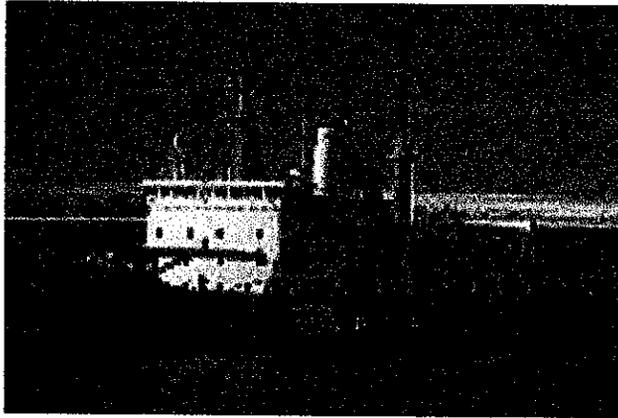


**ASBESTOS MATERIALS
SURVEY**



CANADIAN COAST GUARD VESSEL

CCGS HENRY LARSEN
SOUTH SIDE COAST GUARD BASE
ST. JOHN'S, NEWFOUNDLAND

Prepared for:

**Canadian Coast Guard
Newfoundland Region
Department of Fisheries and Oceans
St. John's Newfoundland Canada**

Attention: Fred Jardine

Pinchin LeBlanc Project: 02-2993

July 2002

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EXECUTIVE SUMMARY

In March of 2002, Pinchin Leblanc Environmental Ltd. was retained by the Canadian Coast Guard, to conduct an asbestos-containing materials (ACM) survey of the Canadian Coast Guard Ship, Henry Larsen. The purpose of the survey was to identify and quantify the extent of asbestos-containing building materials that are present within the vessel.

Mr. Jason Lewis of Pinchin LeBlanc Environmental Ltd conducted the survey of the vessel on April 3, 2002.

In order to determine the location of the ACM and develop recommendations for asbestos containing environments, the surveyor entered each room, cabin, compartment and mechanical area, etc. Frequency of access was reduced where rooms were identical in construction and finishes throughout each deck. The surveyor also checked the construction materials at all locations where access was possible without the demolition or removal of finishes. A total of twenty-seven (27) samples were collected and a total of thirty-four (34) samples were analyzed due to the presence of more than one discrete phase (layer) in some samples.

The survey resulted in the following:

- Asbestos containing Weather Shield was observed as a thin overcoat layer sprayed on most Cavco brand sprayed fireproofing throughout the ship.
- Asbestos containing texture finish was observed on the turns of ventilation trunking in the forward Air Bubbler M/C Compartment.
- Non-asbestos Parging cement, calcium block and fibreglass was identified on all accessible pipe and mechanical systems.
- Three (3) distinct vinyl floor tiles were sampled during the survey and found not to contain asbestos by Polarized Microscopy and Dispersion Staining methods.
- Asbestos containing gaskets and gasket materials are present on the ship.
- A condition assessment of sprayed fireproofing and Weather Shield fallout conditions was completed following the asbestos materials assessment. The survey is attached as Appendix III.

1. INTRODUCTION

In March of 2002, Pinchin Leblanc Environmental Ltd. was retained by the Canadian Coast Guard, to conduct an asbestos-containing materials (ACM) survey of the Canadian Coast Guard Ship, Henry Larsen. The purpose of the survey was to identify and quantify the extent of asbestos-containing building materials that are present within the vessel.

2. SURVEY AND ASSESSMENT CRITERIA

2.1 Survey Methodology

The survey included both friable and non-friable asbestos-containing materials as well as suspect asbestos-containing building materials. The term friable is applied to a material that can be readily reduced to dust or powder by hand or moderate pressure. Asbestos materials that are friable have a much greater potential to release airborne asbestos fibres when disturbed. All provincial regulations regarding asbestos materials distinguish between friable and non-friable materials when assigning appropriate work practices. By including some non-friable asbestos materials the survey exceeded the minimum requirements of the regulation.

Mr. Jason Lewis of Pinchin LeBlanc Environmental Ltd conducted the survey of the vessel on April 3, 2002.

In order to determine the location of the ACM and develop recommendations for asbestos containing environments, the surveyor entered each room, cabin, compartment and mechanical area, etc. Frequency of access was reduced where rooms were identical in construction and finishes throughout each deck. The surveyor also checked the construction materials at all locations where access was possible without the demolition or removal of finishes.

Representative views were made above accessible deck head liner systems. The survey did not include the demolition of deck tops, deck finishes, bulkhead or deck head liners (metal) or other demolition to check on concealed conditions. This vessel employ's a fixed metal cladding ceiling finish on all decks, allowing little to no access to the ships ceiling spaces.

2.2 Survey Scope

2.2.1 Friable Materials

The survey searched for the following friable asbestos and non-asbestos building components:

Sprayed Materials including:

- fireproofing
- thermal insulation
- texture finishes (for acoustic or decorative purposes)

(NOTE: Although usually installed by spray application the materials above have also been installed by roller or trowel).

Mechanical Insulation on:

- boilers and breeching,
- ductwork,
- uptakes,
- piping,
- tanks and equipment

2.2.2 Non-Friable Materials

The survey also included identification of non-friable or potentially friable materials found during the survey. It should be noted that some non-friable products may be present that were not identified due to concealed conditions, sporadic replacement of sections of materials and visual similarities to non-asbestos materials. Examples of these products include:

- Sheet flooring (backing)
- Asbestos cement boards or piping
- Tape on joints of ductwork
- Fire blankets
- Other textile insulation blankets
- Vinyl floor tiles

No identification was made of asbestos products used in vessel operations (i.e., gally equipment or manufacturing operations), curricula (i.e. laboratories or trade shops)

2.3 Sampling Strategy

The collection of samples was performed in sufficient frequency to obtain a general pattern of asbestos use within the vessel if any. It is known that inconsistencies within construction or later repair or renovation may result in deviation from the general pattern however without sampling of every bulkhead, foot of pipe, pipe fitting, HVAC unit, ductwork, deck head etc.; it is not possible to individually characterize every asbestos material present. Therefore the surveyor relies on visual identification of similar materials with asbestos content based on representative bulk samples. While our experience is that this methodology is reliable and practical, it should be noted that the possibility remains that visually similar materials may have different asbestos content.

2.4 Analytical Methods

During the survey, materials suspected of containing asbestos were identified visually, based on the surveyor's knowledge of the historic use of asbestos-containing building products. Where these materials had not been previously sampled, visual identifications were supported by collection and analysis of a limited number of bulk samples. For this confirmation a total of twenty-seven (27) samples were collected and analyzed at the Pinchin LeBlanc Environmental Ltd. Dartmouth laboratory. A total of thirty-four (34) samples were analyzed due to the presence of more than one discrete phase (layer) in some samples.

The bulk samples are analyzed using a combination of dispersion staining and polarized light microscopy. Appendix I presents the detailed final analytical results.

Materials which when analysed are reported as containing <1% of asbestos are considered to be non-asbestos under Regulation 111/98 and the exposure criteria as governed by the Occupational Health Assessment Guide, Appendix 2, January 2000.

2.5 Field Data Collection

The quantities shown are approximations, based on visual examination. Quantities were not provided on a consistent or reliable basis. For the quantities shown no measured take-off was performed and these quantities should not be utilized for cost estimating or budgeting purposes. Furthermore, it must also be realized that without removing all ceilings, walls, etc. that not all asbestos materials present in the vessel were visually inspected or noted.

2.6 Limitations of The Sampling Program

A number of possible friable and non-friable materials that may contain asbestos were not included in the survey. These materials may require sampling prior to demolition but are not normally included in a non-destructive survey. These materials may or may not be present on the ship and may or may not contain asbestos. These materials and the reasons for not sampling are listed below:

The following materials are not accessible and/or cannot be sampled without demolition, dismantling or causing irreparable damage.

- brakes on winches and windlasses
- components or wiring within motors, lights, transformers etc.
- high voltage wiring
- mechanical gaskets
- interior insulation on boilers, etc.

During the survey, materials suspected of containing asbestos were identified visually, based on the surveyor's knowledge and the historic use of asbestos-containing products. Visual identifications were supported by collection and analysis of bulk samples. It is known that inconsistencies within construction or later repair or renovation may result in deviation from the general pattern represented by the sampling. However, without sampling every square foot of wall, every linear foot of pipe section, every bulkhead panel etc. it is not possible to definitively characterize every material present. Samples believed representative of mechanical insulations, sprayed insulation, etc. were collected.

In all cases, prior to significant disturbance of materials that may contain asbestos, where such local variations are possible, additional sampling is recommended.

2.7 Survey Limitations

Due to the nature of ship construction, and due to the non-destructive nature of the survey, some limitations exist as to the possible thoroughness of the survey. Some of these limitations (such as vinyl tile or fire doors) are identified above. The field observations, measurements, and analysis are considered sufficient in detail and scope to form a reasonable basis for a general asbestos hazard assessment of this ship. Pinchin LeBlanc Environmental Ltd. warrants that the findings and conclusions contained herein have been promulgated in accordance with generally accepted asbestos hazard evaluation methods, for the ship referenced in this report.

There is a distinct possibility that conditions may exist which could not be reasonably identified within the scope of the assessment or which were not apparent during the site visit. Pinchin LeBlanc Environmental Ltd. believes that the information collected during the survey period concerning the ship is reliable. However, Pinchin LeBlanc Environmental Ltd. cannot warrant or guarantee that the information provided is absolutely complete or accurate beyond the current asbestos consulting industry standards or accurate once the vessel returns to sea and ice conditions. No other warranties are implied or expressed.

3. DISCUSSION OF ASBESTOS-CONTAINING MATERIALS FOUND

Table 1-Summary of Asbestos Containing Materials

IDENTIFICATION OF ASBESTOS CONTAINING MATERIALS COAST GUARD VESSEL HENRY LARSEN St. John's, Newfoundland and Labrador		
Sample Identification	SAMPLE LOCATION/DESCRIPTION	RESULT
Sample 001-A	Spray fireproofing on structural members, main generator room, forward bulkhead	None detected
Sample 002-A	Parging cement on elbow over fibreglass, thermo fluid out, aft stability tank, main generator room, forward	None detected
Sample 003-A	Lagging cloth on system piping, main generator room, starboard forward bulkhead	None detected
Sample 004-A	(A) Spray fireproofing on starboard bulkhead, main generator room (B) Spray overcoat	(A) None Detected (B) 1-5% Chrysotile

IDENTIFICATION OF ASBESTOS CONTAINING MATERIALS COAST GUARD VESSEL HENRY LARSEN St. John's, Newfoundland and Labrador		
Sample Identification	SAMPLE LOCATION/DESCRIPTION	RESULT
Sample 005-A	Parging over fibreglass, main generator room, jackel water inlet to main engine.	None detected
Sample 006-A	Parging cement over cal sil, AGI aux. Generator no. 1, exhaust elbow at tank top	None detected
Sample 007-A	Parging over fibreglass, thermo-fluid inlet pipe no.6 port, IFD tank, aft, main generator room, Upper deck	None detected
Sample 008-A	Starboard main engine uptake, cloth over cal sil, engine casing, main deck	None detected
Sample 009-A	Mica board & block insulation, control room floor	None detected
Sample 010-A	Parging over fibreglass, thermo-fluid line, port side bulkhead, incinerator room	None detected
Sample 011-A	Incinerator exhaust uptake, refractory cement over cal sil, uptake elbow, incinerator room	None detected
Sample 012-A	Rough coat on duct work, air bubbler n/c compartment	1-5% Chrysotile
Sample 013-A	Spray fireproofing, navigation bridge, wheelhouse	None detected
Sample 014-A	1' x 1' vinyl floor tile, tan with brown and white specks	None detected
Sample 015-A	Door gasket material, ICS room, wheelhouse deck	None detected
Sample 016-A	Refractory material around electrical cable near locker 376, officers deck	None detected
Sample 017-A	1' x 1' vinyl floor tile, white with grey specks, hallways, main deck	None detected
Sample 018-A	1' x 1' beige floor tile, canteen, main deck	None detected
Sample 019-A	Spray Fireproofing Main Generator Room, Starboard Side, Forward, Tank Top Level, in way of Main Engine Fuel at Heaters	None Detected
Sample 020-A	Spray Coat on Ship's Hull, Side Shell, Main Generator Room, Starboard Side, Forward, Tank Top Level	1-5% Chrysotile
Sample 021-A	Spray Fireproofing on Port Side, Aft, Main Generator Room Tank Top Level	None Detected
Sample 022-A	Spray Coat on Ships Hull, Port Side, Main Generator Room at Tank Top Level, Port Fuel Manifold	1-5% Chrysotile
Sample 023-A	(A) Spray Fireproofing with (B) Off-white Overcoat, Forward Bulkhead, Main Generator Room	(A) None Detected (B) 1-5% Chrysotile
Sample 024-A	Spray Fireproofing, Main Generator Room, Starboard Side, Aft	None Detected
Sample 025-A	Spray Fireproofing Starboard Side, Aft, Auxiliary Machinery Space, Tank Top Level	<0.1% Chrysotile
Sample 026-A	(A) Spray Fireproofing on Bulkhead (B) with off white overcoat Aft, Steering Gear Room, Starboard Side, Main Deck	(A) None Detected (B) 1-5% Chrysotile
Sample 027-A	(A) Spray Fireproofing with (B) White Adhesive, Navigation Bidge, Wheelhouse, Starboard Side, Center Window	(A) None Detected (B) 1-5% Chrysotile

• The Newfoundland and Labrador Department of Environment recognizes materials

IDENTIFICATION OF ASBESTOS CONTAINING MATERIALS COAST GUARD VESSEL HENRY LARSEN <i>St. John's, Newfoundland and Labrador</i>		
Sample Identification	SAMPLE LOCATION/DESCRIPTION	RESULT
containing greater than 1% asbestos to be asbestos containing materials.		

3.1 Sprayed Fireproofing and Thermal Insulation

Spray fireproofing was observed throughout this vessel as fireproofing or as thermo insulation. The spray, observed on most deck heads and bulkheads throughout the vessel, is a friable non-asbestos material called Cavco, covered by a non-friable asbestos-containing overcoat called Weather Shield. The asbestos containing Weather Shield was observed as a thin overcoat layer sprayed on most Cavco sprayed areas throughout the ship. Asbestos content was confirmed following the analysis of sample S001-A on April 10, 2002 and the analysis of the additional samples S020-A, S022-A, S023-A, S026-A, and S027-A on June 5, 2002. All samples indicated chrysotile asbestos concentrations of 1-5%. At the time of sampling, moderate to minor fallout out conditions were observed in the majority of deck head spaces. Excessive fallout conditions were also identified on the Wheelhouse/Navigation Deck, Upper Deck and Main Deck of the vessel. Please refer to the condition survey attached as Appendices III.

3.2 Texture Finishes

Asbestos containing texture finish was observed on the turns of ventilation trunking in the forward Air Bubbler M/C Compartment. This material was observed as a non-friable product in good condition. Please refer to the analytical results of Samples 012-A-1-5% Chrysotile asbestos.

3.3 Mechanical Insulation

Non-asbestos Parging cement, calcium block and fibreglass was identified in the vessel (S002-A, S005-A, S006-A, S007-A, S010-A and S011-A) on all of the various pipe systems. All of the system piping samples indicates no asbestos detected. The majority of all non-asbestos insulation is present in GOOD condition.

3.4 Vinyl Sheet Flooring

Vinyl sheet flooring was not sampled during this survey.

3.5 Vinyl Floor Tiles

Three (3) distinct vinyl floor tiles were sampled during the survey and found not to contain asbestos by Polarized Microscopy and Dispersion Staining methods.

3.6 Other Materials

Asbestos containing gaskets and gasket material are present on the ship. The use of asbestos gaskets on high temperature equipment is common on most vessels. The replacement of mechanical gaskets is usually occasional in most cases, resulting in the storage of small quantities of asbestos gaskets and gasket sheeting on the ship throughout the life of the vessel.

Sampling of gaskets observed on piping and equipment throughout the vessel was not practical during the time of survey. All gaskets should be considered asbestos until further sampling can determine otherwise.

4. OVERALL RECOMMENDATIONS

The survey has identified asbestos containing Weather Shield over spray fireproofing, asbestos containing texture coat on ductwork and gasket material on board the vessel. The majority of asbestos-containing materials present aboard the ship, if maintained in good condition, do not pose a hazard to general occupants. The main concern for vessel owners today is the health of the vessels crew who in the course of their work may disturb asbestos thereby creating a hazard for themselves as well as for other crew members on board. Maintenance personnel should be advised of the presence and location of asbestos containing materials and be aware of the appropriate procedure when working with or handling asbestos materials for their protection and the protection of others.

In addition to the provincial regulations there are requirements from the provincial departments regarding the disposal of asbestos containing materials. Asbestos waste must be disposed of in appropriate waste containers, and must be disposed of in an approved landfill site, which has been properly notified of the presence of asbestos waste.

All asbestos abatement work is to be conducted by a registered asbestos abatement contractor or in-house personnel whom have received the appropriate training. All work is to comply with the current regulations in place for asbestos abatement. (Newfoundland Asbestos Regulation 98/111)

5. SPECIFIC RECOMMENDATIONS

- .1 Maintain a copy of the asbestos survey report on board to record the location of asbestos-containing materials.
- .2 Advise workers who may disturb the asbestos materials of the presence of the asbestos, including outside contractors.
- .3 Sample suspect materials as discussed or uncovered, should any such materials be accessed or be observed.
- .4 Access to deck head spaces for inspection purposes should be conducted following Type 1 asbestos entry procedures.
- .5 Access to deck head spaces to facilitate a cable pull or pipe repair creating only a minor disturbance in areas where spray is in good condition, use Type 1 asbestos abatement procedures.
- .6 Access into any deck head space where the condition of spray fireproofing fallout is moderate to excessive in large quantities, with any disturbance, use Type 2 abatement procedures.
- .7 The removal of large quantities of fireproofing should be conducted under Type 2 asbestos abatement procedures.
- .8 Removal of perforated aluminium sheathing from sprayed surfaces should be conducted following type 1 asbestos abatement procedures.
- .9 Repairs to non-friable ACM in fair condition, in limited amounts, should be conducted under type-1 abatement procedures. Removal, repair and the construction of asbestos containing gaskets with any tool other than non-powered hand tools is not recommended.

Safe work practices and occupational controls should be implemented on board this vessel when working with asbestos containing fireproofing, gasket material and texture coatings. Plans and specifications should address worker education and training for maintenance personnel and contractors who may be required to work or repair equipment with that potentially contain asbestos.

All asbestos related work should follow industry standards and good practice, applicable federal regulations and guidelines governing asbestos materials, and the Newfoundland and Labrador Asbestos Regulation 111/98.

SIGNATURES

Prepared by:

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Pinchin LeBlanc Environmental Ltd.

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Senior Project Consultant
Pinchin LeBlanc Environmental Ltd.

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APPENDIX I
RESULTS OF BULK SAMPLE ANALYSIS FOR ASBESTOS

**ANALYSIS OF BULK SAMPLES FOR ASBESTOS CONTENT
BY POLARIZED LIGHT MICROSCOPY AND DISPERSION STAINING**

PROJECT NAME: Canadian Coast Guard
CCGS Henry Larsen

PROJECT NO.: 02-2993

LAB REFERENCE NO.: Db2654 - 2002

DATE: April 10, 2002

Eighteen samples were submitted for determination of their asbestos content by Polarized Light Microscopy and Dispersion Staining.

Sample preparation and analytical procedures are in compliance with the Code for the Determination of Asbestos from Bulk Insulation Samples, dated the 23rd of August, 1985 and issued by the Occupational Health and Safety Division of the Ontario Ministry of Labour, and U.S. EPA Method 600/R-93/116 dated July, 1993. Asbestos fibres are identified by a combination of morphology, colour, refractive index, extinction, sign of elongation, birefringence and dispersion staining colours. A visual estimate is made of the volume percentage of asbestos present. The lower limit of reliable quantitation is estimated to be 0.1%. A reported concentration of <0.1% indicates the presence of confirmed asbestos in trace quantities limited to only a few fibres or fibre bundles in an entire sample. Multiple phases within a sample are analyzed separately. A total of twenty-two analyses were performed.

All bulk samples submitted to this laboratory for asbestos analysis are retained for a minimum of three months. Samples may be retrieved, upon request, for re-examination at any time during that period.

This test relates only to the items tested. The results are presented in the attached table.

**PINCHIN LEBLANC
ENVIRONMENTAL LTD.**

BULK SAMPLE ANALYSIS

PADDLER'S COVE
300 PRINCE ALBERT ROAD
SUITE 120
DARTMOUTH, N.S.
B2Y 4J2

PROJECT NAME: Canadian Coast Guard
CCGS Henry Larsen
02-2993
PREPARED FOR: Jason Lewis
Pinchin LeBlanc Env.

