



REPORT

Hazardous Building Materials Assessment

Neptune Bulk Terminals – Berth 2 Potash Shiploader

Revision No. 1

Prepared for:

Neptune Bulk Terminals

1001 Low Level Road

North Vancouver, BC V7L 1A7

Envirochem Project No.: 21126

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Envirochem Services Inc.
#206 – 267 Esplanade West
North Vancouver, BC
V7M 1A5

Main: 1-604-986-0233
Fax: 604-986-8583
Email: response@envirochem.com
envirochem.com

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1.0 INTRODUCTION

Neptune Bulk Terminals (NBT, the Client) retained Envirochem Services Inc. (Envirochem) to conduct a hazardous building materials assessment (HBMA) of the potash shiploaders and associated conveyors, and various buildings and structures located in Berth 2 of Neptune Bulk Terminal at 1001 Low Level Road in North Vancouver, BC (the Site). As part of terminal upgrades, it is understood these structures will be removed in their entirety, then dismantled and scrapped off-site. Under Section 20.112 of the BC Occupational Health and Safety Regulation (BC Reg. 296/97 as amended) a HBMA must be completed prior to the removal and dismantling of these structures.

Envirochem completed an initial HBMA in July 2021 and completed additional assessment in June 2022 due to additions to the demolition scope of work.

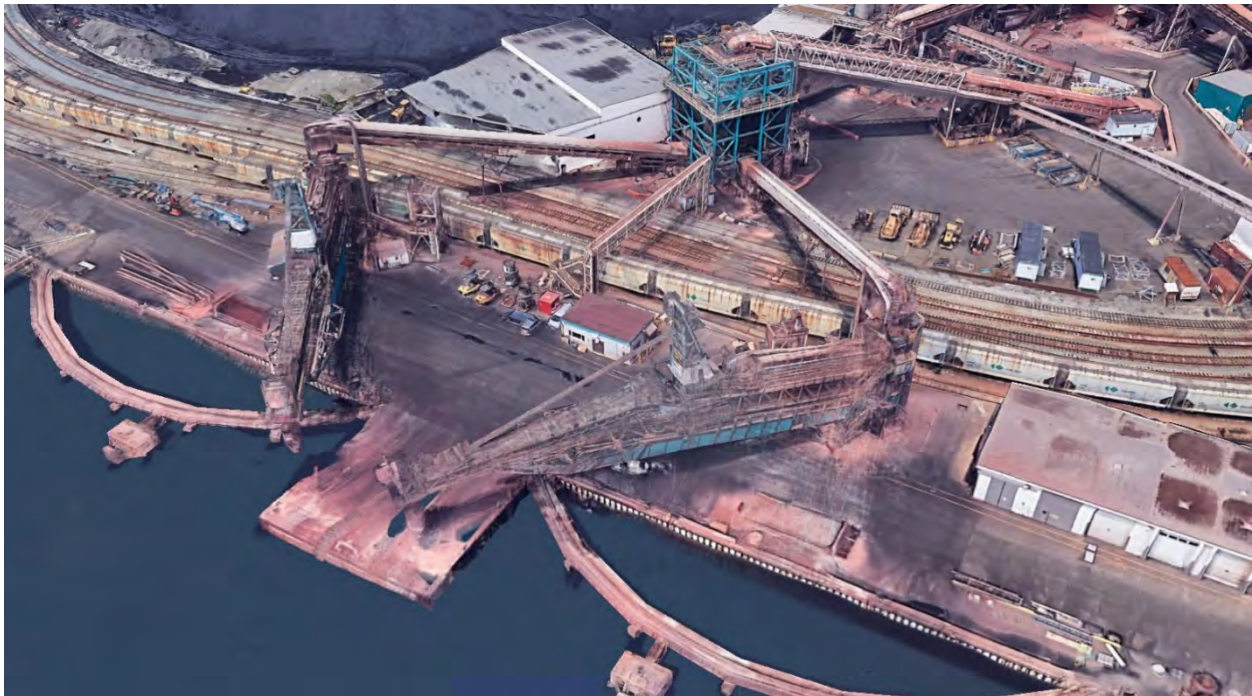


Figure 1: View of the Berth 2 potash shiploaders at Neptune Bulk Terminals.

1.1 Project Objective

The objective of this HBMA is to establish the type, location, condition, and estimate quantities of the hazardous materials incorporated within the assessment area through:

- Review of existing documents and drawings relating to asbestos and other hazardous building materials;
- On-site surveillance and visual inspection of the assessment areas; and,
- Bulk sampling of suspected hazardous building materials.

The list of hazardous materials that are included in this assessment are as follow:

- Asbestos and asbestos-containing materials (ACM)
- Polychlorinated biphenyl (PCBs)
- Mercury-containing fixtures and equipment
- Lead and heavy metals-containing materials
- Ozone depleting substances (ODS)
- Solvents
- Lubricants and fuels
- Paint
- Silica
- Electronic waste (E-Waste)
- Smoke detectors
- Miscellaneous chemicals and materials

The applicable provincial and federal statutes and regulations relevant to the identification, removal, and disposal or recycling of hazardous building materials are included in **Appendix A**.

Conclusions drawn from this assessment may recommend further, more in-depth, surveillance and sampling.

1.2 Assessment Area

This assessment scope is limited to the Berth 2 shiploader demolition activities, as shown in the Demolition Plan attached in **Appendix B**. Based on Envirochem's understanding of the intended demolition work, areas of the assessment are limited to the following:

- Existing East and West Potash Shiploaders (EPSL/WPSL) and associated conveyors
 - Conveyors: C10, C11, C13, C14
- Respective shiploader feed conveyors
 - Conveyors: C8, C9 and C12
- Berth 2 Dock Office Building and ER201
- Scrubbers 9/10 (Asset 240) and 13/14 (Asset 241)
- Cathodic Protection Shed (Asset 221)
- ER271 and Berth 2 pedestrian overhead walkway
- Berth 2 East and West Potash Treatment Ponds
- Berth 2 wharf, shiploader quadrant beams, and existing dolphins
- Old Stores Building
- Shore Mooring 3

2.0 STRUCTURE DESCRIPTIONS

A description of the assessed structures and buildings is summarized below.

Table 1: WPSL, EPSL, and associated conveyors and scrubber towers description

Area/System	Description
Construction	Steel frame on concrete slab
Exterior	Fibreglass (Control rooms), and corrugated steel (Electrical rooms)
Interior Walls and Ceilings	Fibreglass (Control rooms) and wood panels (Electrical rooms)
Roof	Fibreglass (Control rooms), corrugated steel and tar and gravel (Electrical rooms)
Heating	Air condition units in control rooms and localized base board heating in electrical rooms
Lighting	Fluorescent lights and LEDs
Flooring	Steel and wooden walkways

These steel structures are supported on concrete footings and consist of various painted surfaces. Based on NBT's documented history, these structures were built in 1968.

Table 2: Berth 2 Dock Office Building

Area/System	Description
Construction	Cinder blocks on concrete slab
Exterior	Cinder blocks
Interior Walls and Ceilings	Drywall (Office), concrete and cinder blocks (ER201 and storage rooms)
Roof	Torch-on asphalt sheet
Heating	Air condition unit and heaters
Lighting	Fluorescent lights and LEDs
Flooring	Concrete

Table 3: ER271 Building

Area/System	Description
Construction	Cinder blocks on concrete slab
Exterior	Cinder blocks
Interior Walls and Ceilings	Concrete and cinder blocks
Roof	Concrete
Heating	Hanging coil heaters
Lighting	Fluorescent lights
Flooring	Concrete

Table 4: Old Stores Building description

Area/System	Description
Construction	Cinder blocks on concrete slab
Exterior	Cinder blocks
Interior Walls and Ceilings	Drywall (Office), concrete and cinder blocks
Roof	Torch-on asphalt sheet
Heating	Air conditioning unit and heaters
Lighting	Fluorescent lights and LEDs
Flooring	Concrete

The existing dolphins are in-water concrete structure with lumber support piles, and Shore Mooring 3 is a metal structure installed on land in Berth 2.

3.0 ASSESSMENT METHODOLOGY

This HBMA was completed in accordance with the following guidance:

- Vancouver Fraser Port Authority (Port Authority), *Project and Environmental Review, Guidelines – Demolition*, (Port Authority, 2016)

3.1 Asbestos-Containing Materials Survey

3.1.1 Visual Assessment

Envirochem conducted a visual observation of the assessment area to identify homogeneous areas of suspect ACMs and hazardous materials. A homogeneous area consists of building materials that appear similar in terms of color, texture, and approximate date of application (age). Site surveillance photographs are shown in **Appendix C**.

3.1.2 Physical Assessment

A physical assessment of the suspect ACM to be tested was conducted to assess the friability and condition of the materials. WorkSafeBC defines a "friable asbestos-containing material" as asbestos-containing material that is crumbled or powdered or can be crumbled or powdered by hand pressure. Friability is assessed by physically touching suspect ACMs.

3.1.3 Sample Collection

Based on results of the visual observation and the presence and/or absence of previous sampling, bulk samples of suspect asbestos-containing building materials were collected. Envirochem referenced the WorkSafeBC bulk material sample collection guide as found on page 27 of the WorkSafe BC Safe Work Practices for Handling Asbestos (WorkSafe BC, 2017), as shown in **Appendix D**, for determining the number of samples to retain. Bulk asbestos samples were collected using wet methods as described in Envirochem's Bulk Sampling of Asbestos Containing Materials procedure. The procedure is part of the company Asbestos Exposure Control Plan. Asbestos samples will be placed in sealable containers and labeled with unique sample numbers using an indelible marker. All samples were submitted for asbestos content analysis to Sure Hazmat located in Burnaby, BC. Sure Hazmat analyzed the samples using the NIOSH Method 9002, Asbestos (Bulk) by Polarized Light Microscopy (PLM), an approved analytical method designated by WorkSafeBC.

3.2 Lead Containing Surface Coatings Survey

A visual inspection was conducted to identify building materials where lead containing surface coatings (including paints) were suspected. Lead paint samples were collected in sealable containers and labeled with unique sample numbers using an indelible marker. Collected samples were sent to ALS Laboratories in Burnaby, BC, a CALA-accredited laboratory for lead content analysis.

3.3 Other Hazardous Materials – Visual Survey

A visual inspection of suspect PCB, lead, mercury, refrigerants, fire suppression equipment and systems, crystalline silica, and heavy metals containing materials and products was conducted. Other hazardous materials such as solvents, lubricants and fuels, paint, E-wastes, smoke detectors and other miscellaneous chemicals and materials were also included.

4.0 FINDINGS AND RECOMMENDATIONS

4.1 Asbestos Survey

Asbestos was detected in 5 out of 29 of the samples analyzed. Sample locations, material types, and asbestos content results are summarized in the table below. Sample locations are shown on the Sample Location Diagrams in **Appendix E**. The Sure Hazmat Certificate of Analysis is attached in **Appendix F**.

Table 5: Asbestos Analytical Results

Sample ID	Sample Location	Sample Description	Results (% Asbestos Type)
1	C10 Bin Level Indicator	Brown Mastic	Non-Detect
2	C10 Bin Level Indicator	White Caulking	Non-Detect
3	WPSL Control Room Exterior	Brown Mastic	Non-Detect
4	WPSL Control Room Exterior	White Caulking	Non-Detect
5	C12 Chute	Red Mastic	Non-Detect
6	ER214 Roof	Roof Shingle	Non-Detect
7	EPSL Control Room Exterior	Grey Caulking	Non-Detect
8	EPSL Control Room Exterior	White Caulking	Non-Detect
9	EPSL Control Room Door Exterior	Grey Mastic	Non-Detect
10	Cathodic Protection Shed, Interior East Duct	Clear/Grey Mastic	Non-Detect
11	Cathodic Protection Shed, Interior South Duct	Silver Mastic	Non-Detect
12	Berth 2 Dock Office Building, ER201 North Exterior	Cement Board	Non-Detect
13	Berth 2 Dock Office Building, ER201 North Exterior	Grey Mastic	Non-Detect
14	Berth 2 Dock Office Building, Office South Window Exterior	Black Putty/Mastic	Non-Detect
15	Berth 2 Dock Office Building, Office South Window Exterior	Grey Putty	Non-Detect
16	Berth 2 Dock Office Building, West Exterior Duct	Grey Mastic	Non-Detect
17	Berth 2 Dock Office Building, ER201 West Door Frame	Grey Mastic	Non-Detect
18	Berth 2 Dock Office Building, Roof West	Roof Flashing Mastic	Non-Detect
19	Berth 2 Dock Office Building, Office South Window Interior East	Drywall Joint Compound	Non-Detect
20	Berth 2 Dock Office Building, Office South Window Interior West	Drywall Joint Compound	Non-Detect
21	Berth 2 Dock Office Building, Office Light Switch Panel	Drywall Joint Compound	Non-Detect
22	ER271 Door Frame	Black Caulking	Non-Detect

Sample ID	Sample Location	Sample Description	Results (% Asbestos Type)
23	Old Stores Building, Upper Floor, North Entrance	Drywall Joint Compound	Chrysotile 0.5-3%
24	Old Stores Building, Upper Floor, Washroom	Drywall Joint Compound	Chrysotile 0.5-3%
25	Old Stores Building, Upper Floor, East Entrance	Drywall Joint Compound	Chrysotile 0.5-3%
26	Old Stores Building, Upper Floor, Kitchen	Drywall Joint Compound	Chrysotile 0.5-3%
27	Old Stores Building, Upper Floor, East Storage Room	Drywall Joint Compound	Chrysotile 0.5-3%
28	Old Stores Building, Upper Floor, Washroom	Floor Tile Grout	Non-Detect
29	Old Stores Building, Roof (Eastern Portion)	Shingle	Non-Detect

All 5 bulk samples of drywall joint compound were found to contain 0.5-3% Chrysotile asbestos. All drywall joint compound within the upper floor of the Old Stores Building will be deemed asbestos containing.

Should any additional suspect ACM be identified during demolition activities, all work must be stopped until the suspect ACM has been sampled by a qualified person and analyzed.

4.2 Lead Containing Material

4.2.1 Lead Paint

Lead was detected in 20 out of 35 paint samples retained from the assessment area. The results are summarized in **Table 5**. Sample locations are shown in **Appendix E**. The ALS Laboratories Certificate of Analysis is included in **Appendix G**.

Table 6: Lead in Paint Analytical Results

Sample ID	Sample Location	Sample Description	Lead Concentration (mg/kg)
L1	C10 Lower Railing	Yellow Paint	<5.0
L2	C10 Hoist Mast	Teal Paint	8.8
L3	C10 Upper Conveyor Steel	Teal Paint	<5.0
L4	C11 Conveyor Roller Arm	White Paint	<5.0
L5	C11 Upper Conveyor Steel	Teal Paint	41.0
L6	EPSL Control Room Fiberglass	White Paint	<5.0
L7	C10 Upper Railing by ER211	Teal Paint	6.5
L8	C9 Conveyor Cover Arm	Brown Paint	174
L9	C9 Walkway	White Paint	<5.0
L10	C9 Lower Railing	Yellow Paint	<5.0
L11	C12 Lower Railing	Yellow Paint	<5.0
L12	C12 Conveyor Steel	White Paint	<5.0

Sample ID	Sample Location	Sample Description	Lead Concentration (mg/kg)
L13	C12 Conveyor Cover Arm (Photo No. 12)	Brown Paint	410
L14	C12 Chute/Hopper (Photo No. 13)	Red Paint	1660
L15	C13 Upper Railing	Yellow Paint	<5.0
L16	C13 Upper Conveyor Steel	Teal Paint	<5.0
L17	C13 Hoist Mast	Teal Paint	34.5
L18	C14 Conveyor Roller Arm	White Paint	<5.0
L19	C9 Conveyor Steel (Photo No. 14)	Red Paint	1080
L20	Scrubber 9/10 Steel Column	White Paint	53.3
L21	Cathodic Protection Shed Exterior	White Paint	15.2
L22	Scrubber 12/13 Railing and Ladder	White Paint	88.9
L23	Overhead Walkway Steel	White Paint	<5.0
L24	Overhead Walkway Railing	Yellow Paint	1870
L25	Old Stores Building – Cinderblock	White Paint	36.4
L26	Old Stores Building – Wood Trim (Photo No. 8)	White Paint	1280
L27	C8 – Conveyor Steel Arm, East (Photo No. 17)	White Paint	<5.0
L28	C8 – Product Transfer Line Steel (Photo No. 15)	Teal Paint	10.4
L29	C8 – Roller Arm (Photo No. 17)	Brown Paint	12.3
L30	C8 – Conveyor Steel East (Photo No. 16)	White Paint	1520
L31	C8 – Conveyor Steel West (Photo No. 18)	Brown Paint	15.8
L32	C8 - Support Column	White Paint	<5.0
L33	C8 – Support Column	Brown Paint	13.6
L34	C8 – Railing	Yellow Paint	<5.0
L35	Dolphin 1 – Railing	Yellow Paint	6.1

The federal Surface Coating Materials Regulations requires painted surfaces containing 90 mg/kg or greater lead be identified as lead-containing. However, WorkSafeBC considers any coating/paint with any amount of lead to be lead-containing.

Therefore, a lead exposure risk assessment, to be provided by a contractor, will be required prior to any demolition activities impacting the painted surfaces in the assessment area. These activities could include cutting, grinding, sanding, torching, or shearing.

The risk assessment(s) will be based on the nature of the work affecting the lead containing materials (e.g., cutting, manual demolition, sanding, grinding, blasting, etc.) and total area of lead-containing materials to be impacted. The assessment(s) will subsequently identify the most suitable controls required, such as

personal protective equipment for workers and/or dust suppression methods. Lead removal procedures based upon the risk assessment will be required once all work requirements are identified. All work impacting the lead-containing materials must only be conducted by trained personnel under a company lead Exposure Control Plan (ECP).

4.2.2 Management of Lead-Containing Waste

Any paint/surface coating removed from steel structures (i.e., non-porous substrate) during demolition activities must be collected and analyzed for leachate toxicity prior to disposal. Any paint waste where the lead concentration in the leachate when subjected to the Toxicity Characteristic Leaching Procedure (TCLP) exceeds 5.0 mg/L will be considered as hazardous waste and required to be disposed at a permitted hazardous waste facility.

4.3 Polychlorinated Biphenyls (PCBs) Visual Evaluation Inventory

PCBs are commonly used in small capacitors within fluorescent light ballasts and High-Intensity Discharge (HID) light fixtures, as well as in electrical transformers.

4.3.1 Fluorescent Light Fixtures

During the survey approximately 120 fluorescent light fixtures were observed throughout the assessment area.

The federal PCB Regulations states the end of use date for fluorescent lamp ballasts containing > 50 mg/kg PCB is December 31, 2025. Therefore, all fluorescent lamp ballasts removed are required to be inspected, for the presence of PCBs. Ballasts that are not labeled “Non-PCB” or “PCB Free” must have their serial number and/or manufacture date compared against the “Identification of Lamp Ballasts Containing PCBs”, by Environment Canada (August 1991), or assumed to be PCB-containing. Ballasts identified as PCB containing must be packaged, labeled, and disposed as hazardous waste at an approved facility as defined in the BC Hazardous Waste Regulation (BC HWR).

4.3.2 Transformers

Three electrical transformers were observed within the assessment area during the survey.

Two electrical transformers were located on the north side of the Berth 2 Dock Office Building with service tags dated in 2016 and indicated each of the two transformers contained 1530 L of biodegradable Envirotemp FR3 coolant. If these transformers are not reused, their coolant reservoirs must be drained or otherwise reused/recycled prior to being moved or recycled as scrap as part of any demolition activities.

One electrical transformer was located within the Cathodic Protection Shed. Signage on the shed indicated the transformer contained 900 L of oil, however, no other information about the oil was available, including PCB analysis (or confirmation the oil is PCB free) or age. Prior to the drainage of this transformer, the oil will be required to be tested for PCB. PCB-containing oil will be required to be disposed in accordance with the HWR.

4.4 Mercury Visual Evaluation Inventory

Fluorescent light tubes are known to contain mercury vapour. **All fluorescent light tubes are required to be collected and packed for disposal in accordance with all applicable regulations and procedures prior to any demolition activities.** Workers must ensure care is taken to avoid damaging the light tubes, which may result in the release of mercury vapour or mercury containing solids. Fluorescent light tubes that will not be reused must be recycled through the ProductCare program and the BC Recycling Regulation.

