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PLAINTIFF'S EXHIBIT

UC-2084

UNION CARBIDE

INTERNAL CORRESPONDENCE

SAFETY AND HEALTH DEPARTMENT
South Charleston Plant

P. O. Box 8004
South Charleston, WV 25303

TO: J. K. Corrie

DATE: February 18, 1987

ORIG. DEPT:

CC: [redacted]
S. W. Drake
B. N. Gliatta
C. R. Rotthoff
H. J. Shoger

SUBJECT: Revised Asbestos Maintenance Procedure

Attached is a copy of the revised Asbestos Maintenance Procedure for the South Charleston Plant. The procedure reflects the necessary modifications to ensure compliance with the new asbestos construction standard. After your review, please publish in your Maintenance Department Safety Manual.

If I may be of further assistance, please contact me at your convenience.

W. J. Vincent

W. J. Vincent

WJV/yc
1769A

Attachment

UCC 006305

DRAFT

SOUTH CHARLESTON PLANT

PROVISIONS FOR ASBESTOS MATERIAL REMOVAL AND DISPOSAL

A. Purpose

To provide protection to plant and community personnel from the hazards of asbestos and to assure compliance with all plant, state and federal regulations.

Asbestos releases to the environment, including air, ground and water, are covered by Superfund regulations. A release of one pound or more of asbestos to the environment (air, ground, or water) must be reported by the plant Environmental Protection Department, to the National Response Center, Washington, D.C., the West Virginia Department of Natural Resources, if to the ground or water, and to the West Virginia Air Pollution Control Commission if to the air. Any incident requiring a report to a government agency also requires notification of Division and Corporate officers.

This is a mandatory procedure and applies to all maintenance personnel and any personnel who removes asbestos.

B. Definitions

1. Asbestos - A fire resistant fibrous mineral used in fireproofing, insulation, brake linings, floor tile, ceiling tile, roofing, and siding which in dust form may be inhaled to produce a debilitating lung disease called "asbestosis".

2. Exposure Limits - Maximum quantities of airborne asbestos fibers to which a worker may be exposed, by law.

   Present OSHA allowable limit (June, 1986): During an eight-hour period, the time-weighted average shall not exceed 0.2 fibers, longer than five micrometers, per cubic centimeter of air.

3. Action Level - Means an airborne concentration of asbestos, tremolite, anthophyllite, actinolite, or a combination of these materials of 0.1 fiber per cubic centimeter (f/cc of air calculated as an eight hour time weighted average).

4. Regulated Area - Means an area established by the employer to define where airborne concentrations of asbestos exceed or can reasonably be expected to exceed the permissible exposure limit.

5. High-efficiency particulate air (HEPA) filter - Means a filter capable of trapping and retaining at least 99.97 percent of all monodispersed particles of 0.3 micrometers in diameter or larger.

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B. Definitions (continued)

6. Renovation - Means the modifying of any existing structure or portion there of where exposure to airborne asbestos, tremolite, antophyllite, actinolite may result.

7. Demolition - Means the wrecking or taking out of any load supporting structural member and any related razing, removing, or stripping of asbestos, tremolite, antophyllite, or actinolite products.

C. Responsibilities

1. Craftsperson - It is the responsibility of any person working around asbestos to know the health hazards involved and take all necessary precautions to protect themselves, others, and the environment. Each craftsperson shall:

   a. Attend/understand the asbestos training
   b. Wear protective equipment
   c. Follow this procedure
   d. Challenge improper methods and actions by others
   e. Review the MSDS for asbestos

2. First Line Supervisor - It is the responsibility of the job supervisor to:

   a. Provide training for all subordinates in the health hazards and proper safeguards of asbestos removal and disposal as outlined in this procedure.

   b. Assure compliance with this procedure for all jobs under his/her supervision.

   c. Notify the Safety/Health Department of each job to provide monitoring opportunity, extension 2434. Initial IH monitoring must be performed on jobs where negative pressure respirators are used.

   d. Notify the plant Environmental Protection Department as required (see D.1.C.).

   e. File a completed checklist upon job completion and distribute as indicated on the checklist.