LAB REFERENCE No: Db2654 - 2002
DATE: April 10, 2002
PAGE: 1 of 5

SAMPLE IDENTIFICATION	SAMPLE DESCRIPTION	% COMPOSITION (VISUAL ESTIMATE)		COMMENTS
		ASBESTOS	OTHER	
001-A Spray fireproofing on structural members, main generator room, forward bulkhead	Homogenous, grey, fibrous material	None detected	Cellulose Mineral wool Non-fibrous material 1-5% >75% 5-10%	
002-A Parging cement on elbow over fibreglass, thermo fluid out, aft stability tank, main generator room, forward	Homogenous, beige, soft, cementitious material	None detected	Cellulose Mineral wool Non-fibrous material 10-25% 10-25% 50-75%	Fibreglass reinforcement is present on the surface of the sample.
003-A Lagging cloth on system piping, main generator room, starboard forward bulkhead	Homogenous, white, layered paper	None detected	Cellulose Non-fibrous material >75% 5-10%	Fibreglass reinforcement is present on the surface of the sample.
004-A Spray fireproofing on starboard bulkhead, main generator room	2 phases: a) Homogenous, orange, fibrous material b) Homogenous, yellow, mastic material	None detected	Mineral wool Non-fibrous material Non-fibrous material >75% 10-25% >75%	

ANALYST:



**PINCHIN LEBLANC
ENVIRONMENTAL LTD.**

BULK SAMPLE ANALYSIS

PADDLER'S COVE
300 PRINCE ALBERT ROAD
SUITE 120
DARTMOUTH, N.S.
B2Y 4J2

PROJECT NAME: Canadian Coast Guard

CCGS Henry Larsen

02-2993

PREPARED FOR: Jason Lewis

Pinchin LeBlanc Env.

LAB REFERENCE No: Db2654 - 2002

DATE: April 10, 2002

PAGE: 2 of 5

SAMPLE IDENTIFICATION	SAMPLE DESCRIPTION	% COMPOSITION (VISUAL ESTIMATE)		COMMENTS
		ASBESTOS	OTHER	
005-A Parging over fibreglass, main generator room, jackel water inlet to main engine	Homogenous, tan, soft, cementitious material	None detected	Cellulose 10-25% Mineral wool 10-25% Non-fibrous material 50-75%	
006-A Parging cement over cal sil, AGI aux. generator no.1, exhaust elbow at tank top	2 phases: a) Homogenous, tan, soft, cementitious material b) Homogenous, white, consolidated, chalky material with fibres	None detected None detected	Cellulose 5-10% Mineral wool 10-25% Non-fibrous material >75% Synthetic fibres 5-10% Non-fibrous material >75%	Fibreglass reinforcement is present on the surface of the sample.
007-A Parging over fibreglass, thermo fluid inlet pipe no.6 port, F/D tank, aft, main generator room, upper deck	Homogenous, brown, soft, cementitious material	None detected	Cellulose 10-25% Mineral wool 5-10% Non-fibrous material 50-75%	
008-A Starboard main engine uptake, cloth over cal sil, engine casing, main deck	Homogenous, white, woven, fibrous material	None detected	Fibreglass >75% Non-fibrous material 5-10%	
009-A Mica board & block insulation, control room floor	Homogenous, brown, soft, cementitious material	None detected	Antigorite 5-10% Cellulose 5-10% Fibreglass 1-5% Non-fibrous material >75%	

ANALYST:



PINCHIN LEBLANC ENVIRONMENTAL LTD.

BULK SAMPLE ANALYSIS

PADDLERS COVE
300 PRINCE ALBERT ROAD
SUITE 120
DARTMOUTH, N.S.
B2Y 4J2

PROJECT NAME: Canadian Coast Guard
CCGS Henry Larsen
02-2993
PREPARED FOR: Jason Lewis
Pinchin LeBlanc Env.

LAB REFERENCE No: Db2654 - 2002
DATE: April 10, 2002
PAGE: 3 of 5

SAMPLE IDENTIFICATION	SAMPLE DESCRIPTION	% COMPOSITION (VISUAL ESTIMATE)			COMMENTS
		ASBESTOS	OTHER		
010-A Parging over fibreglass, thermo fluid line, /port side bulkhead, incinerator room	Homogenous, tan, soft, cementitious material	None detected	Cellulose Mineral wool Non-fibrous material	10-25% 10-25% 50-75%	
011-A Incinerator exhaust uptake, refractory cement over cal sil, uptake elbow, incinerator room	Homogenous, grey, hard, cementitious material	None detected	Mineral wool Non-fibrous material	5-10% >75%	
012-A Rough coat on duct work, air bubbler m/c compartment	Homogenous, white, mastic material	Chrysotile	Non-fibrous material	1-5% >75%	
013-A Spray fireproofing, navigation bridge, wheelhouse	Homogenous, tan, fibrous material	None detected	Mineral wool Non-fibrous material	>75% 5-10%	
014-A 1'x1' vinyl floor tile, tan with brown and white specks	Homogenous, tan, consolidated material	None detected	Non-fibrous material	>75%	Vinyl floor tiles may contain very fine asbestos fibres which are not visible using the PLM method. For confirmation of the absence of asbestos, analysis by Transmission Electron Microscopy (TEM) is recommended.

ANALYST:

[Signature]

PINCHIN LEBLANC ENVIRONMENTAL LTD.

BULK SAMPLE ANALYSIS

PADDLERS COVE
300 PRINCE ALBERT ROAD
SUITE 120
DARTMOUTH, N.S.
B2Y 4J2

PROJECT NAME: Canadian Coast Guard
CCGS Henry Larsen
02-2993
PREPARED FOR: Jason Lewis
Pinchin LeBlanc Env.

LAB REFERENCE No: Db2654 - 2002
DATE: April 10, 2002
PAGE: 4 of 5

SAMPLE IDENTIFICATION	SAMPLE DESCRIPTION	% COMPOSITION (VISUAL ESTIMATE)		COMMENTS
		ASBESTOS	OTHER	
015-A Door gasket material, ICS room, wheelhouse deck	Homogenous, white, woven, fibrous material	None detected	Fibreglass Non-fibrous material 1-5%	>75%
016-A Refractory material around electrical cable near locker 376, officers deck	Homogenous, brown, soft, cementitious material	None detected	Mineral wool Non-fibrous material 50-75%	
017-A 1'x1' vinyl floor tile, white with grey specks, hallways, main deck	2 phases:			
	a) Homogenous, white, consolidated material	None detected	Non-fibrous material	>75%
	b) Homogenous, black tar	None detected	Tar and other non- fibrous material	>75%

ANALYST:



**PINCHIN LEBLANC
ENVIRONMENTAL LTD.**

BULK SAMPLE ANALYSIS

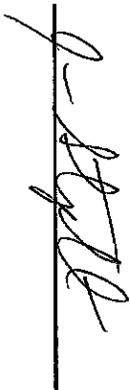
PADDLER'S COVE
300 PRINCE ALBERT ROAD
SUITE 120
DARTMOUTH, N.S.
B2Y 4J2

PROJECT NAME: Canadian Coast Guard
CCGS Henry Larsen
02-2993
PREPARED FOR: Jason Lewis
Pinchin LeBlanc Env.

LAB REFERENCE No: Db2654 - 2002
DATE: April 10, 2002
PAGE: 5 of 5

SAMPLE IDENTIFICATION	SAMPLE DESCRIPTION	% COMPOSITION (VISUAL ESTIMATE)		COMMENTS
		ASBESTOS	OTHER	
018-A 1'x1' beige floor tile, canteen, main deck	2 phases: a) Homogenous, beige, consolidated material b) Homogenous, black tar	None detected None detected	Non-fibrous material Tar and other non- fibrous material	Vinyl floor tiles may contain very fine asbestos fibres which are not visible using the PLM method. For confirmation of the absence of asbestos, analysis by Transmission Electron Microscopy (TEM) is recommended.

ANALYST:



**ANALYSIS OF BULK SAMPLES FOR ASBESTOS CONTENT
BY POLARIZED LIGHT MICROSCOPY AND DISPERSION STAINING**

PROJECT NAME: Pinchin LeBlanc Environmental Ltd.
Canadian Coast Guard
Asbestos Inventory Survey
St. John's, Newfoundland

PROJECT NO.: 02-2893

LAB REFERENCE NO.: b21991 - 2002

DATE: June 5, 2002

Nine bulk samples were submitted for determination of their asbestos content by Polarized Light Microscopy and Dispersion Staining.

Sample preparation and analytical procedures are in compliance with the Code for the Determination of Asbestos from Bulk Insulation Samples, dated the 23rd of August, 1985 and issued by the Occupational Health and Safety Division of the Ontario Ministry of Labour, and U.S. EPA Method 600/R-83/116 dated July, 1993. Asbestos fibres are identified by a combination of morphology, colour, refractive index, extinction, sign of elongation, birefringence and dispersion staining colours. A visual estimate is made of the volume percentage of asbestos present. The lower limit of reliable quantitation is estimated to be 0.1%. A reported concentration of <0.1% indicates the presence of confirmed asbestos in a trace quantity limited to only a few fibres or fibre bundles in an entire sample. Multiple phases within a sample are analyzed separately. A total of twelve analyses were performed.

All bulk samples submitted to this laboratory for asbestos analysis are retained for a minimum of one year. Samples may be retrieved, upon request, for re-examination at any time during that period.

Pinchin Environmental Ltd. is accredited by the National Institute of Standards and Technology, National Voluntary Laboratory Accreditation Program (NVLAP) for selected test methods for the identification of asbestos in bulk samples.

This test report relates only to the items tested.

The results are presented in the attached table.

/ks

NOTE: *This test report may not be reproduced, except in full, without the written approval of the laboratory. The client may not use this report to claim product endorsement by NVLAP or any agency of the U.S. Government. This report is valid only when signed in blue ink by the analyst.*

PINCHIN ENVIRONMENTAL

5749 Coopers Avenue
Mississauga, Ontario
L4Z 1R9

BULK SAMPLE ANALYSIS

PROJECT NAME: Pinchin LeBlanc Environmental Ltd.
Canadian Coast Guard
Asbestos Inventory Survey
St. John's Newfoundland
02-2993
Jason Lewis
Pinchin LeBlanc Environmental Ltd.

LAB REFERENCE No: b21991 - 2002

DATE: June 5, 2002

PAGE: 1 of 3

PROJECT NO.:
PREPARED FOR:

SAMPLE IDENTIFICATION	SAMPLE DESCRIPTION	% COMPOSITION (VISUAL ESTIMATE)		COMMENTS
		ASBESTOS	OTHER	
019 Sprayed Fireproofing, Main Generator Room, Starboard Side, Forward, Tank Top Level, in Way of Main Engine Fuel at Heaters	Homogeneous, off-white, soft, cementitious material.	None detected	Mineral Wool 25-50% Non-fibrous material 50-75%	
020 Spray Coat on Ship's Hull, Side Shell, Main Generator Room, Starboard Side, Forward, Tank Top Level	Homogeneous, beige, soft, cementitious, sticky, material.	Chrysotile 1-5%	Mineral Wool 5-10% Non-fibrous material >75%	
021 Spray Fireproofing on Port Side, Aft, Main Generator Room, Tank Top Level	Homogeneous, beige, soft, cementitious material.	None detected	Mineral Wool 25-50% Non-fibrous material 50-75%	
022 Spray Coat on Ship's Hull, Port Side, Main Generator Room at Tank Top Level, Port Fuel Manifold	Homogeneous, beige, soft, cementitious, sticky, material.	Chrysotile 1-5%	Mineral Wool 5-10% Non-fibrous material >75%	

ANALYST: *Karin Mayes*

PINCHIN ENVIRONMENTAL

5749 Coopers Avenue
Mississauga, Ontario
L4Z 1R9

BULK SAMPLE ANALYSIS

PROJECT NAME: Pinchin LeBlanc Environmental Ltd.
Canadian Coast Guard
Asbestos Inventory Survey
St. John's Newfoundland

PROJECT NO.: 02-2993

PREPARED FOR: Jason Lewis
Pinchin LeBlanc Environmental Ltd.

LAB REFERENCE No: b21991 - 2002

DATE: June 5, 2002

PAGE: 2 of 3

SAMPLE IDENTIFICATION	SAMPLE DESCRIPTION	% COMPOSITION (VISUAL ESTIMATE)		COMMENTS
		ASBESTOS	OTHER	
023 Spray Fireproofing with Off-white Overcoat, Forward Bulkhead, Main Generator Room	2 Phases: a) Homogeneous, beige, fibrous material. b) Homogeneous, off-white, soft, cementitious, sticky material.	None detected	Mineral Wool Non-fibrous material 50-75% 25-50%	Phase b) is the Overcoat material on the surface of the sample.
024 Spray Fireproofing, Main Generator Room, Starboard Side, Aft	Homogeneous, beige, fibrous material.	Chrysotile	Mineral Wool Non-fibrous material 1-5% >75%	
025 Spray Fireproofing, Starboard Side, Aft, Auxiliary Machinery Space, Tank Top Level	Homogeneous, off-white, soft, cementitious material.	None detected	Mineral Wool Non-fibrous material 25-50% 50-75%	
026 Spray Fireproofing on Bulkhead, Aft, Steering Gear Room, Starboard Side, Main Deck	2 Phases: a) Homogeneous, beige, fibrous material. b) Homogeneous, off-white, soft, cementitious, sticky material.	None detected	Mineral Wool Non-fibrous material 50-75% 25-50% 5-10% >75%	Phase b) is the Overcoat material on the surface of the sample.

ANALYST: *Karen Allways*

PINCHIN ENVIRONMENTAL

5749 Coopers Avenue
Mississauga, Ontario
L4Z 1R9

BULK SAMPLE ANALYSIS

PROJECT NAME: Pinchin LeBlanc Environmental Ltd.
Canadian Coast Guard
Asbestos Inventory Survey
St. John's Newfoundland
02-2993
Jason Lewis
Pinchin LeBlanc Environmental Ltd.

LAB REFERENCE No: b21991 - 2002

DATE: June 5, 2002

PAGE: 3 of 3

SAMPLE IDENTIFICATION	SAMPLE DESCRIPTION	% COMPOSITION (VISUAL ESTIMATE)		COMMENTS
		ASBESTOS	OTHER	
027 Spray Fireproofing with White Adhesive, Navigation Bridge, Wheelhouse, Starboard Side, Centre Window	2 Phases: a) Homogeneous, beige, fibrous material. b) Homogeneous, off-white, soft, cementitious, sticky material.	None detected Chrysotile	Mineral Wool Non-fibrous material Mineral Wool Non-fibrous material	Phase b) is the Overcoat material on the surface of the sample.

ANALYST: *Karen Adams*

APPENDIX II
SURVEY FIELD NOTES

CCGV LARSEN – Field Assessment Sheet (APRIL 2002)
Project 02- 2993

Location Description: Main Generator Room Room Number: _____

_____ Survey Report Location No: 001

Item/Material	Quantity/Condition	Sample
Spray fireproofing on structural stringers and gurters	Approx 700SF	S001-A
Thermal fluid stability aft tank	7 Elbows / Good Straights / Good	
Inlet aft heel stability tank forward bulkhead		
Thermo fluid inlet pipe to suubge tank	Elbows have parging over fiberglass straight run are fiberglass	S002-A
Small 2" lines off of thermo fluid lines	Parging over fiberglass Fiberglass Straights	V 002-A
Thermo fluid lines – starboard forward bulkhead 2ea	Parging over fiberglass elbows – (33) – Fiberglass Straights	V 002-A
Thermo fluid lines starboard over heeling controls area	7 Elbows parging over fiberglass Fiberglass Straights	V 002-A
Lagging cloth on system piping – all piping		S003-A
Thermo fluid lines port side 2" –4" parging over fiberglass	12 Elbows Fiberglass Straights	V 002-A
Spray fireproofing on starboard bulkhead	1500sf	S 004-A
Thermo fluid lines bear #6 port heeling tank. Supply and return	10 elbows Fiberglass Straights	V 002-A
Thermo fluid lines port side supply and return aft port heater to port forward heater	22 Elbows	V002-A
Jacket water inlet to main engine	2 Elbows each on 3 engines	S005-A
Aft of #2 engine – fresh water inlet	2 Elbows	V 002-A
Thermo fluid inlet line aft of engine #3	4 Elbows Fiberglass Straights	V 002-A
Thermo fluid lines to heater aft starboard	6 Elbows Fiberglass Straights	V 002-A
Thermo fluid lines starboard from aft bulkhead to forward bulk head	17 Elbows	V002-A

CCGV LARSEN – Field Assessment Sheet (APRIL 2002)
Project 02- 2993

Location Description: Auxiliary Machinery Space Room Number: _____

_____ Survey Report Location No: 002

Item/Material	Quantity/Condition	Sample
Thermo fluid lines port side forward corner near heater.	Parging cement over fiberglass	Replaced after fire 1999
Small thermo fluid lines port side forward corner by heater	12 Elbows	
All piping in this area has been replaced following fire in 1999		
Port side aft corner thermo fluid lines	18 Elbows Fiberglass Straights	V002-A
Port side aft corner thermo lines to heater and through bulkhead	11 Elbows. Fiberglass Straights	V002-A
Thermo fluid inlet /outlet no. 4 F.O. tank starboard port side	85 Elbows. Fiberglass Straights	V002-A
Thermo fluid outlet sea box 5 starboard	18 Elbows / 2 Poor Fiberglass Straights	V002-A
Thermo fluid supply starboard forward corner	10 Elbows	V002-A
Port sea water distillation seawater suction	4 Elbows	V002-A
All straight runs in this space where accessible are fiberglass as per S 002 and cloth wrap V003-A.		
AGI auxiliary generator no. 1 exhaust parging cement over cal. Sil.	15LF / Good	S006-A

CCGV LARSEN – Field Assessment Sheet (APRIL 2002)
Project 02- 2993

Location Description: Engine Casing Main Deck Room Number: _____

_____ Survey Report Location No: 004

Item/Material	Quantity/Condition	Sample
Port main engine uptake	Cloth over Cal. Sil.	S008-A
Starboard main engine uptake	Cloth over Cal Sil	S008-A
Center main engine uptake	Cloth over Cal Sil	S008-A
Ductwork uninsulated- supply ducts for turbo chargers		
Thermo fluid lines lead aft	20 Elbows / Good	V007-A

CCGV LARSEN – Field Assessment Sheet (APRIL 2002)
Project 02- 2993

Location Description: Engine Casing Boat Deck Room Number: _____

_____ Survey Report Location No: 005

Item/Material	Quantity/Condition	Sample
Auxiliary generator exhaust No. 1 and silencer parging over Cal. Sil.	8 x 20'	V002-A
Thermo unit uptake No. 2 cloth over Cal Sil		V008-A
Incinerator uptake cloth over Cal Sil		V008-A
Thermo unit #1 cloth over Cal Sil		V008-A

CCGV LARSEN – Field Assessment Sheet (APRIL 2002)
 Project 02- 2993

Location Description: Engine Casing Room Number: _____
Officers Deck
 _____ Survey Report Location No: 006

Item/Material	Quantity/Condition	Sample
Engine uptakes #1,#2, #3	Cloth over Cal. Sil	V008-A
Thermo unit No.2	Cloth over Cal. Sil	V008-A
Thermo unit No.1	Cloth over Cal. Sil	V008-A
Auxiliary generator uptake	Cloth over Cal. Sil	V008-A
Incinerator uptake	Cloth over Cal. Sil	V008-A
Casing lining uninsulated		

CCGV LARSEN – Field Assessment Sheet (APRIL 2002)
Project 02- 2993

Location Description: AG #2 Emergency Generator Room Number: _____
Room Bridger Deck _____ Survey Report Location No: 007

Item/Material	Quantity/Condition	Sample
Thermo fluid header tank	Pipe Elbows	V007-A
Thermo fluid header pipe @ bottom tank	3 Elbows	V002-A
Thermo fluid forward AG #2 Cal. Sil covered w/ cloth		
Emergency generator exhaust	Fiberglass and cloth	
Bulk heads and duct leads	Fiberglass	
Emergency generator exhaust forward	AG#2 Cal Sil	V010-A

CCGV LARSEN – Field Assessment Sheet (APRIL 2002)
 Project 02- 2993

Location Description: Main Control Room Room Number: _____

_____ Survey Report Location No: 008

Item/Material	Quantity/Condition	Sample
Starboard side control room floor – mica board and block insulation	Full control room	S009-A
Spray fireproofing on bulkheads	33 x 10 x 2' 60 x 10'	V004-A
Metal panels on deck heads – access through escape hatch. Mineral wool in panels, no spray on deck heads		

CCGV LARSEN – Field Assessment Sheet (APRIL 2002)
 Project 02- 2993

Location Description: Electrical Shop Room Number: _____
 _____ Survey Report Location No: 010

Item/Material	Quantity/Condition	Sample
Pipe existing is uninsulated		
Spray fireproofing	12 x 10': 8 x 12': 8 x 12' 12 x 14': 6 x 12'	V004-A
Deckhead uninsulated		

