.	
<u>18</u>	Representative photo of the red paint in the AFT cofferdam.	

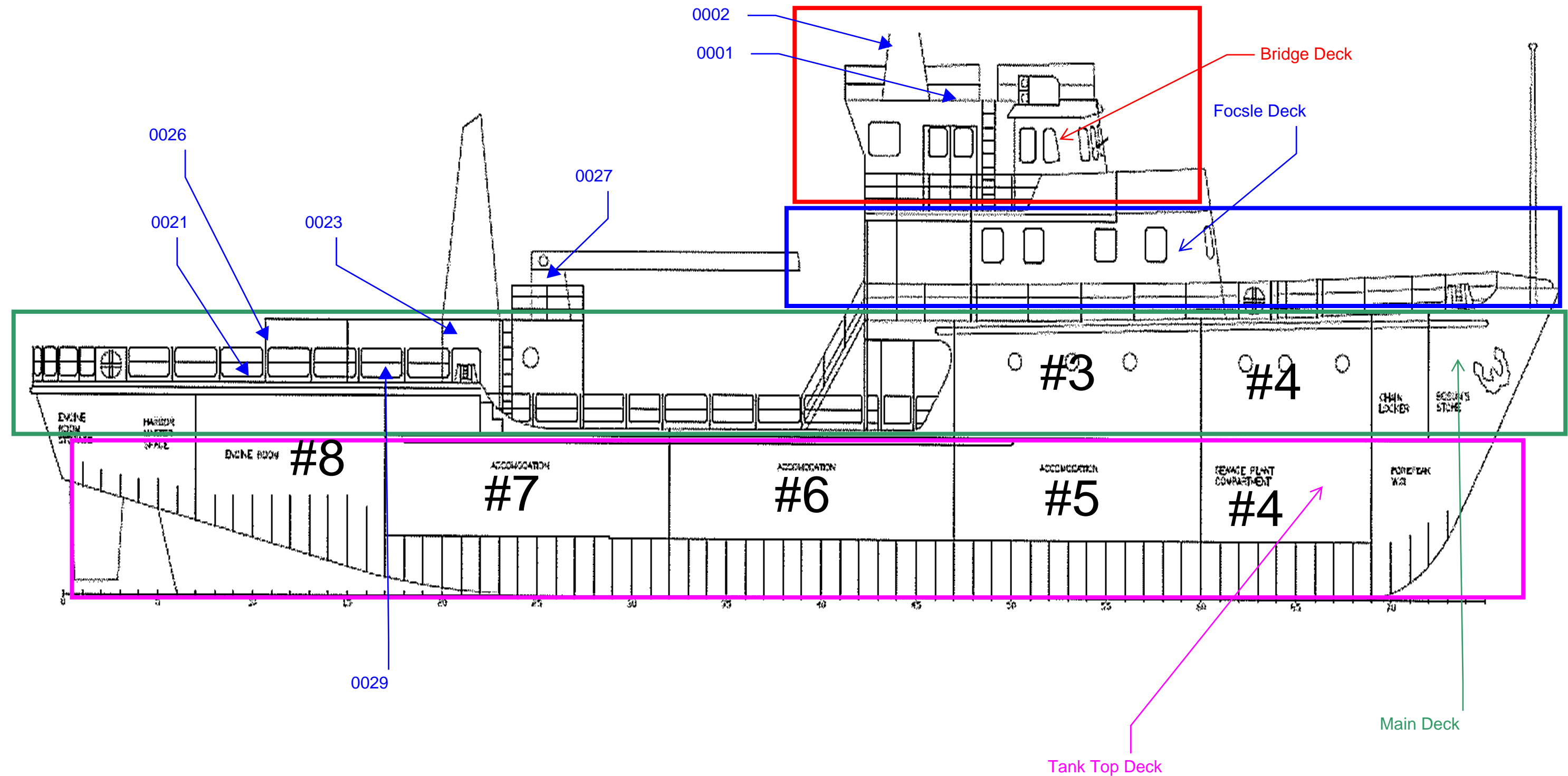
PHOTO NO.	MATERIAL DESCRIPTION & LOCATION	PHOTO
<u>19</u>	Representative photo of the red paint observed in the Echo Sounder Compartment.	
<u>20</u>	Representative photo of the old exhaust lagging.	

