PART 1 - GENERAL

1.1 SECTION INCLUDES

.1 Removal of asbestos-containing material.

.2 Contractor to have approval from the province of Newfoundland Labrador if an exemption is requested for other removal procedures than indicated in this section.

1.2 RELATED SECTIONS

.1 Section 01 29 83 - Payment Procedures - Testing Laboratory Services.

.2 Section 01 33 00 - Submittal Procedures.

.3 Section 01 74 21 - Construction/Demolition Waste Management and Disposal

1.3 REFERENCES

.1 Newfoundland and Labrador Regulation 111, Asbestos Abatement Regulations, under the Occupational Health and Safety Act (O.C. 98-730).

.2 Newfoundland and Labrador Asbestos Waste Disposal Guidance Document 06 Oct 2004.

.3 Transport Canada (TC).
.1 Transportation of Dangerous Goods Act, (TDGA).

.4 Canadian General Standards Baord (CGSB).
.1 CAN/CGSB-1.205-94, Sealer for Application to Asbestos-Fibre-Releasing Materials.

1.4 DEFINITIONS

.1 HEPA vacuum: High Efficiency Particulate Air filtered vacuum equipment with a filter system capable of collecting and retaining fibres greater than 0.3 microns in any direction at 99.97% efficiency.

.2 Amended Water: water with a non-ionic surfactant wetting agent added to reduce water tension to allow wetting of fibres.

.3 Asbestos-Containing Materials (ACMs): materials identified under Existing Conditions Article, including fallen materials and settled dust.

.4 Asbestos Work Area: Area where actual removal, sealing and enclosure of asbestos-containing materials takes place.

sealing and enclosure of asbestos-containing materials takes place.

.5 Authorized Visitors: Departmental Representative, or designated representatives, and representatives of regulatory agencies.

.6 Friable Material: material that when dry can be crumbled, pulverized or powdered by hand pressure and includes such material that is crumbled, pulverized or powdered.

.7 Occupied Area: any area of building or work site that is outside Asbestos Work Area.

.8 Polyethylene sheeting sealed with tape: Polyethylene sheeting of type and thickness specified sealed with tape along edges, around penetrating objects, over cuts and tears, and elsewhere as required to provide continuous polyethylene membrane to protect underlying surfaces from water damage or damage by sealants, and to prevent escape of asbestos fibres through sheeting into clean area.

.9 Glove Bag: prefabricated glove bag as follows:
.1 Minimum thickness 0.25 mm polyvinyl-chloride bag.
.2 Integral 0.25 mm thick polyvinyl-chloride gloves and elastic ports.
.3 Equipped with reversible double-pull double throw zipper on top.
.4 Straps for sealing ends around pipe.
.5 Must incorporate internal closure strip if it is to be moved or used in more than one specific location.

.10 DOP Test: testing method used to determine integrity of Negative Pressure unit using dioctyl phthalate (DOP) HEPA-filter leak test.

.11 Sprayer: garden reservoir type sprayer or airless spray equipment capable of producing mist or fine spray. Must be appropriate capacity for scope of work.

.12 Negative pressure: system that extracts air directly from work area, filters such extracted air through High Efficiency Particulate Air filtering system, and discharges this air directly outside work area to exterior of

building.

.1 System to maintain minimum pressure differential of 5 Pa relative to adjacent areas outside of work areas, be equipped with alarm to warn of system breakdown, and be equipped with instrument to continuously monitor and automatically record pressure differences.

.13 Airlock: system for permitting ingress or egress without permitting air movement between contaminated area and uncontaminated area, typically consisting of two curtained doorways at least 2 m apart.

.14 Curtained doorway: arrangement of closures to allow ingress and egress from one room to another while permitting minimal air movement between rooms, typically constructed as follows:

.1 Place two overlapping sheets of polyethylene over existing or temporarily framed doorway, secure each along top of doorway, secure vertical edge of one sheet along one vertical side of doorway, and secure vertical edge of other sheet along opposite vertical side of doorway.