CCGV LARSEN – Field Assessment Sheet (APRIL 2002)
Project 02- 2993

Location Description: Engineers Workshop Room Number: _____

_____ Survey Report Location No: 011

Item/Material	Quantity/Condition	Sample
Ductwork and piping uninsulated		
Spray fireproofing	12x10': 20x10': 18x10'	V004-A

CCGV LARSEN – Field Assessment Sheet (APRIL 2002)
Project 02- 2993

Location Description: Steering Gear Compartment Room Number: _____

_____ Survey Report Location No: 012

Item/Material	Quantity/Condition	Sample
2 rolls of asbestos gasket material		Visually identified
Ductwork uninsulated		
Spray fireproofing on bulkheads starboard of port	30 x 10' 30 x 10'	V004-A
Spray fireproofing on forward stringer	5 x 30'	V004-A
Thermal fluid lines from forward bulkhead to engine spares room	2 Elbows	V002-A
Various gaskets, may contain asbestos		

CCGV LARSEN – Field Assessment Sheet (APRIL 2002)
 Project 02- 2993

Location Description: Incinerator Room Room Number: _____

_____ Survey Report Location No: 014

Item/Material	Quantity/Condition	Sample
Thermo fluid lines to port side space heater	10 Elbows	S010-A
Incinerator exhaust uptake	Refractory cement over Cal Sil – 40LF	S011-A
Refractory material inside incinerator		
Ductwork uninsulated		
Bulkheads and deckheads uninsulated		

CCGV LARSEN – Field Assessment Sheet (APRIL 2002)
Project 02- 2993

Location Description: Air Bubbler M/C Room Number: _____
Compartment
 _____ Survey Report Location No: 016

Item/Material	Quantity/Condition	Sample
Rough coat on ductwork port side	25SF / Good	S 012-A
Spray fireproofing on bulkheads and deck heads	16 x 12': 16x 12': 16x12': 16x 12': 10x 50	V004-A V001-A
Starboard bubbler air supply "in"	12lf. 6' diameter fiberglass	
Port bubbler air supply "in"	12 lf. 6' diameter Fiberglass	

CCGV LARSEN – Field Assessment Sheet (APRIL 2002)
Project 02- 2993

Location Description: Lower Bubbler Room Number: _____
Compartment, Main Deck
Level
 _____ Survey Report Location No: 017

Item/Material	Quantity/Condition	Sample
Spray fireproofing on bulkhead and forward stringer.	10 x 45'	V001-A V004-A
Starboard bubbler supply	Fiberglass	
Port bubbler supply	Fiberglass	
Lower bubbler compartment tank top level. No insulation used on systems		
-On port and starboard-		
Thermo fluid lines port void spaces	No access to lines	

CCGV LARSEN – Field Assessment Sheet (APRIL 2002)
Project 02- 2993

Location Description: Fan Room #5 Room Number: _____
Main Deck _____
 _____ Survey Report Location No: 018

Item/Material	Quantity/Condition	Sample
Thermo fluid lines to air handling unit	30 Elbows / Good	V007-A
Steam to humidifier	7 Elbows	V010-A
Expansion joints on unit	Sample not practical	
Ductwork fiberglass		
Deck heads and bulkheads uninsulated		

CCGV LARSEN – Field Assessment Sheet (APRIL 2002)
Project 02- 2993

Location Description: CO₂ Room Room Number: _____
Main Deck
 _____ Survey Report Location No: 019

Item/Material	Quantity/Condition	Sample
Spray fireproofing on deck heads and bulkheads	15 x 10 x 2' 4 x 15'	
Ductwork uninsulated		

CCGV LARSEN – Field Assessment Sheet (APRIL 2002)
Project 02- 2993

Location Description: Heli – Room Room Number: _____
Main Deck _____ Survey Report Location No: 020

Item/Material	Quantity/Condition	Sample
No insulated or suspect material present		

CCGV LARSEN – Field Assessment Sheet (APRIL 2002)
Project 02- 2993

Location Description: #3 Fan Room _____ Room Number: _____
 Main Deck _____
 _____ Survey Report Location No: 021

Item/Material	Quantity/Condition	Sample
Ductwork	Fiberglass	
Thermo fluid lines to air unit	50 Elbows	V007-A
Steam return from between units	7 Elbows	V010-A
Expansion joint gasket	Sample not practical	
Spray fireproofing	15 x 30'	V001-A / V004-A
Valve jackets throughout		

CCGV LARSEN – Field Assessment Sheet (APRIL 2002)
Project 02- 2993

Location Description: Salvage / Dining Locker Room Number: _____

_____ Survey Report Location No: 022

Item/Material	Quantity/Condition	Sample
Ductwork not insulated		
Spray fireproofing on deck head	12 x 20'	V001-A / V004-A

CCGV LARSEN – Field Assessment Sheet (APRIL 2002)
Project 02- 2993

Location Description: Fore Peak Compartment Room Number: _____

_____ Survey Report Location No: 023

Item/Material	Quantity/Condition	Sample
Ductwork uninsulated		
Spray fireproofing on deck heads and bulkhead		V001-A V004-A
Water wash lines to hanse pipes	17 Elbows / 1 Poor	V010-A

CCGV LARSEN – Field Assessment Sheet (APRIL 2002)
Project 02- 2993

Location Description: Paint Locker Room Number: _____
Forepeak _____
 _____ Survey Report Location No: 024

Item/Material	Quantity/Condition	Sample
Ductwork uninsulated		
Spray fireproofing bulkhead	150 SF	V004-A
Spray fireproofing deck head	150 SF	V001-A

CCGV LARSEN – Field Assessment Sheet (APRIL 2002)
Project 02- 2993

Location Description: Navigation Bridge Room Number: _____
Wheelhouse
 _____ Survey Report Location No: 025

Item/Material	Quantity/Condition	Sample
Spray fireproofing on wheelhouse deck head, little to no access		S013-A
Metal panels on deck head and bulk heads, little to no access		

CCGV LARSEN – Field Assessment Sheet (APRIL 2002)
Project 02- 2993

Location Description: Lobby / Landing Room Number: _____
Wheelhouse Deck _____
 _____ Survey Report Location No: 027

Item/Material	Quantity/Condition	Sample
1 x 1' floor tile, tan w/ brown and white specks	6 x 12'	S014-A
Metal panels on deck head to access		
Spray fire proofing above panels	6 x 12'	S013-A

CCGV LARSEN – Field Assessment Sheet (APRIL 2002)
Project 02- 2993

Location Description: Radio Room Room Number: _____

_____ Survey Report Location No: 029

Item/Material	Quantity/Condition	Sample
1x 1' vinyl floor tile, tan w/ brown and white specks	14 x 12'	S014-A
Metal panels – no access		

CCGV LARSEN – Field Assessment Sheet (APRIL 2002)
Project 02- 2993

Location Description: Special Navigation Chart Room Number: _____
Room Wheelhouse Deck
 _____ Survey Report Location No: 030

Item/Material	Quantity/Condition	Sample
1 x1' vinyl floor tile tan w/ brown and white specks	19 x 24'	S014-A
Metal panels no access		
Emergency coupler - spray	200 SF	S013-A

CCGV LARSEN – Field Assessment Sheet (APRIL 2002)
Project 02- 2993

Location Description: I.C.S. Room Room Number: _____
Wheelhouse Deck Survey Report Location No: 031

Item/Material	Quantity/Condition	Sample
1 x 1' vinyl floor tile tan w/ brown and white specks	7 x 13'	V014-A
Ductwork - fiberglass		
Door gaskets	Total on deck- 6 Each	S015-A
Spray coat (rough) around window		V012-A
Main coupler room – spray fireproofing	200SF	V013-A

CCGV LARSEN – Field Assessment Sheet (APRIL 2002)
Project 02- 2993

Location Description: Hallway Room Number: _____
Officers Deck _____
 _____ Survey Report Location No: 036

Item/Material	Quantity/Condition	Sample
1x1 vinyl floor tile, tan w/ brown and white specks	20 x 4' 22 x 4' 20 x 4' 4 x 12'	V014-A
Metal panels on deck head / no access		
1 door gasket	1 Ea	V015-A

CCGV LARSEN – Field Assessment Sheet (APRIL 2002)
 Project 02- 2993

Location Description: Boat Deck Room Number: _____
 Room 347 _____
 _____ Survey Report Location No: 038

Item/Material	Quantity/Condition	Sample
Metal paneling on deck head – no access		
Carpet and ceramic on floors		
Following rooms same as 347		
341, 343, 352, and 350		

CCGV LARSEN – Field Assessment Sheet (APRIL 2002)
 Project 02- 2993

Location Description: Hallway Room Number: _____
Boat Deck _____
 Survey Report Location No: 039

Item/Material	Quantity/Condition	Sample
1x 1, vinyl floor tile tan w/ brown and white specks	23 x 3.5' 20 x 3.5' 24 x 3.5' 23 x 3.5'	
Metal panels on deck head – no access		
SAR locker in hallway – no suspect material noted		

CCGV LARSEN – Field Assessment Sheet (APRIL 2002)
 Project 02- 2993

Location Description: Senior Engineers Room Number: 274
Upper Deck
 Survey Report Location No: 0

Item/Material	Quantity/Condition	Sample
Carpet on deck		
Metal panels on deck head – no access		
Ceramic floor in washroom		
Following rooms same as 274		
293, 291, 266, 264, 262, 260, 277, 281, 283, 285, 287		

CCGV LARSEN – Field Assessment Sheet (APRIL 2002)
 Project 02- 2993

Location Description: Smoke Room Room Number: 270
Upper Deck Survey Report Location No: 041

Item/Material	Quantity/Condition	Sample
1x 1' new vinyl tile		
Metal paneling on deck head – no access		
Wood covering halfway up the wall		
Newly renovated to accommodate smokers		

CCGV LARSEN – Field Assessment Sheet (APRIL 2002)
Project 02- 2993

Location Description: Fire Team Room Number: 289
Muster Station Upper Deck
Survey Report Location No: 042

Item/Material	Quantity/Condition	Sample
Metal paneling on deck head – no access		
No concerns noted		

CCGV LARSEN – Field Assessment Sheet (APRIL 2002)
 Project 02- 2993

Location Description: Engineers Office Room Number: 249-A
Upper Deck
 Survey Report Location No: 044

Item/Material	Quantity/Condition	Sample
1x 1' vinyl floor tile tan w/ brown and white streaks	5 x 10'	V014-A
Metal paneling on deck head – no access		

CCGV LARSEN – Field Assessment Sheet (APRIL 2002)
Project 02- 2993

Location Description: W.T. Door Control Room Room Number: _____
Upper Deck _____ Survey Report Location No: 045

Item/Material	Quantity/Condition	Sample
Water line – fiberglass		
Bulkhead and deck head uninsulated		
Door gasket	1 Each	V012-A

CCGV LARSEN – Field Assessment Sheet (APRIL 2002)
Project 02- 2993

Location Description: Ships Office Room Number: 242-A
Upper Deck
Survey Report Location No: 046

Item/Material	Quantity/Condition	Sample
Vinyl sheet flooring / battleship	New	No sample
Metal panels on deck head – no access		

CCGV LARSEN – Field Assessment Sheet (APRIL 2002)
 Project 02- 2993

Location Description: Main Deck Room Number: _____

_____ Survey Report Location No: 050

Item/Material	Quantity/Condition	Sample
Thermo fluid lines along port bulk head	Straights Fiberglass 2 Elbows	V010-A
Water lines aft of room	7 Elbows	V010-A
Spray fireproofing on deck head	16 x 40	V013-A
Thermo fluid lines starboard side	6 Elbows	V010-A

CCGV LARSEN – Field Assessment Sheet (APRIL 2002)
 Project 02- 2993

Location Description: Engineering Crew Room Number: 152-A
Change Room
 Survey Report Location No: 051

Item/Material	Quantity/Condition	Sample
Ceramic floor		
Metal panels on deck head – no access		
Foam insulation on pipes		
Water to washer	Fiberglass	
Water to toilets	Fiberglass	
1 x1 vinyl floor tile tan w/ brown and white	4 x 10	V014-A

CCGV LARSEN – Field Assessment Sheet (APRIL 2002)
 Project 02- 2993

Location Description: 2 – Deck Room Number: 166
Main Deck
 Survey Report Location No: 052

Item/Material	Quantity/Condition	Sample
Carpet on floor		
Metal panels on deck head – n o access		
Following rooms same as room 166		
165, 164, 163, 160, 190, 130, 131, 132, 161, 193, 133, 158, 159, 162, 191		

CCGV LARSEN – Field Assessment Sheet (APRIL 2002)
Project 02- 2993

Location Description: Crews Mess Room Number: _____
Main Deck _____
 _____ Survey Report Location No: 054

Item/Material	Quantity/Condition	Sample
Pipe "CIRC" above ceiling hot water return	Straight Fiberglass Elbows 4 each	V010-A
Hot water supply isolating	Straights Fiberglass 4 Elbows	V010-A
Cold water supply isolating	Straights Fiberglass 4 Elbows	V010-A
Cold water return isolation	Straights Fiberglass 4 Elbows	V010-A
Fiberglass insulation above panels in deckhead		
Spray fireproofing on deckhead	Undetermined - poor access	V013-A
Firewater main	6 Elbows	No access

CCGV LARSEN – Field Assessment Sheet (APRIL 2002)
 Project 02- 2993

Location Description: Hallway Room Number: _____
Main Deck _____
 Survey Report Location No: 056

Item/Material	Quantity/Condition	Sample
1 x1 vinyl floor tile tan w/ brown and white specks	29x5: 47x3.5: 46x3.5 24x6: 47x3.5	V014-A
1 x 1 vinyl floor tile white w/ grey specks	96 x 3.5' 96 x 3.5' 21 x 3.5'	S017-A
Spray fireproofing seen through hatch firemain isolating upper deck forward		V013-A
Door gaskets	10 Each	V015-A
Spray fireproofing		

CCGV LARSEN – Field Assessment Sheet (APRIL 2002)
Project 02- 2993

Location Description: AC Chiller Unit Room Number: _____
Boat Deck _____
 Survey Report Location No: 068

Item/Material	Quantity/Condition	Sample
Chilled water to units – some elbows are fiberglass	26 Elbows Straights Fiberglass	V010-A
Spray fireproofing deckhead		V013-A
Aft bulkhead spray fireproofing		V013-A
Port and starboard bulk head spray fireproofing		V013-A

CCGV LARSEN – Field Assessment Sheet (APRIL 2002)
Project 02- 2993

Location Description: Double Fan Room Room Number: _____
Boat Deck Survey Report Location No: 069

Item/Material	Quantity/Condition	Sample
Air discharge on #4	Fiberglass	
Air discharge on #2	Fiberglass	
Chilled water lines to #2	40 Elbows Straights Fiberglass	V010-A
Chilled water lines to #4	40 Elbows Straights Fiberglass	V010-A
Humidifier line	8 Elbows Straights Fiberglass	V010-A
Hot and cold domestic water portside	9 Elbows Straights Fiberglass	V010-A
Ductwork and trunking	Uninsulated	
Spray fireproofing on bulkhead		S013-A
Some elbows are mitered fiberglass		

CCGV LARSEN – Field Assessment Sheet (APRIL 2002)
 Project 02- 2993

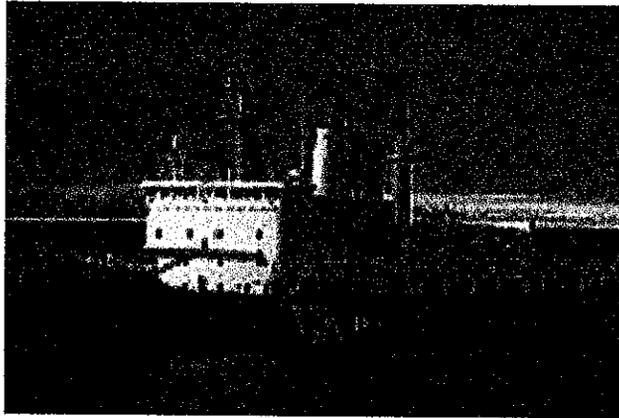
Location Description: Emergency Generator Room Number: _____
Room Officers Deck Survey Report Location No: 072

Item/Material	Quantity/Condition	Sample
Generator exhaust	Cal Sil	No sample
Spray fireproofing on deck heads and bulkheads		V013-A
Emergency air compressor exhaust	Cal Sil	No sample



APPENDIX III
CONDITION SURVEY 2002

**ASBESTOS VESSEL MATERIALS
CONDITION SURVEY**



CANADIAN COAST GUARD VESSEL

CCGS HENRY LARSEN
SOUTH SIDE COAST GUARD BASE
ST. JOHN'S, NEWFOUNDLAND

Prepared for:

**Canadian Coast Guard
Newfoundland Region
Department of Fisheries and Oceans
St. John's Newfoundland Canada**

Attention: Fred Jardine

Pinchin LeBlanc Project: 02-3141

July 2002

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1. INTRODUCTION

On June 14, 2002, Pinchin Leblanc Environmental Ltd. was retained by the Canadian Coast Guard, to conduct an asbestos-containing materials (ACM) condition survey of the Canadian Coast Guard Ship, Henry Larsen. The purpose of the survey was to assess the condition and delineate the extent of asbestos-containing Weather Shield present within the vessel following the discovery of the product during an asbestos materials inventory survey aboard the vessel.

2. SURVEY AND ASSESSMENT CRITERIA

2.1 Survey Methodology

In order to determine the location, extent and condition of the Weather Shield product throughout the vessel, representative views of all deck head spaces on a room-by-room basis were entered where possible. Every space was not entered if access from an adjacent space could provide adequate viewing. The condition survey encompassed all accommodation spaces, including the Wheelhouse and Navigation Bridge Deck. Mechanical spaces such as the Main Generator Room/Tank Top Level, Steering Gear Compartment, Fan Rooms etc. were surveyed following the assessment of accommodation spaces.

2.2 Background Material Characteristics

The material, more commonly known as Weather Shield, is described as a white colored encapsulant, comparable to a latex overcoat. The material covers a non-asbestos friable spray applied fireproofing called Cavco. In terms of friability, the Weather Shield may be described as a non-friable asbestos containing material adhered to a friable non-asbestos containing fireproofing. Although its purpose of application is not fully determined, it is believed that the overcoat may have been applied during the construction phase of the vessel to protect against damage caused by water, and vibration or as an encapsulant to provide additional strength to the underlying Cavco during normal ship operations. Weather Shield can be observed covering most deck heads and bulkheads that's been sprayed with fireproofing throughout the vessel. The material (Weather Shield) also can

be observed on the vessels side shell at tank Top Level in the main Generator Room. Results of samples taken of this material throughout the ship during the resent asbestos inventory survey indicate the positive presence of Chrysotile asbestos at a concentration of 1-5%.

3. DISCUSSION OF ASBESTOS-CONTAINING MATERIALS FOUND

Table 1-Complete Summary of Asbestos Containing Materials-Weather Shield Only

IDENTIFICATION OF ASBESTOS CONTAINING WEATHER SHIELD COAST GUARD VESSEL HENRY LARSEN St. John's, Newfoundland and Labrador		
Sample Identification	SAMPLE LOCATION/DESCRIPTION	RESULT
Sample 001-A	Spray fireproofing on structural members, main generator room, forward bulkhead	None detected
Sample 004-A	(A) Spray fireproofing on starboard bulkhead, main generator room (B) Yellow mastic overcoat material	(A) None Detected (B) 1-5% Chrysotile
Sample 013-A	Spray fireproofing, navigation bridge, wheelhouse	None detected
Sample 019-A	Spray Fireproofing Main Generator Room, Starboard Side, Forward, Tank Top Level, in way of Main Engine Fuel at Heaters	None Detected
Sample 020-A	Spray Coat on Ship's Hull, Side Shell, Main Generator Room, Starboard Side, Forward, Tank Top Level	1-5% Chrysotile
Sample 021-A	Spray Fireproofing on Port Side, Aft, Main Generator Room Tank Top Level	None Detected
Sample 022-A	Spray Coat on Ships Hull, Port Side, Main Generator Room at Tank Top Level, Port Fuel Manifold	1-5% Chrysotile
Sample 023-A	(A) Spray Fireproofing with (B) Off-white Overcoat, Forward Bulkhead, Main Generator Room	(A) None Detected (B) 1-5% Chrysotile
Sample 024-A	Spray Fireproofing, Main Generator Room, Starboard Side, Aft	None Detected
Sample 025-A	Spray Fireproofing Starboard Side, Aft, Auxiliary Machinery Space, Tank Top Level	<0.1% Chrysotile
Sample 026-A	(A) Spray Fireproofing on Bulkhead, Aft, Steering Gear Room, Starboard Side, Main Deck (B) Off-white, soft sticky, cementitious overcoat	(A) None Detected (B) 1-5% Chrysotile
Sample 027-A	(A) Spray Fireproofing with (B) White Adhesive, Navigation Bridge, Wheelhouse, Starboard Side, Center Window	(A) None Detected (B) 1-5% Chrysotile

• The Newfoundland and Labrador Department of Environment recognizes materials containing greater than 1% asbestos to be asbestos containing materials.