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C. Responsibilities

3. Area Superintendent - It is the responsibility of the Area Superintendent of the geographic area in which the job occurs to audit all asbestos stripping jobs consisting of 160 or more square feet or 260 or more linear feet of insulation. The Area Superintendent(s) with responsibility for insulators shall audit asbestos stripping jobs as required to assure compliance with this procedure.

4. Competent Person - It is the responsibility of the competent person to identify or to cause identification of existing asbestos and to take prompt corrective actions to eliminate or reduce the hazards of asbestos. The duties of the competent person includes the establishment of negative - pressure enclosures, ensuring its integrity, and controlling entry to and exit from the enclosure, supervising any employee exposure monitoring required by the standard, ensuring that all employees working within such an enclosure wear the appropriate personal protective equipment, are trained in the use of appropriate methods of exposure control, and use the hygiene and decontamination procedures specified in the standard; and ensuring that engineering controls in use are in proper operating condition and are functioning properly.

D. Job Sequence

1. a. Examine job for asbestos content. Consider sampling and analysis for content if time permits. If there is uncertainty regarding the presence of asbestos, the material shall be treated as if it is asbestos.

b. Notify the designated competent person on ext.____.

c. Notify the plant Environmental Protection Department to ensure enough lead time for governmental notification. See the attached Environmental Asbestos Removal Notification Requirements in Appendix I & II for specifics, ext. 3144.

d. Notify the owner of the equipment and/or piping to be stripped. Contact the Safety/Health Department to schedule monitoring.

e. Obtain necessary permits/permission (HWP and/or MC/LO).

f. Check with the Plant EPD Department to ensure waste disposal site has been established.

g. Place proper barricades and warning signs.

h. Don proper protective equipment (clothing and respiratory protection)(see D.7. and D.8.).

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D. Job Sequence - continued

i. Prepare the work area (see D.5. and D.2.).

j. Strip insulation (see D.3. and D.4.).

k. Remove asbestos to appropriate containers for disposal (See D.8.).

l. Clean up the work area (see D.5. and D.10).

m. Remove coveralls and place in labeled bags for disposal (See D.6.).

n. Remove barricades and signs.

o. Clear permits and notify owner of job completion.

p. Complete checklist and distribute.

2. Preparing the Work Area

a. The work area is to be roped off with green barricade tape during the course of any work involving asbestos and all movable objects shall be removed from the work area to prevent unnecessary contaminations, e.g. desks, rugs, and chairs. Warning signs are to be posted at each barricaded area to warn any employee desiring to enter the area so he/she can take the necessary precautions. Warning signs are to state:

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

The barricade tape and warning signs are to remain in place until the job is complete.

b. Where feasible, the employer shall establish negative pressure enclosures before commencing removal, demolition, and renovation operations (large scale jobs). Consideration shall be given to enclosing small jobs (less than 5 feet).

Note: Inability or impracticality of enclosing structures within a single enclosure does not by itself mean that enclosures are infeasible. In such a case, the feasibility of several smaller enclosures must be considered. If it is physically possible to establish the smaller enclosures, then they are to be constructed and the removal is to be done section by section.

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D. Job Sequence - continued

c. Access to regulated areas shall be limited to authorized persons. Approval must be obtained from the Plant Industrial Hygienist prior to entry.

d. The work area shall be covered with plastic sheeting to contain the asbestos. Over grating, this will prevent the asbestos from filtering through into other work areas and exposing other employees to the hazards of asbestos. On slagged areas, this will prevent mixing of asbestos with the slag, allowing easier cleanup and will not leave asbestos residues on the ground.

e. Necessary precautions will be taken to ensure that asbestos does not enter sewers or trenches or any waterway.

f. When working outdoors or in open structures, consideration shall be given to erecting windbreaks to minimize airborne concentrations of asbestos.

g. When asbestos insulation is found on any piping, vessel or equipment which is to be removed, dismantled or changed, the insulation shall be removed before any other work begins.