.2 Reinforce free edges of polyethylene with duct tape and weight bottom edge to ensure proper closing.

.3 Overlap each polyethylene sheet at openings not less than 1.5 m on each side.

1.5 SUBMITTALS

.1 Submittals in accordance with Section 01 33 00 - Submittal Procedures.

.2 Before beginning work:

.1 Obtain from appropriate agency and submit to Departmental Representative all necessary permits for transportation and disposal of asbestos waste. Ensure that dump operator is fully aware of hazardous nature of material being dumped, and proper methods of disposal. Submit proof satisfactory to Departmental Representative that suitable arrangements have been made to receive and properly dispose of asbestos waste.

.2 Submit proof satisfactory to Departmental Representative that employees have had instruction on hazards of asbestos exposure, respirator use, dress, use of showers, entry and exit from work areas,

and aspects of work procedures and protective measures. Ensure supervisory personnel have attended asbestos abatement course, of not less than two days duration, approved by Departmental Representative. Submit proof of attendance in form of certificate. Minimum of one Supervisor for every five workers.

.3 Submit layout of proposed enclosures and decontamination facilities to Departmental Representative for review.

.4 Submit Provincial requirements for Notice of Project Form to Departmental Representative.

.5 Submit proof of registration as an asbestos abatement contractor with the Province of Newfoundland Labrador to Departmental Representative.

.6 Submit proof of Contractor's Asbestos Liability Insurance to Departmental Representative.

.7 Submit proof satisfactory to Departmental Representative that employees have respirator fitting and testing. Workers must be fit-tested (irritant smoke test) with respirator that is personally issued.

.8 Submit Worker's Compensation Board status and transcription of insurance to Departmental Representative .

.9 Submit documentation including test results, fire and flammability data, and Material Safety Data Sheets (MSDS) for chemicals or materials including but not limited to following:

.1 encapsulants;

.2 amended water;

.3 slow-drying sealer.

1.6 QUALITY ASSURANCE

.1 Regulatory Requirements: comply with Federal, Provincial and local requirements pertaining to asbestos, provided that in case of conflict among those requirements or with these specifications more stringent requirement applies. Comply with regulations in effect at time work is performed.

.2 Health and Safety:

.1 Safety Requirements: worker and visitor protection.

.1 Protective equipment and clothing to be worn by workers while in Asbestos Work Area includes:

.1 Respirators equipped with HEPA filter cartridges or supplied-air type, personally issued to worker and marked as to efficiency and purpose, and acceptable to Authority having jurisdiction as suitable for type of asbestos and level of asbestos exposure in Asbestos Work Area. If disposable type filters are used, provide sufficient filters so that workers can install new filters following disposal of used filters and before re-entering contaminated areas.

.2 Disposable-type protective clothing that does not readily retain or permit penetration of asbestos fibres, consisting of full-body covering including head covering with snug-fitting cuffs at wrists, ankles, and neck.

.2 Requirements for each worker:

.1 Remove street clothes in clean change room and put on respirator with new filters or reusable filters that have been tested as satisfactory, clean coveralls and head covers before entering Equipment and Access Rooms or Asbestos Work Area. Store street clothes, uncontaminated footwear, towels, and similar uncontaminated articles in clean change room.

.2 Remove gross contamination from clothing before leaving work area then proceed to Equipment and Access Room and remove clothing except respirators. Place contaminated worksuits in receptacles for disposal with other asbestos - contaminated materials. Leave reusable items except respirator in Equipment and Access Room. Still wearing the respirator proceed naked to showers. Using soap and water

wash body and hair thoroughly. Clean outside of respirator with soap and water while showering; remove respirator; remove filters and wet them and dispose of filters in container provided for purpose; and wash and rinse inside of respirator. When not in use in work area, store work footwear in Equipment and Access Room. Upon completion of asbestos abatement, dispose of footwear as contaminated waste or clean thoroughly inside and out using soap and water before removing from work area or from Equipment and Access Room.