3.1 Interpretation of Results

As the analytical results indicate in Table 1, fifty (50) percent of all samples taken (12 total) indicated the positive presence of chrysotile asbestos in concentrations of 1-5% in the Weather Shield product. (Reference sample S004-A on April 10, 2002 and the analysis of the additional samples S020-A, S022-A, S023-A, S026-A, S027-A on June 5, 2002.) Spray fireproofing was observed throughout this vessel as fireproofing or as thermo insulation. The spray, observed on most deck heads and bulkheads throughout the vessel, is a friable non-asbestos material called Cavco, covered by a non-friable asbestos-containing overcoat called Weather Shield. The asbestos containing Weather Shield was observed as a thin overcoat layer with a white latex appearance sprayed on most Cavco insulated areas throughout the ship. Please refer to Appendix II for the laboratory report.

4.0 Condition Survey

The condition survey encompassed all accessible areas aboard the ship, including but not limited to, all mechanical spaces and accommodation areas. During the time of survey an asbestos abatement contractor, Power Vac Services was on site to conduct immediate asbestos clean up in areas that were assessed as poor condition and/or areas where excessive fallout had occurred in the past. The survey resulted in the progressive clean up of approximately twenty-five areas throughout vessel. For the purpose of this survey and corresponding report, only the condition of the spray following the clean up will be reported. The condition of spray observed aboard the vessel following the condition assessment and the clean up of selected areas for June 30, 2002 is displayed in Table 2.

FALLOUT CONDITIONS OF ASBESTOS CONTAINING SPRAY FIREPROOFING COAST GUARD VESSEL HENRY LARSEN St. John's, Newfoundland and Labrador		
CABIN/COMPARTMENT	DECK LOCATION	CONDITION (Excessive, Moderate, Minor)
Wheelhouse	Navigation Bridge Deck	Minor to None (Cleaned During 2002 Assessment)
Lobby outside Wheelhouse including Radar Transceiver Locker	Navigation Bridge Deck	Minor to None (Cleaned During 2002 Assessment)
Radio Control Room	Navigation Bridge Deck	Minor to None

FALLOUT CONDITIONS OF ASBESTOS CONTAINING SPRAY FIREPROOFING COAST GUARD VESSEL HENRY LARSEN St. John's, Newfoundland and Labrador		
Electronics Equipment Room	Navigation Bridge Deck	(Cleaned During 2002 Assessment) Minor to None (Cleaned During 2002 Assessment)
Special Navigation Chart Room	Navigation Bridge Deck	Minor to None (Cleaned During 2002 Assessment)
ICS Room	Navigation Bridge Deck	Minor to None (Cleaned During 2002 Assessment)
Void Utility Space Under Wheelhouse	Raised Deck	Minor to None (Cleaned During 2002 Assessment)
Commanding Officers Cabin 389	Officers Deck	Minor
Chief Officers Cabin 381	Officers Deck	Minor
First Officers Cabin 378	Officers Deck	Minor to None (Cleaned During 2002 Assessment)
Second Officers Cabin 385	Officers Deck	Minor
Deck Office	Officers Deck	33% No Spray – Minor
Laundry	Officers Deck	Poor access and limited view (suspect minor amounts)
Communications Officer Cabin 367	Officers Deck	25% No Spray- Remaining material minor to none
Fan Room AHU #1	Officers Deck	Good
Static Inverter Room	Officers Deck	Good
Halon Room	Officers Deck	Majority Good – Some moderate debris on floor on port side forward corner of room.
Deck Locker	Officers Deck	Good
Hallway Near Commanding Officer Cabin 389	Officers Deck	Majority minor with one isolated area moderate.
Senior Scientist Cabin 383	Officers Deck	Majority minor with one isolated area moderate (1ft ²)
First Engineer Cabin 338	Boat and Flight Deck	Spray on perimeter bulkheads only- Minor to None
Helicopter Engineer Cabin 341	Boat and Flight Deck	Spray on perimeter bulkheads only- Minor to None
Helicopter Pilot Cabin 343	Boat and Flight Deck	Spray on perimeter bulkheads only- Minor to None
Official Cabin 352	Boat and Flight Deck	Spray on perimeter bulkheads only- Minor to None
Official Cabin 350	Boat and Flight Deck	Spray on perimeter bulkheads only- Minor to None
Chief Engineer 347	Boat and Flight Deck	Spray on perimeter bulkheads only- Minor to None

FALLOUT CONDITIONS OF ASBESTOS CONTAINING SPRAY FIREPROOFING COAST GUARD VESSEL HENRY LARSEN St. John's, Newfoundland and Labrador		
Second Engineer 345	Boat and Flight Deck	Spray on perimeter bulkheads only- Minor to None
Fan Room AHU #2 and #4	Boat and Flight Deck	Good
AC Chiller Room	Boat and Flight Deck	Good with 1 ft ² exposed Cavco
Helicopter Hanger	Boat and Flight Deck	Majority Fiberglass
Engine Casing @ Deck Elevation	Boat and Flight Deck	Good where accessible
Officers Lounge	Upper Deck	Minor to None (Cleaned During 2002 Clean up)
Senior Engineers Cabin 274	Upper Deck	Bulkheads sprayed only-Minor condition observed
Spare Cabin 283	Upper Deck	Bulkheads sprayed only-Minor condition observed
Electronics Officer Cabin 281	Upper Deck	Bulkheads sprayed only-Minor condition observed
Designated Smoke Room 270	Upper Deck	Bulkheads sprayed only-Minor condition observed
Hallway from Cabin 270 past 274 to Cabin 287	Upper Deck	Bulkheads sprayed only-Minor condition observed
Logistics Officers Cabin 287	Upper Deck	Minor condition observed
Bosun's Cabin 285	Upper Deck	Minor to None (Cleaned During 2002 Clean up)
Cadets Cabin 283	Upper Deck	Minor to None (Cleaned During 2002 Clean up)
Cadets Cabin 281	Upper Deck	Minor to None (Cleaned During 2002 Clean up)
Cadets Cabin 279	Upper Deck	Minor to Moderate
Cadets Cabin 277	Upper Deck	Minor to Moderate
Logistics Officers Office	Upper Deck	Minor to None (Cleaned During 2002 Clean up)
Ships Office	Upper Deck	Moderate
Engineers Office	Upper Deck	Partially sprayed-Minor condition observed
Engineers Change Room	Upper Deck	Good condition observed
Laundry	Upper Deck	Majority No Spray
Supernumerary's Cabin 268	Upper Deck	Minor to None (Cleaned During 2002 Clean up)
First Electrical Officer 266	Upper Deck	Minor to None (Cleaned During 2002 Clean up)
Second Electrical Officer 264	Upper Deck	Minor to None (Cleaned During 2002 Clean up)
Ice Service Specialist Cabin	Upper Deck	Minor condition observed – Moderate in adjacent hallway

FALLOUT CONDITIONS OF ASBESTOS CONTAINING SPRAY FIREPROOFING COAST GUARD VESSEL HENRY LARSEN <i>St. John's, Newfoundland and Labrador</i>		
		(20ft ²)
Medical Officer Cabin 260	Upper Deck	Minor condition observed – Moderate in adjacent hallway (16ft ²)
Dispensary 228 and Ward 229	Upper Deck	Minor condition observed
Officers Pantry 231	Upper Deck	Minor condition observed
Officers Dining Room	Upper Deck	Minor with isolated moderate areas (1ft ² ea.)
Officers Lounge	Upper Deck	Minor to None (Cleaned During 2002 Clean up)
Hallway From Cabin 285 to Cabin 277	Upper Deck	Minor to None (Cleaned During 2002 Clean up)
Hallway From Cabin 268 to Cabin 264	Upper Deck	Minor to None (Cleaned During 2002 Clean up)
Fan Room AHU #3	Upper Deck	Good
Workshop	Upper Deck	Good
Bosun's Store	Upper Deck	Good-Access hatch above Halon Tank has exposed Cavco (1ft ²)
Steering Gear Compartment and Stores	Main Deck	Fiberglass with foil face on deck head. Spray on perimeter bulkheads and selected stringers. Good condition.
Dry Stores	Main Deck	Fiberglass with foil on deck head. Spray may be present on beams and stringers. Good condition
Crew Change Room	Main Deck	Fiberglass with foil on deck head. Spray may be present on beams and stringers. Good condition
Refrigerated Cargo Room	Main Deck	No access above deck head
Fruit and Vegetable Room	Main Deck	No access above deck head
Cool Dairy Room	Main Deck	No access above deck head
Cold Room	Main Deck	No access above deck head
Galley	Main Deck	Poor access during survey- Drawings indicate no spray present
Crews Cafeteria	Main Deck	Partial spray – minor to moderate – excessive fibreglass waste material
Crews Lounge 117	Main Deck	Partial spray – Minor condition
PO's Lounge 134	Main Deck	Partial spray – Minor

FALLOUT CONDITIONS OF ASBESTOS CONTAINING SPRAY FIREPROOFING COAST GUARD VESSEL HENRY LARSEN St. John's, Newfoundland and Labrador		
		condition with isolated moderate areas
Chief Cook Cabin 130 and Second Cook Cabin 131	Main Deck	Partial spray – Scattered minor condition with isolated moderate areas
Steward Cabin 132 and 133	Main Deck	Minor condition observed
Store Keeper 157 and Spare 158	Main Deck	Partial spray – Minor condition with isolated moderate areas
Leading Seaman Cabins 159 and 160	Main Deck	Minor to None (Cleaned During 2002 Clean up)
Leading Seaman Cabins 151 and 162	Main Deck	Minor to None (Cleaned During 2002 Clean up)
Canteen and Canteen Store	Main Deck	No access above ceiling
Gymnasium	Main Deck	Minor to None (Cleaned During 2002 Clean up)
Hallway From Bubbler Compartment to Canteen	Main Deck	Minor condition observed
Bubbler Compartment	Main Deck	Good condition. Some perforated sheathing has been removed in the past.
Laundry	Main Deck	Fixed metal ceiling with little to access.
Central Stores	Main Deck	The majority of this space has spray observed in good condition.
E/R Technician Cabins 193, 192, 191 and 190	Main Deck	These spaces are partially sprayed and observed in minor condition
Oiler Cabins 167 and 168	Main Deck	Minor to None (Cleaned During 2002 Clean up)
Seamen 165 and 166	Main Deck	These spaces are partially sprayed and observed in minor condition. Some fallout on bathroom.
Seamen 163 and 164	Main Deck	These spaces are partially sprayed and observed in minor condition.
Engine Casing	Main Deck	The engine casing at this elevation has spray on the accommodations side of its side shell. Minor fallout conditions exist near the

FALLOUT CONDITIONS OF ASBESTOS CONTAINING SPRAY FIREPROOFING COAST GUARD VESSEL HENRY LARSEN St. John's, Newfoundland and Labrador		
		casing.
Important: The watertight door control levers on this deck have spray behind each lever panel.		
Propulsion Motor Room	Lower Deck	Port side, Aft Corner Behind Transformer-Damaged perforated sheathing in poor condition. No fallout observed. Caution advised
Most areas in the Lower Deck that has spray were observed in good condition. The spray in this space is covered and bound by perforated aluminium sheathing that provides a rigid barrier over the spray.		
Propulsion Motor Room, Port and Starboard Sides, Aft corners near shafts.	Tank Top	The perforated sheathing at this location is slowly deteriorating. As a result minor fallout is present.
Main Generator Room, Structural Steel at Deck head elevation, forward of Main Generator #2	Tank Top	The spray fireproofing at this location has no perforated sheathing. The condition of the spray is poor with small isolated areas of minor fallout conditions
Most areas at the Tank Top Level that has spray other than previously listed were observed in good condition. The spray in this space especially on bulkheads is covered and bound by perforated aluminium sheathing that provides a rigid barrier over the spray.		
-END OF CONDITIONS TABLE-		

4.1 Survey Limitations

Due to the nature of ship construction, and due to the non-destructive nature of the survey, some limitations exist as to the possible thoroughness of the survey. Some of these limitations would included poor access through narrow panels, occupied spaces, and fixed ceiling structures. The field observations, measurements, and analysis are considered sufficient in detail and scope to form a reasonable basis for a general asbestos hazard assessment of this ship. Pinchin LeBlanc Environmental Ltd. warrants that the findings and conclusions contained herein have been promulgated in accordance with generally accepted asbestos hazard evaluation methods, for the ship referenced in this report.

There is a distinct possibility that conditions may exist which could not be reasonably identified within the scope of the assessment or which were not apparent during the site

visit. Pinchin LeBlanc Environmental Ltd. believes that the information collected during the survey period concerning the ship is reliable. However, Pinchin LeBlanc Environmental Ltd. cannot warrant or guarantee that the information provided is absolutely complete or accurate beyond the current asbestos consulting industry standards or accurate once the vessel returns the normal operating conditions at sea and in ice. No other warranties are implied or expressed.

5. SPECIFIC RECOMMENDATIONS

- .1 Maintain a copy of the asbestos survey report with the accompanying field drawings on board to record the location of asbestos-containing spray coat and condition assessment ratings.
- .2 Advise workers who may disturb the asbestos materials of the presence of the asbestos, including outside contractors, the procedures required to enter each space, as determined by the asbestos coordinators.
- .3 Sample suspect materials as uncovered, should any such materials be accessed or be observed. If sampling is not practical at sea, treat the material in question as an asbestos containing material.

Specific recommendations as developed from the asbestos assessment conduct pervious to this condition survey in 2002 still apply:

- .4 Access to deck head spaces for inspection purposes should be conducted following Type 1 asbestos entry procedures.
- .5 Access to deck head spaces to facilitate a cable pull or pipe repair creating only a minor disturbance in areas where spray is in good condition, use Type 1 asbestos abatement procedures.
- .6 Accesses into any deck head space where the condition of spray Weather Shield fallout is moderate to excessive in large quantities, with any disturbance, use Type 2 abatement procedures.
- .7 The removal of large quantities of Weather Shield should be conducted under Type 2 asbestos abatement procedures.
- .8 Removal of perforated aluminium sheathing from sprayed surfaces should be conducted following type 1 asbestos abatement procedures.=

- .9 Safe work practices and occupational controls should be implemented on board this vessel when working with asbestos containing Weather Shield. Plans and specifications should address worker education and training for maintenance personnel and contractors who may be required to work or repair equipment that potentially may disturb asbestos containing Weather Shield aboard the Henry Larsen.

All asbestos related work should follow industry standards and good practice, applicable federal regulations and guidelines governing asbestos materials, and the Newfoundland and Labrador Asbestos Regulation 111/98.

SIGNATURES

Prepared by:

Reviewed by:

Jason Lewis
Environmental Engineering Technologist
Pinchin LeBlanc Environmental Ltd.

Paul Staeben
Senior Project Consultant
Pinchin LeBlanc Environmental Ltd.

APPENDIX IV
ASBESTOS CLEAN UP INSPECTION REPORTS 2002

TO: Fred Jardine Safety Officer	PROJECT: Canadian Coast Guard Vessel CCGS Henry Larsen	PROJECT NO.: 02-3117
Canadian Coast Guard Newfoundland Region St. John's NL	INSPECTOR: Craig Hollett	
	TIME IN:	TIME OUT:
	NO. OF WORKERS:	

WORK IN PROGRESS: HEPA Vacuuming of Asbestos Containing Material within the Wheelhouse of the CCGS Henry Larsen while docked at the South Side Coast Guard Base located in St. John's Newfoundland.

1. AIR MONITORING	<input checked="" type="checkbox"/>	4. NEGATIVE AIR	<input checked="" type="checkbox"/>	7. WASTE HANDLING	<input checked="" type="checkbox"/>
2. SITE ISOLATION	<input checked="" type="checkbox"/>	5. WORKER PROTECTION	<input checked="" type="checkbox"/>	8. CLEAN-UP	<input checked="" type="checkbox"/>
3. FACILITIES/EQUIPMENT	<input checked="" type="checkbox"/>	6. DUST SUPPRESSION	<input checked="" type="checkbox"/>	9. OTHER	<input checked="" type="checkbox"/>

SAMPLE NO.	PUMP NO.	TIME TAKEN	DURATION (MIN.)	VOLUME SAMPLED (L.)	DESCRIPTION OF SAMPLE	RESULTS (Fibers/mL)
6137	HV#2	PM	40	640	Station Sample While HEPA Vacuuming	<0.03
6105	LV#1	PM	35	70	Personal Sample	<0.3
6160	HV#2	PM	35	560	Clearance Sample	<0.04

Air Monitoring – All air samples were analyzed according to NIOSH 7400 method following the "A" set of counting rules for PCM analysis. Analysis of all air samples collected indicated that airborne fibre levels are within the accepted airborne fibre criteria.

Site Isolation – Good site isolation was observed within the work area. Asbestos warning signs were displayed in all appropriate areas.

Facilities/Equipment – All facilities and equipment required to conduct asbestos work were on site and in good working order.

Worker Protection – All workers were observed wearing the appropriate personal protective equipment suitable for HEPA vacuuming procedures. Equipment did include: (1/2-face HEPA filtered respirators, disposable coveralls equipped with hoods etc.).

Waste Handling – All associated waste was double bagged in clearly labeled asbestos disposal bags.

Other- The results of clearance air sample #6160 were at an acceptable fiber level and below current standards and/or guidelines.

TO: Fred Jardine Safety Officer Canadian Coast Guard Newfoundland Region St. John's NL	PROJECT: Canadian Coast Guard Vessel CCGS Henry Larsen	PROJECT NO.: 02-3117
	INSPECTOR: Craig Hollett	
TIME IN:		TIME OUT:
NO. OF WORKERS:		

WORK IN PROGRESS: HEPA Vacuuming of Asbestos Containing Material within the Starboard Side Alleyway, Officers Deck, of the CCGS Henry Larsen while docked at the South Side Coast Guard Base located in St. John's Newfoundland.

1. AIR MONITORING	<input checked="" type="checkbox"/>	4. NEGATIVE AIR	<input checked="" type="checkbox"/>	7. WASTE HANDLING	<input checked="" type="checkbox"/>
2. SITE ISOLATION	<input checked="" type="checkbox"/>	5. WORKER PROTECTION	<input checked="" type="checkbox"/>	8. CLEAN-UP	<input checked="" type="checkbox"/>
3. FACILITIES/EQUIPMENT	<input checked="" type="checkbox"/>	6. DUST SUPPRESSION	<input checked="" type="checkbox"/>	9. OTHER	<input checked="" type="checkbox"/>

SAMPLE NO.	PUMP NO.	TIME TAKEN	DURATION (MIN.)	VOLUME SAMPLED (L.)	DESCRIPTION OF SAMPLE	RESULTS (Fibers/mL)
6100	HV#1	PM	50	600	Station Sample While HEPA Vacuuming	<0.03
6107	HV#1	PM	40	540	Clearance Sample	<0.04

Air Monitoring – Both air samples were analyzed according to NIOSH 7400 method following the "A" set of counting rules for PCM analysis. Analysis of the two (2) samples collected indicated that airborne fibre levels are within the accepted airborne fibre criteria.

Site Isolation – Good site isolation was observed within the work area. Asbestos warning signs were displayed in all appropriate areas.

Facilities/Equipment – All facilities and equipment required to conduct asbestos work were on site and in good working order.

Worker Protection – All workers were observed wearing the appropriate personal protective equipment suitable for HEPA vacuuming procedures. Equipment did include: (1/2-face HEPA filtered respirators, disposable coveralls equipped with hoods etc.).

Waste Handling – All associated waste was double bagged in clearly labeled asbestos disposal bags.

Other- The results of clearance air sample #6107 and station sample #6100 were at an acceptable fiber level and below current standards and/or guidelines.

TO: Fred Jardine
 Safety Officer
 Canadian Coast Guard
 Newfoundland Region
 Department of Fisheries and Oceans
 St. John's, N.F.