APPENDIX

C

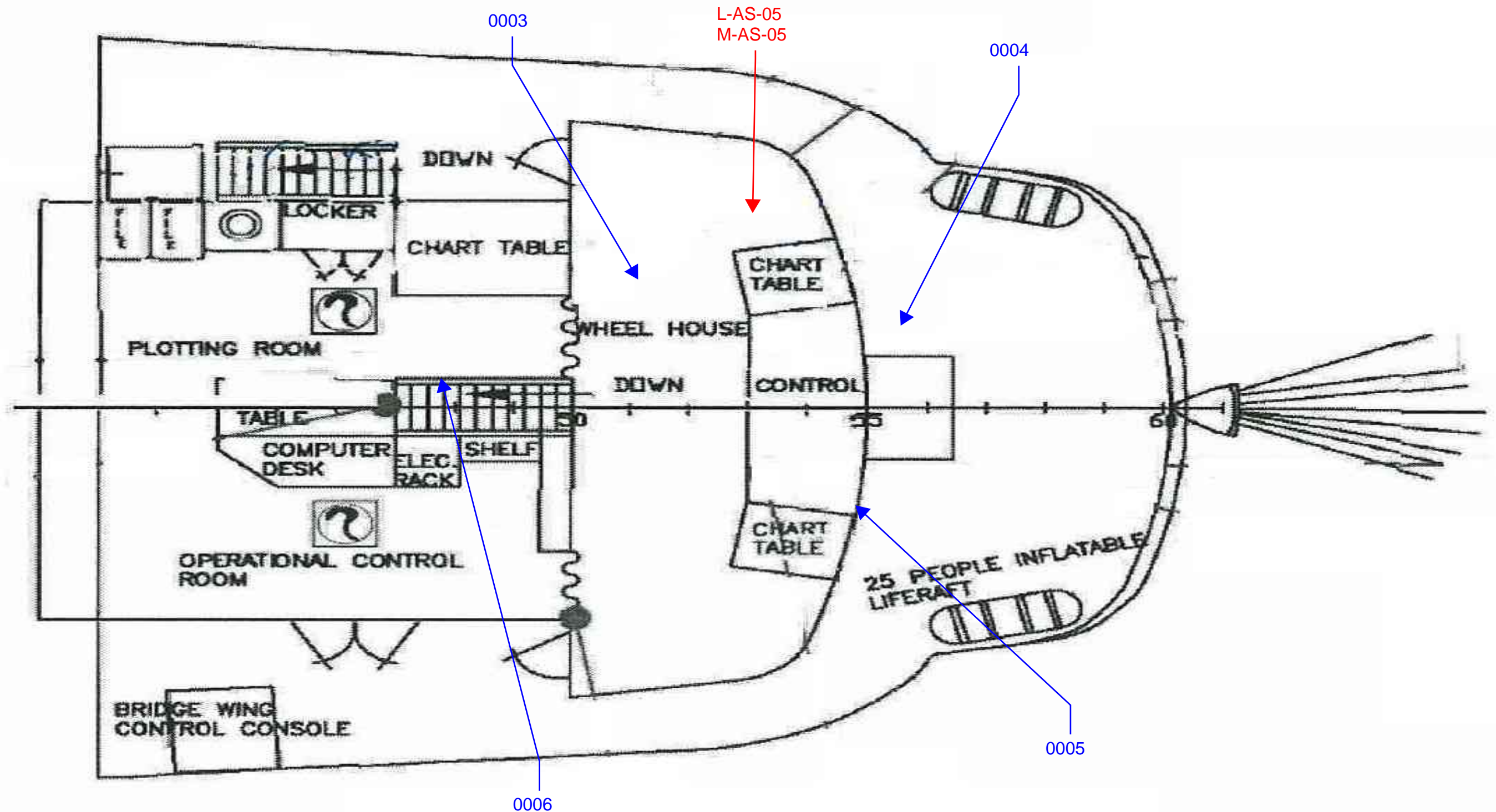
DRAWINGS





NOTES
1. Drawing provided by client.
2. This drawing must be read in conjunction with associated report.

LEGEND ▲ LEAD / MERCURY BULK SAMPLE LOCATION ▲ LEAD / MERCURY AIR SAMPLE LOCATION □ □	WSP PROJECT NUMBER: 171-09529-62	CLIENT: PWCGS	Lead and Mercury Sampling Assessment - CCGS Limnos Cross-Section of Ship	DRAWING: 1
	DATE: March 2020	ADDRESS: Canadian Centre for Inland Waters (CCIW)		wsp
	DRAWN BY: JM			
	APPROVED BY: JB			



NOTES

1. Drawing provided by client.
2. This drawing must be read in conjunction with associated report.

LEGEND

- ▲ LEAD / MERCURY BULK SAMPLE LOCATION
- ▲ LEAD / MERCURY AIR SAMPLE LOCATION
-
-

WSP PROJECT NUMBER:
171-09529-62

DATE:
March 2020

DRAWN BY: JM

APPROVED BY: JB

CLIENT:

PWGSC

ADDRESS:

Canada Centre for Inland Waters (CCIW)

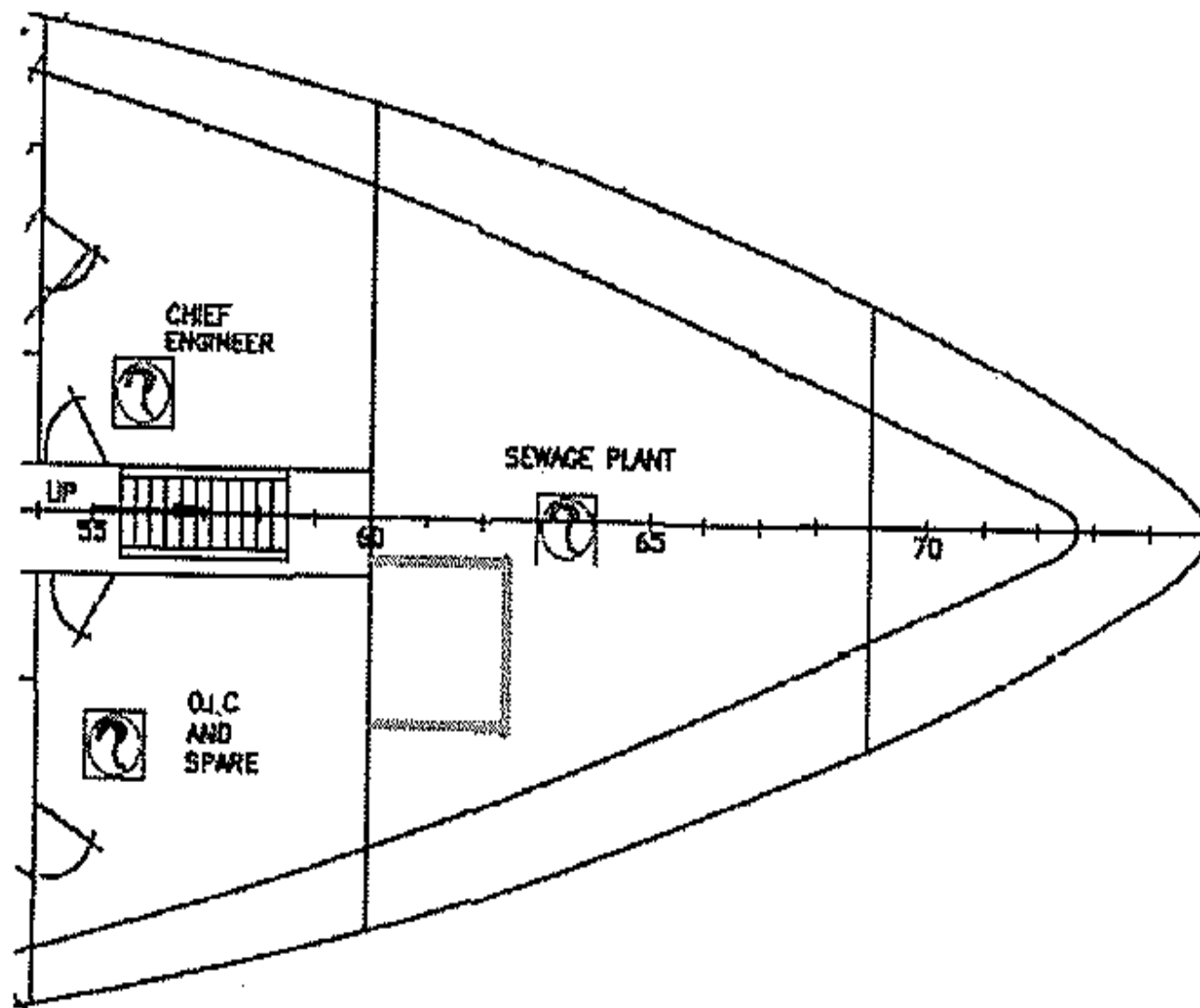
Lead and Mercury Sampling Assessment - CCGS Limnos