.3 After showering and drying off, proceed to clean change room and dress in street clothes at end of each day's work, or in clean coveralls before eating, smoking, or drinking. If re-entering work area, follow procedures outlined in paragraphs above.

.4 Enter unloading room from outside dressed in clean coveralls to remove waste containers and equipment from Holding Room of Container and Equipment Decontamination Enclosure system. Workers must not use this system as means to leave or enter work area.

.3 Eating, drinking, chewing, and smoking are not permitted in Asbestos Work Area.

.4 Ensure workers are fully protected with respirators and protective clothing during preparation of system of enclosures prior to commencing actual asbestos abatement.

.5 Provide and post in Clean Change Room and in Equipment and Access Room the procedures described in this Section, in both official languages.

.6 Ensure that no person required to enter an Asbestos Work Area has facial hair that affects seal between

respirator and face.

.7 Visitor Protection:

.1 Provide protective clothing and approved respirators to Authorized Visitors to work areas.

.2 Instruct Authorized Visitors in the use of protective clothing, respirators and procedures.

.3 Instruct Authorized Visitors in proper procedures to be followed in entering into and exiting from Asbestos Work Area.

1.7 EXISTING CONDITIONS

.1 Tests for asbestos-containing materials have not been conducted for the work area of this contract.

.2 If materials are encountered that are suspected to contain asbestos, contact the Departmental Representative immediately.

1.8 SCHEDULING

.1 Not later than ten (10) days before beginning Work on this Project notify following in writing:

.1 Provincial Occupational Health and Safety Division.

.2 Disposal Authority.

.2 Inform sub-trades of presence of asbestos-containing materials identified in Existing Conditions.

.3 Submit to Departmental Representative copy of notifications prior to start of Work.

1.9 OWNER'S INSTRUCTIONS

.1 Before beginning Work, provide to Departmental Representative satisfactory proof that every worker has had instruction and training in hazards of asbestos exposure, in personal hygiene including dress and showers, in entry and exit from Asbestos Work Area, in aspects of work procedures including glove bag procedures, and in use, cleaning, and disposal of respirators and protective clothing.

.2 Instruction and training related to respirators includes, at minimum:

.1 Proper fitting of equipment.

.2 Inspection and maintenance of equipment.

.3 Disinfecting of equipment.

.4 Limitations of equipment.

.3 Instruction and training must be provided by A competent, qualified person.

.4 Supervisory personnel to complete required training.

PART 2 - PRODUCTS

2.1 MATERIALS

.1 Polyethylene: minimum 0.15 mm thick unless otherwise specified; in sheet size to minimize joints.

.2 FR polyethylene: minimum 0.15 mm thick, woven fibre reinforced fabric bonded both sides with polyethylene.

.3 Tape: fibreglass - reinforced duct tape suitable for sealing polyethylene under both dry conditions and wet conditions using amended water.

.4 Wetting agent: 50% polyoxyethylene ester and 50% polyoxyethylene ether, or other material approved by Departmental Representative, mixed with water in concentration to provide adequate penetration and wetting of asbestos-containing material.

.5 Asbestos waste containers: Metal or fibre - type acceptable to dump operator with tightly fitting covers and 0.15 mm minimum thickness sealable polyethylene liners.

.1 Label containers in accordance with Asbestos Regulations, Label in both official languages.

.6 Glove bag: acceptable materials include safe-T-strip products in configuration suitable for Work, or alternative material approved by addendum during tendering period in accordance with Instructions to Tenderers.

.1 Equip glove bags intended for use in more than one location with reversible, double-pull, double-throw zipper on top and at approximately mid-section of bag.

.7 Slow - drying sealer: non-staining, clear, water - dispersible type that remains tacky on surface for at least 8 hours and designed for purpose of trapping residual asbestos fibres.

.1 Sealer: flame spread and smoke developed rating less than 50.