PROJECT:
 Canadian Coast Guard
 Newfoundland Region
 CCGS Henry Larsen

PROJECT NO.:
02-3117

INSPECTOR: Jason Lewis and Craig Hollett

TIME IN: TIME OUT:

WORK IN PROGRESS:

The Removal of Asbestos Containing Material Within The Wheelhouse of the CCGS Henry Larsen While Docked at the South Side Coast Guard Base located in St. John's, Newfoundland. The Removal and Other Associated Work Was Warranted to Facilitate the Installation of Wheelhouse Windows. Asbestos Abatement Was Conducted Under Type 2 (Moderate Risk) Asbestos Abatement Procedures. All Air Samples Collected on June 11, 2002

- | | | | | | |
|-------------------------|-------------------------------------|----------------------|-------------------------------------|-------------------|-------------------------------------|
| 1. AIR MONITORING | <input checked="" type="checkbox"/> | 4. NEGATIVE AIR | <input checked="" type="checkbox"/> | 7. WASTE HANDLING | <input checked="" type="checkbox"/> |
| 2. SITE ISOLATION | <input checked="" type="checkbox"/> | 5. WORKER PROTECTION | <input checked="" type="checkbox"/> | 8. CLEAN-UP | <input checked="" type="checkbox"/> |
| 3. FACILITIES/EQUIPMENT | <input checked="" type="checkbox"/> | 6. DUST SUPPRESSION | <input checked="" type="checkbox"/> | 9. OTHER | <input checked="" type="checkbox"/> |

SAMPLE NO.	PUMP NO.	TIME TAKEN	DURATION (MIN.)	VOLUME SAMPLED (L.)	DESCRIPTION OF SAMPLE	RESULTS (Fibers/mL)
6174	HV#1	AM	60	960	Perimeter Middle Window Starboard Side	<0.02
6169	HV#1	AM	15	240	Clearance Middle Window Starboard Side	<0.08
6173	HV#1	AM	35	560	Perimeter Second Window From Port Side	<0.04
6167	HV#1	AM	30	480	Clearance Second Window From Port Side	<0.04
6177	HV#1	PM	30	480	Perimeter Second Window From Starboard Side	<0.04
6180	HV#1	PM	30	480	Final Clearance Middle Window Starboard Side	<0.04
6181	HV#1	PM	30	480	Clearance Second Window From Starboard Side	<0.04

Air Monitoring – All air samples were analyzed using the NIOSH 7400 method following the "A" set of counting rules for PCM analysis. Sample analysis of all perimeter and clearance samples indicate airborne fibre levels are within the accepted airborne fibre criteria of 0.1f/mL.

Site Isolation – Good site isolation at each enclosure was observed throughout the shift. Asbestos warning signs were displayed in all appropriate areas. (Enclosure Doorways) "Caution Asbestos" warning tape was installed to keep ships crew and contractors within safe distance of each work area as a precautionary measure.

Signed:

Date: 2002/06/11

Report No.: 02 Page: 1 of 2

TO: Fred Jardine Canadian Coast Guard	PROJECT: Canadian Coast Guard	PROJECT NO.: 02-3117
	INSPECTOR: J.L & C.H	

Facilities/Equipment – All facilities and equipment required to conduct asbestos abatement using Type 2 asbestos abatement methods was observed on site and in good working condition. Two (2) HEPA vacuums, duct tape, glue, utility knives, water, wire brushes, etc. was observed at the work site.

Negative Air – A HEPA vacuum was used at each enclosure to provide adequate negative pressure during removal and clean up.

Worker Protection – All workers (including all contractors) were observed wearing the appropriate personal protective equipment suitable for Type 2 (Moderate Risk) asbestos removal operations. Equipment did include: (Half face respirators, disposable coveralls equipped with hoods etc.).

Dust Suppression – Dust suppression is achieved by wetting material before, during and after removal inside each enclosure and the continuous operation of HEPA vacuums during the abatement process.

Waste Handling – All associated waste is to be double bagged and individually sealed in clearly labeled asbestos waste disposal bags. All waste to be removed of site by the contractor.

OTHER –

- The installation of the middle window on the starboard side of the vessels wheelhouse is now complete. Following a clearance sample and visual inspection, Powervac Services was requested to demolish and remove the enclosure from site following applicable regulatory and industry standards.
- The construction of all necessary polyethylene enclosures has been constructed to facilitate the installation of all windows. Removal within one enclosure located at the middle window port side is still required and will be conducted next shift. Work may proceed following type 2 abatement procedures in the remaining enclosures.
- Two ceiling panel entries and a cable pull are scheduled for next shift.
- No other concerns noted. **END**

TO: Fred Jardine Safety Officer Canadian Coast Guard Newfoundland Region Department of Fisheries and Oceans St. John's, N.F.	PROJECT: Canadian Coast Guard Newfoundland Region CCGS Henry Larsen	PROJECT NO.: <p style="text-align: center;">02- 3117</p>
	INSPECTOR: Jason Lewis and Craig Hollett	
	TIME IN:	TIME OUT:

WORK IN PROGRESS:
 The Removal of Asbestos Containing Material and Related Work Aboard The CCGS Henry Larsen, While Docked at the South Side Coast Guard Base located in St. John's, Newfoundland. The Removal and Other Associated Work Conducted During This Shift is as Follows...(1) Removal and Encapsulation to Facilitate the Installation of Wheelhouse Windows Under Type 2 (Moderate Risk) Asbestos Abatement Procedures. (2) Ceiling Entry Within The Wheelhouse to Accommodate an Electronic Cable Installation/Pull. All Air Samples Collected on June 12, 2002

1. AIR MONITORING	<input checked="" type="checkbox"/>	4. NEGATIVE AIR	<input checked="" type="checkbox"/>	7. WASTE HANDLING	<input checked="" type="checkbox"/>
2. SITE ISOLATION	<input checked="" type="checkbox"/>	5. WORKER PROTECTION	<input checked="" type="checkbox"/>	8. CLEAN-UP	<input checked="" type="checkbox"/>
3. FACILITIES/EQUIPMENT	<input checked="" type="checkbox"/>	6. DUST SUPPRESSION	<input checked="" type="checkbox"/>	9. OTHER	<input checked="" type="checkbox"/>

SAMPLE NO.	PUMP NO.	TIME TAKEN	DURATION (MIN.)	VOLUME SAMPLED (L.)	DESCRIPTION OF SAMPLE	RESULTS (Fibers/mL)
6178	HV#1	AM	30	480	Perimeter Middle Window Port Side	<0.04
6175	HV#1	AM	30	480	Clearance Middle Window Port Side	<0.04
6170	HV#1	AM	65	130	Personal, Cable Pull	<0.2
6172	HV#1	AM	30	480	Perimeter, Cable Pull	<0.04
6168	HV#1	PM	30	480	Final Clearance, Cable Pull	<0.04
6108	HV#1	PM	30	480	Final Clearance, Second Window from Starboard Side	<0.04

Air Monitoring – All air samples were analyzed using the NIOSH 7400 method following the "A" set of counting rules for PCM analysis. Sample analysis of all perimeter and clearance samples indicate airborne fibre levels are within the accepted airborne fibre criteria of 0.1f/mL.

Site Isolation – Good site isolation at each enclosure was observed throughout the shift. Asbestos warning signs were displayed in all appropriate areas. (Enclosure Doorways) "Caution Asbestos" warning tape was installed to keep ships crew and contractors within safe distance of each work area as a precautionary measure.

TO: Fred Jardine Canadian Coast Guard	PROJECT: Canadian Coast Guard	PROJECT NO.: 02-3117
	INSPECTOR: J.L & C.H	

Facilities/Equipment – All facilities and equipment required to conduct asbestos abatement using Type 2 asbestos abatement methods was observed on site and in good working condition. Two (2) HEPA vacuums, duct tape, glue, utility knives, water, wire brushes, etc. was observed at the work site.

Negative Air – A HEPA vacuum was used at each enclosure to provide adequate negative pressure during removal and clean up.

Worker Protection – All workers (including all contractors) were observed wearing the appropriate personal protective equipment suitable for Type 2 (Moderate Risk) asbestos removal operations. Equipment did include: (Half face respirators, disposable coveralls equipped with hoods etc.).

Dust Suppression – Dust suppression is achieved by wetting material before, during and after removal inside each enclosure and the continuous operation of HEPA vacuums during the abatement process.

Waste Handling – All associated waste is to be double bagged and individually sealed in clearly labeled asbestos waste disposal bags. All waste to be removed of site by the contractor.

OTHER –

- The installation of the second window from the starboard side of the vessels wheelhouse is now complete. Following a clearance sample and visual inspection, Powervac Services was requested to demolish and remove the enclosure from site following applicable regulatory and industry standards.
- Installation of the middle window on the port side and the second window from port side is complete. Some fiberglass re-insulation work around windows is still to be conducted before enclosures are removed. This work will be conducted on the next shift.
- Two ceiling panel entries to facilitate a cable pull were conducted and completed today.
- The Wheelhouse ceiling space is to be HEPA vacuumed. This work is to be conducted over the next two (2) shifts and are scheduled to be completed by shifts end Friday, June 14th 2002. During cleaning of the ceiling space in the wheelhouse, access to alarm panels is available to Coast Guard personnel while this work is being conducted.
- No other concerns noted. **END**

TO: Fred Jardine Safety Officer Canadian Coast Guard Newfoundland Region Department of Fisheries and Oceans St. John's, N.F.	PROJECT: Canadian Coast Guard Newfoundland Region CCGS Henry Larsen	PROJECT NO.: 02-3117
	INSPECTOR: Jason Lewis and Craig Hollett	
TIME IN:		TIME OUT:

WORK IN PROGRESS:
The Removal of Asbestos Containing Material and Related Work Aboard The CCGS Henry Larsen, While Docked at the South Side Coast Guard Base located in St. John's, Newfoundland. The Removal and Other Associated Work Conducted During This Shift is as Follows...(1) Re-insulation of fiberglass within two Port Side Windows to complete the Installation of Wheelhouse Windows, Under Type 2 (Moderate Risk) Asbestos Abatement Procedures. (2) Ceiling Entry Within The Wheelhouse to Accommodate HEPA Vacuuming of ceiling space area. All Air Samples Collected on June 13, 2002

1. AIR MONITORING	<input checked="" type="checkbox"/>	4. NEGATIVE AIR	<input checked="" type="checkbox"/>	7. WASTE HANDLING	<input checked="" type="checkbox"/>
2. SITE ISOLATION	<input checked="" type="checkbox"/>	5. WORKER PROTECTION	<input checked="" type="checkbox"/>	8. CLEAN-UP	<input checked="" type="checkbox"/>
3. FACILITIES/EQUIPMENT	<input checked="" type="checkbox"/>	6. DUST SUPPRESSION	<input checked="" type="checkbox"/>	9. OTHER	<input checked="" type="checkbox"/>

SAMPLE NO.	PUMP NO.	TIME TAKEN	DURATION (MIN.)	VOLUME SAMPLED (L.)	DESCRIPTION OF SAMPLE	RESULTS (Fibers/mL)
6179	HV#1	AM	30	480	Area Sample While Constructing Enclosure	<0.04
6187	HV#1	PM	30	480	Perimeter Sample During Above Ceiling Vacuuming	<0.04
6182	LV#1	PM	90	180	Personal Sample During Above Ceiling Vacuuming	<0.1
6171	HV#1	AM	30	480	Final Clearance, Second Window From Port Side	<0.04
6188	HV#1	PM	30	480	Final Clearance, Middle Window, Port Side	<0.04
6184	HV#1	PM	30	480	Final Clearance, Starboard, Half Section of Wheelhouse	<0.04

Air Monitoring – All air samples were analyzed using the NIOSH 7400 method following the "A" set of counting rules for PCM analysis. Analysis of all samples indicate that airborne fibre levels are within the accepted airborne fibre criteria of 0.1f/mL.

Site Isolation – Good site isolation at each enclosure was observed throughout the shift. Asbestos warning signs were displayed in all appropriate areas. (Enclosure Doorways and Starboard Wheelhouse Door) "Caution Asbestos" warning tape was installed to keep ships crew and contractors within safe distance of each work area as a precautionary measure.

Signed: *Craig Hollett*

Date: 2002/06/13

Report No.: 04 Page: 1 of 2

TO: Fred Jardine Canadian Coast Guard	PROJECT: Canadian Coast Guard	PROJECT NO.: 02-3117
INSPECTOR: J.L & C.H		

Facilities/Equipment – All facilities and equipment required to conduct asbestos abatement using Type 2 asbestos abatement methods was observed on site and in good working condition. Two (2) HEPA vacuums, duct tape, glue, utility knives, water, wire brushes, etc. was observed at the work site.

Negative Air – A HEPA vacuum was used at each enclosure to provide adequate negative pressure during removal and clean up.

Worker Protection – All workers (including all contractors) were observed wearing the appropriate personal protective equipment suitable for Type 2 (Moderate Risk) asbestos removal operations. Equipment did include: (Half face respirators, disposable coveralls equipped with hoods etc.).

Dust Suppression – Dust suppression is achieved by wetting material before, during and after removal inside each enclosure and the continuous operation of HEPA vacuums during the abatement process.

Waste Handling – All associated waste is to be double bagged and individually sealed in clearly labeled asbestos waste disposal bags. All waste to be removed of site by the contractor.

OTHER –

- The installation of the fiberglass insulation on the port side middle window and the second window from the port side, is now complete. Following clearance sampling and visual inspection, Powervac Services was requested to demolish and remove both enclosures from the site following applicable regulatory and industry standards.
- The cleanup to the starboard side of the Wheelhouse ceiling space was completed by shift end today (Thursday, June 13th 2002). The cleanup to the port side of the Wheelhouse ceiling space will continue on Friday, June 14th 2002 and is scheduled to be completed by shift end on that date. During cleaning of the ceiling space in the wheelhouse, access to alarm panels is available to Coast Guard personnel while this work is being conducted.
- No other concerns noted. **END**

Signed: *Craig Hollett*

Date: 2002/06/13

Report No.: 04 Page: 2 of 2

TO: Fred Jardine
Safety Officer
Canadian Coast Guard
Newfoundland Region
Department of Fisheries and Oceans
St. John's, N.F.

PROJECT:
Canadian Coast Guard
Newfoundland Region
CCGS Henry Larsen

PROJECT NO.:
02-3117

INSPECTOR: Jason Lewis and Craig Hollett

TIME IN: TIME OUT:

WORK IN PROGRESS:

The Removal of Asbestos Containing Material and Related Work Aboard The CCGS Henry Larsen, While Docked at the South Side Coast Guard Base located in St. John's, Newfoundland. Ceiling Entry Within The Wheelhouse to Accommodate HEPA Vacuuming of ceiling space area. All Air Samples Collected on June 14, 2002

1. AIR MONITORING	<input checked="" type="checkbox"/>	4. NEGATIVE AIR	<input checked="" type="checkbox"/>	7. WASTE HANDLING	<input checked="" type="checkbox"/>
2. SITE ISOLATION	<input checked="" type="checkbox"/>	5. WORKER PROTECTION	<input checked="" type="checkbox"/>	8. CLEAN-UP	<input checked="" type="checkbox"/>
3. FACILITIES/EQUIPMENT	<input checked="" type="checkbox"/>	6. DUST SUPPRESSION	<input checked="" type="checkbox"/>	9. OTHER	<input checked="" type="checkbox"/>

SAMPLE NO.	PUMP NO.	TIME TAKEN	DURATION (MIN.)	VOLUME SAMPLED (L.)	DESCRIPTION OF SAMPLE	RESULTS (Fibers/mL)
6186	HV#1	AM	120	1920	Area Sample While Constructing Enclosure	<0.01
6185	LV#1	AM	100	200	Personal Sample During Vacuuming	<0.09
6176	HV#1	AM	75	1200	Perimeter Sample During Vacuuming	<0.02
6183	HV#1	PM	30	480	Final Clearance Sample	<0.04

Air Monitoring – All air samples were analyzed using the NIOSH 7400 method following the "A" set of counting rules for PCM analysis. Analysis of all samples indicate that airborne fibre levels are within the accepted airborne fibre criteria of 0.1f/mL.

Site Isolation – Good site isolation at each enclosure was observed throughout the shift. Asbestos warning signs were displayed in all appropriate areas. (Enclosure Doorways and Port Wheelhouse Door) "Caution Asbestos" warning tape was installed to keep ships crew and contractors within safe distance of each work area as a precautionary measure.

Facilities/Equipment – All facilities and equipment required to conduct asbestos abatement using Type 2 asbestos abatement methods was observed on site and in good working condition. Four (4) HEPA vacuums, duct tape, glue, utility knives, water, wire brushes, etc. was observed at the work site.

Negative Air - HEPA vacuums was used at each enclosure to provide adequate negative pressure during removal and clean up.

TO: Fred Jardine Canadian Coast Guard	PROJECT: Canadian Coast Guard	PROJECT NO.: 02-3117
	INSPECTOR: J.L & C.H	

Worker Protection – All workers (including all contractors) were observed wearing the appropriate personal protective equipment suitable for Type 2 (Moderate Risk) asbestos removal operations. Equipment did include: (Half face respirators, disposable coveralls equipped with hoods etc.).

Dust Suppression – Dust suppression is achieved by wetting material before, during and after removal inside each enclosure (when needed) and the continuous operation of HEPA vacuums during the abatement process.

Waste Handling – All associated waste is to be double bagged and individually sealed in clearly labeled asbestos waste disposal bags. All waste to be removed of site by the contractor.

OTHER –

- The cleanup to the port side of the Wheelhouse ceiling space was completed by shift end today (Friday, June 14th 2002). Following clearance sampling and visual inspection, Powervac Services was requested to demolish and remove the enclosure from the site following applicable regulatory and industry standards.
- Clean up of minor fallout debris and associated repair was conducted in the Aft Cargo Hold, Lower Deck.
- No other concerns noted. **END**

TO: Fred Jardine Safety Officer Canadian Coast Guard Newfoundland Region Department of Fisheries and Oceans St. John's, N.F.	PROJECT: Canadian Coast Guard Newfoundland Region CCGS Henry Larsen	PROJECT NO.: 02- 3117
	INSPECTOR: Jason Lewis and Craig Hollett	
	TIME IN:	TIME OUT:

WORK IN PROGRESS:
The Removal of Asbestos Containing Material and Related Work Aboard The CCGS Henry Larsen, While Docked at the South Side Coast Guard Base located in St. John's, Newfoundland. Ceiling Space Clean up Within The Wheelhouse Lobby, Chart Room, All Air Samples Collected on June 17, 2002.

1.AIR MONITORING	<input checked="" type="checkbox"/>	4.NEGATIVE AIR	<input checked="" type="checkbox"/>	7.WASTE HANDLING	<input checked="" type="checkbox"/>
2.SITE ISOLATION	<input checked="" type="checkbox"/>	5.WORKER PROTECTION	<input checked="" type="checkbox"/>	8.CLEAN-UP	<input checked="" type="checkbox"/>
3.FACILITIES/EQUIPMENT	<input checked="" type="checkbox"/>	6.DUST SUPPRESSION	<input checked="" type="checkbox"/>	9.OTHER	<input checked="" type="checkbox"/>

SAMPLE NO.	PUMP NO.	TIME TAKEN	DURATION (MIN.)	VOLUME SAMPLED (L.)	DESCRIPTION OF SAMPLE	RESULTS (Fibers/mL)
6192	HV#1	AM	40	640	Perimeter Sample within Wheelhouse during Vacuuming Lobby Ceiling	<0.03
6190	HV#1	PM	35	560	Final Clearance Sample, Lobby Area	<0.04
6189	HV#1	PM	30	480	Final Clearance, Hallway by Chart Room	<0.04
6191	HV#1	PM	30	480	Station Sample while Vacuuming Ceiling Area, Chart Room	<0.04

Air Monitoring – All air samples were analyzed using the NIOSH 7400 method following the "A" set of counting rules for PCM analysis. Analysis of all samples indicated that airborne fibre levels are within the accepted airborne fibre criteria of 0.1f/mL.

Site Isolation – Good site isolation at each enclosure was observed throughout the shift. Asbestos warning signs were displayed in all appropriate areas. (Enclosure Doorways and Lobby Door Entrances) "Caution Asbestos" warning tape was installed to keep ships crew and contractors within safe distance of each work area as a precautionary measure.

Facilities/Equipment – All facilities and equipment required to conduct asbestos abatement using Type 2 asbestos abatement methods was observed on site and in good working condition. Two (2) HEPA vacuums, duct tape, glue, utility knives, water, wire brushes, etc. was observed at the work site.

Negative Air – A HEPA vacuum was used at each enclosure to provide adequate negative pressure during removal and clean up.

TO: Fred Jardine Canadian Coast Guard	PROJECT: Canadian Coast Guard	PROJECT NO.: 02-3117
	INSPECTOR: J.L & C.H	

Worker Protection – All workers (including all contractors) were observed wearing the appropriate personal protective equipment suitable for Type 2 (Moderate Risk) asbestos removal operations. Equipment did include: (Half face respirators, disposable coveralls equipped with hoods etc.).

Dust Suppression – Dust suppression is achieved by wetting material before, during and after removal inside each enclosure when needed and the continuous operation of HEPA vacuums during the abatement process.

Waste Handling – All associated waste is to be double bagged and individually sealed in clearly labeled asbestos waste disposal bags. All waste to be removed of site by the contractor.

