WV-0207 #60

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PLAINTIFF'S EXHIBIT

UC-2143

ASBESTOS REMOVAL PROCEDURE

1.0 PURPOSE:

To provide a procedure that complies with all Federal, State, and Local regulations for the safe removal of asbestos-containing materials by persons trained, knowledgeable and qualified in techniques of abatement, handling and disposal of asbestos-containing and asbestos-contaminated materials.

2.0 RESPONSIBILITY:

The Company shall designate a "competent person(s)" who has attended an EPA Asbestos Training Center comprehensive course or equivalent and who has authority to take prompt corrective measures to eliminate asbestos hazards in the work place.

2.1 It is the responsibility of the Company's designated "competent person(s)" to control the safe removal and disposal of asbestos-containing material at the Institute Plant. Responsibility terminates when material is delivered to the landfill.

2.2 The duties of the "competent person" include at least the following: establishing a negative-pressure enclosure wherever feasible, ensuring its integrity, and controlling entry to and exit from the enclosure; supervising any required employee exposure monitoring; ensuring employees wear appropriate personal protective equipment, are trained in the use of appropriate methods of exposure control and using specified hygiene facilities and decontamination procedures; ensuring that engineering controls in use are in proper operation condition and are functioning properly.

2.3 The Company's "competent person(s)" shall evaluate all proposed asbestos removal jobs and determine whether they are small scale, short duration jobs or otherwise. Evaluation shall be based on job size, location and complexity. Small scale, short duration jobs (i.e. valve replacement, pipe repairs, etc. not requiring more than two persons and not exceeding an estimated duration of four(4) hours) will be handled by Plant insulator-painters, shift utility mechanics or pipefitters. All other asbestos removal jobs will be referred to Contract Services or the appropriate maintenance department head to determine who will perform the work.

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2.0 RESPONSIBILITY: (cont.)

2.4 It is the responsibility of the Company's designated "competent person(s)" to notify the Environmental Protection (EPD) at Ext. 6228 of a removal job of more than 160 linear feet of pipe insulation or more than 260 square feet prior to the beginning of such a job. ALL asbestos related jobs will be evaluated by the "competent person(s)" and if deemed necessary Industrial Hygiene Department will be notified at Extension 6105 or 6178.

2.5 Removal jobs performed by Plant personnel shall be evaluated by the Company's designated "competent person(s)" to determine which engineering controls, work practices and/or personal protection used singly or in combination, can be employed effectively to reduce asbestos exposures (i.e. glove bags, wet methods, local exhaust ventilation, use of mini-enclosures, respirators, etc.).

2.6 If monitoring is deemed necessary by the designated "competent person(s)" it is the responsibility of that person to notify the Industrial Hygiene Department and request the monitoring.

2.7 Proper housekeeping (see Section 7.0) is the responsibility of each individual involved in performance of the work assignment.

2.8 It is the responsibility of the individual craftsperson to wear the specified appropriate respiratory protection and protective clothing during removal, clean-up, and/or disposal of asbestos-containing material.

3.0 REGULATED AREA:

This to be determined by competent person

A regulated area will be established in work areas where airborne concentrations of asbestos may exceed or can reasonably be expected to exceed the permissible exposure limit (PEL) of 0.2 fibers per cubic centimeter of air as an 8-hour time-weighted average.

3.1 The regulated work area shall be demarcated with yellow barricade tape during the removal and cleanup of asbestos-containing material to minimize the number of persons within the area and to protect persons outside the area from exposure to airborne concentrations of asbestos.

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3.0 REGULATED AREA: (cont.)

3.2. Warning signs that demarcate regulated areas shall be provided and displayed at each location where airborne concentrations of asbestos may be in excess of the exposure limit. Signs shall be posted at a distance from such a location that any employee may read the signs and take necessary protective steps before entering the area marked by the signs. The required warning signs shall bear the following information:

DANGER
ASBESTOS
CANCER AND LUNG DISEASE HAZARD
AUTHORIZED PERSONNEL ONLY
RESPIRATORS AND PROTECTIVE CLOTHING ARE
REQUIRED IN THIS AREA

3.3 Before a regulated area is established, a Class "B" Hazardous Work Permit shall be obtained. Access to regulated areas shall be limited to authorized persons.