3. General Practices

a. No asbestos removal work is to be initiated without wearing proper respirator protection and industrial hygiene monitoring.

b. When partial removal of asbestos is required, for whatever reason, exposed ends or edges of any insulation left in place shall be sealed.

c. Insofar as practical, insulation containing asbestos shall be thoroughly wetted before removal to prevent the presence of airborne fibers. Plastic shall be used to enclose the area being stripped and the removed insulation shall be mist-sprayed with water. Strip the insulation and carefully place into labeled plastic bags. Fiberpacs can be used to support the bags until they are sealed.

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D. Job Sequence - continued

3. General Practices continued

d. Wetting of asbestos insulation shall be done in such a manner as not to wash the fibers into the ground, trenches, sewers, or waterways.

e. All enclosed and bagged insulation must not be dropped to the ground. It should be carefully lowered to avoid loss of asbestos to the environment.

4. Stripping Insulation (Large Scale)

a. A negative pressure enclosure and hygienic area must be constructed for all large scale jobs if feasible. The feasibility of enclosure shall be determined by the competent person, Industrial Hygienist and/or the Maintenance Department Representative. An example of how a negative pressure enclosure and how a hygienic area is constructed is provided in Appendix III.

5. Stripping Insulation - Small Scale

a. Remove from the work area all objects that are non-essential and are movable to protect them from asbestos contamination.

b. Objects that cannot be removed from the work area must be covered completely with 6-mil thick polyethylene plastic sheeting before the task begins. Contaminated objects must be cleaned with a High Efficiency Particulate Air (HEPA) filtered vacuum or be wet wiped before they are removed from the work area or completely encased in the plastic.

c. Wet the asbestos containing material that is to be removed. Wetting agents must be continually used throughout the work period to ensure that any dry asbestos-containing material exposed in the course of the work is wet and remains wet until final disposal.

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D. Job Sequence - continued

5. Stripping Insulation - Small Scale - continued

d. Install a glove bag (see Figure G-1) so that it completely covers the pipe or other structure where asbestos work is being done. Glove bags are installed by cutting the sides of the glove bag to fit the size of the pipe where the asbestos is to be removed.

e. Attach the glove bag to the pipe by folding the open edges together and secure them with tape. All opening in the glove bag must be sealed with duct tape or equivalent. The bottom seam must also be sealed with duct tape to prevent leakage.

f. The employees who are performing the removal must wear at a minimum high efficiency equipped respirators and be monitored for personal exposure.

g. The removed asbestos material from the pipe or other surface that has fallen into the enclosed bag must be thoroughly wetted with a wetting agent (applied with an airless sprayer through a pre-cut port or applied through a small cut in the bag).

h. After removal of the layer of asbestos containing material, the pipe or surface must be thoroughly cleaned with a wire brush and wet wiped with a wetting agent until no traces of the asbestos containing material can be seen.

i. Any asbestos containing insulation edges that are exposed must be encapsulated to ensure no release of fibers upon removal of the glove bag.

j. Upon completion of the small scale job, a vacuum hose from a HEPA filtered vacuum must be inserted into the glove bag through the port to remove any asbestos-containing air in the bag. When the air has been removed from the bag, the bag should be squeezed tightly, twisted, and sealed with tape, to keep the asbestos material safely in the bottom of the bag. The HEPA vacuum can then be removed from the bag and the glove bag itself can be removed from the work area to be disposed of properly.

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D. Job Sequence - continued

6. Cleanup

a. All asbestos insulation will be bagged in the area in which it is removed. Careful handling to avoid creating dust and airborne fibers is imperative.

b. Insofar as practicable, removed insulation shall be wetted and placed directly into labeled plastic bags. Otherwise, place plastic sheeting beneath the job site, mist spray the removed insulation with water and then place in plastic bags. When wet methods of removal/cleanup are impractical, e.g., when temperatures are below freezing, vacuuming may serve as an effective alternate cleanup method.

NOTE: HEPA equipped vacuums must be used.

c. All external surfaces shall be maintained free of accumulation of asbestos fibers. Special attention should be given to cleaning scaffolds used in stripping work.

d. If asbestos insulation adheres to removed jacketing material and cannot be completely removed, the jacketing material shall also be placed in labeled bags for disposal.

e. Sealed bags of asbestos-containing material shall be placed in specially-marked plastic tubs or dumpsters at the job site. If plastic tubs are used, they are to be taken to the specially-marked dumpsters and emptied as they are filled. All bagged material shall be removed from the job site and placed in dumpsters each day.