Bridge Deck

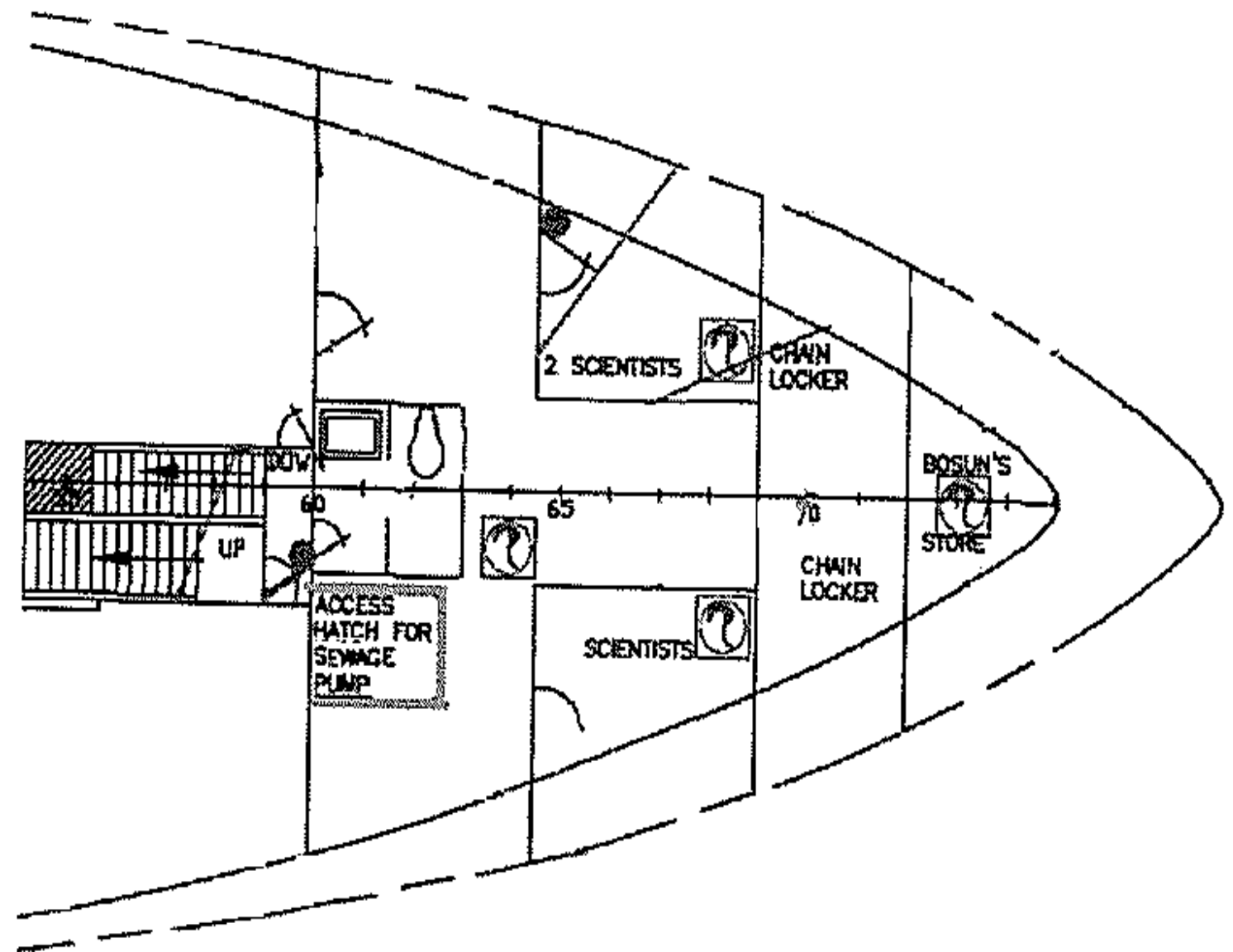
DRAWING:

2

wsp



TANK TOP



MAIN DECK

NOTES

1. Drawing provided by client.
2. This drawing must be read in conjunction with associated report.

LEGEND

- ▲ MERCURY BULK SAMPLE LOCATION
- ▲ MERCURY AIR SAMPLE LOCATION
- LEAD BULK SAMPLE LOCATION
- LEAD AIR SAMPLE LOCATION

WSP PROJECT NUMBER:
171-09529-62

DATE:
March 2020

DRAWN BY: JM

APPROVED BY: JB

CLIENT:

PWGSC

ADDRESS:

Canadian Centre for Inland Waters (CCIW)

