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| **Department:** | **Public Works** | **Area:** | **All** |  |
| **Subject:** | **Exposure Control Plan: AC Pipe** | | |

**Exposure Control Plan – Handling, Cutting and Disposing of AC Pipe**

**PURPOSE AND RESPONSIBILITES**

**Scope of Work:** *This project involves the following work activity(s):*

* Moderate risk removal and disposal of asbestos containing pipe located in various street locations throughout the City of Nanaimo

**Statement of Purpose:** *The purpose of this project is to:*

* Eliminate the asbestos-containing material hazards present in the work site
* Protect workers from exposure to asbestos hazards during the abatement process with the use of personal protective equipment, safe work procedures, and engineering controls.

**Principle Contractor: City of Nanaimo**

**The City of Nanaimo is Responsible for:**

* Ensuring that the materials (e.g. tools, equipment, PPE) and other resources (i.e. worker training materials) required to fully implement and maintain this exposure control plan (ECP) are readily available where and when they are required.
* Conducting a periodic review of the effectiveness of the ECP. This would include a review of the available abatement technologies to ensure these are selected and used when practical.
* Ensuring that all required tools, equipment, and PPE are readily available and used as required by the ECP
* Ensuring Supervisors and workers are educated and trained to an acceptable level of competency.
* Maintaining records of training, fit testing, crew talks, and inspections

**Public Works Department is Responsible for:**

* Maintaining this ECP by reviewing it annually with the health and safety committee and keeping updated copies available in vehicles that crews use for and who are engaged in AC Pipe removal activities.
* Consult the Occupational Health and Safety Coordinator on any changes to the ECP
* Selecting, implementing and documenting the appropriate site-specific control measures.
* Providing adequate instruction to workers on the hazards of working with asbestos-containing materials and on the precautions specified in the job specific plan covering hazards at the location.
* Ensuring that the workers are using the proper respirators and have been fit tested and that the results are recorded.
* Directing the work in a manner that ensures the risk to workers is minimized and adequately controlled.
* Ensuring an NOP is filed with WSBC for Asbestos Work.
* Communicate asbestos risks to hired contractors to ensure a safe work environment.

**RISK IDENTIFICATION, ASSESSMENT AND CONTROL**

**Risk Identification:**

Based on a Hazard Assessment for this asbestos abatement project, it has been determined that Moderate Risk work procedures are to be utilized for the removal of all asbestos containing Chrysotile/Crocidolite Cement Pipe.

This assessment has taken into consideration the techniques outlined in the Safe Work Procedures, the exposure hazard associated with removing asbestos cement pipe, and historical air monitoring and experience with similar abatement projects throughout BC.

The Occupational Health and Safety Regulation lists an occupational exposure limit (OEL) for asbestos fibres in the air of 0.100 fibres per cubic centimetre (f/cc). This is a concentration to which nearly all workers could be exposed for eight hours a day, five days a week, without adverse health effects. However, as a confirmed carcinogen, asbestos is also an ALARA substance, and exposures must be reduced to levels as low as reasonably achievable below the OEL.

**Additional Hazards:**

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| * Buried utilities | * Slip/trip hazards | * Noise | * Traffic |
| * Overhead hazards | * Eye hazards | * Heat stress | * Biohazards |
| * Mobile equipment | * Shoring/excavation |  |  |

**Control:**

Elimination

Wherever possible, replacement of water mains or other AC Pipe related activities should be planned to avoid the need to tap into, cut, or remove AC Pipe from the ground. Off-line water main replacement is preferred over On-line replacement.

**Engineering Controls:**

Barrier:

A barrier shall be established to isolate the work area from the rest of the project and to prevent entry by unauthorized workers. The abatement work area shall be delineated with asbestos hazard barrier tape a minimum of 10 feet away (or as best as reasonably possible) from the edge of the excavation in preparation for the asbestos cement pipe repair or removal. Warning signs indicating the asbestos hazard shall be posted at all conceivable approaches to the work area.

Containment:

Asbestos-containing materials will be contained, once removed, in 6 mil polyethylene bags marked with Asbestos warning markings. The Asbestos Waste bag is then sealed in a goose neck fashion with duct tape and placed in a second Asbestos Waste bag which is again sealed in a goose neck fashion.

Where use of Asbestos Waste Bags is not applicable (i.e. length of AC Pipe to be removed is longer than 4 feet or too large for the bag to contain) Polyethylene drop sheets will be utilized. Two layers of Polyethylene drop sheets will be placed beneath the section of AC Pipe to be removed. Once removed, the AC Pipe will be placed directly onto the Polyethylene drop sheets. The first layer of the Polyethylene drop sheet will be used to contain the AC Pipe by wrapping around the pipe and tying the ends in a goose neck fashion and sealing with duct tape. The second layer of Polyethylene sheeting will be utilized to further contain the AC Pipe by double-wrapping the pipe and tying the ends in a goose neck fashion and sealing with duct tape. The double wrapped AC Pipe will then be labelled with an Asbestos Warning Sticker or marked appropriately with other means.