3.4 All persons entering a regulated area shall use an appropriate respirator and protective clothing.

3.5 No employee shall eat, drink, smoke, chew tobacco or gum, or apply cosmetics in the regulated area.

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4.0 WORK PRACTICES AND CONTROLS:

The following work practices and controls are to be used to maintain personal exposures as low as possible and to prevent contamination of the work place and environment.

4.1 Whenever feasible, and regardless of the abatement method to be used (e.g., total removal, enclosure, use of glove bags, etc.), all asbestos containing material shall be wetted with an amended water solution (i.e., water that has been treated with surfactant) using equipment capable of providing a fine spray mist, in order to reduce airborne fiber concentrations when material is disturbed. Saturate the material. However, do not allow excessive solution to accumulate in the work area. Wetting of asbestos-containing material will be done in such a manner as not to wash the fibers into the ground, drainage trenches or sewer facilities. Keep all removed material wet enough to prevent fiber release until it can be contained for disposal.

If work area temperatures are below 32°F amended water is subject to freezing. At such times, dry removal permits and procedures must be approved by the competent person(s) and utilized.
(NOTE: Ethylene Glycol added to the amended water will permit wetting the material during freezing conditions.)

4.2 Whenever feasible glove bags should be used for job requiring removal of asbestos-containing insulation from pipes, conduits, etc., if such removal is not performed within a negative pressure enclosure. Hazards (e.g., live steam pipes) and inaccessibility of insulation may be considered when determining feasibility. Specific requirements for the use of glove bags are provided in Section 5.0. Inability to use glove bags as outlined above must be confirmed by the "competent person(s)" and the "competent person(s)" must approve alternate control methods to be used in their place.

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4.0 WORK PRACTICES AND CONTROLS: (cont.)

4.3 Except for small scale, short duration jobs, removal of asbestos-containing material shall be performed within a negative pressure enclosure whenever feasible (i.e., whenever physically possible). Hazards created by the presence of negative pressure enclosures can be taken into consideration in determining feasibility. Specific requirements for the construction and use of negative pressure enclosures are provided in Section 6.0 Infeasibility of negative pressure enclosures must be confirmed by the "competent person(s)" and the "compentent person(s)" must approve alternate control methods to be used in their place.

4.4 In addition to the requirements of Sections 4.1, 4.2, and 4.3, one or any combination of the following control methods shall be used as needed to achieve compliance with the permissible exposure limit (PEL):

A. Local exhaust ventilation equipped with high efficiency particulate air (HEPA) filter dust collection systems.
B. Vacuum cleaners equipped with HEPA filters.
C. Enclosure or isolation of processes producing asbestos dust.
D. Use of removal encapsulants to control employee exposures during asbestos cutting, removal, handling and clean up.
E. Prompt disposal of wastes contaminated with asbestos in leak tight containers.
F. Use of work practices or other engineering controls that can be shown to be feasible.

4.5 Whenever the feasible engineering controls and work practices described above are not sufficient to reduce employee exposure to or below the permissible exposure limit, they shall be used to reduce employee exposure to the lowest levels attainable by these controls and will be supplemented by the use of appropriate respiratory protection (see Section 9.0).

4.6 High speed abrasive saws that are not equipped with appropriate engineering controls shall not be used for work related to asbestos.

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4.0 WORK PRACTICES AND CONTROLS: (cont.)

4.7 Compressed air shall not be used to remove asbestos or materials containing asbestos.

4.8 Whether utilizing a negative pressure enclosure or otherwise, the work area or ground shall be covered with two layers of polyethylene sheeting (6 mil minimum) when it can be done safely. This is especially important when working over grating areas or on slagged areas. Additional layers of sheeting may be utilized as drop cloths to aid in clean-up of bulk materials.

4.9 When glove bags are not used (as outlined in Section 4.2), saturated asbestos-containing material shall be removed in manageable sections and be contained before continuance of work. Material removed shall not be dropped or thrown to the floor or ground. For elevated work, material may be contained at elevated levels (e.g., on scaffolds) and then carefully lowered to the ground.