4.5 Other Hazardous Materials Visual Evaluation Inventory

4.5.1 Crystalline Silica

Crystalline silica is a component of concrete and masonry. Concrete was observed in the assessment area in the following areas:

- Concrete footings and supports for WPSL and EPSL, and feed conveyor structures.
- Concrete counterweights for WPSL and EPSL.
- Concrete foundations for Scrubber 9/10 and 12/13, Berth 2 Dock Office Building, ER271, and the Cathodic Protection Shed.
- Cinderblock interior and exterior wall systems in Berth 2 Dock Office Building and ER271.
- Concrete quadrant beams.
- Concrete foundations for existing dolphins and Shore Mooring 3.
- Concrete foundation and structure for east and west potash treatment ponds.
- Concrete foundations for the Old Stores Building.
- Cinderblock interior and exterior wall systems in the Old Stores Building.

Crushing, cutting, drilling, or grinding or breaking of concrete or masonry can generate airborne silica during demolition activities. These activities may result in the generation of airborne silica dusts which exceed the limit set out in Part 5 of the BC Occupational Health and Safety Regulation. As a result, a silica exposure control plan may be required by the demolition contractor.

4.5.2 Ozone Depleting Substances (ODS)

A total of 12 small air-conditioning unit were observed in the shiploader control rooms, the Berth 2 Dock Office Building and within the Old Stores Building. Air-conditioning and refrigeration units may contain ODS refrigerants. If not reused, these units must be removed in their entirety and disposed/recycled in accordance with the BC Recycling Regulation.

4.5.3 Hydraulic Oil

Motors and equipment with oil reservoirs were observed within the assessment area in the following locations:

- Three motors on WPSL
 - C10 Motor /C11Motor /C11 Cascade Chute Hoist Motor
- Three motors on EPSL

- C13 Motor/C14 Motor/C14 Cascade Chute Hoist Motor
 - WPSL and EPSL crankshaft oil reservoir
 - WPSL and EPSL Hoist Brake
 - Two motors at the base of C8 Conveyor
 - Two motors at the base of C9 Feed Conveyor
 - Two motors at the base of C12 Feed Conveyor
 - One motor located in ER271

The shiploaders operate on a hydraulic movement system, consisting of motors noted above, as well as hydraulic lines and pistons. The entire hydraulic system and motor reservoir must be drained, and all fluids recycled prior to or during deconstruction.

4.5.4 Treated Lumber

Treated lumber piles were observed along the Berth 2 waterfront as structural support for the Berth 2 wharf and dolphins. If not reused, treated wood must be disposed of at an appropriate disposal facility during demolition activities.

4.5.5 Miscellaneous Hazardous Materials

Fire Extinguishers

Fire extinguishers contain potassium bicarbonate or sodium bicarbonate, which may be harmful if inhaled and were observed during the survey in the WPSL and EPSL control rooms, and ER201 in the Berth 2 Dock Office Building, and the Old Stores Building. Fire extinguishers are required to either be returned to the supplier or recycled.

Smoke Detectors

Smoke detectors contain small quantities of americium-241, a radioactive material, and were observed in the WPSL/EPSSL control rooms, the Berth 2 Dock Office Building, and within the Old Stores Building. Smoke detectors may be disposed of at an appropriate recycling facility or through the BC ProductCare program.

Emergency Lights

Emergency lights contain rechargeable lead acid batteries that are corrosive and toxic. Lead acid batteries no longer used for their intended purpose are considered as hazardous waste and are required to be disposed of or recycled at an appropriate facility, as defined by the BC HWR.

Contaminated Soil

Underground utilities and piping connected to the east and west potash treatment ponds are buried in soil materials of unknown quality. These soil materials are potentially contaminated and may pose human health risks if ingested. Handling and removal of suspect contaminated soil must follow the project Construction Environmental Management Plan (CEMP), which may include sampling and testing of soil materials prior to disposal.

5.0 CONCLUSIONS

Hazardous and potentially hazardous materials were identified in this assessment through visual inspection and bulk sampling of suspect materials. **Table 6** below summarizes the key findings and recommendations of the hazardous materials and hazardous building materials assessment of the structures and buildings within the assessment area described in Section 4. The table includes estimated quantities of discovered or suspected hazardous building materials.

In addition to the recommendations made in Section 4, Section 20.112(6) of the BC Occupational Health and Safety Regulation further requires the retaining of a qualified person during the demolition to identify any previously unidentified hazardous building materials should they be discovered during demolition activities.

It must be noted that the quantities listed are approximate and are included to satisfy Section 20.112 (3)(e)(v) of the BC *Occupational Health and Safety Regulation*. These are not meant to be relied upon for pricing or disposal purposes. Contractors must verify all quantities prior to providing any costs for abatement/removal. Envirochem assumes no responsibility for these estimated quantities should they be used for pricing purposes.

Table 7: Summary of Findings

Hazardous Material	Material Type	Location	Estimated Quantity	Identified	Recommendations
Asbestos	Drywall Joint Compound	Old Stores Building – Upper Floor	50 m ²	Yes	Prior to any demolition activities, all ACMs are required to be abated by a licenced asbestos abatement contractor prior to demolition activities. All asbestos waste generated will be disposed of as hazardous waste at an approved facility. Should any suspect ACM be identified during demolition activities, all work must be stopped until the suspect ACM have been sampled and analyzed.
Lead	Surface Coating	Refer to Table 5 and Appendix E	Not Determined	Yes	The entire potash shiploader structures are mostly painted steel. The actual quantity of lead containing paint could not be determined based on the limited samples retained. It has also been assumed the structure will be dismantled and scrapped with the paint remaining on the surfaces and not physically removed from all steel surfaces. Due to certain lead concentrations in paint samples, all painted surfaces will be considered lead-containing. Should these painted surfaces be subject to grinding, cutting or other means that may generate airborne lead, a lead exposure control plan will be required.
PCBs	Lamp Ballasts in Fluorescent Light Fixtures	WPSL	10 ballasts	Suspected	The end of used date for lamp ballasts containing PCB >50 ppm is December 31, 2025. All fluorescent lamp ballasts are required to be inspected for the presence of PCBs. Ballasts that are not labeled “Non-PCB” or “PCB Free” must have their serial number and/or manufacture date compared against the “Identification of Lamp Ballasts Containing PCBs”, by Environment Canada (August 1991), or assumed to be PCB-containing. Capacitors identified as PCB containing must be packaged, labeled, and disposed as hazardous waste at an approved facility as defined in the BC <i>Hazardous Waste Regulation</i> .
		EPSL	10 ballasts		
		Feed Conveyors (C9/C12)	2 ballasts		
		Berth 2 Dock Office Building	24 ballasts		
		Overhead Pedestrian Walkway	7 ballasts		
		ER271	7 ballasts		
		Old Stores Building	60 ballasts		
	Electrical Transformers	Cathodic Protection Shed	900 L	Suspected	The oil within the electrical transformer located in the Cathodic Protection Shed will be required to be tested for PCB prior to the drainage of this transformer. PCB-containing oil will be required to be disposed in accordance with the BC <i>Hazardous Waste Regulation</i> .
		Berth 2 Dock Office Building	3000 L	No	

Hazardous Material	Material Type	Location	Estimated Quantity	Identified	Recommendations
Mercury	Fluorescent Light Tubes	Fluorescent Light Fixtures	240 tubes	Yes	All fluorescent light tubes are required to be collected and packed for disposal in accordance with all applicable regulations and procedures prior to any demolition activities. Workers must ensure care is taken to avoid damaging the light tubes, which may result in the release of mercury vapour or mercury containing solids. Fluorescent light tubes that will not be reused must be recycled through the ProductCare program and the BC Recycling Regulation.
Silica	Concrete	Structure foundations and footings	>1000 tonnes	Yes	Breaking, cutting, drilling, or grinding of concrete may result in the generation of airborne silica dusts which may exceed the limit set out in Part 5 of the BC Occupational Health and Safety Regulation. As a result, a silica exposure control plan may be required.
	Cinderblock	Interior and exterior wall systems			
Oils	Hydraulic Oil	Motors and shiploader hydraulic lines	3000 L	Yes	The entire hydraulic system and motor reservoir must be drained, and all fluids recycled prior to or during deconstruction.
	Bearing/Gear Oil	WPSL/EP SL Hoist Brake	100 L		
ODS	Air-Conditioning Unit	WPSL	1 unit	Suspected	Air-conditioning and refrigeration units may contain ODS refrigerants. If not reused, these units must be removed in their entirety and disposed/recycled in accordance with the BC Recycling Regulation.
		EP SL	1 unit		
		Berth 2 Dock Office	1 unit		
		Old Stores Building	10 units		
Lumber Preservatives	Treated Lumber	Berth 2 dock, wharf, dolphins structural support	100 piles	Suspected	If not reused, treated wood must be disposed of at an appropriate disposal facility during demolition activities.
Miscellaneous	Fire Extinguisher	WPSL/EP SL Control Room, Berth 2 Dock Office Building	3 units	Yes	Fire extinguishers are required to either be returned to the supplier or recycled.
		Old Stores Building	5 units		
	Emergency Light Batteries	Throughout the assessment area	18 units	Yes	Lead acid batteries no longer used for their intended purpose are considered as hazardous waste and are required to be disposed of or recycled at an appropriate facility, as defined by the BC Hazardous Waste Regulation.

Hazardous Material	Material Type	Location	Estimated Quantity	Identified	Recommendations
	Smoke Detectors	WPSL/EPSSL Control Room, Berth 2 Dock Office Building	5 units	Yes	Smoke detectors may be disposed of at an appropriate recycling facility or through the BC ProductCare program.
		Old Stores Building	2 units		
	Contaminated Soil	Underground utilities	Not Determined	Suspected	Handling and removal of suspect contaminated soil must follow the project Construction Environmental Management Plan (CEMP), which may include sampling and testing of soil materials prior to disposal.

6.0 PARTICIPANTS AND QUALIFICATIONS

A summary of qualifications of Envirochem's assessors who prepared and reviewed this report is as follows:

- **Mr. Bryan Tsai, EIT, HMBI**, has over 4 years of environmental consulting experience in site investigations, hazardous building materials assessments, and asbestos surveys. He has additional experience in report writing and environmental sampling and monitoring. He is registered as an Engineer in Training (EIT) in British Columbia. Mr. Tsai has completed the US Asbestos Hazard Emergency Response Act (AHERA) Asbestos Building Inspector (ABI) training, and a Hazardous Material Building Inspector (HMBI) course. WorkSafeBC recognizes the AHERA ABI designation as adequate training and qualified to conduct asbestos building inspections.
- **Darryl Stowe, P.Chem., HMBI**, is a Professional Chemist with over 25 years' experience in waste management and the operation and environmental compliance of hazardous waste facilities in British Columbia. His auditing experience has also included environmental compliance audits, hazardous building materials assessments, asbestos surveys, and ISO certification audits for pulp and paper mills, sawmills, and refineries. He has also completed the US AHERA ABI training, and a HMBI course. WorkSafeBC recognizes the AHERA ABI designation as a qualified person to complete asbestos building inspections.

Based in British Columbia, Envirochem Services Inc. (Envirochem) has provided environmental consulting and management services since 1984. Envirochem's environmental management and consulting services range from up-front environmental project planning, assessment, and permitting, to air quality management and greenhouse gas reporting, to hazardous material management, to comprehensive out-sourced environmental and sustainability management.

7.0 CLOSURE

We trust this report meets your requirements at this time. If you have any questions or comments regarding this report, please contact the undersigned.

Yours truly,

Envirochem Services Inc.

Written By:



Bryan Tsai, EIT., HMBI
Environmental Engineer

Reviewed By:



Darryl Stowe, P. Chem., HMBI
Senior Environmental Scientist, Partner

8.0 LIMITATIONS

This Report is intended for the use of **Neptune Bulk Terminals**. (the Client). This report is not for the benefit of any third party and may not be distributed to, disclosed in any form to, used by, or relied upon by, any third party without the prior written consent of Envirochem Services Inc. (Envirochem). Any other third-party recipient of this report or user of any content contained herein uses this report and its contents at its sole risk, and by acceptance or use releases Envirochem, its affiliates, officers, employees, and subcontractors from any liability for direct, indirect, incidental, consequential or special loss or damage or other liability of any nature arising from its use of the report or reliance upon any of its content.

This is a technical report and is not a legal representation or interpretation of environmental laws, rules, regulations, or policies of government agencies. With respect to regulatory compliance issues, please note that regulatory statutes and the interpretation of regulatory statutes are subject to change over time.

The assessment followed the standard of care expected of professionals undertaking similar work in British Columbia under similar conditions. Classification and identification of hazardous building materials have been based on assessments performed in accordance with this standard. Classification and identification of these factors are judgmental in nature and even comprehensive sampling and testing programs, implemented with the appropriate equipment by experienced personnel, may fail to locate some conditions.

All assessments utilizing this standard of care will involve an inherent risk that some conditions will not be detected, and all documents or records summarizing such assessments will be based on assumptions of what exists between the actual points sampled. Actual conditions may vary significantly between the points investigated and all persons making use of such documents or records should be aware of, and accept, this risk. Some conditions are subject to change over time and those making use of this report should be aware of this possibility and understand that the Report only presents the conditions of the sampled points at the time of sampling.

In evaluating the subject property, Envirochem has relied in good faith on information provided by individuals and third parties noted in this report. Envirochem accepts no responsibility for any deficiency, misstatements or inaccuracy contained in this report as a result of omissions, misstatements or fraudulent acts of persons interviewed. If new information is discovered during intrusive site work or other site activities in the future, or if additional assessments or additional sampling is conducted by others, Envirochem should be requested to re-evaluate the conclusions of this report, and to provide amendments as required prior to any reliance upon the information presented herein.

APPENDIX A

Legal Register

The applicable provincial and federal statutes and regulations relevant to the identification, removal, disposal, or recycling of hazardous building materials include but not limited to the following:

- *Occupational Health and Safety Regulation* (BC Reg. 296/97 includes BC Reg. 82/2020 amendments (effective July 14, 2020));
- *Hazardous Waste Regulation* (BC Reg. 63/88, incl. B.C. Reg. 243/2016, App. 1 amendments (eff. Nov. 1, 2017) as am by 195/2017);
- *Ozone Depleting Substances and other Halocarbons Regulation* (BC Reg. 387/99 includes BC Reg. 317/2012 amendments (effective November 9, 2012));
- *Recycling Regulation* (BC Reg. 449/2004, [includes BC Reg. 162/2020 amendments (effective June 29, 2020)];
- *PCB Regulations* (SOR/2008-273 includes Federal Regulation SOR/2014-75 amendments (effective January 1, 2015));
- *Canadian Environmental Protection Act (CEPA)* (SC 1999, c 33 includes 2014 Chap. 20 (SI/2018-100) amendments (effective June 17, 2019));
- *Nuclear Substances and Radiation Devices Regulations* (SOR/2000-207 as amended); and,
- *Surface Coating Materials Regulations* (SOR/2005-109 as amended).

BC's Occupational Health and Safety Regulation, Section 20.112 states:

“Before work begins on the demolition or salvage of machinery, equipment, a building or a structure, or the renovation of a building or structure, all employers responsible for that work, and the owner, must ensure that a qualified person inspects the machinery, equipment, building or structure and the worksite to identify the hazardous materials, if any.”

“In conducting and inspection and identifying the hazardous materials, if any, under subsection (2), a qualified person must do the following:

- Collect representative samples of the materials that may be hazardous material;*
- Identify each representative sample and determine whether it is hazardous material;*
- If the actions under paragraphs (a) and (b) are not practicable, or not appropriate in the circumstances, used other sufficient means to identify the hazardous materials, if any;*
- Based on the actions taken under paragraphs (a) and (b) or (c), determine the location of each of the hazardous materials identified;*
- Make a written report of the inspection including,*
 - *If the actions under paragraphs (a) and (b) were taken,*
 - *The location of each representative sample, and*
 - *The identity of each representative sample and whether it is hazardous material,*
- If the actions under paragraph (c) were taken, the identify of each of the hazardous materials, if any;*
- The description of the methods used under paragraph (b) or (c);*
- The location, as determined under paragraph (d), of each of the hazardous materials identified, including by using drawing, plans or specifications; and*
- The approximate quantity of each of the hazardous materials identified.”*

Hazardous Materials means:

“a hazardous substance, or material containing a hazardous substance, including

- a. asbestos-containing material,*
- b. lead or any other heavy metal, or*
- c. toxic, flammable or explosive material,*

that may be handled, disturbed or removed in the course of the demolition or salvage of machinery, equipment, a building or a structure, or the renovation of a building or structure.”

Qualified Person is a person who:

“has, through education and training, knowledge of the management and control of the hazardous materials” in question.

The **BC Occupational Health and Safety Regulation** regulates the following substances:

1. Asbestos-Containing Materials, Sections 6.1 – 6.32.
2. Lead-Containing Materials, Sections 6.59 – 6.69.
3. Radioactive Materials, Sections 7.17 – 7.25.

The **BC Hazardous Waste Regulation** defines hazardous waste and regulates how hazardous wastes are stored, packaged, labelled, treated, and transported in British Columbia. In part, hazardous waste in BC is defined as those materials listed in Schedule 1 and 3 of the Federal Transportation of Dangerous Goods Regulations which are no longer used for their original purpose.

The **BC Ozone Depleting Substances and other Halocarbons Regulation** defines ozone-depleting substances and is the regulatory framework within which they are managed in BC. Refrigerants in refrigerators, chillers, and air conditioning equipment as well as halons used in fire suppression systems for computer rooms are classified as ozone-depleting substances and are subject to this regulation.

British Columbia’s **Recycling Regulation** places the responsibility on the manufacturing industry for collecting and recycling of regulated products it manufactures or sells. Consumer goods that meet the definition of a regulated product must be recycled in accordance with the Regulation. Under this regulation, regulated products will fall under one of the following categories:

1. Beverage Container Product Category
2. Residual Product Categories
3. Electronic and Electrical Product Category
4. Tire Product Category

For the purposes of this assessment, the Residual Product Categories and Electronic and Electrical Product Category will be considered. Items included in the Residual Product Categories include:

1. Antifreeze product category;
2. Solvent and flammable liquids product category;
3. Pesticide product category;
4. Gasoline product category;
5. Lead-acid battery product category;
6. Pharmaceutical product category;

7. Lubricating oil product category;
8. Empty oil container product category;
9. Oil filter product category; and,
10. Paint product category.

Items included in the Electronic and Electrical Product Category include but not limited to the following:

1. Electronic or electrical information technology or telecommunication devices or equipment (computers, copiers, typewriters, calculators, fax machines etc.);
2. Electronic or electrical audio visual and consumer equipment or media (televisions, cameras, VCR's, stereo equipment, etc.);
3. Electronic or electrical appliances (fridges, stoves, toasters, toaster ovens, washers, dryers, etc.);
4. Electronic or electrical tools;
5. All electronic or electrical lighting equipment, parts and bulbs;
6. Electronic or electrical monitoring and control instruments (smoke detectors, heating regulators, thermostats, etc.);
7. Electronic or electrical medical devices; and,
8. Batteries that could be used in an electronic or electrical product listed in this Category.

The **Canadian Environmental Protection Act** (CEPA) is the principal statute for identifying toxic substances and regulating or prohibiting their introduction into the environment.