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D. Job Sequence - continued

7. Protective Clothing (Small Scale)

a. Protective clothing consisting of gloves and disposable coveralls which have taped to ensure proper seal will be used on all small scale jobs involving the handling or removal of asbestos containing material.

b. After the completion of each small scale job, the protective clothing worn by the employee must be removed and properly disposed of in properly labeled disposable bags.

c. If a glove bag ruputures, the employee must shower immediately after completion of the glove bag job.

8. Protective Clothing (Large Scale)

a. Protective work clothing consisting of gloves and disposable coveralls will be used on all large scale jobs involving the handling or removal of asbestos-containing material.

b. Protective clothing shall be removed prior to exiting the barricaded work area and placed in labled bags for disposal.

c. Work clothing used by insulators will be stored in separate lockers away from their street clothing.

d. Employees exposed to asbestos during their work shift must shower before leaving the plant. The showers shall be contiguous both to the work area where asbestos removal is being conducted and the clean change rooms unless the location is not feasible.

e. When contiguous shower facilities are infeasible, employees must clean worksuits with HEPA equipped vacuum before proceeding to remote shower or employees remove contaminated worksuits and don clean worksuits before going to remote shower. Contaminated clothing must be removed and placed into property labeled bags.

9. Respiratory Protection

a. Employees engaged in the handling or removal of asbestos-containing material will wear NIOSH approved respiratory protection.

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D. Job Sequence - continued

9. Respiratory Protection - continued

The following respirators are approved for use in asbestos service at the South Charleston Plant:

- o Half mask air-purifying respirators with high efficiency filters (HEPA) Survivair R #1090-00 or North Safety Equipment #7500-8. Mask bodies are the Survivair R Series 2000 and the North Model 7700-30M. Initial IH monitoring must be conducted on all employees wearing these respirators.

- o Only full-face powered air purifying respirators (PAPR) approved by the Safety/Health Department are to be used. Only the Racal R "Powerflow" with a HEPA filter is approved for South Charleston personnel, contractors and other non-plant personnel are not limited to this model, but may use other PAPRs for asbestos application. Initial IH monitoring is required for employees who wear PAPRs also.

- o Air Supplied Respirators with positive pressure demand and appropriate self contained breathing apparatus (SCBA) are to be used in emergency situations and at asbestos levels below the 1000 permissible exposure limit. No industrial hygiene monitoring is required if SCBAs are used.

Approved respirators are shown in Table I.

NOTE: Wearers of all respirators must have medical certification, fit testing, and training.

10. Disposal Bags

All asbestos-containing material, including contaminated gloves, disposable coveralls, and respirator cartridges shall be placed and sealed in impermeable plastic bags properly labeled as below:

DANGER

CONTAINS ASBESTOS FIBERS

AVOID CREATING DUST

CANCER AND LUNG DISEASE HAZARD

Disposal bags shall be made available in all asbestos work and change areas where contaminated clothing is removed.

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D. Job Sequence - continued

11. Disposal by Trucking

a. The insulator supervisor shall notify the Trucking Department to have asbestos dumpsters emptied. Dumpsters must be securely covered and free of water or they will not be admitted to the permitted landfill.

b. Non-RCRA hazardous waste manifests will be prepared and retained by the Trucking Department and approved by the Environmental Protection Department. Before exiting the plant with waste asbestos material, truck drivers must have in their possession a properly prepared manifest as prescribed by the Plant 514 Waste Disposal Procedure.

12. Emergency Removal of Asbestos

a. The minimum employee protection required for removal of asbestos under emergency conditions is air supplied respirators equipped with positive pressure demand capabilities and disposable coveralls which have been properly fitted and sealed. No industrial hygiene monitoring will be required under emergency situations.

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E. Training

1. All maintenance personnel or any personnel who removes asbestos shall receive training covering this procedure annually and the training documented in the TRAINS program (514-3022). Training shall be provided prior to or at initial assignment.