4.10 Asbestos-containing waste with sharp edges (e.g., screws, aluminum weather barrier) will tear polyethylene bags and sheeting and should be placed into drums for disposal.

4.11 After completion of all stripping work, surfaces from which asbestos containing materials have been removed shall be cleaned by rinsing with a fine spray mist, wet brushing and/or HEPA vacuuming or by some equivalent method to remove all visible residue. Scaffolding, ladders, tools, etc. used in the removal of asbestos and any other potentially contaminated surfaces must be thoroughly cleaned utilizing the HEPA vacuum.

4.12 When a partial removal of asbestos-containing material is required, for whatever reason, the exposed asbestos-containing material that is left in place shall be thoroughly sealed immediately (i.e., using mastic, wrap in plastic and tape, etc.).

4.13 When removing accumulations of asbestos-containing material and asbestos contaminated debris from the polyethylene floor sheeting, do so by hand or by using rubber dust pans and rubber squeegees. Do NOT use metal shovels to pick-up or move accumulated wastes. Special care shall be taken to minimize damage to floor sheeting.

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4.0 WORK PRACTICES AND CONTROLS: (cont.)

4.14 When the removal job is completed, all polyethylene sheeting must either be HEPA vacuumed or dampened with a fine water mist. Then it must be folded up carefully and placed in an asbestos waste disposal bag. Sheeting must not be hosed or blown off and it must not be reused. On removal jobs not being performed inside a negative pressure enclosure the polyethylene sheeting covering the ground or floor must be removed before the completion of each work day and placed in an asbestos waste disposal bag. New sheeting must be used at the beginning of each work day.

5.0 REQUIREMENTS FOR USING GLOVE BAGS:

5.1 All openings in the glove bag must be sealed with duct tape or equivalent once the bag has been installed and before actual asbestos removal begins.

5.2 If the glove bag is constructed such that it has a bottom seam, that seam must be reinforced with duct tape or its equivalent.

5.3 The person using the glove bag must wear at least a half mask, dual cartridge HEPA respirator. Others in the immediate area should wear the same type of respirator.

5.4 Material must be wetted with amended water before it may be removed from the pipe, beam, etc.

5.5 Material that has been removed and has fallen to the bottom of the bag must be wetted using amended water.

5.6 The surface from which material was removed must be cleaned with a wire brush and wet wiped with amended water until no visible residue exists.

5.7 Any exposed asbestos-containing material remaining on the pipe, beam, etc. must be sealed with a sealing compound before the glove bag is removed.

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5.0 REQUIREMENTS FOR USING GLOVE BAGS: (cont.)

5.8 When removal and sealing are done, a HEPA vacuum must be used to remove all air from the glove bag. When this has been done the glove bag must be twisted and sealed with tape as close to the top as possible. The vacuum hose is then removed from the port on the bag and the port must be sealed with tape.

6.0 REQUIREMENTS FOR NEGATIVE PRESSURE ENCLOSURES:

6.1 Ventilation units used to create negative pressure must be equipped with HEPA filters. A sufficient amount of air should be exhausted to create a pressure of -0.02 inches of water within the enclosure.

6.2 "Negative air machines" must be operated continuously or all openings to the negative pressure enclosure must be sealed at the end of each work day until final clean up is done within the negative pressure enclosure.

6.3 A manometer or pressure gauge for measuring negative pressure within the enclosure should be installed and monitored frequently when work is being done in the enclosure.

6.4 All objects that cannot be removed from the work area should be sealed with 6-mil plastic sheeting and duct tape.

6.5 All surfaces from which asbestos-containing material has been removed should be cleaned by wire brushing, HEPA vacuuming and wiping with a dampened (amended water) cloth. All other surfaces, including the enclosure itself, should be HEPA vacuumed and wet wiped.

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7.0 HOUSEKEEPING:

Work areas must be kept as free of asbestos debris and accumulation as possible. Use appropriate equipment and tools for cleanup to prevent dust release. Keep material in a "damp state" during cleanup whenever possible. Where vacuuming methods are selected, HEPA filtered vacuuming equipment must be used. The equipment shall be used and emptied in a manner that minimizes the reentry of asbestos into the workplace. Asbestos waste, scrap, debris, bags, containers, equipment and contaminated clothing consigned for disposal shall be collected and disposed of in sealed, labeled, impermeable bags or other closed, labeled, impermeable containers.