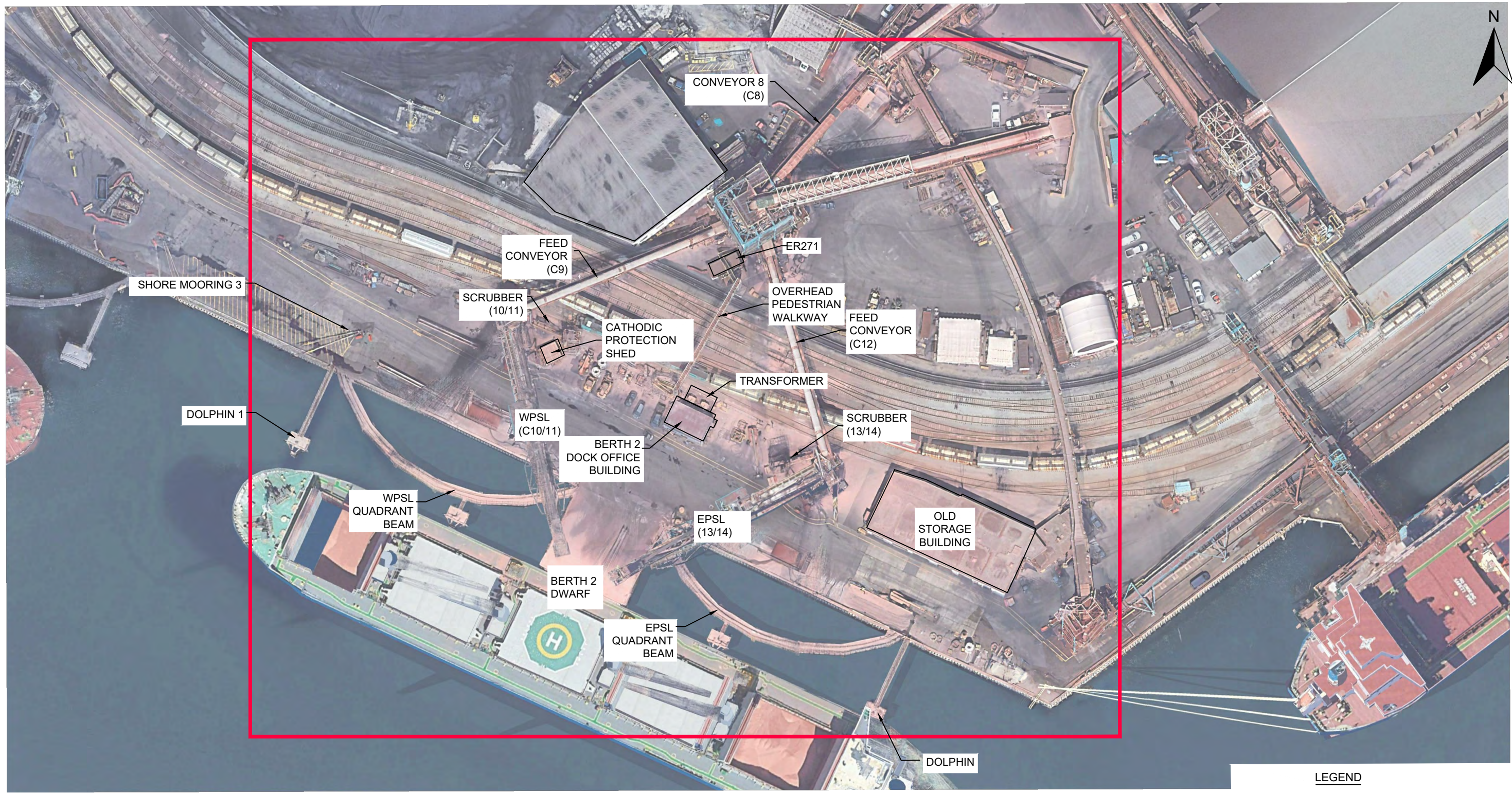
The **PCB Regulations** under CEPA regulate the use, storage and disposal of PCB and equipment containing PCB. It further stipulates usage timelines for ballasts containing 50 mg/kg or greater of PCB as well as equipment containing 500 mg/kg or greater PCB, between 50 mg/kg and 500 mg/kg, and equipment greater than 2 mg/kg and less than 50 mg/kg.

The **Nuclear Substances and Radiation Devices Regulations** advise on the use, storage and disposal of equipment containing radioactive materials, including smoke detectors.

The **Surface Coating Materials Regulations** establishes acceptable levels of lead in paint sold or used in Canada as well as acceptable mercury levels in recycled surface coatings sold or used in Canada.

APPENDIX B


Demolition Plan



LEGEND
 — ASSESSMENT AREA BOUNDARY
 — ONSITE BUILDING OUTLINE

envirochem
 206-267 Esplanade W,
 North Vancouver, BC V7M1A5
 T: 604-986-0233
 E: response@envirochem.com

NOTE:
 - Aerial image is downloaded from Google Earth Pro.(2019)
 - Original drawing is ANSI full bleed B (11.00 x 17.00 Inches) and in colour.

SCALE:

 SCALE: 1:1000(approx.)

Title: Demolition Plan
 Client: Neptune Bulk Terminals
 Project: NBT Berth 2 Potash Shiploader HBMA
 Site Location: 1001 Low Level Rd. North Vancouver, BC

Figure No: B-1	Rev No: 01
Date: August 2022	
Project No: 21126	
Drawn: HL	Checked: BT

APPENDIX C

Site Surveillance Photographs

Site Photographs

Berth 2 Potash Shiploader HBMA | August 2022
Neptune Bulk Terminals
1001 Low Level Road, North Vancouver, BC V7L 1A7



Photo No. 1.	Date: 2021-JUL-7	Direction Facing: East
Description: View of EPSL and the east quadrant beam from the west.		



Photo No. 2.	Date: 2021-JUL-7	Direction Facing: East
Description: View of C12 feed conveyor from the west.		



Photo No. 3.

Date: 2021-JUL-7

Direction Facing: Southwest

Description: View of WPSL from the pedestrian overhead walkway.



Photo No. 4.

Date: 2021-JUL-7

Direction Facing: West

Description: View of C9 feed conveyor from the east.

Site Photographs

Berth 2 Potash Shiploader HBMA | August 2022
Neptune Bulk Terminals
1001 Low Level Road, North Vancouver, BC V7L 1A7



Photo No. 5.

Date: 2022-JUN-1

Direction Facing: Northwest

Description: View of C8 conveyor from the east.



Photo No. 6.

Date: 2022-JUN-1

Direction Facing: Northeast

Description: View of the Old Stores Building near Berth 3.



Photo No. 7.	Date: 2022-JUN-1	Direction Facing: North
Description: View of the drywall panels and exposed asbestos containing drywall joint compounds located in the upper floor of the Old Stores Building.		



Photo No. 8.	Date: 2022-JUN-1	Direction Facing: East
Description: L26 – Old Stores Building wood trim, white paint with lead concentration of 1280 mg/kg.		



Photo No. 9.

Date: 2021-JUL-7

Direction Facing: N/A

Description: View of Scrubber 9/10 from WPSL.



Photo No. 10.

Date: 2021-JUL-7

Direction Facing: North

Description: View of the overhead pedestrian walkway.

Site Photographs

Berth 2 Potash Shiploader HBMA | August 2022
Neptune Bulk Terminals
1001 Low Level Road, North Vancouver, BC V7L 1A7



Photo No. 11.	Date: 2021-JUL-7	Direction Facing: Southwest
Description: View of ER271.		



Photo No. 12.	Date: 2021-JUL-7	Direction Facing: N/A
Description: L13 – Brown paint on C12 Conveyor Cover Arm with lead concentration of 410 mg/kg.		

Site Photographs

Berth 2 Potash Shiploader HBMA | August 2022
Neptune Bulk Terminals
1001 Low Level Road, North Vancouver, BC V7L 1A7



Photo No. 13.

Date: 2021-JUL-7

Direction Facing: N/A

Description: L14 – Red paint on C12 chute/hopper with lead concentration of 1660 mg/kg.



Photo No. 14.

Date: 2021-JUL-7

Direction Facing: N/A

Description: L19 – Red paint on C9 conveyor steel with lead concentration of 1080 mg/kg.



Photo No. 15.	Date: 2022-JUN-1	Direction Facing: N/A
Description: L28. C8 – Product Transfer Line Steel Arm, teal paint with lead concentration of 10.4 mg/kg.		

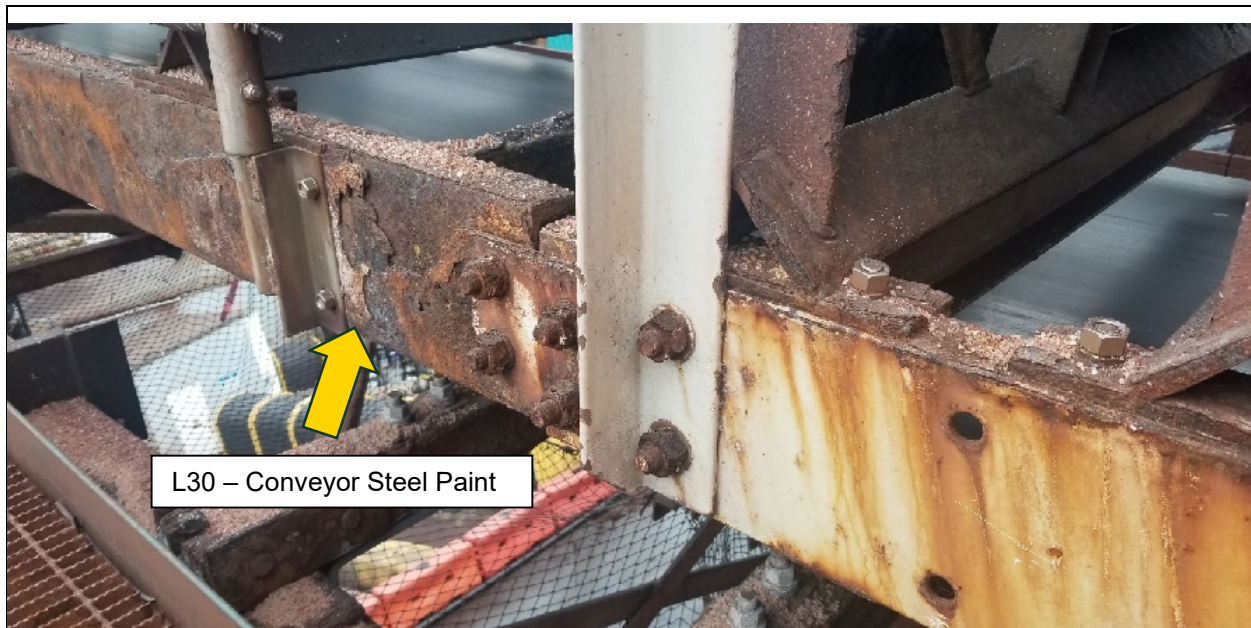


Photo No. 16.	Date: 2022-JUN-1	Direction Facing: North
Description: L30 – Conveyor Steel, east, paint with lead concentration of 1520 mg/kg.		



Photo No. 17.	Date: 2022-JUN-1	Direction Facing: N/A
Description: L27 – Conveyor Steel, east, white paint, and L29 – Roller Arm, paint, with lead concentrations of <5.0 mg/kg and 12.3 mg/kg, respectively.		

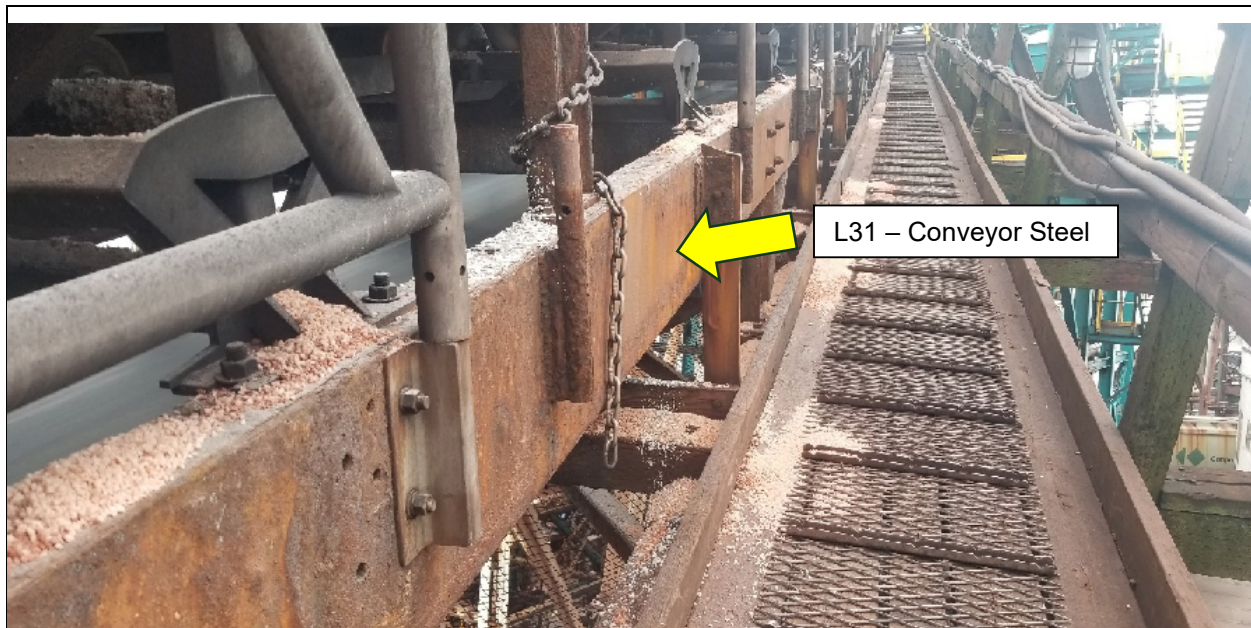


Photo No. 18.	Date: 2022-JUN-1	Direction Facing: N/A
Description: L31. C8 – Conveyor Steel, west, brown paint with lead concentration of 15.8 mg/kg		

Site Photographs

Berth 2 Potash Shiploader HBMA | August 2022
Neptune Bulk Terminals
1001 Low Level Road, North Vancouver, BC V7L 1A7



Photo No. 19.

Date: 2021-JUL-7

Direction Facing: N/A

Description: View of C10 conveyor motor with hydraulic oil reservoir.



Photo No. 20.

Date: 2021-JUL-7

Direction Facing: N/A

Description: View of one of two C9 feed conveyor motor with hydraulic oil reservoir.



Photo No. 21.	Date: 2022-JUN-1	Direction Facing: N/A
Description: View of the belt drive motors for Conveyor 8.		

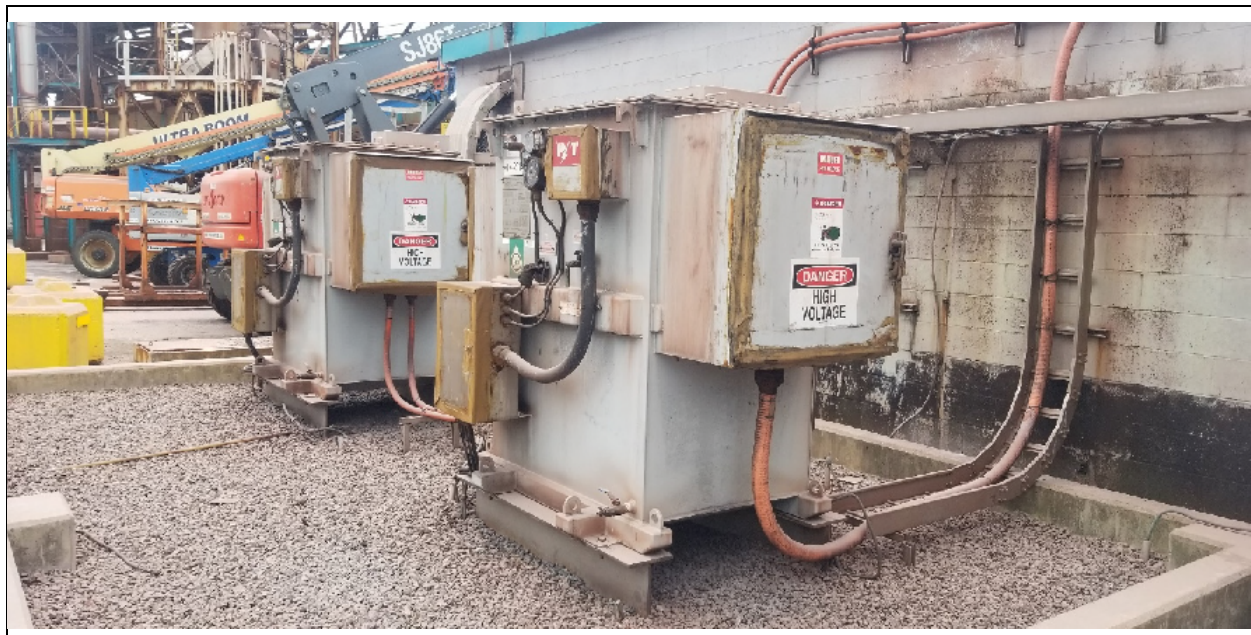


Photo No. 22.	Date: 2021-JUL-7	Direction Facing: Southeast
Description: View of the two electrical transformers located on the north side of the Berth 2 Dock Office Building.		

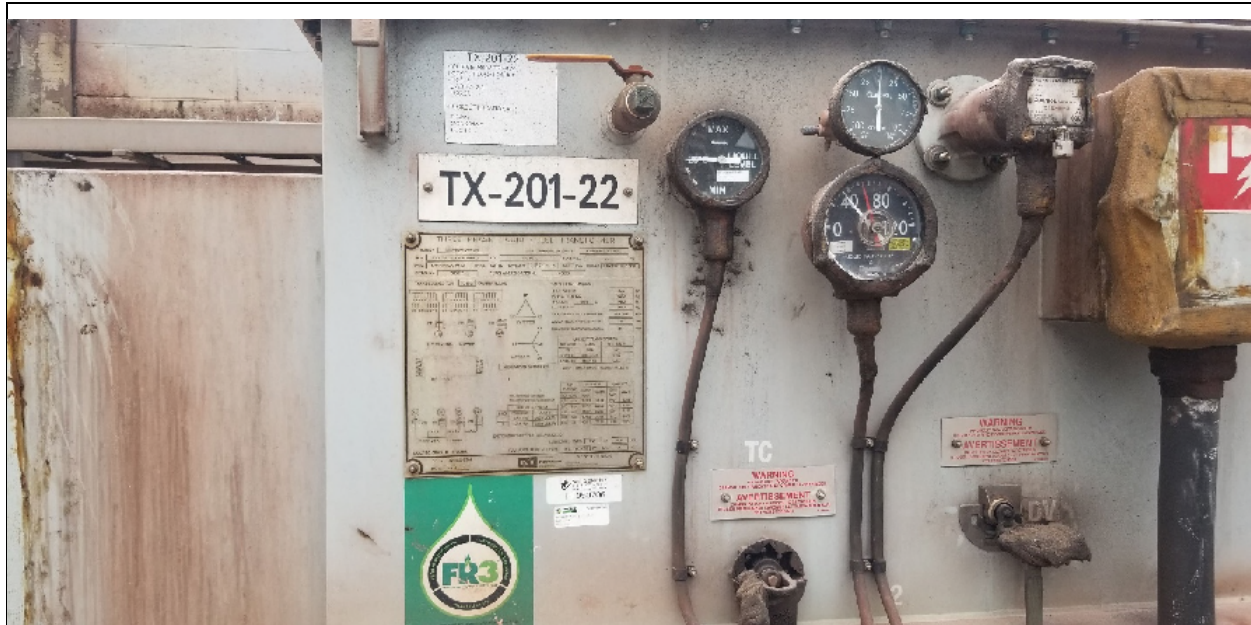


Photo No. 23.

Date: 2021-JUL-7

Direction Facing: N/A

Description: Tag of the electrical transformers dated 2016 and filled with biodegradable Envirotemp FR3 coolant.



Photo No. 24.

Date: 2021-JUL-7

Direction Facing: North

Description: View of the Cathodic Protection Shed with signage for 900 L of flammable content.

Site Photographs

Berth 2 Potash Shiploader HBMA | August 2022
Neptune Bulk Terminals
1001 Low Level Road, North Vancouver, BC V7L 1A7



Photo No. 25.

Date: 2021-JUL-7

Direction Facing: N/A

Description: Electrical transformer located in the Cathodic Protection Shed without tag.



Photo No. 26.

Date: 2021-JUL-7

Direction Facing: N/A

Description: Emergency light with hazardous lead acid batteries located in ER271.

Site Photographs

Berth 2 Potash Shiploader HBMA | August 2022
Neptune Bulk Terminals
1001 Low Level Road, North Vancouver, BC V7L 1A7



Photo No. 27.

Date: 2021-JUL-7

Direction Facing: N/A

Description: Smoke detector with small quantity of radioactive material located in the shiploader control rooms.