PART 3 - EXECUTION

3.1 PREPARATION

.1 Work Areas:

.1 Shut off and isolate air handling and ventilation systems to prevent fibre dispersal to other building areas during work phase. Conduct smoke tests to ensure that duct work is airtight. Seal and caulk joints and seams of active return air ducts within Asbestos Work Area.

.2 Preclean moveable furniture and carpeting within proposed work area using HEPA vacuum and remove from work area to temporary location.

.3 Preclean fixed casework, plant, and equipment within proposed work area, using HEPA vacuum and cover with polyethylene sheeting sealed with tape.

.4 Clean proposed work area using, where practicable, HEPA vacuum cleaning equipment. If not practicable, use wet cleaning method. Do not use methods that raise dust, such as dry sweeping, or vacuuming using other than HEPA vacuum equipment.

.5 Put negative pressure system in operation and operate continuously from time first polyethylene is installed to seal openings until final completion of work including final cleanup. Provide continuous monitoring of pressure difference using automatic recording instrument.

.6 Seal off openings such as corridors, doorways, windows, skylights, ducts, grilles, and diffusers, with polyethylene sheeting sealed with tape.

.7 Cover floor and wall surfaces with polyethylene sheeting sealed with tape. Use two layers of FR polyethylene on floors. Cover floors first so that polyethylene extends at least 300 mm up walls then cover walls to overlap floor sheeting.

.8 Build airlocks at entrances to and exits from work area so that work area is always closed off by one curtained doorway when workers enter or exit.

.9 At each access to work areas install warning signs in both official languages in upper case "Helvetica Medium" letters reading as follows where number in parentheses indicates font size to be used : "CAUTION ASBESTOS HAZARD AREA (25 mm) NO UNAUTHORIZED ENTRY (19 mm) WEAR ASSIGNED PROTECTIVE EQUIPMENT (19 mm) BREATHING ASBESTOS DUST MAY CAUSE SERIOUS BODILY HARM (7 mm)".

.10 After work area isolation, remove heating, ventilating, and air conditioning filters, pack in sealed plastic bags 0.15 mm minimum thick and treat as contaminated asbestos waste. Remove ceiling - mounted objects such as lights, partitions, other fixtures not previously sealed off, and other objects that interfere with asbestos removal, as directed by Departmental Representative. Use localized water spraying during fixture removal to reduce fibre dispersal.

.11 Maintain emergency and fire exits from work area, or establish alternative exits satisfactory to Authority having jurisdiction.

.12 Where application of water is required for wetting asbestos-containing materials, shut off electrical power, provide 24 volt safety lighting and ground fault interrupter circuits on power source for electrical tools, in accordance with applicable CSA Standard. Ensure safe installation of electrical lines and equipment.

.2 Worker Decontamination Enclosure System:

.1 Worker Decontamination Enclosure System includes Equipment and Access Room, Shower Room, and Clean Room, as follows:

.1 Equipment and Access Room: build Equipment and Access Room between Shower Room and work area, with two curtained doorways, one to Shower Room and one to work area. Install portable toilet, waste receptor, and storage facilities for workers' shoes and protective clothing to be reworn in work area. Build Equipment and Access Room large enough to accommodate specified facilities,

other equipment needed, and at least one worker allowing him /her sufficient space to undress comfortably.

.2 Shower Room: build Shower Room between Clean Room and Equipment and Access Room, with two curtained doorways, one to Clean Room and one to Equipment and Access Room. Provide one shower for every five workers. Provide constant supply of hot and cold or warm water. Provide piping and connect to water sources and drains. Pump waste water through 5 micrometre filter system acceptable to Departmental Representative before directing into drains. Provide soap, clean towels, and appropriate containers for disposal of used respirator filters.

.3 Clean Room: build Clean Room between Shower Room and clean areas outside of enclosures, with two curtained doorways, one to outside of enclosures and one to Shower Room. Provide lockers or hangers and hooks for workers' street clothes and personal belongings. Provide storage for clean protective clothing and respiratory equipment. Install mirror to permit workers to fit respiratory equipment properly.