OTHER –

- The cleanup to the Lobby Area, Navigation Deck ceiling space was completed by shift end today (Monday, June 17th 2002). Following clearance sampling and visual inspection, Powervac Services was requested to demolish and remove the enclosure from the site following applicable regulatory and industry standards.
- The cleanup to the Chart Room ceiling space commenced throughout today's shift and will be completed by next shift's end. (Tuesday, June 18th 2002).
- Further encapsulation and repair of perforated aluminum sheathing which covers spray fireproofing was conducted on a damaged bulkhead in the aft cargo hold. Clean up of disturbed fireproofing was conducted at shift's end Friday June 14, 2002.
- The clean-up of spray fire proofing from a hydraulic lever located beneath water tight door # 11 was also completed by shift end today, June 17, 2002.
- No other concerns noted. **END**

TO: Fred Jardine Safety Officer Canadian Coast Guard Newfoundland Region Department of Fisheries and Oceans St. John's, N.F.	PROJECT: Canadian Coast Guard Newfoundland Region CCGS Henry Larsen	PROJECT NO.: 02- 3117
	INSPECTOR: Jason Lewis and Craig Hollett	
	TIME IN:	TIME OUT:

WORK IN PROGRESS:
The Removal of Asbestos Containing Material and Related Work Aboard The CCGS Henry Larsen, While Docked at the South Side Coast Guard Base located in St. John's, Newfoundland. Continuation of Ceiling Space Clean up, Chart Room and adjoining ceiling space clean up within ICS Room, Radio Room and Equipment Control Room. All Air Samples Collected on June 18, 2002.

1. AIR MONITORING	<input checked="" type="checkbox"/>	4. NEGATIVE AIR	<input checked="" type="checkbox"/>	7. WASTE HANDLING	<input checked="" type="checkbox"/>
2. SITE ISOLATION	<input checked="" type="checkbox"/>	5. WORKER PROTECTION	<input checked="" type="checkbox"/>	8. CLEAN-UP	<input checked="" type="checkbox"/>
3. FACILITIES/EQUIPMENT	<input checked="" type="checkbox"/>	6. DUST SUPPRESSION	<input checked="" type="checkbox"/>	9. OTHER	<input checked="" type="checkbox"/>

SAMPLE NO.	PUMP NO.	TIME TAKEN	DURATION (MIN.)	VOLUME SAMPLED (L.)	DESCRIPTION OF SAMPLE	RESULTS (Fibers/mL)
6199	LV#1	AM	90	180	Personal Sample while Vacuuming Ceiling in Chart Room	<0.1
6197	HV#1	AM	30	480	Perimeter, Chart Room	<0.04
6198	HV#1	AM	30	480	Final Clearance, Chart Room	<0.04
6201	HV#1	PM	30	480	Final Clearance, Radio Room	<0.04
6200	HV#1	PM	30	480	Perimeter, Equipment Control Room	<0.04
6202	HV#1	PM	30	480	Final Clearance, Equipment Control Room	<0.04

Air Monitoring – All air samples were analyzed using the NIOSH 7400 method following the "A" set of counting rules for PCM analysis. Analysis of all samples indicated that airborne fibre levels are within the accepted airborne fibre criteria of 0.1f/mL.

Site Isolation – Good site isolation at each enclosure was observed throughout the shift. Asbestos warning signs were displayed in all appropriate areas. (Enclosure Doorways and Lobby Door Entrances) "Caution Asbestos" warning tape was installed to keep ships crew and contractors within safe distance of each work area as a precautionary measure.

Facilities/Equipment – All facilities and equipment required to conduct asbestos abatement using Type 2 asbestos abatement methods was observed on site and in good working condition. Two (2) HEPA vacuums, duct tape, glue, utility knives, water, wire brushes, etc. was observed at the work site.

TO: Fred Jardine Canadian Coast Guard	PROJECT: Canadian Coast Guard	PROJECT NO.: 02-3117
	INSPECTOR: J.L & C.H	

Negative Air – A HEPA vacuum was used at each enclosure to provide adequate negative pressure during removal and clean up.

Worker Protection – All workers (including all contractors) were observed wearing the appropriate personal protective equipment suitable for Type 2 (Moderate Risk) asbestos removal operations. Equipment did include: (Half face respirators, disposable coveralls equipped with hoods etc.).

Dust Suppression – Dust suppression is achieved by wetting material before, during and after removal inside each enclosure when needed and the continuous operation of HEPA vacuums during the abatement process.

Waste Handling – All associated waste is to be double bagged and individually sealed in clearly labeled asbestos waste disposal bags. All waste to be removed of site by the contractor.

OTHER –

- The continuation of cleanup to the Chart Room and ICS room ceiling spaces commenced throughout today's shift and was completed by shifts end. (Tuesday, June 18th 2002).
- Clean up was also conducted and completed within ceiling spaces of the Radio Room and Equipment Control Room at shift end today (Tuesday, June 18th 2002.)
- **Supplementary Note**-In addition to the June 17, 2002 report, ceiling entry following type 1 asbestos procedures was conducted in the ships office to facilitate repair to a fire damper located in the adjacent stairwell. Minor clean up was required (vacuuming) to gain safe access to the damper.
- No other concerns noted. **END**

TO: Fred Jardine Safety Officer Canadian Coast Guard Newfoundland Region Department of Fisheries and Oceans St. John's, N.F.	PROJECT: Canadian Coast Guard Newfoundland Region CCGS Henry Larsen	PROJECT NO.: 02-3117
	INSPECTOR: Jason Lewis and Craig Hollett	
	TIME IN:	TIME OUT:

WORK IN PROGRESS:
The Removal of Asbestos Containing Material and Related Work Aboard The CCGS Henry Larsen, While Docked at the South Side Coast Guard Base Located in St. John's, Newfoundland. (1) Entry into the Ceiling Space of Room 378, First Officer, Officers Deck to Accommodate HEPA Vacuuming of Ceiling Space. (2) Type 2 Asbestos Clean Up in Cabin 283 and the Adjacent Hallway, Upper Deck. (3) Type 1 Ceiling Entries (multiple) Within the Starboard Hallway, Upper Deck, From Cabin 281 to The Logistics Office. All Air Samples Collected on June 19, 2002.

1. AIR MONITORING	<input checked="" type="checkbox"/>	4. NEGATIVE AIR	<input checked="" type="checkbox"/>	7. WASTE HANDLING	<input checked="" type="checkbox"/>
2. SITE ISOLATION	<input checked="" type="checkbox"/>	5. WORKER PROTECTION	<input checked="" type="checkbox"/>	8. CLEAN-UP	<input checked="" type="checkbox"/>
3. FACILITIES/EQUIPMENT	<input checked="" type="checkbox"/>	6. DUST SUPPRESSION	<input checked="" type="checkbox"/>	9. OTHER	<input checked="" type="checkbox"/>

SAMPLE NO.	PUMP NO.	TIME TAKEN	DURATION (MIN.)	VOLUME SAMPLED (L.)	DESCRIPTION OF SAMPLE	RESULTS (Fibers/mL)
6206	HV#1	AM	30	480	Clearance Sample, Rm 378, First Officer Cabin, Officers Deck	<0.04
6208	HV#1	PM	45	720	Perimeter Sample, Hallway, Starboard Side, Upper Deck	<0.03
6212	LV#1	PM	90	180	Personal, Starboard Upper Deck, Hallway and Cabin 283	<0.1
6203	HV#1	PM	30	480	Clearance Sample, Hallway, Starboard Side, Upper Deck	<0.04

Air Monitoring – All air samples were analyzed using the NIOSH 7400 method following the "A" set of counting rules for PCM analysis. Analysis of all samples indicated that airborne fibre levels are within the accepted airborne fibre criteria of 0.1f/mL.

Site Isolation – Good site isolation at each enclosure was observed throughout the shift. Asbestos warning signs were displayed in all appropriate areas. (Enclosure Doorways/ Entrances) "Caution Asbestos" warning tape was installed to keep ships crew and contractors within safe distance of each work area as a precautionary measure.

Facilities/Equipment – All facilities and equipment required to conduct asbestos abatement using Type 2 asbestos abatement methods was observed on site and in good working condition. Four (4) HEPA vacuums, duct tape, glue, utility knives, water, wire brushes, etc. was observed at the work-site.

TO: Fred Jardine Canadian Coast Guard	PROJECT: Canadian Coast Guard	PROJECT NO.: 02-3117
INSPECTOR: J.L & C.H		

Negative Air – A HEPA vacuum was used at each enclosure to provide adequate negative pressure during removal and clean up.

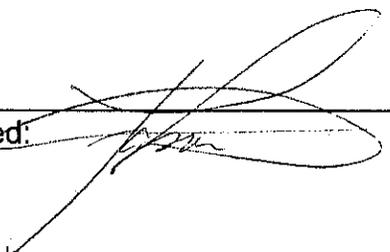
Worker Protection – All workers (including all contractors) were observed wearing the appropriate personal protective equipment suitable for Type 2 (Moderate Risk) asbestos removal operations. Equipment did include: (Half face respirators, disposable coveralls equipped with hoods etc.).

Dust Suppression – Dust suppression is achieved by wetting material before, during and after removal inside each enclosure when needed and the continuous operation of HEPA vacuums during the abatement process.

Waste Handling – All associated waste is to be double bagged and individually sealed in clearly labeled asbestos waste disposal bags. All waste to be removed of site by the contractor.

OTHER –

- HEPA vacuuming into the Ceiling Space of Room 378, First Officer, Officers Deck,
- Type 2 asbestos clean up in Cabin 283 and the adjacent hallway, Upper Deck
- Type 1 ceiling entries (multiple) within the starboard hallway, Upper Deck, from Cabin 281 to the Logistics Office were completed on June 19, 2002.
- No other concerns noted. **END**

Signed: 

Date: 2002/06/19

Report No.: 08 Page: 2 of 2

TO: Fred Jardine Safety Officer Canadian Coast Guard Newfoundland Region Department of Fisheries and Oceans St. John's, N.F.	PROJECT: Canadian Coast Guard Newfoundland Region CCGS Henry Larsen	PROJECT NO.: 02-3117
	INSPECTOR: Jason Lewis and Craig Hollett	
TIME IN:		TIME OUT:

WORK IN PROGRESS:
The Removal of Asbestos Containing Material and Related Work Aboard The CCGS Henry Larsen, While Docked at the South Side Coast Guard Base Located in St. John's, Newfoundland. (1) Type 2 Asbestos Clean Up in Cabin 281 and Cabin 285, Upper Deck. (2) Type 2 Ceiling Entry Within Adjacent Hallway. All Air Samples Collected on June 20, 2002.

1. AIR MONITORING	<input checked="" type="checkbox"/>	4. NEGATIVE AIR	<input checked="" type="checkbox"/>	7. WASTE HANDLING	<input checked="" type="checkbox"/>
2. SITE ISOLATION	<input checked="" type="checkbox"/>	5. WORKER PROTECTION	<input checked="" type="checkbox"/>	8. CLEAN-UP	<input checked="" type="checkbox"/>
3. FACILITIES/EQUIPMENT	<input checked="" type="checkbox"/>	6. DUST SUPPRESSION	<input checked="" type="checkbox"/>	9. OTHER	<input checked="" type="checkbox"/>

SAMPLE NO.	PUMP NO.	TIME TAKEN	DURATION (MIN.)	VOLUME SAMPLED (L.)	DESCRIPTION OF SAMPLE	RESULTS (Fibers/mL)
6214	HV#1	AM	50	800	Perimeter Outside Cabins 281 & 285	<0.03
6209	HV#1	PM	35	560	Perimeter Outside Cabins 281 & 285	<0.03
6213	HV#1	PM	30	480	Clearance Cabin 281	<0.04
6216	HV#1	PM	30	480	Clearance Cabin 285	<0.04
6215	HV#1	PM	30	480	Perimeter Outside Lounge Area	<0.04
6204	HV#1	PM	30	480	Clearance, Lounge	<0.04

Air Monitoring – All air samples were analyzed using the NIOSH 7400 method following the "A" set of counting rules for PCM analysis. Analysis of all samples indicated that airborne fibre levels are within the accepted airborne fibre criteria of 0.1f/mL.

Site Isolation – Good site isolation at each enclosure was observed throughout the shift. Asbestos warning signs were displayed in all appropriate areas. (Enclosure Doorways/ Entrances) "Caution Asbestos" warning tape was installed to keep ships crew and contractors within safe distance of each work area as a precautionary measure.

Facilities/Equipment – All facilities and equipment required to conduct asbestos abatement using Type 2 asbestos abatement methods was observed on site and in good working condition. Four (4) HEPA vacuums, duct tape, glue, utility knives, water, wire brushes, etc. was observed at the work site.

TO: Fred Jardine Canadian Coast Guard	PROJECT: Canadian Coast Guard	PROJECT NO.: 02-3117
INSPECTOR: J.L & C.H		

Negative Air – A HEPA vacuum was used at each enclosure to provide adequate negative pressure during removal and clean up.

Worker Protection – All workers (including all contractors) were observed wearing the appropriate personal protective equipment suitable for Type 2 (Moderate Risk) asbestos removal operations. Equipment did include: (Half face respirators, disposable coveralls equipped with hoods etc.).

Dust Suppression – Dust suppression is achieved by wetting material before, during and after removal inside each enclosure when needed and the continuous operation of HEPA vacuums during the abatement process.

Waste Handling – All associated waste is to be double bagged and individually sealed in clearly labeled asbestos waste disposal bags. All waste to be removed of site by the contractor.

OTHER –

The type 2 asbestos clean up in Cabin 281 and Cabin 285, Upper Deck were completed on June 20, 2002.

The type 2 ceiling entry and clean up, officers lounge, upper deck was also completed on June 20, 2002.

- No other concerns noted. **END**

Signed: *Craig Hollitt*

Date: 2002/06/20

Report No.: 09 Page: 2 of 2

TO: Fred Jardine Safety Officer Canadian Coast Guard Newfoundland Region Department of Fisheries and Oceans St. John's, N.F.	PROJECT: Canadian Coast Guard Newfoundland Region CCGS Henry Larsen	PROJECT NO.: 02-3117
	INSPECTOR: Jason Lewis and Craig Hollett	
	TIME IN:	TIME OUT:

WORK IN PROGRESS:
The Removal of Asbestos Containing Material and Related Work Aboard The CCGS Henry Larsen, While Docked at the South Side Coast Guard Base Located in St. John's, Newfoundland. (1) Type 2 Asbestos Clean Up in Cabin 266 and Cabin 268 , Upper Deck. (2) Type 2 Ceiling Entry And Clean Up Within Adjacent Hallway, Upper Deck. All Air Samples Collected on June 21, 2002.

1. AIR MONITORING	<input checked="" type="checkbox"/>	4. NEGATIVE AIR	<input checked="" type="checkbox"/>	7. WASTE HANDLING	<input checked="" type="checkbox"/>
2. SITE ISOLATION	<input checked="" type="checkbox"/>	5. WORKER PROTECTION	<input checked="" type="checkbox"/>	8. CLEAN-UP	<input checked="" type="checkbox"/>
3. FACILITIES/EQUIPMENT	<input checked="" type="checkbox"/>	6. DUST SUPPRESSION	<input checked="" type="checkbox"/>	9. OTHER	<input checked="" type="checkbox"/>

SAMPLE NO.	PUMP NO.	TIME TAKEN	DURATION (MIN.)	VOLUME SAMPLED (L.)	DESCRIPTION OF SAMPLE	RESULTS (Fibers/mL)
6219	LV#1	AM	90	180	Personal, Cabins 266	<0.1
6220	HV#1	AM	75	1200	Perimeter Outside Cabins 266 & 268	<0.02
6222	HV#1	AM	30	480	Perimeter, Adjacent Smoke Room	<0.04
	HV#1	PM	30	480	Clearance Cabin 266	<0.04
	HV#1	PM	30	480	Clearance Cabin 268	<0.04

Air Monitoring – All air samples were analyzed using the NIOSH 7400 method following the "A" set of counting rules for PCM analysis. Analysis of all samples indicated that airborne fibre levels are within the accepted airborne fibre criteria of 0.1f/mL.

Site Isolation – Good site isolation at each enclosure was observed throughout the shift. Asbestos warning signs were displayed in all appropriate areas. (Enclosure Doorways/ Entrances) "Caution Asbestos" warning tape was installed to keep ships crew and contractors within safe distance of each work area as a precautionary measure.

Facilities/Equipment – All facilities and equipment required to conduct asbestos abatement using Type 2 asbestos abatement methods was observed on site and in good working condition. Four (4) HEPA vacuums, duct tape, glue, utility knives, water, wire brushes, etc. was observed at the work site.

Negative Air – A HEPA vacuum was used at each enclosure to provide adequate negative pressure during removal and clean up.

TO: Fred Jardine Canadian Coast Guard	PROJECT: Canadian Coast Guard	PROJECT NO.: 02-3117
INSPECTOR: J.L & C.H		

Worker Protection – All workers (including all contractors) were observed wearing the appropriate personal protective equipment suitable for Type 2 (Moderate Risk) asbestos removal operations. Equipment did include: (Half face respirators, disposable coveralls equipped with hoods etc.).

Dust Suppression – Dust suppression is achieved by wetting material before, during and after removal inside each enclosure when needed and the continuous operation of HEPA vacuums during the abatement process.

Waste Handling – All associated waste is to be double bagged and individually sealed in clearly labeled asbestos waste disposal bags. All waste to be removed of site by the contractor.

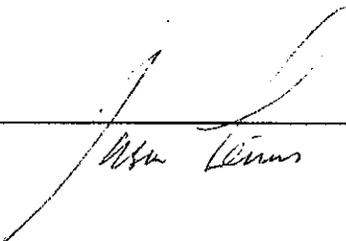
OTHER –

The type 2 asbestos clean up in Cabin 266 and Cabin 268, Upper Deck were completed on June 21, 2002.

The type 2 ceiling entry and clean up, adjacent hallway, upper deck was also completed on June 21, 2002.

- No other concerns noted. **END**

Signed:



Date: 2002/06/21

Report No.: 10 Page: 2 of 2

TO: Fred Jardine
Safety Officer
Canadian Coast Guard
Newfoundland Region
Department of Fisheries and Oceans
St. John's, N.F.

PROJECT:
Canadian Coast Guard
Newfoundland Region
CCGS Henry Larsen

PROJECT NO.:

02-3117

INSPECTOR: Jason Lewis

TIME IN:

TIME OUT:

WORK IN PROGRESS:

The Removal of Asbestos Containing Material and Related Work Aboard The CCGS Henry Larsen, While Docked at the South Side Coast Guard Base Located in St. John's, Newfoundland. (1) Type 2 Asbestos Clean Up in Cabin 264, Second Electrical Officer, Upper Deck. (2) Site Preparation Within The Gymnasium, Lower Deck. All Air Samples Collected on June 22, 2002.

1. AIR MONITORING	<input checked="" type="checkbox"/>	4. NEGATIVE AIR	<input checked="" type="checkbox"/>	7. WASTE HANDLING	<input checked="" type="checkbox"/>
2. SITE ISOLATION	<input checked="" type="checkbox"/>	5. WORKER PROTECTION	<input checked="" type="checkbox"/>	8. CLEAN-UP	<input checked="" type="checkbox"/>
3. FACILITIES/EQUIPMENT	<input checked="" type="checkbox"/>	6. DUST SUPPRESSION	<input checked="" type="checkbox"/>	9. OTHER	<input checked="" type="checkbox"/>

SAMPLE NO.	PUMP NO.	TIME TAKEN	DURATION (MIN.)	VOLUME SAMPLED (L.)	DESCRIPTION OF SAMPLE	RESULTS (Fibers/mL)
6223	HV#1	AM	60	1080	Perimeter Outside Cabins 264	<0.02
6224	HV#1	PM	30	540	Clearance Cabin 264	<0.04

Air Monitoring – All air samples were analyzed using the NIOSH 7400 method following the "A" set of counting rules for PCM analysis. Analysis of all samples indicated that airborne fibre levels are within the accepted airborne fibre criteria of 0.1f/mL.

Site Isolation – Good site isolation at the (Cabin 264, Upper Deck) enclosure was observed throughout the shift. Asbestos warning signs were displayed in all appropriate areas. (Enclosure Doorways/ Entrances)

Facilities/Equipment – All facilities and equipment required to conduct asbestos abatement using Type 2 asbestos abatement methods was observed on site and in good working condition. Two (2) HEPA vacuums, duct tape, glue, utility knives, water, wire brushes, etc. was observed at the work site.

Negative Air – A HEPA vacuum was used at each enclosure to provide adequate negative pressure during removal and clean up.

Worker Protection – All workers (including all contractors) were observed wearing the appropriate personal protective equipment suitable for Type 2 (Moderate Risk) asbestos removal operations. Equipment did include: (Half face respirators, disposable coveralls equipped with hoods etc.).

Signed:

Date: 2002/06/22

Report No.: 11 Page: 1 of 2

TO: Fred Jardine Canadian Coast Guard	PROJECT: Canadian Coast Guard	PROJECT NO.: 02-3117
INSPECTOR: J.L		

Dust Suppression – Dust suppression is achieved by wetting material before, during and after removal inside each enclosure when needed and the continuous operation of HEPA vacuums during the abatement process.

Waste Handling – All associated waste is to be double bagged and individually sealed in clearly labeled asbestos waste disposal bags. All waste to be removed of site by the contractor.