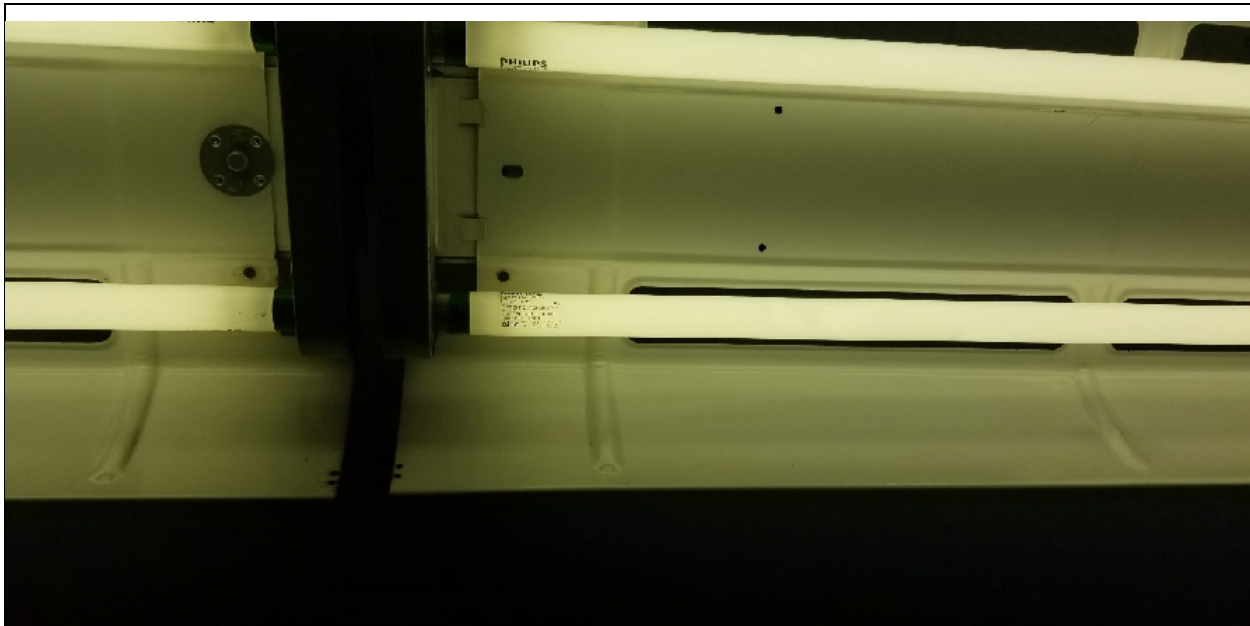


Photo No. 28.

Date: 2021-JUL-7

Direction Facing: N/A

Description: View of the fluorescent light tubes with mercury label.

Site Photographs

Berth 2 Potash Shiploader HBMA | August 2022
Neptune Bulk Terminals
1001 Low Level Road, North Vancouver, BC V7L 1A7



Photo No. 29.	Date: 2022-JUN-1	Direction Facing: N/A
Description: View of Dolphin 1, with suspected creosote treated lumber support piles.		

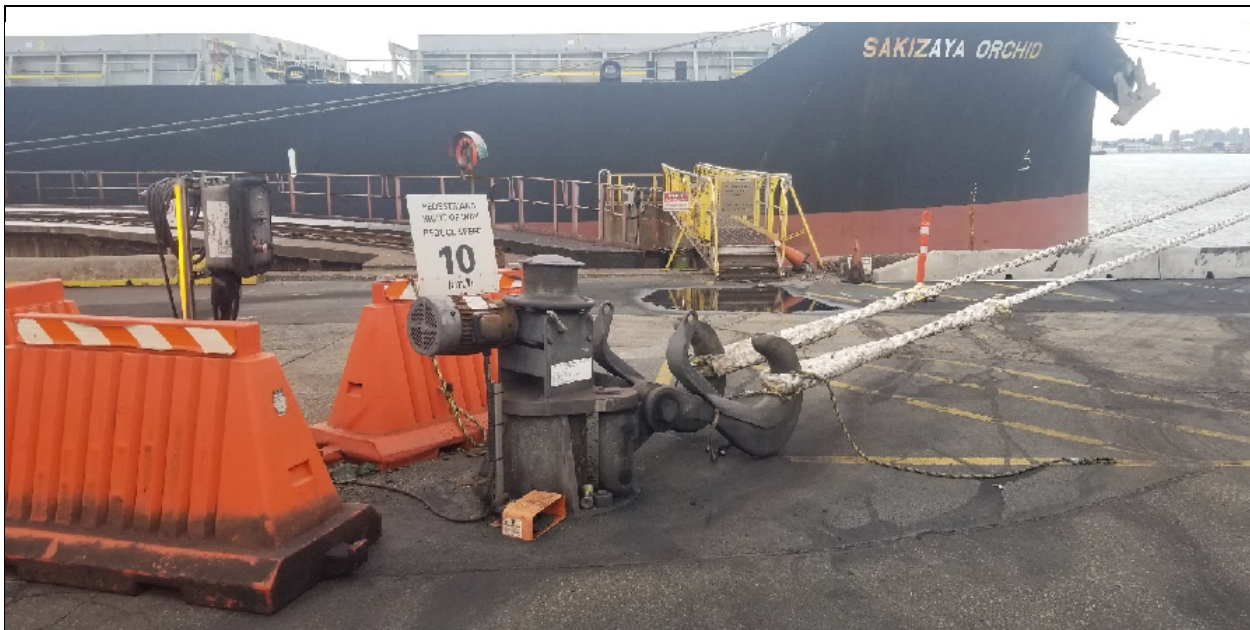


Photo No. 30.	Date: 2022-JUN-1	Direction Facing: N/A
Description: View of Moor Shoring 3 located near Berth 2.		

APPENDIX D

WorkSafeBC Asbestos Sampling Guidelines

Bulk material sample collection guide

Type of material	Area of homogeneous material*	Minimum number of bulk samples to be collected**	Minimum recommended quantity per sample
Surfacing materials, including textured coatings, drywall mud, plasters, and stucco	Less than 90 m ² (approximately 1,000 sq. ft.)	At least 3 samples of each type of surfacing material	50 cm ³ (3 cu. in.); for drywall mud, sample the mud only – do not include the drywall or tape
	Between 90 and 450 m ² (approx. 5,000 sq. ft.)	At least 5 samples of each type of surfacing material	
	Greater than 450 m ²	At least 7 samples of each type of surfacing material	
Sprayed insulation and blown-in insulation, including sprayed fireproofing	Less than 90 m ² (approx. 1,000 sq. ft.)	At least 3 samples	50 cm ³ (3 cu. in.)
	Between 90 and 450 m ² (approx. 5,000 sq. ft.)	At least 5 samples	
	Greater than 450 m ²	At least 7 samples	
Loose vermiculite insulation (including vermiculite insulation within concrete masonry units, or CMUs)	Less than 90 m ² (approx. 1,000 sq. ft.)	At least 3 samples	4 L (1 gal.); collect from the top to the bottom of the application to get a representative sample
	Between 90 and 450 m ² (approx. 5,000 sq. ft.)	At least 5 samples	
	Greater than 450 m ²	At least 7 samples	
Ceiling tiles	Less than 90 m ² (approx. 1,000 sq. ft.)	At least 3 samples	5 cm x 5 cm (2 in. x 2 in.)
	Between 90 and 450 m ² (approx. 5,000 sq. ft.)	At least 5 samples	
	Greater than 450 m ²	At least 7 samples	
Flooring, including vinyl sheet flooring (and backing) and floor tiles	Any size	At least 1 sample per flooring type in each room (and 1 from each layer of flooring)	5 cm x 5 cm (2 in. x 2 in.)

Type of material	Area of homogeneous material*	Minimum number of bulk samples to be collected**	Minimum recommended quantity per sample
Levelling compounds and mortars	Any size	At least 3 samples	50 cm ³ (3 cu. in.)
Asbestos ropes, gaskets, wires, etc.	Any size	At least 1 sample	5 linear cm (2 linear in.) or 5 cm x 5 cm (2 in. x 2 in.)
Mechanical insulation, including duct taping, pipe insulation, elbows, and boiler/tank or vessel insulation	Any size	At least 3 samples	50 cm ³ (3 cu. in.); all layers must be collected down to the pipe, tank, or vessel
Mastics and putties, including duct mastic (around penetrations) and window putty	Any size	At least 3 samples	15 cm ³ (1 cu. in.)
Roofing materials, including felting and shingles	Less than 90 m ² (approx. 1,000 sq. ft.)	At least 1 sample (each layer of material must be sampled)	5 cm x 5 cm (2 in. x 2 in.); collect all layers, down to the sheathing
	Between 90 and 450 m ² (approx. 5,000 sq. ft.)	At least 2 samples (each layer of material must be sampled)	
	Greater than 450 m ²	At least 3 samples (each layer of material must be sampled)	
Asbestos cement (transite) board and pipe	Any size	At least 1 sample	5 cm x 5 cm (2 in. x 2 in.)
Other sprayed materials	Any size	At least 1 sample per type of material	1 full, small Ziploc bag
Other non-friable products	Any size	At least 1 sample per type of material	5 cm x 5 cm (2 in. x 2 in.)

* Homogeneous material is considered uniform in texture and appearance, was installed at one time, and is likely to be of only one type of material or formulation.

** If the material is assumed to contain asbestos, samples do not have to be collected. The professional judgment of a qualified person can be used to reduce the number of bulk samples of homogeneous materials. If fewer samples than the minimum recommended number are collected, surveyors should document the rationale for their position in the survey report.

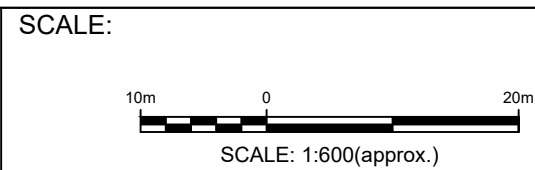
APPENDIX E

Sample Location Diagrams



envirochem
 206-267 Esplanade W,
 North Vancouver, BC V7M1A5
 T: 604-986-0233
 E: response@envirochem.com

NOTE:
 - Aerial image is downloaded from Google Earth Pro.(2019)
 - Original drawing is ANSI full bleed B (11.00 x 17.00 Inches) and in colour.



Title: Berth 2 Sample Location Diagram

Client: Neptune Bulk Terminals
 Project: NBT Berth 2 Potash Shiploader HBMA

Site Location: 1001 Low Level Rd. North Vancouver, BC

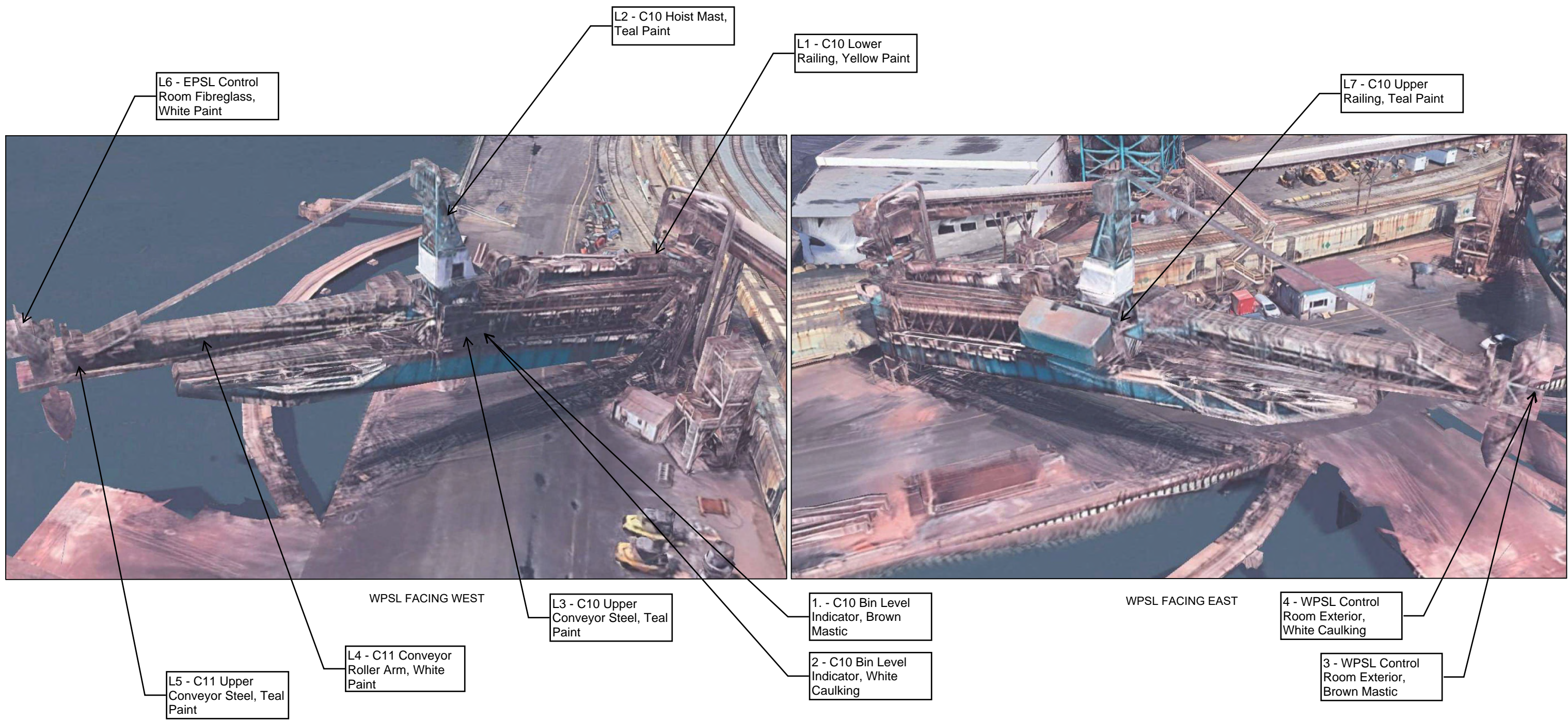
Figure No: E-1 Rev No: 00

Date: August 2022

Project No: 21126

Drawn: HL

Checked: BT

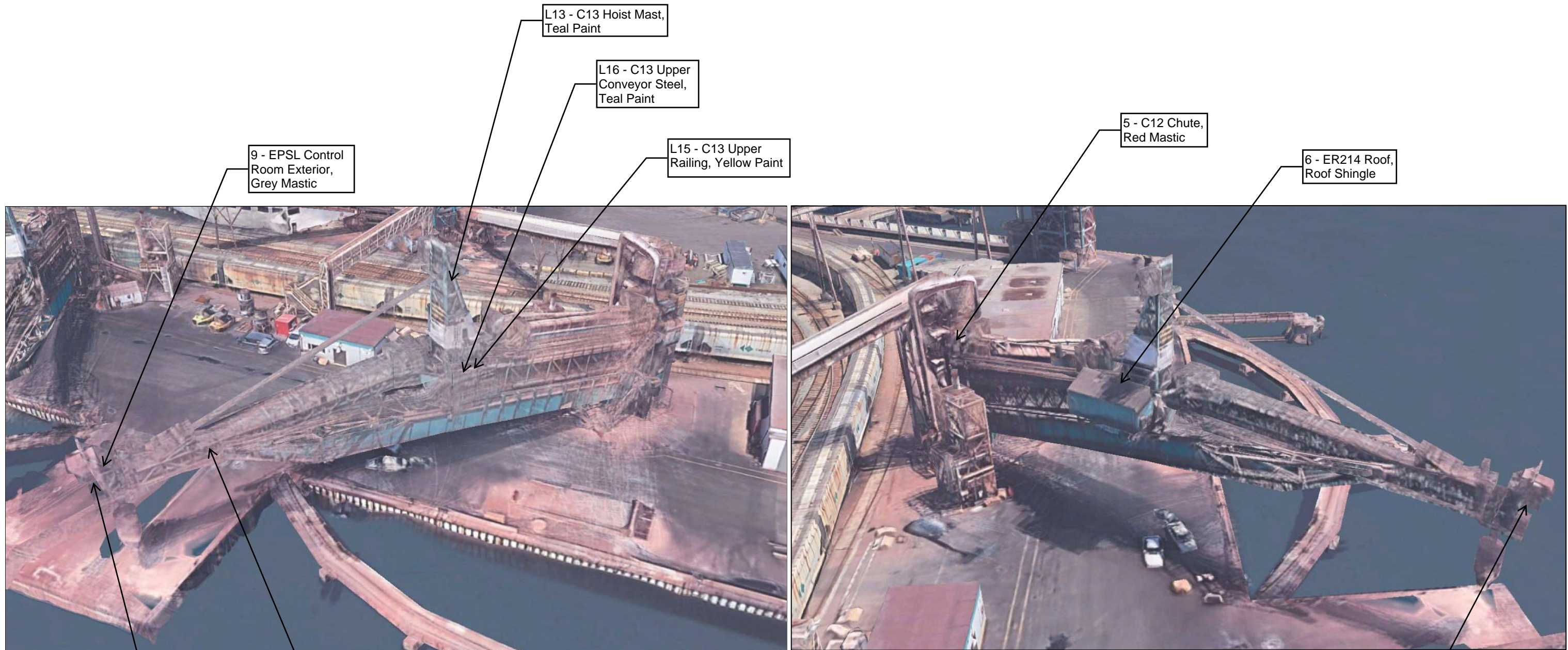


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 206-267 Esplanade W,
 North Vancouver, BC V7M1A5
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 E: response@envirochem.com

NOTE:
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SCALE:
 Not to Scale

Title: West Potash Shiploader Sample Location	Figure No: E-2	Rev No: 00
Client: Neptune Bulk Terminals	Date: August 2022	
Project: NBT Berth 2 Potash Shiploader HBMA	Project No: 21126	Drawn: HL
Site Location: 1001 Low Level Rd. North Vancouver, BC	Checked: BT	



EPSSL FACING NORTHWEST

EPSSL FACING EAST

envirochem
 206-267 Esplanade W,
 North Vancouver, BC V7M1A5
 T: 604-986-0233
 E: response@envirochem.com

NOTE:
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 - Original drawing is ANSI full bleed B (11.00 x 17.00 Inches) and in colour.

SCALE:
 Not to Scale

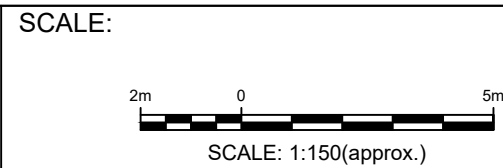
Title: East Potash Ship Loader Sample Location
 Client: Neptune Bulk Terminals
 Project: NBT Berth 2 Potash Shiploader HBMA
 Site Location: 1001 Low Level Rd. North Vancouver, BC

Figure No: E-3	Rev No: 00
Date: August 2022	
Project No: 21126	
Drawn: HL	Checked: BT

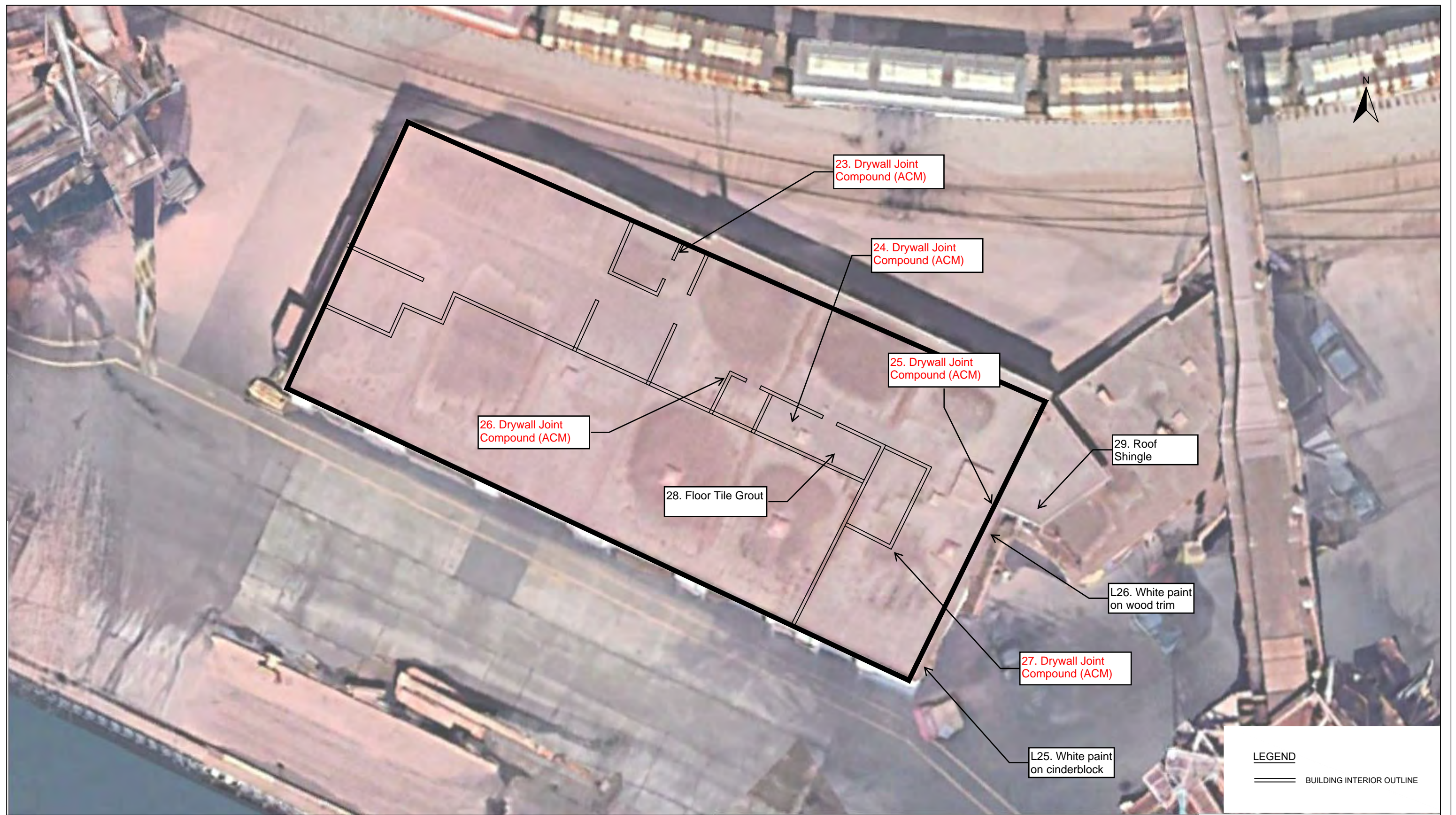


envirochem
 206-267 Esplanade W,
 North Vancouver, BC V7M1A5
 T: 604-986-0233
 E: response@envirochem.com

NOTE:
 - Aerial image is downloaded from Google Earth Pro.(2019)
 - Original drawing is ANSI full bleed B (11.00 x 17.00 Inches) and in colour.