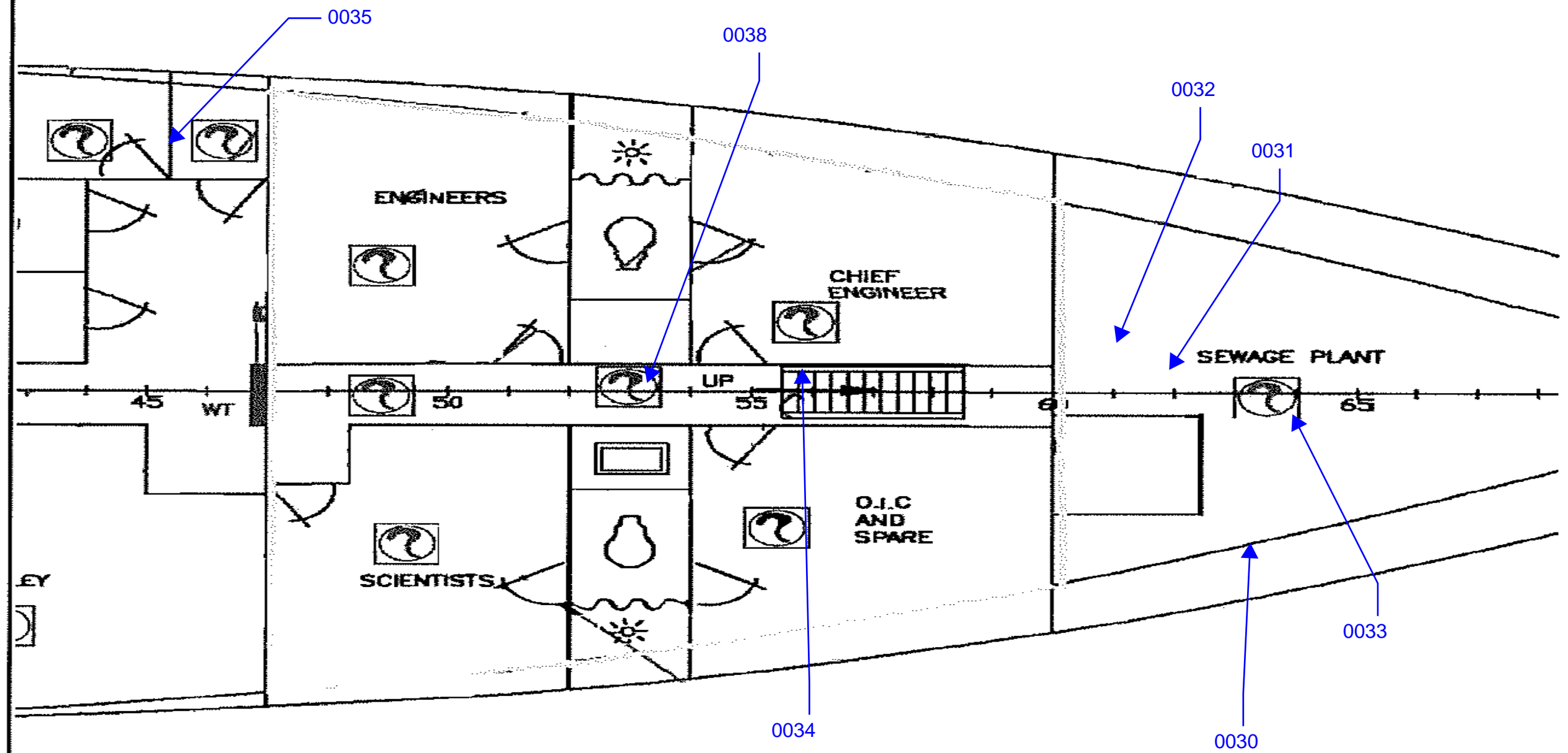
Lead and Mercury Sampling Assessment - CCGS Limnos

FWD #4

DRAWING:

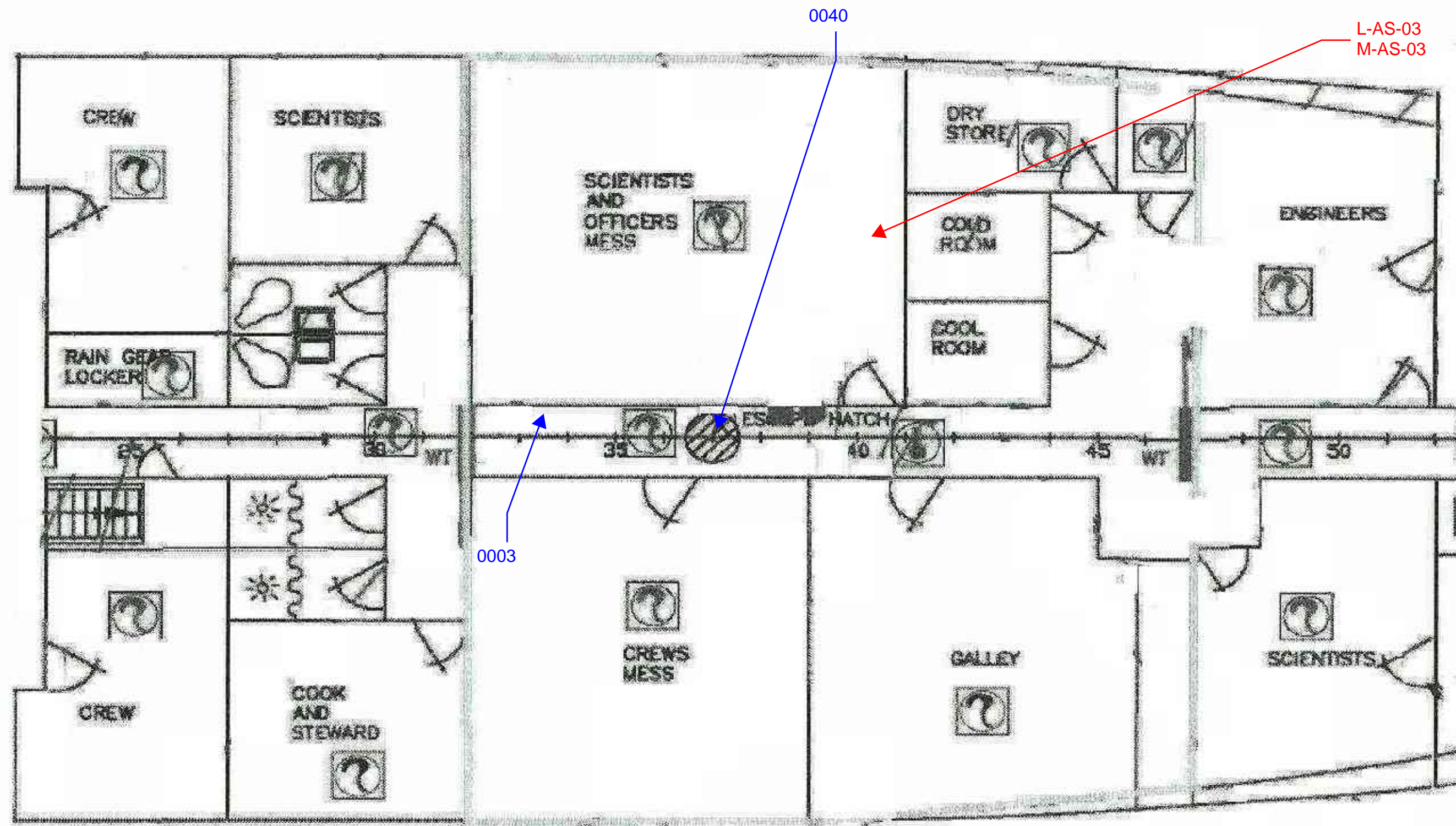
5





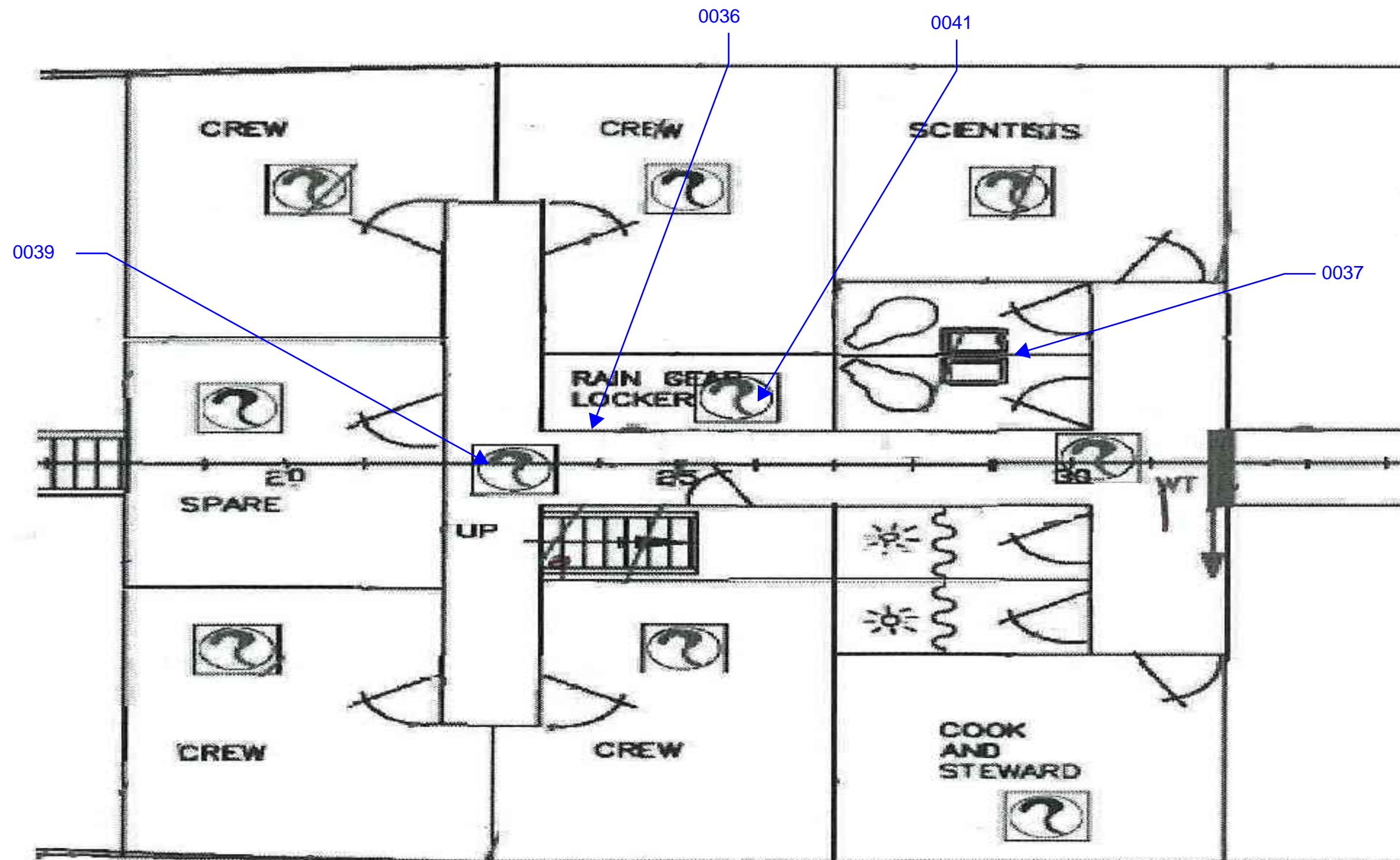
NOTES
1. Drawing provided by client.
2. This drawing must be read in conjunction with associated report.

LEGEND <div><div>▲</div> MERCURY BULK SAMPLE LOCATION</div> <div><div>▲</div> MERCURY AIR SAMPLE LOCATION</div> <div><div>■</div> LEAD BULK SAMPLE LOCATION</div> <div><div>■</div> LEAD AIR SAMPLE LOCATION</div>	WSP PROJECT NUMBER: 171-09529-62	CLIENT: PWGSC	Lead and Mercury Sampling Assessment - CCGS Limnos Tank Top FWD #5	DRAWING: 6
	DATE: March 2020	ADDRESS: Canadian Centre for Inland Waters (CCIW)		<div>wsp</div>
	DRAWN BY: JM			
	APPROVED BY: JB			



NOTES
 1. Drawing provided by client.
 2. This drawing must be read in conjunction with associated report.

LEGEND MERCURY BULK SAMPLE LOCATION MERCURY AIR SAMPLE LOCATION LEAD BULK SAMPLE LOCATION LEAD AIR SAMPLE LOCATION	WSP PROJECT NUMBER: 171-09529-62	CLIENT: PWGSC	Lead and Mercury Sampling Assessment - CCGS Limnos <h2>Tank Top Midship #6</h2>	DRAWING: 7
	DATE: March 2020	ADDRESS: Canadian Centre for Inland Waters (CCIW)		
	DRAWN BY: JM			
	APPROVED BY: JB			



NOTES

1. Drawing provided by client.
2. This drawing must be read in conjunction with associated report.

LEGEND

- MERCURY BULK SAMPLE LOCATION
- MERCURY AIR SAMPLE LOCATION
- LEAD BULK SAMPLE LOCATION
- LEAD AIR SAMPLE LOCATION

WSP PROJECT NUMBER:
171-09529-62

DATE:
March 2020

DRAWN BY: JM

APPROVED BY: JB

CLIENT:

PWGSC

ADDRESS:

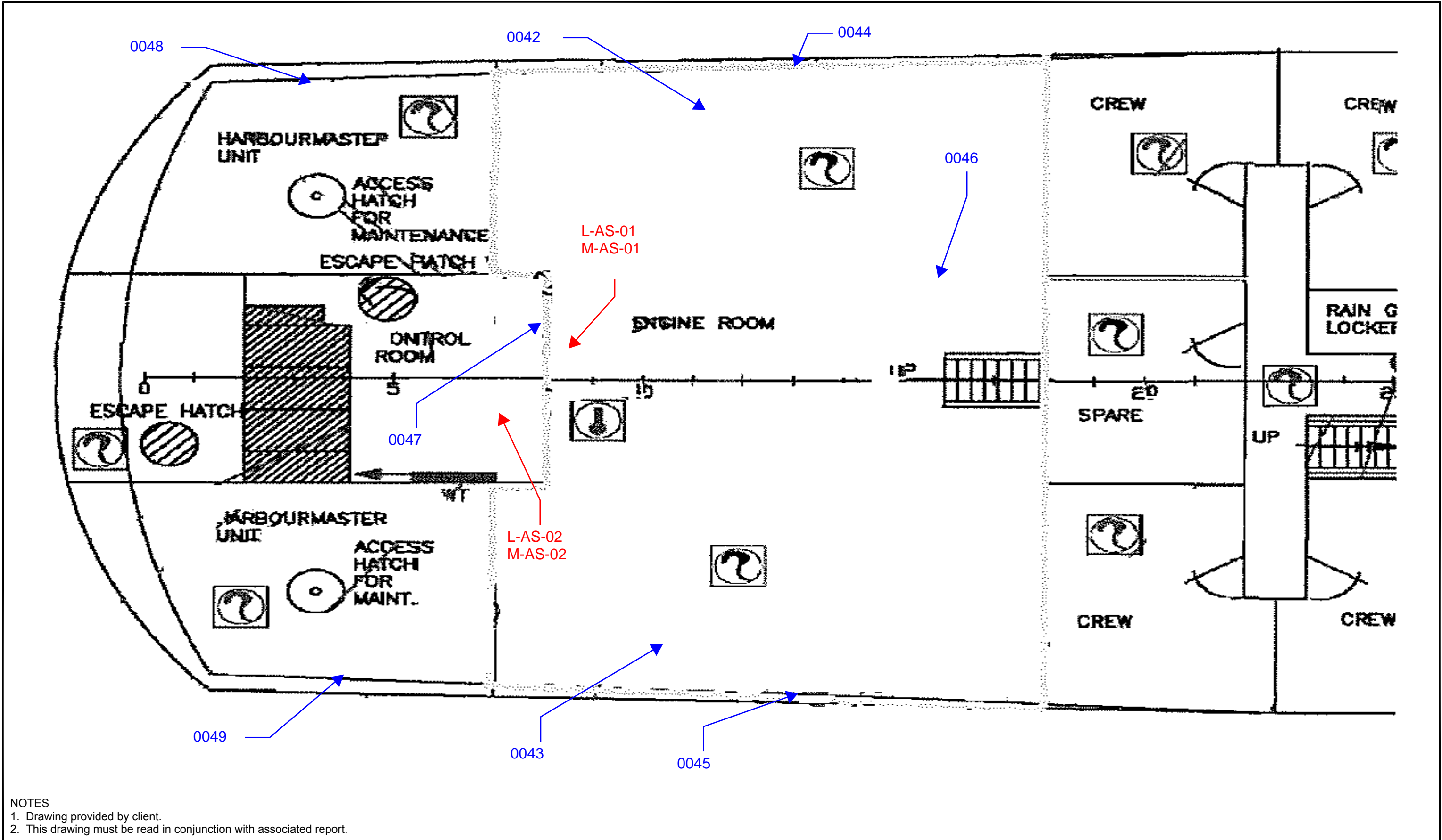
Canadian Centre for Inland Waters (CCIW)

Lead and Mercury Sampling Assessment - CCGS Limnos

Tank Top #7

DRAWING:

8



NOTES
1. Drawing provided by client.
2. This drawing must be read in conjunction with associated report.

LEGEND <ul style="list-style-type: none">MERCURY BULK SAMPLE LOCATIONMERCURY AIR SAMPLE LOCATIONLEAD BULK SAMPLE LOCATIONLEAD AIR SAMPLE LOCATION	WSP PROJECT NUMBER: 171-09529-62	CLIENT: PWGSC	Lead and Mercury Sampling Assessment - CCGS Limnos Tank Top #8 - Engine Room	DRAWING: 9 wsp
	DATE: March 2020	ADDRESS: Canadian Centre for Inland Waters (CCIW)		
	DRAWN BY: JM			
	APPROVED BY: JB			