.3 Container and Equipment Decontamination Enclosure System:

.1 Container and Equipment Decontamination Enclosure System consists of Staging Area within work area, Washroom, Holding Room, and Unloading Room. Purpose of system is to provide means to decontaminate waste containers, scaffolding, waste and material containers, vacuum and spray equipment, and other tools and equipment for which Worker Decontamination Enclosure System is not suitable.

.2 Staging Area: designate Staging Area in work area for gross removal of dust and debris from waste containers and equipment, labelling and sealing of

waste containers, and temporary storage pending removal to Washroom. Equip Staging Area with curtained doorway to Washroom.

.3 Washroom: build Washroom between Staging Area and Holding Room with two curtained doorways, one to Staging Area and one to Holding Room. Provide high - pressure low - volume sprays for washing of waste containers and equipment. Pump waste water through 5 micrometre filter system before directing into drains. Provide piping and connect to water sources and drains.

.4 Holding Room: build Holding Room between Washroom and Unloading Room, with two curtained doorways, one to Washroom and one to Unloading Room. Build Holding Room sized to accommodate at least two waste containers and largest item of equipment used.

.5 Unloading Room: build Unloading Room between Holding Room and outside, with two curtained doorways, one to Holding Room and one to outside.

.4 Construction of Decontamination Enclosures:

.1 Build suitable framing for enclosures or use existing rooms where convenient, and line with polyethylene sheeting sealed with tape. Use two layers of FR polyethylene on floors.

.2 Build curtained doorways between enclosures so that when people move through or when waste containers and equipment are moved through doorway, one of two closures comprising doorway always remains closed.

.5 Separation of Work Areas from Occupied Areas:

.1 Separate parts of building required to remain in use as indicated from parts of building used for asbestos abatement by means of airtight barrier system constructed as follows:

.1 Build suitable floor to ceiling lumber or metal stud framing, cover with polyethylene sheeting sealed with tape, and apply 9 mm minimum thick plywood. Seal joints between plywood

sheets and between plywood and adjacent materials with surface film forming type sealer, to create airtight barrier.

.2 Cover plywood barrier with polyethylene sealed with tape, as specified for work areas.

.6 Maintenance of Enclosures:

.1 Maintain enclosures in tidy condition.

.2 Ensure that barriers and polyethyene linings are effectively sealed and taped. Repair damaged barriers and remedy defects immediately upon discovery.

.3 Visually inspect enclosures at beginning of each working period.

.4 Use smoke methods to test effectiveness of barriers when directed by Departmental Representative.

.7 Do not begin Asbestos Abatement work until:

.1 Arrangements have been made for disposal of waste.

.2 For wet stripping techniques, arrangements have been made for containing, filtering, and disposal of waste water.

.3 Work area and decontamination enclosures and parts of building required to remain in use are effectively segregated.

.4 Tools, equipment, and materials waste containers are on hand.

.5 Arrangements have been made for building security.

.6 Warning signs are displayed where access to contaminated areas is possible.

.7 Notifications have been completed and other preparatory steps have been taken.

3.2 SUPERVISION

.1 Minimum of one Supervisor for every five workers is required.

.2 Approved Supervisor must remain within Asbestos Work Area during disturbance, removal, or other handling of asbestos-containing materials.

3.3 ASBESTOS REMOVAL

.1 Before removing asbestos:

.1 Prepare site.

.2 Spray asbestos material with water containing specified wetting agent, using airless spray equipment capable of

providing "mist" application to prevent release of fibres. Saturate asbestos material sufficiently to wet it to substrate without causing excess dripping. Spray asbestos material repeatedly during work process to maintain saturation and to minimize asbestos fibre dispersion.