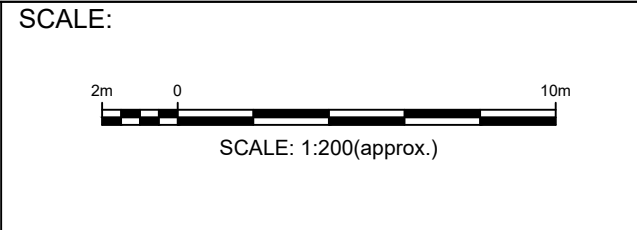


Title: Berth 2 Dock Building Sample Location	Figure No: E-4	Rev No: 00
	Date: August 2022	
Client: Neptune Bulk Terminals	Project No: 21126	
Project: NBT Berth 2 Potash Shiploader HBMA	Drawn: HL	Checked: BT
Site Location: 1001 Low Level Rd. North Vancouver, BC		




 206-267 Esplanade W,
 North Vancouver, BC V7M1A5
 T: 604-986-0233
 E: response@envirochem.com

NOTE:
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 - Original drawing is ANSI full bleed B (11.00 x 17.00 Inches) and in colour.



Title: Sample Location Diagram (Old Stores Building)
 Client: Neptune Bulk Terminals
 Project: NBT Berth 2 Potash Shiploader HBMA Addendum
 Site Location: 1001 Low Level Rd. North Vancouver, BC

Figure No: E-5	Rev No: 00
Date: August 2022	
Project No: 21126	
Drawn: HL	Checked: BT



CONVEYOR 8 FACING SOUTHWEST



CONVEYOR 8 FACING NORTHWEST

envirochem
 206-267 Esplanade W,
 North Vancouver, BC V7M1A5
 T: 604-986-0233
 E: response@envirochem.com

NOTE:
 - Aerial image is downloaded from Google Earth Pro.(2021)
 - Original drawing is ANSI full bleed B (11.00 x 17.00 Inches) and in colour.

SCALE:
 Not to Scale

Title: Sample Location Diagram (Conveyor 8)
 Client: Neptune Bulk Terminals
 Project: NBT Berth 2 Potash Shiploader HBMA Addendum
 Site Location: 1001 Low Level Rd. North Vancouver, BC

Figure No: E-6	Rev No: 00
Date: August 2022	
Project No: 21126	
Drawn: HL	Checked: BT

APPENDIX F

Sure Hazmat and Testing Certificate of Analysis



A Division of  mtc Group

July 12, 2021

Envirochem Services Inc.
206-267 West Esplanade,
North Vancouver, BC
V7M 1A5

Reference: Bulk Material Identification Report
1001 Low Level Road, North Vancouver , BC
Project # 21126

Please find enclosed our laboratory results for the twenty-one (21) bulk samples that were submitted to our office for the analysis for asbestos content on July 9, 2021.

Results

- There was no asbestos detected in the samples that were submitted for analysis. Please refer to the attached bulk sample analysis results sheet.

Examination of the samples was conducted in accordance with the **NIOSH 9002** PLM Bulk Sampling analytical method using polarized light microscopy and dispersion staining techniques. This method is currently accepted by WorkSafeBC for bulk sample analysis. The samples will be disposed of after 2 months, unless we are instructed otherwise.

If further clarification is required, please call our office. Thank you for having Sure Hazmat and Testing perform this work for you.

Sincerely,



Christine Hartevelde
Office Manager

Encl. Laboratory Bulk Results

Ref: ENV-03454-L01

Bulk Asbestos Results

Client: ENV-03454 - Envirochem Services Inc.

Sampled By/ Date: B. Tsai - July 7, 2021

Reference: #21126 - 1001 Low Level Road, North Vancouver, BC

Sample #	Date Analyzed	Analyst	Sample Location	Material Type	Other Materials glass, synthetics, cellulose	Asbestos Type & Amount
1	12-Jul-21	IW	C10 Bin Level Indicator	Brown Mastic	Non-Fibrous 95% Other Fibres <5%	Non-Detected
2	12-Jul-21	IW	C10 Bin Level Indicator	White Caulking	Non-Fibrous 95% Other Fibres <5%	Non-Detected
3	12-Jul-21	IW	WPSL Control Room Exterior	Brown Mastic	Non-Fibrous 95% Other Fibres <5%	Non-Detected
4	12-Jul-21	IW	WPSL Control Room Exterior	White Caulking	Non-Fibrous 95% Other Fibres <5%	Non-Detected
5	12-Jul-21	IW	C12 Chute	Red mastic	Non-Fibrous 95% Other Fibres <5%	Non-Detected
6	12-Jul-21	IW	ER214 Roof	Roof Shingle	Non-Fibrous 70% Other Fibres 30%	Non-Detected
7	12-Jul-21	IW	EPSL Control Exterior	Grey Caulking	Non-Fibrous 95% Other Fibres <5%	Non-Detected
8	12-Jul-21	IW	EPSL Control Room Exterior	White Caulking	Non-Fibrous 95% Other Fibres <5%	Non-Detected
9	12-Jul-21	IW	EPSL Control Room Door Exterior	Grey Mastic	Non-Fibrous 95% Other Fibres <5%	Non-Detected
10	12-Jul-21	IW	Cathodic Protection Shed, Interior East Duct	Clear/Grey Mastic	Non-Fibrous 95% Other Fibres <5%	Non-Detected

Bulk Asbestos Results

Client: ENV-03454 - Envirochem Services Inc.

Sampled By/ Date: B. Tsai - July 7, 2021

Reference: #21126 - 1001 Low Level Road, North Vancouver, BC

Sample #	Date Analyzed	Analyst	Sample Location	Material Type	Other Materials glass, synthetics, cellulose	Asbestos Type & Amount
11	12-Jul-21	IW	Cathodic Protection Shed, Interior South Duct	Silver Mastic	Non-Fibrous 95% Other Fibres <5%	Non-Detected
12	12-Jul-21	IW	Berth 2 Dock Office Building ER201 Exterior	Cement Board	Non-Fibrous 95% Other Fibres <5%	Non-Detected
13	12-Jul-21	IW	Berth 2 Dock Office Building ER201 Exterior	Grey Mastic	Non-Fibrous 95% Other Fibres <5%	Non-Detected
14	12-Jul-21	IW	Berth 2 Dock Office Building, Office South South Window Exterior	Black Putty/Mastic	Non-Fibrous 95% Other Fibres <5%	Non-Detected
15	12-Jul-21	IW	Berth 2 Dock Office Building, Office South South Window Exterior	Grey Putty	Non-Fibrous 95% Other Fibres <5%	Non-Detected
16	12-Jul-21	IW	Berth 2 Dock Office, Building, West Exterior Duct	Grey Mastic	Non-Fibrous 95% Other Fibres <5%	Non-Detected
17	12-Jul-21	IW	Berth 2 Dock Office Building, ER201 West Door Frame	Grey Mastic	Non-Fibrous 95% Other Fibres <5%	Non-Detected
18	12-Jul-21	IW	Berth 2 Dock Office Building, Roof West	Roof Flashing Mastic	Non-Fibrous 95% Other Fibres <5%	Non-Detected
19	12-Jul-21	IW	Berth 2 Dock Office Building, Office South Window Interior East	Drywall Joint Compound	Non-Fibrous 95% Other Fibres <5%	Non-Detected
20	12-Jul-21	IW	Berth 2 Dock Office Building, Office South Window Interior West	Drywall Joint Compound	Non-Fibrous 95% Other Fibres <5%	Non-Detected

Bulk Asbestos Results

Client: ENV-03454 - Envirochem Services Inc.

Sampled By/ Date: B. Tsai - July 7, 2021

Reference: #21126 - 1001 Low Level Road, North Vancouver, BC

Sample #	Date Analyzed	Analyst	Sample Location	Material Type	Other Materials glass, synthetics, cellulose	Asbestos Type & Amount
21	12-Jul-21	IW	Berth 2 Dock Office Building, Office Light Switch Panel	Drywall Joint Compound	Non-Fibrous 95% Other Fibres <5%	Non-Detected



A Division of  MBC Group

July 16, 2021

Envirochem Services Inc.
#206 – 267 West Esplanade
North Vancouver, BC
V7M 1A5

**Reference: Bulk Material Identification Report
Berth 2 Potash Shiploader HBMA
1001 Low Level Road, North Vancouver, BC**

Please find enclosed our laboratory result for the one (1) bulk sample that was submitted to our office for the analysis for asbestos content on July 14, 2021.

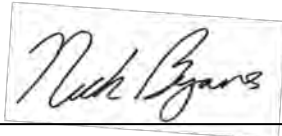
Results

- There was no asbestos detected in the sample that was submitted for analysis. Please refer to the attached bulk sample analysis results sheet.

Examination of the sample was conducted in accordance with the **NIOSH 9002** PLM Bulk Sampling analytical method using polarized light microscopy and dispersion staining techniques. This method is currently accepted by WorkSafeBC for bulk sample analysis. The sample will be disposed of after 2 months, unless we are instructed otherwise.

If further clarification is required, please call our office. Thank you for having Sure Hazmat and Testing perform this work for you.

Sincerely,

A handwritten signature in black ink, reading "Nick Bryans", is enclosed in a rectangular box. The signature is written in a cursive style.

Nick Bryans,
Intermediate Environmental Technologist
Sure Hazmat and Testing –
a Division of MBC Group

Encl. Laboratory Bulk Result

Ref: ENV-03497-B01-L01

Bulk Asbestos Results

Client: ENV-03497 - Envirochem Services Inc.

Sampled By/ Date: B.Tsai - July 14, 2021

Reference: Drop Off Samples - Berth 2 Potash Shiploader HBMA - 1001 Low Level Road, North Vancouver, BC

Sample #	Date Analyzed	Analyst	Sample Location	Material Type	Other Materials glass, synthetics, cellulose	Asbestos Type & Amount
1	16-Jul-21	IW	ER271 - Door Frame	Black Caulking	Non-Fibrous 95% Other Fibres <5%	Non-Detected



A Division of  mbc Group

June 6, 2022

Envirochem Services Inc.

206-267 West Esplanade
North Vancouver, BC
V7M 1A5

**Reference: Bulk Material Identification Report
Neptune B2D2 HBMA; 1001 Low Level Road, North Vancouver, BC**

Please find enclosed our laboratory results for the seven (7) bulk samples that were submitted to our office for the analysis for asbestos content on June 3, 2022.

Results

- Samples 1, 2, 3, 4, and 5 that were submitted for analysis were found to be asbestos-containing.
- There was no asbestos detected in samples 6 and 7 that were submitted for analysis.

Examination of the samples was conducted in accordance with the **NIOSH 9002** PLM Bulk Sampling analytical method using polarized light microscopy and dispersion staining techniques. This method is currently accepted by WorkSafeBC for bulk sample analysis. The samples will be disposed of after 2 months, unless we are instructed otherwise.

Prior to the performance of any work that impacts asbestos-containing materials, it is a regulatory requirement that a qualified person perform a Risk Assessment. This requirement is in compliance with the WorkSafe-BC Occupational Health & Safety (OH&S) Regulation *Part 6 "Substance Specific Requirements"*; specifically Section 6.6 subsections (1), (2), (3) and (4).

If further clarification is required, please call our office. Thank-you for having Sure Hazmat and Testing perform this work for you.

Sincerely,



Nana Otchere
Administrative Assistant

Encl. Laboratory Bulk Results

Ref: ENV-06037-B01-L01

Bulk Asbestos Results

Client: ENV-06037 - Envirochem Services Inc.

Sampled By/ Date: B. Tsai/ June 1, 2022

Reference: Drop Off - Neptune B2D2 HBMA; 1001 Low Level Road, North Vancouver, BC

Project#: 21126

Sample #	Date Analyzed	Analyst	Sample Location	Material Type	Other Materials glass, synthetics, cellulose	Asbestos Type & Amount
1	06-Jun-22	IW	Old Stores Building - Upper Floor North Entrance	Drywall Joint Compound	Non-Fibrous 90% Other Fibres >5%	Chrysotile 0.5-3%
2	06-Jun-22	IW	Old Stores Building - Upper Floor Washroom	Drywall Joint Compound	Non-Fibrous 90% Other Fibres >5%	Chrysotile 0.5-3%
3	06-Jun-22	IW	Old Stores Building - Upper Floor East Entrance	Drywall Joint Compound	Non-Fibrous 90% Other Fibres >5%	Chrysotile 0.5-3%
4	06-Jun-22	IW	Old Stores Building - Upper Floor Kitchen	Drywall Joint Compound	Non-Fibrous 90% Other Fibres >5%	Chrysotile 0.5-3%
5	06-Jun-22	IW	Old Stores Building - Upper Floor East Storage Room	Drywall Joint Compound	Non-Fibrous 90% Other Fibres >5%	Chrysotile 0.5-3%
6	06-Jun-22	IW	Old Stores Building - Upper Floor Washroom	Floor Tile Grout	Non-Fibrous 95% Other Fibres <5%	Non-Detected
7	06-Jun-22	IW	Old Stores Building	Shingle Fiberboard	Non-Fibrous 70% Other Fibres <30% Non-Fibrous 40% Other Fibres <60%	Non-Detected Non-Detected

Note* Chrysotile is part of the Serpentine Asbestos Mineral Group

APPENDIX G

ALS Laboratories Certificate of Analysis



Environmental

CERTIFICATE OF ANALYSIS

Work Order : **VA21B4115**
Client : **Envirochem Services Inc.**
Contact : Bryan Tsai
Address : 206-267 West Esplanade
North Vancouver BC Canada V7M 1A5
Telephone : 604 986 0233
Project : 21126
PO : ----
C-O-C number : ----
Sampler : BT
Site : ----
Quote number : ----
No. of samples received : 22
No. of samples analysed : 22

Page : 1 of 4
Laboratory : Vancouver - Environmental
Account Manager : Dean Watt
Address : 8081 Lougheed Highway
Burnaby BC Canada V5A 1W9
Telephone : +1 604 253 4188
Date Samples Received : 10-Jul-2021 12:37
Date Analysis Commenced : 13-Jul-2021
Issue Date : 19-Jul-2021 18:00

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QC Interpretive report to assist with Quality Review and Sample Receipt Notification (SRN).

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Laboratory Department</i>
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Metals, Burnaby, British Columbia
Robin Weeks	Team Leader - Metals	Metals, Burnaby, British Columbia



General Comments

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Refer to the ALS Quality Control Interpretive report (QCI) for applicable references and methodology summaries. Reference methods may incorporate modifications to improve performance.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Please refer to Quality Control Interpretive report (QCI) for information regarding Holding Time compliance.

Key : CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances
LOR: Limit of Reporting (detection limit).

<i>Unit</i>	<i>Description</i>
mg/kg	milligrams per kilogram

<: less than.

>: greater than.

Surrogate: An analyte that is similar in behavior to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED on SRN or QCI Report, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.



Analytical Results

Sub-Matrix: Bulk Materials
 (Matrix: Soil/Solid)

Client sample ID

					L1. Lower C10 Railing - Yellow Paint	L2. C10 Hoist Mast -Teal Paint	L3. Upper C10 Conveyor Steel -Teal Paint	L4. C11 Conveyor Roller Arm -White Paint	L5. Upper C11 Conveyor Steel -Teal Paint
Client sampling date / time					07-Jul-2021	07-Jul-2021	07-Jul-2021	07-Jul-2021	07-Jul-2021
Analyte	CAS Number	Method	LOR	Unit	VA21B4115-001	VA21B4115-002	VA21B4115-003	VA21B4115-004	VA21B4115-005
					Result	Result	Result	Result	Result
Metals									
lead	7439-92-1	E494.Pb	5.0	mg/kg	<5.0	8.8	<5.0	<5.0	41.0

Please refer to the General Comments section for an explanation of any qualifiers detected.

Analytical Results

Sub-Matrix: Bulk Materials
 (Matrix: Soil/Solid)

Client sample ID

					L6. WPSL Control Room -White Paint	L7. Upper C10 Railing by ER211 -Teal Paint	L8. C9 Conveyor Arm -Brown Paint	L9. C9 Walkway -White Paint	L10. Lower C9 Railing - Yellow Paint
Client sampling date / time					07-Jul-2021	07-Jul-2021	07-Jul-2021	07-Jul-2021	07-Jul-2021
Analyte	CAS Number	Method	LOR	Unit	VA21B4115-006	VA21B4115-007	VA21B4115-008	VA21B4115-009	VA21B4115-010
					Result	Result	Result	Result	Result
Metals									
lead	7439-92-1	E494.Pb	5.0	mg/kg	<5.0	6.5	174	<5.0	<5.0

Please refer to the General Comments section for an explanation of any qualifiers detected.

Analytical Results

Sub-Matrix: Bulk Materials
 (Matrix: Soil/Solid)

Client sample ID

					L11. Lower C12 Railing - Yellow Paint	L12. C12 Conveyor Steel -White Paint	L13. C12 Conveyor Arm -Brown Paint	L14. C12 Chute -Red Paint	L15. Upper C13 Railing -Yellow Paint
Client sampling date / time					07-Jul-2021	07-Jul-2021	07-Jul-2021	07-Jul-2021	07-Jul-2021
Analyte	CAS Number	Method	LOR	Unit	VA21B4115-011	VA21B4115-012	VA21B4115-013	VA21B4115-014	VA21B4115-015
					Result	Result	Result	Result	Result
Metals									
lead	7439-92-1	E494.Pb	5.0	mg/kg	<5.0	<5.0	410	1660	<5.0

Please refer to the General Comments section for an explanation of any qualifiers detected.



Analytical Results

Sub-Matrix: Bulk Materials
 (Matrix: Soil/Solid)

					Client sample ID	L16. Upper C13 Conveyor Steel -Teal Paint	L17. C13 Hoist Mast -Teal Paint	L18. C14 Conveyor Arm -White Paint	L19. C9 Conveyor Steel -Red Paint	L20. Scrubber 9/10 Steel Column -White Paint
					Client sampling date / time	07-Jul-2021	07-Jul-2021	07-Jul-2021	07-Jul-2021	07-Jul-2021
Analyte	CAS Number	Method	LOR	Unit	VA21B4115-016	VA21B4115-017	VA21B4115-018	VA21B4115-019	VA21B4115-020	
					Result	Result	Result	Result	Result	
Metals										
lead	7439-92-1	E494.Pb	5.0	mg/kg	<5.0	34.5	<5.0	1080	53.3	

Please refer to the General Comments section for an explanation of any qualifiers detected.