8.0 FACILITIES FOR REMOVAL AND RENOVATION:

Except for small scale, short duration operations, a decontamination area will be established for the decontamination of employees contaminated with asbestos. The decontamination area shall consist of an equipment room, shower area and clean room in series, if feasible. All abatement employees shall enter and exit the regulated area through the decontamination area.

8.1 The Equipment Room should be contiguous to the work area and shall be supplied with impermeable, labeled bags and containers for the containment and disposal of contaminated protective clothing and equipment. A HEPA vacuum shall also be available.

ouch!

8.2 Shower facilities shall be provided for abatement employees and, where feasible, shall be contiguous both to the equipment room and the clean change room. Where it is not feasible to locate the shower room between the equipment room and the clean change room, abatement employees must:

A. Remove asbestos contamination from their worksuits using a HEPA vacuum (not compressed air) before proceeding to a shower that is not contiguous to the work area; or

B. Remove their contaminated worksuits, don clean worksuits and proceed to a shower that is not contiguous to the work area.

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8.0 FACILITIES FOR REMOVAL AND RENOVATION: (cont.)

C. If supplied air respirators are used, HEPA vacuum the facepiece, remove the facepiece and immediately don a clean half-mask, high efficiency particulate respirator in order to proceed to the remote shower facility.

8.3 The Clean Room shall be equipped with a locker or appropriate storage container for each employee's use.

8.4 Decontamination Area Entry Procedures:

1. Employees shall enter decontamination area through the Clean Room;

2. Remove and deposit street clothing within a locker provided for their use; and

3. Put on protective clothing and respiratory protection before leaving the Clean Room.

8.5 Decontamination Area Exit Procedures:

1. Before leaving the regulated area, employees shall remove all gross contamination and debris from their protective clothing and equipment using a HEPA vacuum.

2. Employees shall remove their protective clothing in the Equipment Room and deposit the clothing in labeled impermeable bags or containers.

3. Employees shall not remove their respirators in the Equipment Room.

4. Employees shall shower prior to entering the Clean Room. Respirators shall be removed after initial rinsing in the shower.

5. After showering, employees shall enter the Clean Room before changing into street clothes.

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9.0 RESPIRATORY PROTECTION:

Employees engaged in the handling or removal of asbestos containing material will wear only those respirators jointly approved as being acceptable for protection against asbestos fibers by the Mine Safety and Health Administration (MSHA) and the National Institute for Occupational Safety & Health (NIOSH).

9.1 Selection of appropriate respiratory protection shall be made by the "competent person(s)" as specified in the table below:

demande frequent personnel monitoring for Exposure.

Up to 10 x PEL (2f/cc)	- Half Mask w/HEPA Filters
Up to 1000 x PEL (200f/cc)	- Full Face Supplied Air Respirator in pressure demand mode.
Greater than 1000 x PEL or unknown concentrations	- Same as above equipped with positive pressure self-contained breathing apparatus.

9.2 A full face supplied air respirator shall be provided in lieu of any negative pressure respirator specified above if any employee chooses this type respirator and it will provide adequate protection.

9.3 Any potentially contaminated respirators that are to be sent to the Safety Supply office for cleaning and inspection must be rinsed or wiped with a damp cloth first. They are to be transported in sealed containers bearing the same wording shown in Section 11.4.

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10.0 PROTECTIVE CLOTHING:

10.1 Full body disposable protective clothing (including head covering) consisting of material impenetrable by asbestos fibers (Tyvek(R) or equivalent) shall be required for any employee exposed to airborne concentrations of asbestos that exceed the permissible exposure limit (PEL). Such clothing is also required for all persons entering an asbestos regulated area. Such clothing shall be worn by any person removing or disturbing asbestos-containing material.

10.2 Additional safety equipment complying with Plant Standards (e.g. hard hats meeting the requirements of ANSI Standard Z89.1-1981, eye protection meeting the requirements of ANSI Standard Z87.1-1979, safety shoes meeting the requirements of ANSI Standard Z41.1-1967, disposable PVC Gloves) as necessary shall be required for asbestos removal workers.