.2 Remove saturated asbestos material in small sections. Do not allow saturated asbestos to dry out. As it is being removed pack material in sealable plastic bags 0.15 mm minimum thick and place in labelled containers for transport.

.3 Seal filled containers. Clean external surfaces thoroughly by wet sponging. Remove from immediate working area to Staging Area. Clean external surfaces thoroughly again by wet sponging before moving containers to decontamination Washroom. Wash containers thoroughly in decontamination Washroom, and store in Holding Room pending removal to Unloading Room and outside. Ensure that containers are removed from Holding Room by workers who have entered from uncontaminated areas dressed in clean coveralls.

.4 After completion of stripping work, wire brushed and wet-sponged surfaces from which asbestos has been removed to remove visible material. During this work keep surfaces wet.

.5 Where Departmental Representative decides complete removal of asbestos-containing material is impossible due to obstructions such as structural members or major service elements, and provides written direction, encapsulate material as follows:

.1 Apply surface film forming type sealer to provide 0.635mm minimum dry film thickness over sprayed asbestos surfaces. Apply using airless spray equipment to avoid blowing off fibres. Apply penetrating type sealer to penetrate existing sprayed asbestos surfaces uniformly to substrate.

.6 After wire brushing and wet sponging to remove visible asbestos, and after encapsulating asbestos-containing material impossible to remove, wet clean entire work area including Equipment and Access Room, and equipment used in process. After 24 hour period to allow for

dust settling, wet clean these areas and objects again. During this settling period no entry, activity, or ventilation will be permitted. After second 24 hour period under same conditions, clean these areas and objects again using HEPA vacuum followed by wet cleaning. After inspection by Departmental Representative apply continuous coat of slow-drying sealer to surfaces of work area . Allow at least 16 hours with no entry, activity, ventilation, or disturbance other than operation of negative pressure units during this period.

3.4 PIPE INSULATION REMOVAL USING GLOVE BAG

.1 Place tools necessary to remove insulation in tool pouch. Wrap bag around pipe and close zippers. Seal bag to pipe with cloth straps.

.2 Place hands in gloves and use necessary tools to remove insulation. Arrange insulation in bag to obtain full capacity of bag.

.3 Insert nozzle of garden reservoir type sprayer into bag through valve and wash down pipe and interior of bag thoroughly. Wet surface of insulation in lower section of bag.

.4 When glove bags are intended for use at more than one location: after wash-down and application of sealer, seal off waste in lower section of bag using zipper at mid-section of bag. Remove air from top section of bag through elasticized valve using HEPA vacuum. Remove bag from pipe, reinstall in new location, and reseal to pipe prior to opening lower section of bag. Repeat stripping operation.

.5 If bag is to be moved along pipe, first remove air from top section through elasticized valve using HEPA vacuum. Next loosen straps, move bag, re-seal to pipe using double-pull zipper to pass hangers. Repeat stripping operation.

.6 To remove bag after completion of stripping, wash top section and tools thoroughly. Remove air from top section through elasticized valve using HEPA vacuum. Pull polyethylene waste container over glove bag before removing from pipe. Release one strap and remove freshly washed tools. Place tools in water. Remove second strap and zipper. Fold over into waste container and seal.

.7 After removal of bag ensure that pipe is free of residue. Remove residue using HEPA vacuum or wet cloths. Ensure that surfaces are free of sludge which after drying could release asbestos dust into atmosphere. Seal exposed surfaces of pipe and ends of insulation with slow-drying sealer to seal in any residual fibres.

.8 Upon completion of work shift, cover exposed ends of remaining pipe insulation with polyethelene taped in place.

3.5 FINAL CLEANUP

.1 Following cleaning specified in above, and when air sampling shows that asbestos levels on both sides of seals do not exceed 0.01 fibres/cc as determined by membrane filter method at 400-500X magnification phase contrast illumination, as described in NIOSH 94-113 or equivalent, proceed with final cleanup.

.2 Remove polyethylene sheet by rolling it away from walls to centre of work area. Vacuum visible asbestos-containing particles observed during cleanup, immediately, using HEPA vacuum equipment.