Analytical Results

Sub-Matrix: Bulk Materials
 (Matrix: Soil/Solid)

					Client sample ID	L21. Cathodic Protection Shed Exterior -White Paint	L22. Scrubber 12/13 Railing and Ladder -White Paint	----	----	----
					Client sampling date / time	07-Jul-2021	07-Jul-2021	----	----	----
Analyte	CAS Number	Method	LOR	Unit	VA21B4115-021	VA21B4115-022	-----	-----	-----	
					Result	Result	---	---	---	
Metals										
lead	7439-92-1	E494.Pb	5.0	mg/kg	15.2	88.9	----	----	----	

Please refer to the General Comments section for an explanation of any qualifiers detected.

QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: VA21B4115	Page	: 1 of 7
Client	: Envirochem Services Inc.	Laboratory	: Vancouver - Environmental
Contact	: Bryan Tsai	Account Manager	: Dean Watt
Address	: 206-267 West Esplanade North Vancouver BC Canada V7M 1A5	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	: 604 986 0233	Telephone	: +1 604 253 4188
Project	: 21126	Date Samples Received	: 10-Jul-2021 12:37
PO	: ----	Issue Date	: 19-Jul-2021 18:00
C-O-C number	: ----		
Sampler	: BT		
Site	: ----		
Quote number	: ----		
No. of samples received	: 22		
No. of samples analysed	: 22		

This report is automatically generated by the ALS LIMS (Laboratory Information Management System) through evaluation of Quality Control (QC) results and other QA parameters associated with this submission, and is intended to facilitate rapid data validation by auditors or reviewers. The report highlights any exceptions and outliers to ALS Data Quality Objectives, provides holding time details and exceptions, summarizes QC sample frequencies, and lists applicable methodology references and summaries.

Key

- Anonymous:** Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances.
DQO: Data Quality Objective.
LOR: Limit of Reporting (detection limit).
RPD: Relative Percent Difference.

Summary of Outliers

Outliers : Quality Control Samples

- No Method Blank value outliers occur.
- No Laboratory Control Sample (LCS) outliers occur
- No Matrix Spike outliers occur.
- Duplicate outliers occur - please see following pages for full details.
- No Test sample Surrogate recovery outliers exist.

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- No Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.



Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **Soil/Solid**

Analyte Group	Laboratory sample ID	Client/Ref Sample ID	Analyte	CAS Number	Method	Result	Limits	Comment
Duplicate (DUP) RPDs								
Metals	VA21B4115-019	L19. C9 Conveyor Steel -Red Paint	lead	7439-92-1	E494.Pb	46.6 % DUP-H	40%	Duplicate RPD does not meet the DQO for this test.

Result Qualifiers

Qualifier	Description
DUP-H	Duplicate results outside ALS DQO, due to sample heterogeneity.



Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times, which are selected to meet known provincial and /or federal requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by organizations such as CCME, US EPA, APHA Standard Methods, ASTM, or Environment Canada (where available). Dates and holding times reported below represent the first dates of extraction or analysis. If subsequent tests or dilutions exceeded holding times, qualifiers are added (refer to COA).

If samples are identified below as having been analyzed or extracted outside of recommended holding times, measurement uncertainties may be increased, and this should be taken into consideration when interpreting results.

Where actual sampling date is not provided on the chain of custody, the date of receipt with time at 00:00 is used for calculation purposes.

Where only the sample date without time is provided on the chain of custody, the sampling date at 00:00 is used for calculation purposes.

Matrix: **Soil/Solid**

Evaluation: * = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Metals : Lead in Paint by CRC ICPMS										
LDPE bag L1. Lower C10 Railing - Yellow Paint	E494.Pb	07-Jul-2021	13-Jul-2021	----	----		16-Jul-2021	----	3 days	
Metals : Lead in Paint by CRC ICPMS										
LDPE bag L10. Lower C9 Railing - Yellow Paint	E494.Pb	07-Jul-2021	13-Jul-2021	----	----		16-Jul-2021	----	3 days	
Metals : Lead in Paint by CRC ICPMS										
LDPE bag L11. Lower C12 Railing - Yellow Paint	E494.Pb	07-Jul-2021	13-Jul-2021	----	----		16-Jul-2021	----	3 days	
Metals : Lead in Paint by CRC ICPMS										
LDPE bag L12. C12 Conveyor Steel -White Paint	E494.Pb	07-Jul-2021	13-Jul-2021	----	----		16-Jul-2021	----	3 days	
Metals : Lead in Paint by CRC ICPMS										
LDPE bag L13. C12 Conveyor Arm -Brown Paint	E494.Pb	07-Jul-2021	13-Jul-2021	----	----		16-Jul-2021	----	3 days	
Metals : Lead in Paint by CRC ICPMS										
LDPE bag L14. C12 Chute -Red Paint	E494.Pb	07-Jul-2021	13-Jul-2021	----	----		16-Jul-2021	----	3 days	
Metals : Lead in Paint by CRC ICPMS										
LDPE bag L15. Upper C13 Railing -Yellow Paint	E494.Pb	07-Jul-2021	13-Jul-2021	----	----		16-Jul-2021	----	3 days	



Matrix: **Soil/Solid**

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		
				Rec	Actual			Rec	Actual	
Metals : Lead in Paint by CRC ICPMS										
LDPE bag L16. Upper C13 Conveyor Steel -Teal Paint	E494.Pb	07-Jul-2021	13-Jul-2021	----	----		16-Jul-2021	----	3 days	
Metals : Lead in Paint by CRC ICPMS										
LDPE bag L17. C13 Hoist Mast -Teal Paint	E494.Pb	07-Jul-2021	13-Jul-2021	----	----		16-Jul-2021	----	3 days	
Metals : Lead in Paint by CRC ICPMS										
LDPE bag L18. C14 Conveyor Arm -White Paint	E494.Pb	07-Jul-2021	13-Jul-2021	----	----		16-Jul-2021	----	3 days	
Metals : Lead in Paint by CRC ICPMS										
LDPE bag L19. C9 Conveyor Steel -Red Paint	E494.Pb	07-Jul-2021	13-Jul-2021	----	----		16-Jul-2021	----	3 days	
Metals : Lead in Paint by CRC ICPMS										
LDPE bag L2. C10 Hoist Mast -Teal Paint	E494.Pb	07-Jul-2021	13-Jul-2021	----	----		16-Jul-2021	----	3 days	
Metals : Lead in Paint by CRC ICPMS										
LDPE bag L20. Scrubber 9/10 Steel Column -White Paint	E494.Pb	07-Jul-2021	13-Jul-2021	----	----		16-Jul-2021	----	3 days	
Metals : Lead in Paint by CRC ICPMS										
LDPE bag L21. Cathodic Protection Shed Exterior -White Paint	E494.Pb	07-Jul-2021	13-Jul-2021	----	----		16-Jul-2021	----	3 days	
Metals : Lead in Paint by CRC ICPMS										
LDPE bag L22. Scrubber 12/13 Railing and Ladder -White Paint	E494.Pb	07-Jul-2021	13-Jul-2021	----	----		16-Jul-2021	----	3 days	
Metals : Lead in Paint by CRC ICPMS										
LDPE bag L3. Upper C10 Conveyor Steel -Teal Paint	E494.Pb	07-Jul-2021	13-Jul-2021	----	----		16-Jul-2021	----	3 days	



Matrix: **Soil/Solid**

Evaluation: * = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		
				Rec	Actual			Rec	Actual	
Metals : Lead in Paint by CRC ICPMS										
LDPE bag L4. C11 Conveyor Roller Arm -White Paint	E494.Pb	07-Jul-2021	13-Jul-2021	----	----		16-Jul-2021	----	3 days	
Metals : Lead in Paint by CRC ICPMS										
LDPE bag L5. Upper C11 Conveyor Steel -Teal Paint	E494.Pb	07-Jul-2021	13-Jul-2021	----	----		16-Jul-2021	----	3 days	
Metals : Lead in Paint by CRC ICPMS										
LDPE bag L6. WPSL Control Room -White Paint	E494.Pb	07-Jul-2021	13-Jul-2021	----	----		16-Jul-2021	----	3 days	
Metals : Lead in Paint by CRC ICPMS										
LDPE bag L7. Upper C10 Railing by ER211 -Teal Paint	E494.Pb	07-Jul-2021	13-Jul-2021	----	----		16-Jul-2021	----	3 days	
Metals : Lead in Paint by CRC ICPMS										
LDPE bag L8. C9 Conveyor Arm -Brown Paint	E494.Pb	07-Jul-2021	13-Jul-2021	----	----		16-Jul-2021	----	3 days	
Metals : Lead in Paint by CRC ICPMS										
LDPE bag L9. C9 Walkway -White Paint	E494.Pb	07-Jul-2021	13-Jul-2021	----	----		16-Jul-2021	----	3 days	

Legend & Qualifier Definitions

Rec. HT: ALS recommended hold time (see units).



Quality Control Parameter Frequency Compliance

The following report summarizes the frequency of laboratory QC samples analyzed within the analytical batches (QC lots) in which the submitted samples were processed. The actual frequency should be greater than or equal to the expected frequency.

Matrix: **Soil/Solid**

Evaluation: ✖ = QC frequency outside specification; ✔ = QC frequency within specification.

Quality Control Sample Type	Method	QC Lot #	Count		Frequency (%)		Evaluation
			QC	Regular	Actual	Expected	
Analytical Methods							
Laboratory Duplicates (DUP)							
Lead in Paint by CRC ICPMS	E494.Pb	242334	2	27	7.4	5.0	✔
Laboratory Control Samples (LCS)							
Lead in Paint by CRC ICPMS	E494.Pb	242334	4	27	14.8	10.0	✔
Method Blanks (MB)							
Lead in Paint by CRC ICPMS	E494.Pb	242334	2	27	7.4	5.0	✔



Methodology References and Summaries

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Reference methods may incorporate modifications to improve performance (indicated by "mod").

<i>Analytical Methods</i>	<i>Method / Lab</i>	<i>Matrix</i>	<i>Method Reference</i>	<i>Method Descriptions</i>
Lead in Paint by CRC ICPMS	E494.Pb Vancouver - Environmental	Soil/Solid	EPA 200.2/6020B	This analysis is carried out using procedures adapted from EPA Method 200.2. The sample is manually homogenized and a representative subsample of the dry material is weighed. The sample is then digested at 95 degrees Celsius for 2 hours by block digester using concentrated nitric and hydrochloric acids. Instrumental analysis is by inductively coupled plasma - mass spectrometry (EPA Method 6020B).
<i>Preparation Methods</i>	<i>Method / Lab</i>	<i>Matrix</i>	<i>Method Reference</i>	<i>Method Descriptions</i>
Digestion for Lead	EP494.Pb Vancouver - Environmental	Soil/Solid	EPA 200.2 (mod)	This analysis is carried out using procedures adapted from EPA Method 200.2. The sample is manually homogenized and a representative subsample of the dry material is weighed. The sample is then digested at 95 degrees Celsius for 2 hours by block digester using concentrated nitric and hydrochloric acids.

QUALITY CONTROL REPORT

Work Order	: VA21B4115	Page	: 1 of 3
Client	: Envirochem Services Inc.	Laboratory	: Vancouver - Environmental
Contact	: Bryan Tsai	Account Manager	: Dean Watt
Address	: 206-267 West Esplanade North Vancouver BC Canada V7M 1A5	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	: 604 986 0233	Telephone	: +1 604 253 4188
Project	: 21126	Date Samples Received	: 10-Jul-2021 12:37
PO	: ----	Date Analysis Commenced	: 13-Jul-2021
C-O-C number	: ----	Issue Date	: 19-Jul-2021 18:00
Sampler	: BT		
Site	: ----		
Quote number	: ----		
No. of samples received	: 22		
No. of samples analysed	: 22		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits
- Reference Material (RM) Report; Recovery and Acceptance Limits
- Method Blank (MB) Report; Recovery and Acceptance Limits
- Laboratory Control Sample (LCS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Laboratory Department</i>
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Metals, Burnaby, British Columbia
Robin Weeks	Team Leader - Metals	Metals, Burnaby, British Columbia



General Comments

The ALS Quality Control (QC) report is optionally provided to ALS clients upon request. ALS test methods include comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against predetermined Data Quality Objectives (DQOs) to provide confidence in the accuracy of associated test results. This report contains detailed results for all QC results applicable to this sample submission. Please refer to the ALS Quality Control Interpretation report (QCI) for applicable method references and methodology summaries.

Key :

- Anonymous = Refers to samples which are not part of this work order, but which formed part of the QC process lot.
- CAS Number = Chemical Abstracts Services number is a unique identifier assigned to discrete substances.
- DQO = Data Quality Objective.
- LOR = Limit of Reporting (detection limit).
- RPD = Relative Percentage Difference
- # = Indicates a QC result that did not meet the ALS DQO.

Laboratory Duplicate (DUP) Report

A Laboratory Duplicate (DUP) is a randomly selected intralaboratory replicate sample. Laboratory Duplicates provide information regarding method precision and sample heterogeneity. ALS DQOs for Laboratory Duplicates are expressed as test-specific limits for Relative Percent Difference (RPD), or as an absolute difference limit of 2 times the LOR for low concentration duplicates within ~ 4-10 times the LOR (cut-off is test specific).

Sub-Matrix: **Soil/Solid**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Metals (QC Lot: 242334)											
VA21B4081-001	Anonymous	lead	7439-92-1	E494.Pb	5.0	mg/kg	<5.0	<5.0	0	Diff <2x LOR	----
Metals (QC Lot: 242374)											
VA21B4115-019	L19. C9 Conveyor Steel -Red Paint	lead	7439-92-1	E494.Pb	5.0	mg/kg	1080	669	46.6%	40%	DUP-H

Qualifiers

Qualifier	Description
DUP-H	Duplicate results outside ALS DQO, due to sample heterogeneity.



Method Blank (MB) Report

A Method Blank is an analyte-free matrix that undergoes sample processing identical to that carried out for test samples. Method Blank results are used to monitor and control for potential contamination from the laboratory environment and reagents. For most tests, the DQO for Method Blanks is for the result to be < LOR.

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Metals (QCLot: 242334)						
lead	7439-92-1	E494.Pb	5	mg/kg	<5.0	----
Metals (QCLot: 242374)						
lead	7439-92-1	E494.Pb	5	mg/kg	<5.0	----

Laboratory Control Sample (LCS) Report

A Laboratory Control Sample (LCS) is an analyte-free matrix that has been fortified (spiked) with test analytes at known concentration and processed in an identical manner to test samples. LCS results are expressed as percent recovery, and are used to monitor and control test method accuracy and precision, independent of test sample matrix.

Sub-Matrix: **Soil/Solid**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Metals (QCLot: 242334)									
lead	7439-92-1	E494.Pb	5	mg/kg	50 mg/kg	94.6	80.0	120	----
Metals (QCLot: 242374)									
lead	7439-92-1	E494.Pb	5	mg/kg	50 mg/kg	94.4	80.0	120	----

Reference Material (RM) Report

A Reference Material (RM) is a homogenous material with known and well-established analyte concentrations. RMs are processed in an identical manner to test samples, and are used to monitor and control the accuracy and precision of a test method for a typical sample matrix. RM results are expressed as percent recovery of the target analyte concentration. RM targets may be certified target concentrations provided by the RM supplier, or may be ALS long-term mean values (for empirical test methods).

Sub-Matrix: **Soil/Solid**

					Reference Material (RM) Report				
					RM Target	Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Reference Material ID	Analyte	CAS Number	Method	Concentration	RM	Low	High	Qualifier
Metals (QCLot: 242334)									
QC-242334-003	SCP SS-2	lead	7439-92-1	E494.Pb	267 mg/kg	95.5	70.0	130	----
Metals (QCLot: 242374)									
QC-242374-003	SCP SS-2	lead	7439-92-1	E494.Pb	267 mg/kg	95.1	70.0	130	----



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Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878

Affix ALS barcode label here (lab use only)

COC Number: 17 -

Page 1 of 2

Report To: Envirochem Serv/CSA, Inc.

Contact: Bryan Tsai

Phone: 7789629152

Street: 206-267 Esplanade West

City/Province: North Vancouver, BC

Postal Code: V7M 1A5

Invoice To: Same as Report To

Company: Envirochem Services Inc.

Contact: Cella Henslowe

ALS Account # / Quote #: 21126

Job #: 21126

PO / A/E: Major/Minor Code:

LSP: Location:

ALS Lab Work Order # (lab use only):

ALS Sample # (lab use only):

Sample Identification and/or Coordinates (This description will appear on the report)

L1. Lower C10 Railing - Yellow Paint

L2. C10 Hoist Mast - Teal Paint

L3. Upper C10 Conveyor Steel - Teal Paint

L4. C11 Conveyor Roller Arm - White Paint

L5. Upper C11 Conveyor Steel - Teal Paint

L6. W/PSL Control Room - White Paint

L7. Upper C10 Railing by ER211 - Teal Paint

L8. C9 Conveyor Arm - Brown Paint

L9. C9 Walkway - White Paint

L10. Lower C9 Railing - Yellow Paint

L11. Lower C12 Railing - Yellow Paint

L12. C12 Conveyor Steel - White Paint

Drinking Water (DW) Samples (client use)

Are samples taken from a Regulated DW System?

Are samples for human consumption/ use?

Released by: [Signature]

Date: 5/19/2021

Time: [Blank]

Received by: [Blank]

Date: [Blank]

Time: [Blank]

Received by: [Blank]

Date: [Blank]

Time: [Blank]

Received by: [Blank]

Date: [Blank]

Time: [Blank]

Received by: [Blank]

Date: [Blank]

Time: [Blank]

Report Format / Distribution: PDF, EXCEL, EDD (DIGITAL)

Quality Control (QC) Report with Report

Select Distribution: EMAIL, MAIL, FAX

Email 1 or Fax: bryan.tsai@envirochem.com

Email 2: darryl@envirochem.com

Email 3: [Blank]

Invoice Distribution: EMAIL, MAIL, FAX

Select Invoice Distribution: EMAIL, MAIL, FAX

Email 1 or Fax: accounts.payable@envirochem.com

Email 2: [Blank]

Oil and Gas Required Fields (client use)

A/E/Cost Center: [Blank]

Major/Minor Code: [Blank]

Routing Code: [Blank]

Requisitioner: [Blank]

Location: [Blank]

ALS Contact: Dean Watt

Sampler: BT

Date: 07-16-21

Time: [Blank]

Sample Type: Bulk

[Blank]

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[Blank]

Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)

Regular [RI] Standard TAT if received by 2 PM - Business days - no surcharges apply

4 day [P4-20%] 1 Business day [E - 100%]

3 day [P3-25%] Same Day, Weekend or Statutory holiday [E2 - 200%]

2 day [P2-50%] [Laboratory opening fees may apply]

Emergency [EMERGENCY]

Date and Time Required for all E&P TATs:

For tests that can not be performed according to the service level selected, you will be contacted.