OTHER –

Preparation for asbestos related ceiling clean up began during todays shift. Clean up is scheduled to begin first thing next shift (Sunday, June 24, 2002). Access to equipment inside the facility is limited and not recommended until the enclosure has been removed from site.

- No other concerns noted. **END**

TO: Fred Jardine Safety Officer Canadian Coast Guard Newfoundland Region Department of Fisheries and Oceans St. John's, N.F.	PROJECT: Canadian Coast Guard Newfoundland Region CCGS Henry Larsen	PROJECT NO.: 02-3117
	INSPECTOR: Glenn Coates	
TIME IN:		TIME OUT:

WORK IN PROGRESS:
The Removal of Asbestos Containing Material and Related Work Aboard The CCGS Henry Larsen, While Docked at the South Side Coast Guard Base Located in St. John's, Newfoundland. (1) Type 2 Asbestos Clean up within The Gymnasium, Lower Deck. All Air Samples Collected on June 23, 2002.

1. AIR MONITORING	<input checked="" type="checkbox"/>	4. NEGATIVE AIR	<input checked="" type="checkbox"/>	7. WASTE HANDLING	<input checked="" type="checkbox"/>
2. SITE ISOLATION	<input checked="" type="checkbox"/>	5. WORKER PROTECTION	<input checked="" type="checkbox"/>	8. CLEAN-UP	<input checked="" type="checkbox"/>
3. FACILITIES/EQUIPMENT	<input checked="" type="checkbox"/>	6. DUST SUPPRESSION	<input checked="" type="checkbox"/>	9. OTHER	<input checked="" type="checkbox"/>

SAMPLE NO.	PUMP NO.	TIME TAKEN	DURATION (MIN.)	VOLUME SAMPLED (L.)	DESCRIPTION OF SAMPLE	RESULTS (Fibers/mL)
6225	LV#1	PM	90	180	Personal - Gym	<0.1
6231	HV#1	PM	40	480	Clearance - Gym	<0.04

Air Monitoring – All air samples were analyzed using the NIOSH 7400 method following the "A" set of counting rules for PCM analysis. Analysis of all samples indicated that airborne fibre levels are within the accepted airborne fibre criteria of 0.1f/mL.

Site Isolation – Good site isolation at the (Gymnasium) enclosure was observed throughout the shift. Asbestos warning signs were displayed in all appropriate areas. (Enclosure Doorways/ Entrances)

Facilities/Equipment – All facilities and equipment required to conduct asbestos abatement using Type 2 asbestos abatement methods was observed on site and in good working condition. Two (2) HEPA vacuums, duct tape, glue, utility knives, water, wire brushes, etc. was observed at the work site.

Negative Air – A HEPA vacuum was used at each enclosure to provide adequate negative pressure during removal and clean up.

Worker Protection – All workers (including all contractors) were observed wearing the appropriate personal protective equipment suitable for Type 2 (Moderate Risk) asbestos removal operations. Equipment did include: (Half face respirators, disposable coveralls equipped with hoods etc.).

TO: Fred Jardine
Canadian Coast Guard

PROJECT: Canadian Coast
Guard

PROJECT NO.:
02-3117

INSPECTOR: Glenn Coates

Dust Suppression – Dust suppression is achieved by wetting material before, during and after removal inside each enclosure when needed and the continuous operation of HEPA vacuums during the abatement process.

Waste Handling – All associated waste is to be double bagged and individually sealed in clearly labeled asbestos waste disposal bags. All waste to be removed of site by the contractor.

OTHER –

The completion of the enclosure within the Gymnasium was complete at approximately 11:30 AM today. At 12:30 PM the contractor started the clean up of the area and was complete at 4:30 PM. A visual inspection was conducted on the area to determine if there were any deficiencies. At the completion of the inspection there were no deficiencies noted and the contractor was then give approval to replace the ceiling. A clearance sample was then collected and the results of this sample indicated that the area is now cleaned to industry standards.

- No other concerns noted. **END**

TO: Fred Jardine
Safety Officer
Canadian Coast Guard
Newfoundland Region
Department of Fisheries and Oceans
St. John's, N.F.

PROJECT:
Canadian Coast Guard
Newfoundland Region
CCGS Henry Larsen

PROJECT NO.:

02-3117

INSPECTOR: Quentin Cribb
TIME IN: TIME OUT:

WORK IN PROGRESS:
The Removal of Asbestos Containing Material and Related Work aboard The CCGS Henry Larsen, while conducting sea-trials off St. John's Harbour. (1) Type 2 Asbestos Clean Up in Cabin 159 and Cabin 160 - ~~Lower Deck~~ ^{Main Deck}. All Air Samples Collected on June 24, 2002.

1. AIR MONITORING	<input checked="" type="checkbox"/>	4. NEGATIVE AIR	<input checked="" type="checkbox"/>	7. WASTE HANDLING	<input checked="" type="checkbox"/>
2. SITE ISOLATION	<input checked="" type="checkbox"/>	5. WORKER PROTECTION	<input checked="" type="checkbox"/>	8. CLEAN-UP	<input checked="" type="checkbox"/>
3. FACILITIES/EQUIPMENT	<input checked="" type="checkbox"/>	6. DUST SUPPRESSION	<input checked="" type="checkbox"/>	9. OTHER	<input checked="" type="checkbox"/>

SAMPLE NO.	PUMP NO.	TIME TAKEN	DURATION (MIN.)	VOLUME SAMPLED (L.)	DESCRIPTION OF SAMPLE	RESULTS (Fibers/mL)
6230	LV	PM	32	64	Personal - Room 159	<0.3
6229	HV	PM	20	380	Clearance - Room 159	<0.05

Air Monitoring – All air samples were analyzed using the NIOSH 7400 method following the "A" set of counting rules for PCM analysis.

Site Isolation – Good site isolation at each enclosure was observed throughout the shift. Asbestos warning signs were displayed in all appropriate areas. (Enclosure Doorways/ Entrances) "Caution Asbestos" warning tape was installed to keep ships crew and contractors within safe distance of each work area as a precautionary measure.

Facilities/Equipment – All facilities and equipment required to conduct asbestos abatement using Type 2 asbestos abatement methods was observed on site and in good working condition. One (1) HEPA vacuum, duct tape, glue, utility knives, water, wire brushes, etc. were observed at the work site.

Negative Air – A HEPA vacuum was used at the enclosure to provide adequate negative pressure during removal and clean up.

Worker Protection – All workers (including all contractors) were observed wearing the appropriate personal protective equipment suitable for Type 2 (Moderate Risk) asbestos removal operations. Equipment did include: (Half face respirators, disposable coveralls equipped with hoods etc.).

TO: Fred Jardine Canadian Coast Guard	PROJECT: Canadian Coast Guard	PROJECT NO.: 02-3117
	INSPECTOR: Q.C.	

Dust Suppression – Dust suppression is achieved by wetting material before, during and after removal inside each enclosure when needed and the continuous operation of HEPA vacuums during the abatement process.

Waste Handling – All associated waste is to be double bagged and individually sealed in clearly labeled asbestos waste disposal bags. All waste to be removed off site by the contractor.

OTHER – The result of the personal sample indicated that fibre levels recovered were within acceptable fibre criteria for the protection factor provided by the type of respirator used. The result of the clearance sample indicated that fibre levels were below the ACGIH Threshold Limit Value of 0.1 f/mL for air clearance.

The type 2 asbestos clean-up in Cabin 159 and Cabin 160 - Lower Deck were completed on June 24, 2002.

- No other concerns noted. **END**

TO: Fred Jardine
Safety Officer
Canadian Coast Guard
Newfoundland Region
Department of Fisheries and Oceans
St. John's, N.F.

PROJECT:
Canadian Coast Guard
Newfoundland Region
CCGS Henry Larsen

PROJECT NO.:
02-3117

INSPECTOR: Craig Hollett & Shannon Sweeney

TIME IN: TIME OUT:

WORK IN PROGRESS:

The Removal of Asbestos Containing Material and Related Work aboard The CCGS Henry Larsen, while Docked at the South Side Coast Guard Base Located in St. John's, Newfoundland. (1) Type 2 Asbestos Clean-up within Room 161 and Room 167 - Lower Deck; (2) Type 1 Asbestos Clean-up in Void Space beneath the Wheelhouse. All Air Samples Collected on June 25, 2002. .

Main

1. AIR MONITORING	<input checked="" type="checkbox"/>	4. NEGATIVE AIR	<input checked="" type="checkbox"/>	7. WASTE HANDLING	<input checked="" type="checkbox"/>
2. SITE ISOLATION	<input checked="" type="checkbox"/>	5. WORKER PROTECTION	<input checked="" type="checkbox"/>	8. CLEAN-UP	<input checked="" type="checkbox"/>
3. FACILITIES/EQUIPMENT	<input checked="" type="checkbox"/>	6. DUST SUPPRESSION	<input checked="" type="checkbox"/>	9. OTHER	<input checked="" type="checkbox"/>

SAMPLE NO.	PUMP NO.	TIME TAKEN	DURATION (MIN.)	VOLUME SAMPLED (L.)	DESCRIPTION OF SAMPLE	RESULTS (Fibers/mL)
6221	LV	AM	70	140	Room 161 - Personal	<0.2
6207	HV	AM	40	640	Room 161 - Perimeter	<0.03
6222	HV	AM	40	640	Room 167 - Perimeter	<0.03
6047	HV	AM	30	480	Room 167 - Clearance	<0.04
6227	HV	AM	30	480	Room 161 - Clearance	<0.04
6154	LV	PM	80	160	Void Space beneath Wheelhouse - Personal	<0.2
6040	HV	PM	30	480	Void Space beneath Wheelhouse - Clearance	<0.04

Air Monitoring – All air samples were analyzed using the NIOSH 7400 method following the "A" set of counting rules for PCM analysis.

Site Isolation – Good site isolation at each enclosure was observed throughout the shift. Asbestos warning signs were displayed in all appropriate areas. (Enclosure Doorways/ Entrances) "Caution Asbestos" warning tape was installed to keep ships crew and contractors within safe distance of each work area as a precautionary measure.

Facilities/Equipment – All facilities and equipment required to conduct asbestos abatement using Type 2 asbestos abatement methods was observed on site and in good working condition. Four (4) HEPA vacuums, duct tape, glue, utility knives, water, wire brushes, etc. was observed at the work site.

Negative Air – A HEPA vacuum was used at each enclosure to provide adequate negative pressure during removal and clean up.

TO: Fred Jardine
Canadian Coast Guard

PROJECT: Canadian Coast
Guard

PROJECT NO.:
02-3117

INSPECTOR: C.H. & S.S.

Worker Protection – All workers (including all contractors) were observed wearing the appropriate personal protective equipment suitable for Type 2 (Moderate Risk) asbestos removal operations. Equipment did include: (Half face respirators, disposable coveralls equipped with hoods etc.).

Dust Suppression – Dust suppression is achieved by wetting material before, during and after removal inside each enclosure when needed and the continuous operation of HEPA vacuums during the abatement process.

Waste Handling – All associated waste is to be double bagged and individually sealed in clearly labeled asbestos waste disposal bags. All waste to be removed of site by the contractor.

OTHER – Sample results indicate acceptable airborne asbestos fibre criteria achieved for personal, perimeter and clearance air samples collected.

The type 2 asbestos clean-up in Cabin 161 and Cabin 167 - ^{Main}~~Lower~~ Deck were completed on June 25, 2002.

The type 1 asbestos entry and clean-up in the Void Space beneath Wheelhouse was also completed on June 25, 2002.

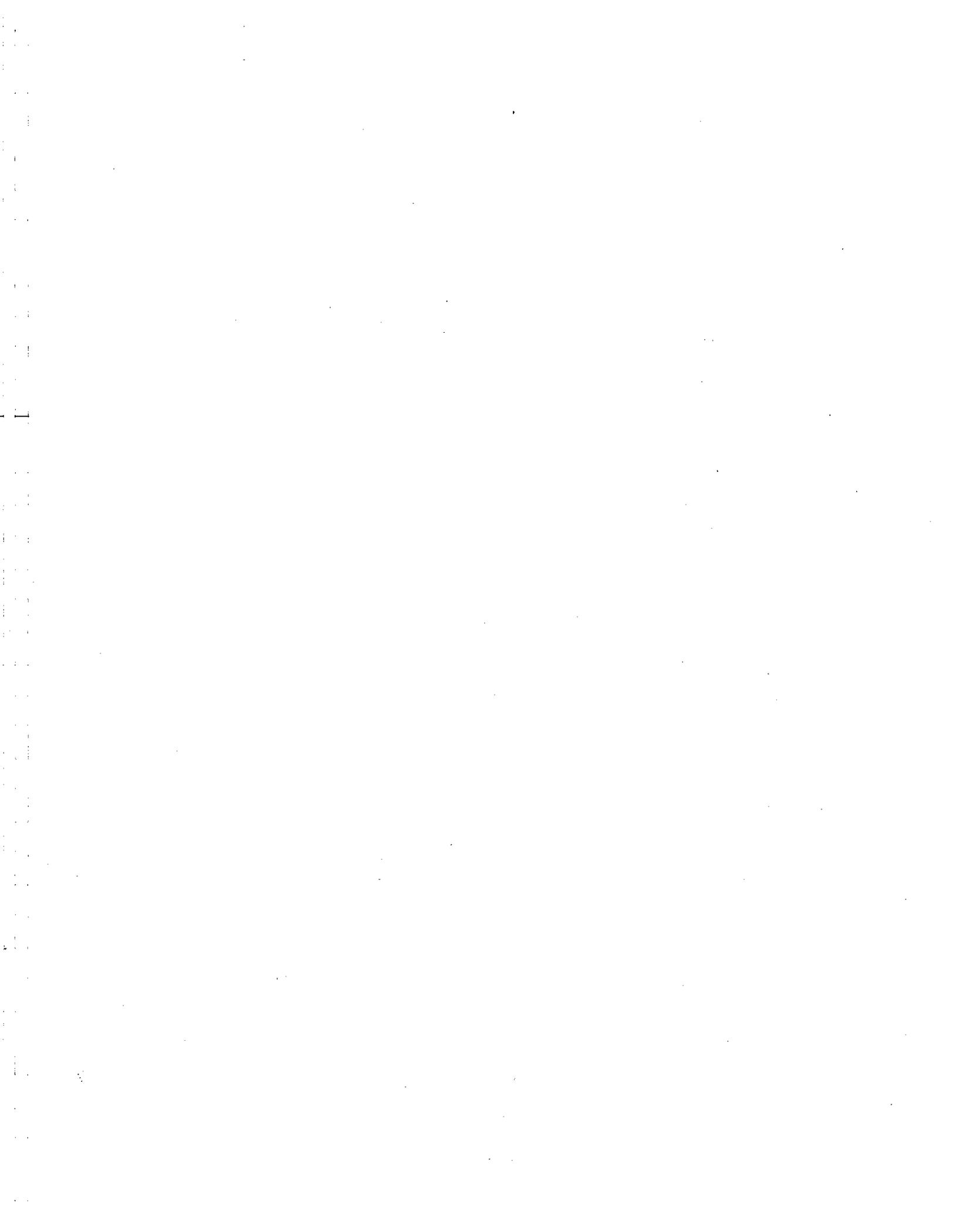
- No other concerns noted. **END**

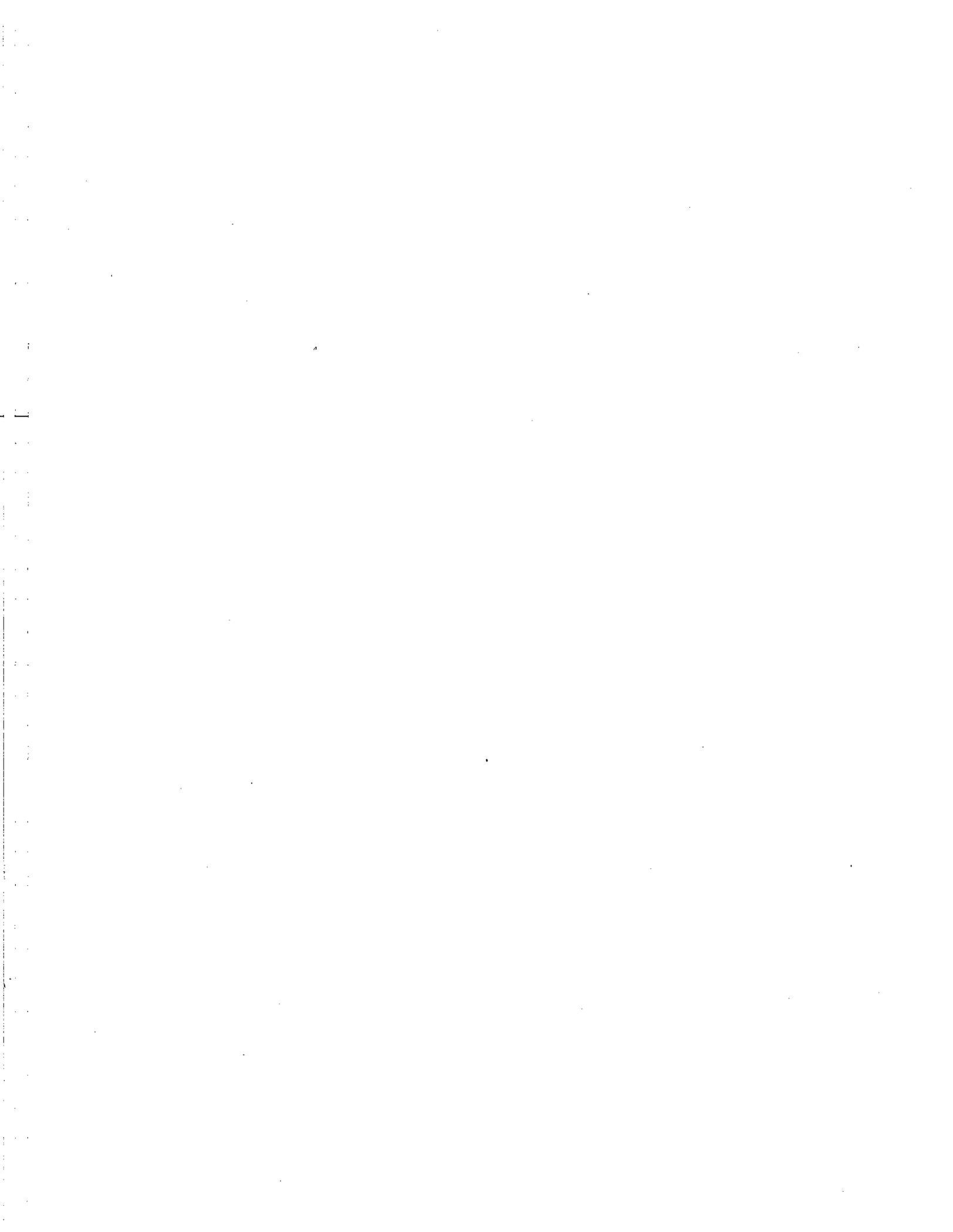
APPENDIX IV

**Condition Survey June 2002
Spray Fireproofing with Asbestos Containing Weather Shield
Overcoat**

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1. INTRODUCTION

On June 14, 2002, Pinchin Leblanc Environmental Ltd. was retained by the Canadian Coast Guard, to conduct an asbestos-containing materials (ACM) condition survey of the Canadian Coast Guard Ship, Henry Larsen. The purpose of the survey was to assess the condition and delineate the extent of asbestos-containing Weather Shield present within the vessel following the discovery of the product during an asbestos materials inventory survey aboard the vessel.

2. SURVEY AND ASSESSMENT CRITERIA

2.1 Survey Methodology

In order to determine the location, extent and condition of the Weather Shield product throughout the vessel, representative views of all deckhead spaces on a room-by-room basis were entered where possible. Every space was not entered if access from an adjacent space could provide adequate viewing. The condition survey encompassed all accommodation spaces, including the Wheelhouse and Navigation Bridge Deck. Mechanical spaces such as the Main Generator Room/Tank Top Level, Steering Gear Compartment, Fan Rooms etc. were surveyed following the assessment of accommodation spaces.

2.2 Background Material Characteristics

The material, more commonly known as Weather Shield, is described as a white colored encapsulant, comparable to a latex overcoat. The material covers a non-asbestos friable spray applied fireproofing called Cavco. In terms of friability, the Weather Shield may be described as a non-friable asbestos containing material adhered to a friable non-asbestos containing fireproofing. Although its purpose of application is not fully determined, it is believed that the overcoat may have been applied during the construction phase of the vessel to protect against damage caused by water, and vibration or as an encapsulant to provide additional strength to the underlying Cavco during normal ship operations. Weather Shield can be observed covering most deckheads and bulkheads that's been sprayed with fireproofing throughout the vessel. The material (Weather Shield) also can be observed on the vessels side shell at tank Top Level in the main Generator Room. Results

of samples taken of this material throughout the ship during the recent asbestos inventory survey indicate the positive presence of Chrysotile asbestos at a concentration of 1-5%.