.3 Place polyethylene seals, tape, cleaning material, clothing, and other contaminated waste in plastic bags and sealed labelled waste containers for transport.

.4 Include in clean-up Work areas, Equipment and Access Room, Washroom, Shower Room, and other contaminated enclosures.

.5 Include in clean-up sealed waste containers and equipment used in Work and remove from work areas, via Container and Equipment Decontamination Enclosure System, at appropriate time in cleaning sequence.

.6 Conduct final check to ensure that no dust or debris remains on surfaces as result of dismantling operations and carry out air-monitoring again to ensure that asbestos levels in building do not exceed 0.01 fibres/cc. Repeat cleaning using HEPA vacuum equipment, or wet cleaning methods where feasible, in conjunction with sampling until levels meet this

criteria.

.7 As work progresses, and to prevent exceeding available storage capacity on site, remove sealed and labelled containers containing asbestos waste and dispose of to authorized disposal area in accordance with requirements of disposal authority. Ensure that each shipment of containers transported to dump is accompanied by Contractor's representative to ensure that dumping is done in accordance with governing regulations.

3.6 RE-ESTABLISHMENT OF OBJECTS AND SYSTEMS

.1 When cleanup is complete:

.1 Re-establish objects and furniture moved to temporary locations in course of Work, in their proper positions.

.2 Re-secure mounted objects removed in course of Work in their former positions.

.3 Re-establish mechanical and electrical systems in proper working order. Install new filters.

.4 Repair or replace objects damaged in the course of Work, as directed by Departmental Representative.

3.7 AIR MONITORING

.1 From commencement of work until completion of cleaning operations independent inspection/testing agencies will have to be engaged by the contractor for purpose of inspection and air monitoring. Cost of such services will be borne by the contractor. Submit to Departmental Representative all inspection and air monitoring results. Carry out inspection and air monitoring in accordance with Newfoundland and Labrador Regulation 111/98, Asbestos Abatement Regulations, 1998 under the Occupational Health and Safety Act (O.C. 98-730) and Health and Welfare Canada recommendations.

.2 Take air samples on daily basis both inside and outside of work area enclosure.

.3 Use results of air monitoring inside work area to establish type of respirators to be used. Workers may be required to wear sample pumps for up to full-shift periods.

.1 If fibre levels are above safety factor of respirators in use, stop abatement, apply means of dust suppression, and use higher

safety factor in respiratory protection for persons inside enclosure.

.2 If air monitoring shows that areas outside work area enclosures are contaminated, enclose, maintain and clean these areas, in same manner as that applicable to work areas.

.4 Final air monitoring to be conducted as follows: After Asbestos Work Area has passed visual inspection and acceptable coat of lock-down agent has been applied to surfaces within enclosure, and appropriate setting period has passed, Air Monitoring Consultant will perform air monitoring within Asbestos Work Area.

.1 Final air monitoring results must show fibre levels of less than 0.01 f/cc.

.2 If air monitoring results show fibre levels in excess of 0.01 f/cc, re-clean work area and apply another acceptable coat of lock-down agent to surfaces.

.3 Repeat as necessary until fibre levels are less than 0.01 f/cc.

3.8 INSPECTION

.1 Perform inspection of Asbestos Work Area to confirm compliance with specification and governing authority requirements. Deviations from these requirements that have not been approved in writing by Departmental Representative may result in Work stoppage, at no cost to Departmental Representative.

.2 Departmental Representative will inspect Work for:

.1 Adherence to specific procedures and materials.

.2 Final cleanliness and completion.

.3 No additional costs will be allowed by Contractor for additional labour or materials required to provide specified performance level.

.3 When asbestos leakage from Asbestos Work Area has occurred or is likely to occur Departmental Representative may order Work shutdown.

.1 No additional costs will be allowed by Contractor for additional labour or materials required to provide specified performance level.