Wetting:

Before disturbing any asbestos-containing materials, all surfaces of the material shall be sufficiently wetted with hoses, misting cans or misting bottles. The area which the AC Pipe is being disturbed (e.g. cut, drilled) must be kept wet throughout the procedure.

**Administrative Controls**

Signage and Barrier Tape:

The Asbestos Work Zone must be clearly marked with the Asbestos Hazard Tape. Caution signs indicating Asbestos Hazard shall be posted at all conceivable approaches to the Asbestos Work Zone.

Tool Restriction:

The use of powered disc saws (cut-off saw, K-5 saw, stihl saw, etc) MUST NOT be used to cut AC pipe. The use of such abrasive disc saws will release excessive levels of asbestos fibres into the atmosphere and cause over-exposure to employees, contractors and the public.

**Personal Protective Equipment**

Respirators:

Workers must have annual fit testing complete within the past year prior to donning the respirator.

The standard respirators to be used during this project will be:

* North half-face respirator with NIOSH P100 filter cartridges

Protective Clothing:

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| * Disposable Tyvek coveralls with hoods | | CSA Approved work boots with NO LACES | |
| * Hard hats | * Disposable gloves | | * Safety glasses |
| * Other protective equipment including the aforementioned items will be worn as warranted by site conditions and noted possible hazards that have been identified on the work site. | | | |

**EDUCATION AND TRAINING**

All employees working with asbestos are instructed in:

* The hazards of asbestos
* The means of identifying asbestos-containing material at the worksite
* The City of Nanaimo AC Pipe Procedures
* The correct use of personal protective equipment and implementation of required engineering controls.
* Procedures to be followed in case of an emergency involving the controlled product
* The City of Nanaimo AC Pipe Safety Talk
* Any other job-site hazards prior to excavation

**HYGIENE FACILITIES AND DECONTAMINATION PROCEDURES**

Moderate Risk:

A decontamination-wash down area complete with water (if wash pails are used, no more than 2 workers per wash pail) will be provided for use by all personnel and equipment entering and exiting the work area. The wash down area will be used as follows:

1. Each time the worker leaves the work area, he/she must follow these decontamination procedures.
2. All tools and surfaces which have been contaminated should be cleaned off prior to removal from “Asbestos Work Zone”. If tools cannot be decontaminated prior to removal, they must be double bagged in the Asbestos Waste Bags and cleaned while wearing full PPE at a later date.
3. Thoroughly wash off boots into trench
4. Remove coveralls and place into Asbestos Waste Bag.
5. Carefully Remove Gloves (First Aid Method) and dispose of into Asbestos Waste Bag.
6. Remove respirator cartridges and place into Asbestos Waste Bag.
7. Take down barrier and dispose of tape. If AC Pipe and/or bagged waste is being left in the trench, bury tape above waste 2 feet below grade.
8. Wash hands and face with disposable wet cloth.
9. Thoroughly clean all PPE used with a disposable wet cloth.
10. Dispose of cloth in Asbestos Waste Bag.

**HEALTH MONITORING**

No medical monitoring required.

**DOCUMENTATION**

The following documents will be available in any vehicle utilized by a crew engaged in AC Pipe procedures:

* Pre-Excavation Drawings (As builts)
* Completed Pre-Excavation checklist / jobsite hazard identification
* Exposure Control Plan and Safe Work Procedures

The following documents will available at Public Works and/or through central OH&S:

* Material Safety Data Sheets
* Respirator Fit Test Records
* Training Records
* Asbestos Inventory

**SAFE WORK PROCEDURES**

Refer to the City of Nanaimo “AC Pipe Cutting and Disposal Procedures”

**DISPOSAL**

The asbestos waste shall be disposed of during the same day as removal into the designated asbestos waste bin in the back of the Public Works Yard on 2020 Labieux Rd. When the bin is ¾ full, the purchasing and central stores department will call DBL for disposal at the Cedar Road Landfill in accordance with all applicable disposal requirements set forth by the RDN and the Provincial Ministry of Environment.

Any worker transporting AC Pipe must carry disposable coveralls and a half face respirator with P100 cartridges and shall be prepared for emergency spill response.

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| **Created: 2010-Mar-08**  **Revised: 2010-May-25** | **Created by: Jason Duchak**  **Approved by: Rick Kroeker** |