3. DISCUSSION OF ASBESTOS-CONTAINING MATERIALS FOUND

Table 1-Complete Summary of Asbestos Containing Materials-Weather Shield Only

IDENTIFICATION OF ASBESTOS CONTAINING WEATHER SHIELD COAST GUARD VESSEL HENRY LARSEN St. John's, Newfoundland and Labrador		
Sample Identification	SAMPLE LOCATION/DESCRIPTION	RESULT
Sample 001-A	Spray fireproofing on structural members, main generator room, forward bulkhead	None detected
Sample 004-A	(A) Spray fireproofing on starboard bulkhead, main generator room (B) Yellow mastic overcoat material	(A) None Detected (B) 1-5% Chrysotile
Sample 013-A	Spray fireproofing, navigation bridge, wheelhouse	None detected
Sample 019-A	Spray Fireproofing Main Generator Room, Starboard Side, Forward, Tank Top Level, in way of Main Engine Fuel at Heaters	None Detected
Sample 020-A	Spray Coat on Ship's Hull, Side Shell, Main Generator Room, Starboard Side, Forward, Tank Top Level	1-5% Chrysotile
Sample 021-A	Spray Fireproofing on Port Side, Aft, Main Generator Room Tank Top Level	None Detected
Sample 022-A	Spray Coat on Ships Hull, Port Side, Main Generator Room at Tank Top Level, Port Fuel Manifold	1-5% Chrysotile
Sample 023-A	(A) Spray Fireproofing with (B) Off-white Overcoat, Forward Bulkhead, Main Generator Room	(A) None Detected (B) 1-5% Chrysotile
Sample 024-A	Spray Fireproofing, Main Generator Room, Starboard Side, Aft	None Detected
Sample 025-A	Spray Fireproofing Starboard Side, Aft, Auxiliary Machinery Space, Tank Top Level	<0.1% Chrysotile
Sample 026-A	(A) Spray Fireproofing on Bulkhead, Aft, Steering Gear Room, Starboard Side, Main Deck (B) Off white, soft sticky, cementitious overcoat	(A) None Detected (B) 1-5% Chrysotile
Sample 027-A	(A) Spray Fireproofing with (B) White Adhesive, Navigation Bridge, Wheelhouse, Starboard Side, Center Window	(A) None Detected (B) 1-5% Chrysotile

• The Newfoundland and Labrador Department of Environment recognizes materials containing greater than 1% asbestos to be asbestos containing materials.

3.1 Interpretation of Results

As the analytical results indicate in Table 1, fifty (50) percent of all samples taken (12 total) indicated the positive presence of chrysotile asbestos in concentrations of 1-5% in the Weather Shield product. (Reference sample S004-A on April 10, 2002 and the analysis of the additional samples S020-A, S022-A, S023-A, S026-A, S027-A on June 5, 2002.) Spray fireproofing was observed throughout this vessel as fireproofing or as thermo insulation. The spray, observed on most deckheads and bulkheads throughout the vessel, is a friable non-asbestos material called Cavco, covered by a non-friable asbestos-containing overcoat called Weather Shield. The asbestos containing Weather Shield was observed as a thin overcoat layer with a white latex appearance sprayed on most Cavco insulated areas throughout the ship. Please refer to Appendix II for the laboratory report.

4.0 Condition Survey

The condition survey encompassed all accessible areas aboard the ship, including but not limited to, all mechanical spaces and accommodation areas. During the time of survey an asbestos abatement contractor, Power Vac Services was on site to conduct immediate asbestos clean up in areas that were assessed as poor condition and/or areas where excessive fallout had occurred in the past. The survey resulted in the progressive clean up of approximately twenty-five areas throughout vessel. For the purpose of this survey and corresponding report, only the condition of the spray following the clean up will be reported. The condition of spray observed aboard the vessel following the condition assessment and the clean up of selected areas for June 30, 2002 is displayed in Table 2.

FALLOUT CONDITIONS OF ASBESTOS CONTAINING SPRAY FIREPROOFING COAST GUARD VESSEL HENRY LARSEN <i>St. John's, Newfoundland and Labrador</i>		
CABIN/COMPARTMENT	DECK LOCATION	CONDITION (Excessive, Moderate, Minor)
Wheelhouse	Navigation Bridge Deck	Minor to None (Cleaned During 2002 Assessment)
Lobby outside Wheelhouse including Radar Transceiver Locker	Navigation Bridge Deck	Minor to None (Cleaned During 2002 Assessment)
Radio Control Room	Navigation Bridge Deck	Minor to None (Cleaned During 2002 Assessment)
Electronics Equipment Room	Navigation Bridge Deck	Minor to None (Cleaned During 2002 Assessment)

FALLOUT CONDITIONS OF ASBESTOS CONTAINING SPRAY FIREPROOFING COAST GUARD VESSEL HENRY LARSEN St. John's, Newfoundland and Labrador		
		only- Minor to None
Fan Room AHU #2 and #4	Boat and Flight Deck	Good
AC Chiller Room	Boat and Flight Deck	Good with 1 ft ² exposed Cavco
Helicopter Hanger	Boat and Flight Deck	Majority Fiberglass
Engine Casing @ Deck Elevation	Boat and Flight Deck	Good where accessible
Officers Lounge	Upper Deck	Minor to None (Cleaned During 2002 Clean up)
Senior Engineers Cabin 274	Upper Deck	Bulkheads sprayed only- Minor condition observed
Spare Cabin 283	Upper Deck	Bulkheads sprayed only- Minor condition observed
Electronics Officer Cabin 281	Upper Deck	Bulkheads sprayed only- Minor condition observed
Designated Smoke Room 270	Upper Deck	Bulkheads sprayed only- Minor condition observed
Hallway from Cabin 270 past 274 to Cabin 287	Upper Deck	Bulkheads sprayed only- Minor condition observed
Logistics Officers Cabin 287	Upper Deck	Minor condition observed
Bosun's Cabin 285	Upper Deck	Minor to None (Cleaned During 2002 Clean up)
Cadets Cabin 283	Upper Deck	Minor to None (Cleaned During 2002 Clean up)
Cadets Cabin 281	Upper Deck	Minor to None (Cleaned During 2002 Clean up)
Cadets Cabin 279	Upper Deck	Minor to Moderate
Cadets Cabin 277	Upper Deck	Minor to Moderate
Logistics Officers Office	Upper Deck	Minor to None (Cleaned During 2002 Clean up)
Ships Office	Upper Deck	Moderate
Engineers Office	Upper Deck	Partially sprayed-Minor condition observed
Engineers Change Room	Upper Deck	Good condition observed
Laundry	Upper Deck	Majority No Spray
Supernumarys Cabin 268	Upper Deck	Minor to None (Cleaned During 2002 Clean up)
First Electrical Officer 266	Upper Deck	Minor to None (Cleaned During 2002 Clean up)
Second Electrical Officer 264	Upper Deck	Minor to None (Cleaned During 2002 Clean up)
Ice Service Specialist Cabin	Upper Deck	Minor condition observed -

FALLOUT CONDITIONS OF ASBESTOS CONTAINING SPRAY FIREPROOFING COAST GUARD VESSEL HENRY LARSEN <i>St. John's, Newfoundland and Labrador</i>		
		Moderate in adjacent hallway (20ft ²)
Medical Officer Cabin 260	Upper Deck	Minor condition observed – Moderate in adjacent hallway (16ft ²)
Dispensary 228 and Ward 229	Upper Deck	Minor condition observed
Officers Pantry 231	Upper Deck	Minor condition observed
Officers Dining Room	Upper Deck	Minor with isolated moderate areas (1ft ² ea.)
Officers Lounge	Upper Deck	Minor to None (Cleaned During 2002 Clean up)
Hallway From Cabin 285 to Cabin 277	Upper Deck	Minor to None (Cleaned During 2002 Clean up)
Hallway From Cabin 268 to Cabin 264	Upper Deck	Minor to None (Cleaned During 2002 Clean up)
Fan Room AHU #3	Upper Deck	Good
Workshop	Upper Deck	Good
Bosun's Store	Upper Deck	Good-Access hatch above Halon Tank has exposed Cavco (1ft ²)
Steering Gear Compartment and Stores	Main Deck	Fiberglass with foil face on deckhead. Spray on perimeter bulkheads an selected stringers. Good condition.
Dry Stores	Main Deck	Fiberglass with foil on deckhead. Spray may be present on beams and stringers. Good condition
Crew Change Room	Main Deck	Fiberglass with foil on deckhead. Spray may be present on beams and stringers. Good condition
Refrigerated Cargo Room	Main Deck	No access above deckhead
Fruit and Vegetable Room	Main Deck	No access above deckhead
Cool Dairy Room	Main Deck	No access above deckhead
Cold Room	Main Deck	No access above deckhead
Galley	Main Deck	Poor access during survey- Drawings indicate no spray present
Crews Cafeteria	Main Deck	Partial spray – minor to moderate – excessive fibreglass waste material

FALLOUT CONDITIONS OF ASBESTOS CONTAINING SPRAY FIREPROOFING COAST GUARD VESSEL HENRY LARSEN <i>St. John's, Newfoundland and Labrador</i>		
Crews Lounge 117	Main Deck	Partial spray – Minor condition
PO's Lounge 134	Main Deck	Partial spray – Minor condition with isolated moderate areas
Chief Cook Cabin 130 and Second Cook Cabin 131	Main Deck	Partial spray – Scattered minor condition with isolated moderate areas
Steward Cabin 132 and 133	Main Deck	Minor condition observed
Store Keeper 157 and Spare 158	Main Deck	Partial spray – Minor condition with isolated moderate areas
Leading Seaman Cabins 159 and 160	Main Deck	Minor to None (Cleaned During 2002 Clean up)
Leading Seaman Cabins 151 and 162	Main Deck	Minor to None (Cleaned During 2002 Clean up)
Canteen and Canteen Store	Main Deck	No access above ceiling
Gymnasium	Main Deck	Minor to None (Cleaned During 2002 Clean up)
Hallway From Bubbler Compartment to Canteen	Main Deck	Minor condition observed
Bubbler Compartment	Main Deck	Good condition. Some perforated sheathing has been removed in the past.
Laundry	Main Deck	Fixed metal ceiling with little to access.
Central Stores	Main Deck	The majority of this space has spray observed in good condition.
E/R Technician Cabins 193, 192, 191 and 190	Main Deck	These spaces are partially sprayed and observed in minor condition
Oiler Cabins 167 and 168	Main Deck	Minor to None (Cleaned During 2002 Clean up)
Seamen 165 and 166	Main Deck	These spaces are partially sprayed and observed in minor condition. Some fallout on bathroom.
Seamen 163 and 164	Main Deck	These spaces are partially sprayed and observed in minor condition.

FALLOUT CONDITIONS OF ASBESTOS CONTAINING SPRAY FIREPROOFING COAST GUARD VESSEL HENRY LARSEN St. John's, Newfoundland and Labrador		
Engine Casing	Main Deck	The engine casing at this elevation has spray on the accommodations side of its side shell. Minor fallout conditions exist near the casing.
Important: The water tight door control levers on this deck has spray behind each lever panel.		
Propulsion Motor Room	Lower Deck	Port side, Aft Corner Behind Transformer-Damaged perforated sheathing in poor condition. No fallout observed. Caution advised
Most areas in the Lower Deck that has spray was observed in good condition. The spray in this space is covered and bound by perforated aluminium sheathing that provides a rigid barrier over the spray.		
Propulsion Motor Room, Port and Starboard Sides, Aft corners near shafts.	Tank Top	The perforated sheathing at this location is slowly deteriorating. As a result minor fallout is present.
Main Generator Room, Structural Steel at Deckhead elevation, forward of Main Generator #2	Tank Top	The spray fireproofing at this location has no perforated sheathing. The condition of the spray is poor with small isolated areas of minor fallout conditions
Most areas at the Tank Top Level that has spray other than previously listed was observed in good condition. The spray in this space especially on bulkheads, is covered and bound by perforated aluminium sheathing that provides a rigid barrier over the spray.		
-END OF CONDITIONS TABLE-		

4.1 Survey Limitations

Due to the nature of ship construction, and due to the non-destructive nature of the survey, some limitations exist as to the possible thoroughness of the survey. Some of these limitations would included poor access through narrow panels, occupied spaces, and fixed ceiling structures. The field observations, measurements, and analysis are considered sufficient in detail and scope to form a reasonable basis for a general asbestos hazard assessment of this ship. Pinchin LeBlanc Environmental Ltd. warrants that the findings

and conclusions contained herein have been promulgated in accordance with generally accepted asbestos hazard evaluation methods, for the ship referenced in this report.

There is a distinct possibility that conditions may exist which could not be reasonably identified within the scope of the assessment or which were not apparent during the site visit. Pinchin LeBlanc Environmental Ltd. believes that the information collected during the survey period concerning the ship is reliable. However, Pinchin LeBlanc Environmental Ltd. cannot warrant or guarantee that the information provided is absolutely complete or accurate beyond the current asbestos consulting industry standards or accurate once the vessel returns the normal operating conditions at sea and in ice. No other warranties are implied or expressed.

5. SPECIFIC RECOMMENDATIONS

- .1 Maintain a copy of the asbestos survey report with the accompanying field drawings on board to record the location of asbestos-containing spray coat and condition assessment ratings.
- .2 Advise workers who may disturb the asbestos materials of the presence of the asbestos, including outside contractors, the procedures required to enter each space, as determined by the asbestos coordinators.
- .3 Sample suspect materials as uncovered, should any such materials be accessed or be observed. If sampling is not practical at sea, treat the material in question as an asbestos containing material.

Specific recommendations as developed from the asbestos assessment conduct pervious to this condition survey in 2002 still apply:

- .4 Access to deck head spaces for inspection purposes should be conducted following Type 1 asbestos entry procedures.
- .5 Access to deck head spaces to facilitate a cable pull or pipe repair creating only a minor disturbance in areas where spray is in good condition, use Type 1 asbestos abatement procedures.
- .6 Access into any deck head space where the condition of spray Weather Shield fallout is moderate to excessive in large quantities, with any disturbance, use Type 2 abatement procedures.

- .7 The removal of large quantities of Weather Shield should be conducted under Type 2 asbestos abatement procedures.
- .8 Removal of perforated aluminium sheathing from sprayed surfaces should be conducted following type 1 asbestos abatement procedures.=
- .9 Safe work practices and occupational controls should be implemented on board this vessel when working with asbestos containing Weather Shield. Plans and specifications should address worker education and training for maintenance personnel and contractors who may be required to work or repair equipment that potentially may disturb asbestos containing Weather Shield aboard the Henry Larsen.

All asbestos related work should follow industry standards and good practice, applicable federal regulations and guidelines governing asbestos materials, and the Newfoundland and Labrador Asbestos Regulation 111/98.

SIGNATURES

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APPENDIX V
TYPE 1, TYPE 2 AND TYPE 3
ASBESTOS WORK PROCEDURES

A GENERAL SUMMARY

TYPE 1-ASBESTOS ABATEMENT WORK PROCEDURES (LOW RISK)

Type 1 asbestos removal procedures are usually practiced when dealing with the removal or disturbance of non-friable asbestos containing materials. These are defined as follows:

1. Installation or removal of manufactured products containing asbestos. Asbestos manufactured products include vinyl floor tile, acoustic ceiling tiles, gaskets, seals, packings, asbestos cement sheeting or transite panels, cement pipe products.
2. Removing drywall where asbestos joint filling compounds have been used
3. Removal of 5 or less acoustic ceiling tiles containing asbestos. For larger scale removal, use Type 2 precautions

Type 1 asbestos abatement methods would generally include the following equipment:

1.1 Vacuum

Use of a vacuum is optional. Wet cleaning methods may be used in place of a vacuum. If a vacuum is used it must be equipped with a high efficiency particulate (HEPA) filter and all brushes, fittings, etc. The vacuum must only be opened in an enclosure equipped with a negative pressure system, or in a laboratory exhaust hood. The vacuum exterior should be carefully wet cleaned after emptying.

1.2 Respirators

Use of a respirator is required where the work is likely to cause or has the potential to cause fibre release. Workers should be supplied with minimum half face respirator with HEPA filters, and receive training on use and qualitative fit testing. Respirator must be used according to written use procedures provided to worker as per training procedures. Filters must be changed after 24 hours of wear or sooner if breathing resistance increases. No person-using respirator shall wear facial hair, which affects the seal between respirator and face.

1.3 Protective Clothing and Decontamination of Workers

Reusable or disposable clothing should be used. Non-disposable clothing with visible asbestos contamination shall be cleaned with a HEPA vacuum and laundered as asbestos contaminated. Disposable clothing and respirator filters to be disposed of as asbestos waste. A established worker decontamination must be established the workers to wash respirators and exposed skin.

1.4 Other Equipment

- plastic sheet (6 mil polyethylene) - to serve as a drop sheet.
- pump sprayer with mister nozzle or alternative method to wet material.
- labelled yellow asbestos waste bags (6 mil) - for all asbestos waste, disposable equipment, plastic, etc.

- small tools and cleaning supplies - e.g. scouring pads, sponges, brushes, buckets, etc.

TYPE 2-ASBESTOS ABATEMENT WORK PROCEDURES (MODERATE RISK)

Type 2 asbestos removal procedures are usually practiced when repairing, cleaning up or removing limited amounts of friable asbestos containing materials. Depending on the nature of the asbestos related work, individuals may construct mini enclosures or use a glove bag apparatus to isolate the asbestos work site. A description of various Type 2 procedures is as follows:

1. Removal of any part of a false ceiling, if friable asbestos material is likely to be on the surface of the false ceiling (i.e. acoustic plaster, or mechanical insulation)
2. Removal of **minor** amounts of mechanical insulation containing asbestos during repair, alteration or maintenance (limitations of amount of material allowed to be removed or disturbed as Type 2 (Moderate Risk) but is in the order of 10 feet of pipe insulation).
3. Repair of any amount of asbestos mechanical insulation.
4. Removal of more than 5 acoustic ceiling tiles.
5. Using glove bags to remove asbestos pipe insulation from pipe runs, pipe elbows, valves or fittings.

Although these methods may be site specific the following general equipment is required:

1. Glove Bag
Prefabricated, 0.25 mm (10 mil) minimum thickness polyvinyl-chloride bag with integral 0.25 mm (10 mil) thick polyvinyl-chloride gloves and elasticised port. Bag shall be equipped with reversible double-pull double throw zipper on top. Bag must incorporate internal closure strip if it is to be removed from pipe for re-use elsewhere. Provide size and configuration appropriate for insulation to be removed. Once filled bag must be disposed of. Bag shall not be emptied and reused.
2. Vacuum
An asbestos-approved vacuum (HEPA filtered), equipped with brushes, fittings, etc. Vacuum must not be opened except by fully protected worker within enclosure as described below.
3. Respirators
Workers within the work area shall wear approved respirator. Respirators and filters will be provided by the employer, and individually assigned to workers. Respirator shall be a half-face piece respirator with high efficiency filters. Respirators must be kept in position throughout the entire time the worker is in the area of the work from first disturbance of the ceiling tile or asbestos material until the final cleaning of the area and bagging of waste is complete. Change filters after 24 hours of wear or sooner if breathing resistance increases. No person using respirator shall wear facial hair, which affects seal between respirator and face.
4. Protective Clothing & Decontamination of Workers

All workers shall wear a disposable suit with attached head cover. Wear disposable suits at all times with head cover in position. Suits may be vacuumed or wet wiped clean for re-use, for a maximum of 8 hours cumulative wear. Suit and head cover shall remain in place until worker leaves work area or the enclosure is dismantled. A established worker decontamination must be established the workers to wash respirators and exposed skin.

.5 Other Equipment

- plastic sheet (6 mil polyethylene) - to erect a total enclosure or to serve as drop sheet;
- tape - to fasten plastic enclosure to ceiling or to tape drop sheet to floor; 1/2" double-sided tape recommended for attaching polyethylene to T-bar ceiling
- labelled asbestos waste bag (6 mil) - for all asbestos waste, disposable suit, plastic for disposal, etc.;

- pump sprayer containing water with wetting agent to wet asbestos as necessary; dilute wetting agent 2 oz per gallon of water.
- asbestos warning signs
- cleaning supplies - e.g. scouring pads, sponges, brushes, buckets, etc.
- insulation repair supplies (lagging compound, cloth, PVC covers)
- encapsulating sealer, for brush or airless spray application.

Type 3-Asbestos Abatement work Procedures (High Risk)

Type 3 asbestos abatement procedures are mandatory when removing large amounts of friable asbestos containing materials. Work procedures involve the planning and development of engineering controls to contain the work site and the release of airborne asbestos fibers as a result of disturbance during abatement. All other work not listed in Type 1 & 2 shall be classified as Type 3 work. This work includes the use of negative air extraction units, full worker decontamination facilities, additional respiratory protection and engineering controls. Generally this work is contracted out to registered asbestos abatement contractors where a detailed specification is used.