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (FP) below

[Table with columns for Filtered, Preserved, Filtered and Preserved]

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[Table with columns for Filtered, Preserved, Filtered and Preserved]

[Table with columns for Filtered, Preserved, Filtered and Preserved]

Environmental Division Vancouver Work Order Reference VA21B4115 Telephone: +1 804 253 4188

REFER TO BACKPAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION. WHITE - LABORATORY COPY. YELLOW - CLIENT COPY. Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the White - report copy. 1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

SAMPLE CONDITION AS RECEIVED (lab use only) Frozen, Ice Packs, Cooling Initiated, INITIAL COOLER TEMPERATURES °C, SIF Observations, Custody seal intact, Yes/No, FINAL SHIPMENT RECEPTION (lab use only)

Released by: [Signature], Date: 5/19/2021, Time: [Blank], Received by: [Blank], Date: [Blank], Time: [Blank]

Drinking Water (DW) Samples (client use) Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)

Released by: [Signature], Date: 7/16, Time: 12:00, Received by: [Blank], Date: [Blank], Time: [Blank]

NOV 2016 FORM



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Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878

Affix ALS barcode label here (lab use only)

COC Number: 17 -

Page 2 of 2

Report To - Contact and company name below will appear on the final report		Report Format / Distribution		Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)													
Company:	Envirochem Services Inc.	Select Report Format: <input checked="" type="checkbox"/> PDF <input checked="" type="checkbox"/> EXCEL <input type="checkbox"/> EDD (DIGITAL)		Regular [R] <input checked="" type="checkbox"/> Standard TAT if received by 3 pm - business days - no surcharges apply													
Contact:	Bryan Tsai	Quality Control (QC) Report with Report <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO		PRIORITY (Business Days) <table border="1"> <tr> <td>4 day [P4-20%]</td> <td><input type="checkbox"/></td> <td rowspan="3">EMERGENCY</td> <td>1 Business day [E - 100%]</td> <td><input type="checkbox"/></td> </tr> <tr> <td>3 day [P3-25%]</td> <td><input type="checkbox"/></td> <td>Same Day, Weekend or Statutory holiday [E2 -200% (Laboratory opening fees may apply)]</td> <td><input type="checkbox"/></td> </tr> <tr> <td>2 day [P2-50%]</td> <td><input type="checkbox"/></td> <td></td> <td></td> </tr> </table>	4 day [P4-20%]	<input type="checkbox"/>	EMERGENCY	1 Business day [E - 100%]	<input type="checkbox"/>	3 day [P3-25%]	<input type="checkbox"/>	Same Day, Weekend or Statutory holiday [E2 -200% (Laboratory opening fees may apply)]	<input type="checkbox"/>	2 day [P2-50%]	<input type="checkbox"/>		
4 day [P4-20%]	<input type="checkbox"/>	EMERGENCY	1 Business day [E - 100%]		<input type="checkbox"/>												
3 day [P3-25%]	<input type="checkbox"/>		Same Day, Weekend or Statutory holiday [E2 -200% (Laboratory opening fees may apply)]	<input type="checkbox"/>													
2 day [P2-50%]	<input type="checkbox"/>																
Phone:	7789529152	<input checked="" type="checkbox"/> Compare Results to Criteria on Report - provide details below if box checked		Date and Time Required for all E&P TATs:													
Company address below will appear on the final report		Select Distribution: <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX		For tests that can not be performed according to the service level selected, you will be contacted.													
Street:	206-267 Esplanade West	Email 1 or Fax bryan.tsai@envirochem.com		Analysis Request Indicate Filled (F), Preserved (P) or Filled and Preserved (F/P) below													
City/Province:	North Vancouver, BC	Email 2 darryl@envirochem.com															
Postal Code:	V7M 1A5	Email 3															
Invoice To	Same as Report To <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	Invoice Distribution		NUMBER OF CONTAINERS Lead in Paint													
Copy of Invoice with Report <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO		Select Invoice Distribution: <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX															
Company:	Envirochem Services Inc.	Email 1 or Fax accounts.payable@envirochem.com															
Contact:	Celia Henslowe	Email 2															
Project Information		Oil and Gas Required Fields (client use)															
ALS Account # / Quote #:		AFE/Cost Center:	PO#														
Job #:	21126	Major/Minor Code:	Routing Code:														
PO / AFE:		Requisitioner:															
LSD:		Location:															
ALS Lab Work Order # (lab use only):		ALS Contact: Dean Watt	Sampler: BT			SAMPLES ON HOLD SUSPECTED HAZARD (see Special Instructions)											
ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type													
	L13. C12 Conveyor Cover Arm - Brown Paint	07-Jul-21		Bulk													
	L14. C12 Chute - Red Paint																
	L15. Upper C13 Railing - Yellow Paint																
	L16. Upper C13 Conveyor Steel - Teal Paint																
	L17. C13 Hoist Mast - Teal Paint																
	L18. C14 Conveyor Roll Arm - White Paint																
	L19. C9 Conveyor Steel - Red Paint																
	L20. Scrubber 9/10 Steel Column - White Paint	08-Jul-21															
	L21. Cathodic Protection Shed Exterior - White Paint																
	L22. Scrubber 12/13 Railing and Ladder - White Paint																
Drinking Water (DW) Samples¹ (client use)		Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)		SAMPLE CONDITION AS RECEIVED (lab use only)													
Are samples taken from a Regulated DW System? <input type="checkbox"/> YES <input type="checkbox"/> NO				Frozen <input type="checkbox"/> SIF Observations Yes <input type="checkbox"/> No <input type="checkbox"/>													
Are samples for human consumption/ use? <input type="checkbox"/> YES <input type="checkbox"/> NO				Ice Packs <input type="checkbox"/> Ice Cubes <input type="checkbox"/> Custody seal intact Yes <input type="checkbox"/> No <input type="checkbox"/>													
				Cooling Initiated <input type="checkbox"/>													
				INITIAL COOLER TEMPERATURES °C													
				FINAL COOLER TEMPERATURES °C													
SHIPMENT RELEASE (client use)		INITIAL SHIPMENT RECEPTION (lab use only)		FINAL SHIPMENT RECEPTION (lab use only)													
Released by:	Date:	Time:	Received by:	Date:	Time:												
<i>[Signature]</i>	July 9, 2021																

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

NOV 2016 FROTH

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

CERTIFICATE OF ANALYSIS

Work Order : **VA21B4437**
Client : **Envirochem Services Inc.**
Contact : Bryan Tsai
Address : 206-267 West Esplanade
 North Vancouver BC Canada V7M 1A5
Telephone : 604 986 0233
Project : 21126
PO : ----
C-O-C number : ----
Sampler : B T
Site : ----
Quote number : ----
No. of samples received : 2
No. of samples analysed : 2

Page : 1 of 2
Laboratory : Vancouver - Environmental
Account Manager : Dean Watt
Address : 8081 Lougheed Highway
 Burnaby BC Canada V5A 1W9
Telephone : +1 604 253 4188
Date Samples Received : 14-Jul-2021 19:15
Date Analysis Commenced : 17-Jul-2021
Issue Date : 21-Jul-2021 12:31

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QC Interpretive report to assist with Quality Review and Sample Receipt Notification (SRN).

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Laboratory Department</i>
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Metals, Burnaby, British Columbia



General Comments

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Refer to the ALS Quality Control Interpretive report (QCI) for applicable references and methodology summaries. Reference methods may incorporate modifications to improve performance.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Please refer to Quality Control Interpretive report (QCI) for information regarding Holding Time compliance.

Key : CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances
 LOR: Limit of Reporting (detection limit).

Unit	Description
mg/kg	milligrams per kilogram

<: less than.

>: greater than.

Surrogate: An analyte that is similar in behavior to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED on SRN or QCI Report, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Analytical Results

Sub-Matrix: **Bulk Materials**

(Matrix: **Soil/Solid**)

					Client sample ID	L23. Overhead Walkway Steel - White Paint	L24. Overhead Walkway Railing - Yellow Paint	---	---	---
					Client sampling date / time	14-Jul-2021	14-Jul-2021	---	---	---
Analyte	CAS Number	Method	LOR	Unit	VA21B4437-001	VA21B4437-002	-----	-----	-----	-----
					Result	Result	---	---	---	---
Metals										
lead	7439-92-1	E494.Pb	5.0	mg/kg	<5.0	1870	---	---	---	---

Please refer to the General Comments section for an explanation of any qualifiers detected.

QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: VA21B4437	Page	: 1 of 4
Client	: Envirochem Services Inc.	Laboratory	: Vancouver - Environmental
Contact	: Bryan Tsai	Account Manager	: Dean Watt
Address	: 206-267 West Esplanade North Vancouver BC Canada V7M 1A5	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	: 604 986 0233	Telephone	: +1 604 253 4188
Project	: 21126	Date Samples Received	: 14-Jul-2021 19:15
PO	: ----	Issue Date	: 21-Jul-2021 12:31
C-O-C number	: ----		
Sampler	: B T		
Site	: ----		
Quote number	: ----		
No. of samples received	: 2		
No. of samples analysed	: 2		

This report is automatically generated by the ALS LIMS (Laboratory Information Management System) through evaluation of Quality Control (QC) results and other QA parameters associated with this submission, and is intended to facilitate rapid data validation by auditors or reviewers. The report highlights any exceptions and outliers to ALS Data Quality Objectives, provides holding time details and exceptions, summarizes QC sample frequencies, and lists applicable methodology references and summaries.

Key

- Anonymous:** Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances.
DQO: Data Quality Objective.
LOR: Limit of Reporting (detection limit).
RPD: Relative Percent Difference.

Summary of Outliers

Outliers : Quality Control Samples

- No Method Blank value outliers occur.
- No Duplicate outliers occur.
- No Laboratory Control Sample (LCS) outliers occur
- No Matrix Spike outliers occur.
- No Test sample Surrogate recovery outliers exist.

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- No Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.



Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times, which are selected to meet known provincial and /or federal requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by organizations such as CCME, US EPA, APHA Standard Methods, ASTM, or Environment Canada (where available). Dates and holding times reported below represent the first dates of extraction or analysis. If subsequent tests or dilutions exceeded holding times, qualifiers are added (refer to COA).

If samples are identified below as having been analyzed or extracted outside of recommended holding times, measurement uncertainties may be increased, and this should be taken into consideration when interpreting results.

Where actual sampling date is not provided on the chain of custody, the date of receipt with time at 00:00 is used for calculation purposes.

Where only the sample date without time is provided on the chain of custody, the sampling date at 00:00 is used for calculation purposes.

Matrix: **Soil/Solid**

Evaluation: * = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Metals : Lead in Paint by CRC ICPMS										
LDPE bag L23. Overhead Walkway Steel - White Paint	E494.Pb	14-Jul-2021	17-Jul-2021	----	----		20-Jul-2021	----	3 days	
Metals : Lead in Paint by CRC ICPMS										
LDPE bag L24. Overhead Walkway Railing - Yellow Paint	E494.Pb	14-Jul-2021	17-Jul-2021	----	----		20-Jul-2021	----	3 days	

Legend & Qualifier Definitions

Rec. HT: ALS recommended hold time (see units).



Quality Control Parameter Frequency Compliance

The following report summarizes the frequency of laboratory QC samples analyzed within the analytical batches (QC lots) in which the submitted samples were processed. The actual frequency should be greater than or equal to the expected frequency.

Matrix: **Soil/Solid**

Evaluation: ✖ = QC frequency outside specification; ✔ = QC frequency within specification.

Quality Control Sample Type	Method	QC Lot #	Count		Frequency (%)		Evaluation
			QC	Regular	Actual	Expected	
<i>Analytical Methods</i>							
Laboratory Duplicates (DUP)							
Lead in Paint by CRC ICPMS	E494.Pb	245812	1	11	9.0	5.0	✔
Laboratory Control Samples (LCS)							
Lead in Paint by CRC ICPMS	E494.Pb	245812	2	11	18.1	10.0	✔
Method Blanks (MB)							
Lead in Paint by CRC ICPMS	E494.Pb	245812	1	11	9.0	5.0	✔



Methodology References and Summaries

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Reference methods may incorporate modifications to improve performance (indicated by "mod").

<i>Analytical Methods</i>	<i>Method / Lab</i>	<i>Matrix</i>	<i>Method Reference</i>	<i>Method Descriptions</i>
Lead in Paint by CRC ICPMS	E494.Pb Vancouver - Environmental	Soil/Solid	EPA 200.2/6020B	This analysis is carried out using procedures adapted from EPA Method 200.2. The sample is manually homogenized and a representative subsample of the dry material is weighed. The sample is then digested at 95 degrees Celsius for 2 hours by block digester using concentrated nitric and hydrochloric acids. Instrumental analysis is by inductively coupled plasma - mass spectrometry (EPA Method 6020B).
<i>Preparation Methods</i>	<i>Method / Lab</i>	<i>Matrix</i>	<i>Method Reference</i>	<i>Method Descriptions</i>
Digestion for Lead	EP494.Pb Vancouver - Environmental	Soil/Solid	EPA 200.2 (mod)	This analysis is carried out using procedures adapted from EPA Method 200.2. The sample is manually homogenized and a representative subsample of the dry material is weighed. The sample is then digested at 95 degrees Celsius for 2 hours by block digester using concentrated nitric and hydrochloric acids.

QUALITY CONTROL REPORT

Work Order	: VA21B4437	Page	: 1 of 3
Client	: Envirochem Services Inc.	Laboratory	: Vancouver - Environmental
Contact	: Bryan Tsai	Account Manager	: Dean Watt
Address	: 206-267 West Esplanade North Vancouver BC Canada V7M 1A5	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	: 604 986 0233	Telephone	: +1 604 253 4188
Project	: 21126	Date Samples Received	: 14-Jul-2021 19:15
PO	: ----	Date Analysis Commenced	: 17-Jul-2021
C-O-C number	: ----	Issue Date	: 21-Jul-2021 12:31
Sampler	: B T		
Site	: ----		
Quote number	: ----		
No. of samples received	: 2		
No. of samples analysed	: 2		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits
- Reference Material (RM) Report; Recovery and Acceptance Limits
- Method Blank (MB) Report; Recovery and Acceptance Limits
- Laboratory Control Sample (LCS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Laboratory Department</i>
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Metals, Burnaby, British Columbia



General Comments

The ALS Quality Control (QC) report is optionally provided to ALS clients upon request. ALS test methods include comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against predetermined Data Quality Objectives (DQOs) to provide confidence in the accuracy of associated test results. This report contains detailed results for all QC results applicable to this sample submission. Please refer to the ALS Quality Control Interpretation report (QCI) for applicable method references and methodology summaries.

Key :

- Anonymous = Refers to samples which are not part of this work order, but which formed part of the QC process lot.
- CAS Number = Chemical Abstracts Services number is a unique identifier assigned to discrete substances.
- DQO = Data Quality Objective.
- LOR = Limit of Reporting (detection limit).
- RPD = Relative Percentage Difference
- # = Indicates a QC result that did not meet the ALS DQO.

Laboratory Duplicate (DUP) Report

A Laboratory Duplicate (DUP) is a randomly selected intralaboratory replicate sample. Laboratory Duplicates provide information regarding method precision and sample heterogeneity. ALS DQOs for Laboratory Duplicates are expressed as test-specific limits for Relative Percent Difference (RPD), or as an absolute difference limit of 2 times the LOR for low concentration duplicates within ~ 4-10 times the LOR (cut-off is test specific).

Sub-Matrix: **Soil/Solid**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Metals (QC Lot: 245812)											
VA21B4263-001	Anonymous	lead	7439-92-1	E494.Pb	5.0	mg/kg	<5.0	<5.0	0	Diff <2x LOR	----

Method Blank (MB) Report

A Method Blank is an analyte-free matrix that undergoes sample processing identical to that carried out for test samples. Method Blank results are used to monitor and control for potential contamination from the laboratory environment and reagents. For most tests, the DQO for Method Blanks is for the result to be < LOR.

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Metals (QCLot: 245812)						
lead	7439-92-1	E494.Pb	5	mg/kg	<5.0	----



Laboratory Control Sample (LCS) Report

A Laboratory Control Sample (LCS) is an analyte-free matrix that has been fortified (spiked) with test analytes at known concentration and processed in an identical manner to test samples. LCS results are expressed as percent recovery, and are used to monitor and control test method accuracy and precision, independent of test sample matrix.

Sub-Matrix: **Soil/Solid**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Metals (QCLot: 245812)									
lead	7439-92-1	E494.Pb	5	mg/kg	50 mg/kg	102	80.0	120	----

Reference Material (RM) Report

A Reference Material (RM) is a homogenous material with known and well-established analyte concentrations. RMs are processed in an identical manner to test samples, and are used to monitor and control the accuracy and precision of a test method for a typical sample matrix. RM results are expressed as percent recovery of the target analyte concentration. RM targets may be certified target concentrations provided by the RM supplier, or may be ALS long-term mean values (for empirical test methods).

Sub-Matrix: **Soil/Solid**

					Reference Material (RM) Report				
					RM Target	Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Reference Material ID	Analyte	CAS Number	Method	Concentration	RM	Low	High	Qualifier
Metals (QCLot: 245812)									
QC-245812-003	SCP SS-2	lead	7439-92-1	E494.Pb	267 mg/kg	98.7	70.0	130	----



www.alsglobal.com

Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878

Affix ALS barcode label here (lab use only)

COC Number: 17 -

Page 1 of 1

Report To Contact and company name below will appear on the final report		Report Format / Distribution		Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)			
Company:	Envirochem Services Inc.	Select Report Format:	<input checked="" type="checkbox"/> PDF <input checked="" type="checkbox"/> EXCEL <input type="checkbox"/> EDD (DIGITAL)	Regular [R] <input checked="" type="checkbox"/> Standard TAT if received by 3 pm - business days - no surcharges apply			
Contact:	Bryan Tsai	Quality Control (QC) Report with Report	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	PRIORITY (Business Days) 4 day [P4-20%] <input type="checkbox"/> 3 day [P3-25%] <input type="checkbox"/> 2 day [P2-50%] <input type="checkbox"/>	EMERGENCY 1 Business day [E - 100%] <input type="checkbox"/> Same Day, Weekend or Statutory holiday [E2 -200% (Laboratory opening fees may apply)] <input type="checkbox"/>		
Phone:	7789529152	<input checked="" type="checkbox"/> Compare Results to Criteria on Report - provide details below if box checked	Select Distribution:			Date and Time Required for all E&P TATs: <u>July 21, 2021</u>	
Company address below will appear on the final report		Select Distribution:	<input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX			For tests that can not be performed according to the service level selected, you will be contacted.	
Street:	206-267 Esplanade West	Email 1 or Fax	bryan.tsai@envirochem.com	Analysis Request Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below			
City/Province:	North Vancouver, BC	Email 2	darryl@envirochem.com				
Postal Code:	V7M 1A5	Email 3					
Invoice To	Same as Report To <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	Invoice Distribution		NUMBER OF CONTAINERS Lead in Paint	SAMPLES ON HOLD SUSPECTED HAZARDOUS (see Special Instructions)		
	Copy of Invoice with Report <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	Select Invoice Distribution:	<input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX				
Company:	Envirochem Services Inc.	Email 1 or Fax	accounts.payable@envirochem.com				
Contact:	Celia Henslowe	Email 2					
Project Information		Oil and Gas Required Fields (client use)					
ALS Account # / Quote #:		AFE/Cost Center:	PO#				
Job #:	21126	Major/Minor Code:	Routing Code:				
PO / AFE:		Requisitioner:					
LSD:		Location:					
ALS Lab Work Order # (lab use only):		ALS Contact:	Dean Watt			Sampler:	BT
ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type			
	L23. Overhead Walkway Steel - White Paint	14-Jul-21		Bulk	/		
	L24. Overhead Walkway Railing - Yellow Paint	14-Jul-21		Bulk	/		
Drinking Water (DW) Samples¹ (client use)		Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)		SAMPLE CONDITION AS RECEIVED (lab use only)			
Are samples taken from a Regulated DW System?	<input type="checkbox"/> YES <input type="checkbox"/> NO			Frozen	<input type="checkbox"/> SIF Observations Yes <input type="checkbox"/> No <input type="checkbox"/>		
Are samples for human consumption/ use?	<input type="checkbox"/> YES <input type="checkbox"/> NO			Ice Packs	<input type="checkbox"/> Ice Cubes <input type="checkbox"/> Custody seal intact Yes <input type="checkbox"/> No <input type="checkbox"/>		
				Cooling Initiated	<input type="checkbox"/>		
				INITIAL COOLER TEMPERATURES °C	FINAL COOLER TEMPERATURES °C		
					22		
SHIPMENT RELEASE (client use)		INITIAL SHIPMENT RECEPTION (lab use only)		FINAL SHIPMENT RECEPTION (lab use only)			
Released by:	Date:	Time:	Received by:	Date:	Time:		
<i>[Signature]</i>	July 14, 2021		PD	July 14, 2021	19:15		

Environmental Division
Vancouver
Work Order Reference
VA21B4437

Telephone : + 1 604 253 4188

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

NCV 22-16 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.



Environmental

CERTIFICATE OF ANALYSIS

Work Order : **VA22B2424**
Client : **Envirochem Services Inc.**
Contact : EIT Bryan Tsai
Address : 206-267 West Esplanade
North Vancouver BC Canada V7M 1A5
Telephone : 604 986 0233
Project : 21126
PO : ----
C-O-C number : ----
Sampler : B T
Site : ----
Quote number : ----
No. of samples received : 11
No. of samples analysed : 11

Page : 1 of 3
Laboratory : Vancouver - Environmental
Account Manager : Dean Watt
Address : 8081 Lougheed Highway
Burnaby BC Canada V5A 1W9
Telephone : +1 604 253 4188
Date Samples Received : 03-Jun-2022 12:44
Date Analysis Commenced : 15-Jun-2022
Issue Date : 16-Jun-2022 19:21

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QC Interpretive report to assist with Quality Review and Sample Receipt Notification (SRN).