10.3 Non-skid footwear (e.g. neoprene boots) is required for asbestos removal workers. Disposable clothing shall be adequately sealed to the footwear to prevent body contamination.

10.4 Contaminated clothing shall be transported in sealed, labeled, impermeable containers and disposed of in the same manner as all other asbestos waste.

10.5 The "competent person(s)" shall periodically examine worksuits worn by asbestos removal workers for rips or tears that may occur during performance of work. When rips or tears are detected, they shall be immediately mended, or the worksuit shall be immediately replaced.

10.6 Potentially contaminated protective clothing shall not be worn outside the work area unless it has been HEPA vacuumed and the worker is proceeding immediately from a large-scale job to a decontamination facility not contiguous to the work area.

10.7 Potentially contaminated protective clothing worn by employees performing small scale, short duration jobs shall be HEPA vacuumed, removed and placed in an asbestos waste disposal bag prior to removing respirators and leaving the work area, but only after ALL other job related activities have been completed.

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10.8 Potentially contaminated protective clothing shall not be reused. Once it has been removed from the body it shall be disposed of in a properly labeled and sealed waste container.

11.0 DISPOSAL CONTAINERS AND PROCEDURES:

11.1 Containers (6 mil polyethylene bags or drums) shall be sealed when full. Bags shall not be overfilled. Wet material can be exceedingly heavy. Double bagging of waste material is usually necessary.

11.2 Each bag shall be securely sealed to prevent accidental opening and leakage by tying top in an overhand knot or by taping in gooseneck fashion. Do not seal bags with wire or cord.

11.3 Bags shall be decontaminated on exterior surfaces by wiping with a damp cloth or HEPA vacuuming.

11.4 Disposal containers shall be labeled with the following information:

DANGER
CONTAINS ASBESTOS FIBERS
AVOID CREATING DUST
CANCER AND LUNG DISEASE HAZARD

11.5 As work progresses, to prevent exceeding available storage capacity on site, sealed, cleaned and labeled containers of asbestos-containing waste shall be removed and transported to the disposal location, accompanied by a Hazardous Waste Manifest.

11.6 Disposal must occur at an authorized site in accordance with applicable Federal, State and Local guidelines and regulations.

11.7 Copies of all landfill receipts, Hazardous Waste Manifests or other documentation of disposal will be returned to the appropriate "competent person(s)" for record keeping.

11.8 Whenever damp cloths, etc. are used to swab potentially contaminated surfaces, the cloths must be treated as asbestos-contaminated waste and must be disposed of accordingly.

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12.0 TRANSPORTATION TO LANDFILL:

12.1 Once containers of asbestos containing waste have been removed from the work area, they shall be loaded into a truck/dumpster for transportation.

12.2 When moving containers, utilize hand trucks, carts and proper lifting techniques to avoid back injuries.

12.3 The cargo area of the truck/dumpster shall be free of debris and lined with 6-mil polyethylene sheeting to prevent contamination from leaking or spilled containers.

12.4 Do not throw containers into truck/dumpster cargo area.

12.5 Personnel loading asbestos containing waste should be protected by disposable clothing including head, body and foot protection and at a minimum, half-facepiece, air-purifying, dual cartridge respirators equipped with high efficiency filters.

12.6 Any debris or residue observed on containers outside of the work area resulting from clean-up or disposal activities shall be immediately cleaned-up using HEPA filtered vacuum equipment and/or damp swabbing as appropriate.

12.7 Waste containers shall be placed on the ground at the disposal site, not pushed, thrown or dumped out of trucks/dumpsters (weight of wet material could rupture containers).

12.8 Personnel off-loading containers at the disposal site should wear protective equipment consisting of disposable head, body, and foot protection and, at a minimum, half-facepiece, air-purifying, dual cartridge respirators equipped with high efficiency filters.

12.9 Following the removal of all contained waste, the truck/dumpster cargo area shall be decontaminated using HEPA vacuums and/or damp swabbing to meet the no visible residue criteria.

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