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Laboratory Department</i>
Kim Jensen	Department Manager - Metals	Metals, Burnaby, British Columbia



General Comments

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Refer to the ALS Quality Control Interpretive report (QCI) for applicable references and methodology summaries. Reference methods may incorporate modifications to improve performance.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Please refer to Quality Control Interpretive report (QCI) for information regarding Holding Time compliance.

Key : CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances
LOR: Limit of Reporting (detection limit).

<i>Unit</i>	<i>Description</i>
mg/kg	milligrams per kilogram

<: less than.

>: greater than.

Surrogate: An analyte that is similar in behavior to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED on SRN or QCI Report, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.



Analytical Results

Sub-Matrix: Paint Chips
 (Matrix: Soil/Solid)

Client sample ID

					L1. Old Mill Stores - Cinderblock - White Paint	L2. Old Mill Stores - Wood Trim - White Paint	L3. C8 - Conveyor Steel East - White Paint	L4. C8 - Product Transfer Line Steel - Teal Paint	L5. C8 - Roller Arm - Paint
Client sampling date / time					01-Jun-2022	01-Jun-2022	01-Jun-2022	01-Jun-2022	01-Jun-2022
Analyte	CAS Number	Method	LOR	Unit	VA22B2424-001	VA22B2424-002	VA22B2424-003	VA22B2424-004	VA22B2424-005
					Result	Result	Result	Result	Result
Metals									
lead	7439-92-1	E494.Pb	5.0	mg/kg	36.4	1280	<5.0	10.4	12.3

Please refer to the General Comments section for an explanation of any qualifiers detected.

Analytical Results

Sub-Matrix: Paint Chips
 (Matrix: Soil/Solid)

Client sample ID

					L6. C8 - Conveyor Steel East - Paint	L7. C8 - Conveyor Steel West - Paint	L8. C8 - Support Column - White Paint	L9. C8 - Support Column - Brown Paint	L10. C8 - Railing - Yellow Paint
Client sampling date / time					01-Jun-2022	01-Jun-2022	01-Jun-2022	01-Jun-2022	01-Jun-2022
Analyte	CAS Number	Method	LOR	Unit	VA22B2424-006	VA22B2424-007	VA22B2424-008	VA22B2424-009	VA22B2424-010
					Result	Result	Result	Result	Result
Metals									
lead	7439-92-1	E494.Pb	5.0	mg/kg	1520	15.8	<5.0	13.6	<5.0

Please refer to the General Comments section for an explanation of any qualifiers detected.

Analytical Results

Sub-Matrix: Paint Chips
 (Matrix: Soil/Solid)

Client sample ID

					L11. Dolphin 1 - Yellow Paint				
Client sampling date / time					01-Jun-2022	---	---	---	---
Analyte	CAS Number	Method	LOR	Unit	VA22B2424-011				
					Result				
Metals									
lead	7439-92-1	E494.Pb	5.0	mg/kg	6.1	---	---	---	---

Please refer to the General Comments section for an explanation of any qualifiers detected.

QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: VA22B2424	Page	: 1 of 6
Client	: Envirochem Services Inc.	Laboratory	: Vancouver - Environmental
Contact	: EIT Bryan Tsai	Account Manager	: Dean Watt
Address	: 206-267 West Esplanade North Vancouver BC Canada V7M 1A5	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	: 604 986 0233	Telephone	: +1 604 253 4188
Project	: 21126	Date Samples Received	: 03-Jun-2022 12:44
PO	: ----	Issue Date	: 16-Jun-2022 19:21
C-O-C number	: ----		
Sampler	: B T		
Site	: ----		
Quote number	: ----		
No. of samples received	: 11		
No. of samples analysed	: 11		

This report is automatically generated by the ALS LIMS (Laboratory Information Management System) through evaluation of Quality Control (QC) results and other QA parameters associated with this submission, and is intended to facilitate rapid data validation by auditors or reviewers. The report highlights any exceptions and outliers to ALS Data Quality Objectives, provides holding time details and exceptions, summarizes QC sample frequencies, and lists applicable methodology references and summaries.

Key

Anonymous: Refers to samples which are not part of this work order, but which formed part of the QC process lot.

CAS Number: Chemical Abstracts Service number is a unique identifier assigned to discrete substances.

DQO: Data Quality Objective.

LOR: Limit of Reporting (detection limit).

RPD: Relative Percent Difference.

Workorder Comments

Holding times are displayed as "----" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Summary of Outliers

Outliers : Quality Control Samples

- No Method Blank value outliers occur.
- No Duplicate outliers occur.
- No Laboratory Control Sample (LCS) outliers occur
- No Test sample Surrogate recovery outliers exist.

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- No Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.

RIGHT SOLUTIONS | RIGHT PARTNER



Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times, which are selected to meet known provincial and /or federal requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by organizations such as CCME, US EPA, APHA Standard Methods, ASTM, or Environment Canada (where available). Dates and holding times reported below represent the first dates of extraction or analysis. If subsequent tests or dilutions exceeded holding times, qualifiers are added (refer to COA).

If samples are identified below as having been analyzed or extracted outside of recommended holding times, measurement uncertainties may be increased, and this should be taken into consideration when interpreting results.

Where actual sampling date is not provided on the chain of custody, the date of receipt with time at 00:00 is used for calculation purposes.

Where only the sample date without time is provided on the chain of custody, the sampling date at 00:00 is used for calculation purposes.

Matrix: **Soil/Solid**

Evaluation: * = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Metals : Lead in Paint by CRC ICPMS										
LDPE bag L1. Old Mill Stores - Cinderblock - White Paint	E494.Pb	01-Jun-2022	15-Jun-2022	----	----		15-Jun-2022	180 days	15 days	✓
Metals : Lead in Paint by CRC ICPMS										
LDPE bag L10. C8 - Railing - Yellow Paint	E494.Pb	01-Jun-2022	15-Jun-2022	----	----		15-Jun-2022	180 days	15 days	✓
Metals : Lead in Paint by CRC ICPMS										
LDPE bag L11. Dolphin 1 - Yellow Paint	E494.Pb	01-Jun-2022	15-Jun-2022	----	----		15-Jun-2022	180 days	15 days	✓
Metals : Lead in Paint by CRC ICPMS										
LDPE bag L2. Old Mill Stores - Wood Trim - White Paint	E494.Pb	01-Jun-2022	15-Jun-2022	----	----		15-Jun-2022	180 days	15 days	✓
Metals : Lead in Paint by CRC ICPMS										
LDPE bag L3. C8 - Conveyor Steel East - White Paint	E494.Pb	01-Jun-2022	15-Jun-2022	----	----		15-Jun-2022	180 days	15 days	✓
Metals : Lead in Paint by CRC ICPMS										
LDPE bag L4. C8 - Product Transfer Line Steel - Teal Paint	E494.Pb	01-Jun-2022	15-Jun-2022	----	----		15-Jun-2022	180 days	15 days	✓
Metals : Lead in Paint by CRC ICPMS										
LDPE bag L5. C8 - Roller Arm - Paint	E494.Pb	01-Jun-2022	15-Jun-2022	----	----		15-Jun-2022	180 days	15 days	✓



Matrix: **Soil/Solid**

Evaluation: * = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Metals : Lead in Paint by CRC ICPMS										
LDPE bag L6. C8 - Conveyor Steel East - Paint	E494.Pb	01-Jun-2022	15-Jun-2022	----	----		15-Jun-2022	180 days	15 days	✓
Metals : Lead in Paint by CRC ICPMS										
LDPE bag L7. C8 - Conveyor Steel West - Paint	E494.Pb	01-Jun-2022	15-Jun-2022	----	----		15-Jun-2022	180 days	15 days	✓
Metals : Lead in Paint by CRC ICPMS										
LDPE bag L8. C8 - Support Column - White Paint	E494.Pb	01-Jun-2022	15-Jun-2022	----	----		15-Jun-2022	180 days	15 days	✓
Metals : Lead in Paint by CRC ICPMS										
LDPE bag L9. C8 - Support Column - Brown Paint	E494.Pb	01-Jun-2022	15-Jun-2022	----	----		15-Jun-2022	180 days	15 days	✓

Legend & Qualifier Definitions

Rec. HT: ALS recommended hold time (see units).



Quality Control Parameter Frequency Compliance

The following report summarizes the frequency of laboratory QC samples analyzed within the analytical batches (QC lots) in which the submitted samples were processed. The actual frequency should be greater than or equal to the expected frequency.

Matrix: **Soil/Solid**

Evaluation: ✖ = QC frequency outside specification; ✔ = QC frequency within specification.

Quality Control Sample Type	Method	QC Lot #	Count		Frequency (%)		Evaluation
			QC	Regular	Actual	Expected	
Analytical Methods							
Laboratory Duplicates (DUP)							
Lead in Paint by CRC ICPMS	E494.Pb	524684	2	23	8.7	5.0	✔
Laboratory Control Samples (LCS)							
Lead in Paint by CRC ICPMS	E494.Pb	524684	4	23	17.3	10.0	✔
Method Blanks (MB)							
Lead in Paint by CRC ICPMS	E494.Pb	524684	2	23	8.7	5.0	✔



Methodology References and Summaries

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Reference methods may incorporate modifications to improve performance (indicated by "mod").

<i>Analytical Methods</i>	<i>Method / Lab</i>	<i>Matrix</i>	<i>Method Reference</i>	<i>Method Descriptions</i>
Lead in Paint by CRC ICPMS	E494.Pb Vancouver - Environmental	Soil/Solid	EPA 200.2/6020B (mod)	This analysis is carried out using procedures adapted from EPA Method 200.2. The sample is manually homogenized and a representative subsample of the dry material is weighed. The sample is then digested at 95 degrees Celsius for 2 hours by block digester using concentrated nitric and hydrochloric acids. Instrumental analysis is by inductively coupled plasma - mass spectrometry (EPA Method 6020B).
<i>Preparation Methods</i>	<i>Method / Lab</i>	<i>Matrix</i>	<i>Method Reference</i>	<i>Method Descriptions</i>
Digestion for Metals and Mercury in Paint Chips	EP494 Vancouver - Environmental	Soil/Solid	EPA 200.2 (mod)	This analysis is carried out using procedures adapted from EPA Method 200.2. The sample is manually homogenized and a representative subsample of the dry material is weighed. The sample is then digested at 95 degrees Celsius for 2 hours by block digester using concentrated nitric and hydrochloric acids.

QUALITY CONTROL REPORT

Work Order	: VA22B2424	Page	: 1 of 4
Client	: Envirochem Services Inc.	Laboratory	: Vancouver - Environmental
Contact	: EIT Bryan Tsai	Account Manager	: Dean Watt
Address	: 206-267 West Esplanade North Vancouver BC Canada V7M 1A5	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	: 604 986 0233	Telephone	: +1 604 253 4188
Project	: 21126	Date Samples Received	: 03-Jun-2022 12:44
PO	: ---	Date Analysis Commenced	: 15-Jun-2022
C-O-C number	: ---	Issue Date	: 16-Jun-2022 19:21
Sampler	: B T		
Site	: ---		
Quote number	: ---		
No. of samples received	: 11		
No. of samples analysed	: 11		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percent Difference (RPD) and Data Quality Objectives
- Reference Material (RM) Report; Recovery and Data Quality Objectives
- Method Blank (MB) Report; Recovery and Data Quality Objectives
- Laboratory Control Sample (LCS) Report; Recovery and Data Quality Objectives

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Laboratory Department</i>
Kim Jensen	Department Manager - Metals	Vancouver Metals, Burnaby, British Columbia



General Comments

The ALS Quality Control (QC) report is optionally provided to ALS clients upon request. ALS test methods include comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against predetermined Data Quality Objectives (DQOs) to provide confidence in the accuracy of associated test results. This report contains detailed results for all QC results applicable to this sample submission. Please refer to the ALS Quality Control Interpretation report (QCI) for applicable method references and methodology summaries.

Key :

- Anonymous = Refers to samples which are not part of this work order, but which formed part of the QC process lot.
- CAS Number = Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
- DQO = Data Quality Objective.
- LOR = Limit of Reporting (detection limit).
- RPD = Relative Percent Difference
- # = Indicates a QC result that did not meet the ALS DQO.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Laboratory Duplicate (DUP) Report

A Laboratory Duplicate (DUP) is a randomly selected intralaboratory replicate sample. Laboratory Duplicates provide information regarding method precision and sample heterogeneity. ALS DQOs for Laboratory Duplicates are expressed as test-specific limits for Relative Percent Difference (RPD), or as an absolute difference limit of 2 times the LOR for low concentration duplicates within ~ 4-10 times the LOR (cut-off is test-specific).

Sub-Matrix: **Soil/Solid**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Metals (QC Lot: 524684)											
VA22B2424-001	L1. Old Mill Stores - Cinderblock - White Paint	lead	7439-92-1	E494.Pb	5.0	mg/kg	36.4	34.3	5.95%	40%	----
Metals (QC Lot: 524972)											
VA22B2424-009	L9. C8 - Support Column - Brown Paint	lead	7439-92-1	E494.Pb	5.0	mg/kg	13.6	14.4	0.8	Diff <2x LOR	----



Method Blank (MB) Report

A Method Blank is an analyte-free matrix that undergoes sample processing identical to that carried out for test samples. Method Blank results are used to monitor and control for potential contamination from the laboratory environment and reagents. For most tests, the DQO for Method Blanks is for the result to be < LOR.

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Metals (QCLot: 524684)						
lead	7439-92-1	E494.Pb	5	mg/kg	<5.0	----
Metals (QCLot: 524972)						
lead	7439-92-1	E494.Pb	5	mg/kg	<5.0	----

Laboratory Control Sample (LCS) Report

A Laboratory Control Sample (LCS) is an analyte-free matrix that has been fortified (spiked) with test analytes at known concentration and processed in an identical manner to test samples. LCS results are expressed as percent recovery, and are used to monitor and control test method accuracy and precision, independent of test sample matrix.

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		Qualifier
					Concentration	LCS	Low	High	
Metals (QCLot: 524684)									
lead	7439-92-1	E494.Pb	5	mg/kg	50 mg/kg	98.0	80.0	120	----
Metals (QCLot: 524972)									
lead	7439-92-1	E494.Pb	5	mg/kg	50 mg/kg	105	80.0	120	----



Reference Material (RM) Report

A Reference Material (RM) is a homogenous material with known and well-established analyte concentrations. RMs are processed in an identical manner to test samples, and are used to monitor and control the accuracy and precision of a test method for a typical sample matrix. RM results are expressed as percent recovery of the target analyte concentration. RM targets may be certified target concentrations provided by the RM supplier, or may be ALS long-term mean values (for empirical test methods).

Sub-Matrix:

Laboratory sample ID	Reference Material ID	Analyte	CAS Number	Method	Reference Material (RM) Report				
					RM Target Concentration	Recovery (%) RM	Recovery Limits (%)		Qualifier
							Low	High	
Metals (QCLot: 524684)									
	SCP SS-2	lead	7439-92-1	E494.Pb	267 mg/kg	101	70.0	130	----
Metals (QCLot: 524972)									
	SCP SS-2	lead	7439-92-1	E494.Pb	267 mg/kg	105	70.0	130	----



www.alsglobal.com


Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878

Affix ALS barcode label here (lab use only)

COC Number: 17 -

Page 1 of 1

Report To Contact and company name below will appear on the final report		Report Format / Distribution		Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)																																																																																											
Company: Envirochem Services Inc.		Select Report Format: <input checked="" type="checkbox"/> PDF <input checked="" type="checkbox"/> EXCEL <input type="checkbox"/> EDD (DIGITAL)		Regular [R] <input checked="" type="checkbox"/> Standard TAT if received by 3 pm - business days - no surcharges apply																																																																																											
Contact: Bryan Tsai		Quality Control (QC) Report with Report <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO		PRIORITY (Business Day)	4 day [P4-20%] <input type="checkbox"/>		EMERGENCY																																																																																								
Phone: 7789529152		<input checked="" type="checkbox"/> Compare Results to Criteria on Report - provide details below if box checked			3 day [P3-25%] <input type="checkbox"/>			1 Business day [E - 100%] <input type="checkbox"/>																																																																																							
Company address below will appear on the final report		Select Distribution: <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX			2 day [P2-50%] <input type="checkbox"/>				Same Day, Weekend or Statutory holiday [E2 -200% (Laboratory opening fees may apply)] <input type="checkbox"/>																																																																																						
Street: 206-207 Esplanade West		Email 1 or Fax: bryan.tsai@envirochem.com		Date and Time Required for all E&P TATs:																																																																																											
City/Province: North Vancouver, BC		Email 2		For tests that can not be performed according to the service level selected, you will be contacted.																																																																																											
Postal Code: V7M 1A5		Email 3		Analysis Request																																																																																											
Invoice To: Same as Report To <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO		Invoice Distribution		<table border="1"> <tr> <td colspan="8">Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below</td> </tr> <tr> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> </table>				Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below																																																																																							
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Company: Envirochem Services Inc.		Email 1 or Fax: accounts.payable@envirochem.com						SAMPLES ON HOLD SUSPECTED HAZARD (see Special Instructions)																																																																																							
Contact: Celia Henslowe		Email 2										PROJECT INFORMATION																																																																																			
Project Information		Oil and Gas Required Fields (client use)														Environmental Division Vancouver Work Order Reference VA22B2424  Telephone: +1 604 253 4188																																																																															
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Job #: 21126		Major/Minor Code:																		Routing Code:																																																																											
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LSD:		Location:																																																																																													
ALS Lab Work Order # (lab use only):		ALS Contact: Dean Watt																		Sampler: BT																																																																											
ALS Sample # (lab use only)		Sample Identification and/or Coordinates (This description will appear on the report)																		Date (dd-mmm-yy)																						Time (hh:mm)		Sample Type																																																			
		L1. Old Mill Stores - Cinderblock - White Paint																		1-Jun-22																								Bulk																																																			
		L2. Old Mill Stores - Wood Trim - White Paint		1-Jun-22																Bulk																																																																											
		L3. C8 - Conveyor Steel East - White Paint		1-Jun-22				Bulk																																																																																							
		L4. C8 - Product Transfer Line Steel - Teal Paint		1-Jun-22				Bulk																																																																																							
		L5. C8 - Roller Arm - Paint		1-Jun-22				Bulk																																																																																							
		L6. C8 - Conveyor Steel East - Paint		1-Jun-22				Bulk																																																																																							
		L7. C8 - Conveyor Steel West - Paint		1-Jun-22				Bulk																																																																																							
		L8. C8 - Support Column - White Paint		1-Jun-22				Bulk																																																																																							
		L9. C8 - Support Column - Brown Paint		1-Jun-22				Bulk																																																																																							
		L10. C8 - Railing - Yellow Paint		1-Jun-22				Bulk																																																																																							
		L11. Dolphin 1 - Yellow Paint		1-Jun-22				Bulk																																																																																							

Drinking Water (DW) Samples¹ (client use)		Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)		SAMPLE CONDITION AS RECEIVED (lab use only)			
Are samples taken from a Regulated DW System? <input type="checkbox"/> YES <input type="checkbox"/> NO				Frozen <input type="checkbox"/> SIF Observations Yes <input type="checkbox"/> No <input type="checkbox"/>			
Are samples for human consumption/use? <input type="checkbox"/> YES <input type="checkbox"/> NO				Ice Packs <input type="checkbox"/> Ice Cubes <input type="checkbox"/> Custody seal intact Yes <input type="checkbox"/> No <input type="checkbox"/>			
				Cooling initiated <input type="checkbox"/>			
				INITIAL COOLER TEMPERATURES °C		FINAL COOLER TEMPERATURES °C	
						20°	
SHIPMENT RELEASE (client use)		INITIAL SHIPMENT RECEPTION (lab use only)		FINAL SHIPMENT RECEPTION (lab use only)			
Released by: <i>BT</i>		Received by: <i>BT</i>		Received by: <i>JW</i>			
Date: June 3 2022		Date: June 3 2022		Date: June 3/22			
Time: 12:44		Time: 12:44		Time: 12:44			

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION WHITE - LABORATORY COPY YELLOW - CLIENT COPY
 Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.
 1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.