2. The training will include the following information;

   a. The health effects associated with asbestos exposure.

   b. The relationship between asbestos exposure and smoking in producing lung cancer.

   c. The nature of operations which could result in asbestos exposure and the necessary protective steps to minimize exposure.

   d. The purpose, proper use, fitting instructions and limitations of the respirators used to protect against asbestos exposure.

   e. The importance of preventing releases of asbestos to the environment and the potential consequences of failing to do so.

   f. Methods of recognizing asbestos.

   g. The proper use of protective clothing.

   h. The appropriate work practices for performing the asbestos job.

   i. Medical surveillance program requirements.

   j. A review of the asbestos standard.

   k. Notification requirements.

3. Available training aids to be used as resources:

   a. Videotape on health aspects - plant doctor and/or training department.

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F. Audit

It shall be the responsibility of each Area Superintendent involved in asbestos material removal to schedule an quarterly audit of this procedure. A suggested audit form is attached.

G. Contractor Requirements

Contractors who perform asbestos removal projects shall comply with all requirements of 1926.58 (Asbestos Construction Standard - 1986) and this procedure. South Charleston Plant Safety and Health Procedures and the South Charleston Plant Provisions for Asbestos Material Removal and Disposal. The contractor will be responsible for informing and training his employees on the potential hazards of asbestos as specified in the construction standard. The plant Industrial Hygienist shall review and approve the contractor's procedures for asbestos removal operations prior to initiation of large scale projects and must be informed of any asbestos removal task prior to their arrival in the plant.

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MAINTENANCE CHECK LIST FOR ASBESTOS REMOVAL/DISPOSAL

AREA _____ ZONE _____ BLDG _____ UNIT _____ DATE _____

JOB DESCRIPTION _____

_____

ESTIMATED LINEAL FEET REMOVED _____ JOB SUPERVISOR _____

NAMES OF PEOPLE INVOLVED IN ACTUAL JOBS _____

_____

	YES	NO	N/A
Safety/Health Department notified	____	____	____
Plant EP Department notified	____	____	____
Barrier tape used	____	____	____
Warning signs used	____	____	____
Protective clothing used	____	____	____
Respirators used	____	____	____
Drop cloth used	____	____	____
Wet down area	____	____	____
Proper disposal - (bags to landfill)	____	____	____
Proper clean-up (area housekeeping)	____	____	____
Barricades down (after clean-up only)	____	____	____
Competent person notified	____	____	____
Proper Environmental Notifications made (APCC, EPA, DNR, & Health Department)	____	____	____

COMMENTS _____

_____

_____

Completed copy to:
Area Suptr.____
Maintenance Suptr.____
Maintenance APM ____

Audit performed by: _____

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TABLE I

RESPIRATORY PROTECTION FOR ASBESTOS, TREMOLITE, ANTHOPHYLLITE, AND ACTINOLITE FIBERS

Airborne Concentration of Subject Materials or Combination of These Materials	Required Respirator
1. Not in excess of 2 f/cc (10 X PEL)	1. Half-mask air-purifying respirator equipped with high-efficiency filters.
2. Not in excess of 10 f/cc (50 X PEL)	1. Full facepiece air purifying respirator high-efficiency filters.
3. Not in excess of 20 f/cc (100 X PEL)	1. Any powered air-purifying respirator equipped with high efficiency filters. 2. Any supplied-air respirator operated in continuous flow mode.
4. Not in excess of 200 f/cc (1000 X PEL)	1. Full facepiece supplied air respirator operated in pressure demand mode.
5. Greater than 200 f/cc (greater than 1000 X PEL) or unknown concentration)	1. Full facepiece supplied air respirator operated in pressure demand mode equipped with an auxiliary positive pressure self-contained breathing apparatus.

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APPENDIX I

Environmental Asbestos Removal Notification Requirements

All completed Asbestos Removal Notification forms are to be approved and signed by the Environmental Protection Coordinator, J. L. Worstell. In order to meet all the above notification requirements, EPD must receive the completed Asbestos Removal Notification form at least 5 working days prior to the WVAPCC's required delivery date for notification of the demolition/ renovation project. There will be NO EXCEPTIONS to this policy, excluding demolitions conducted under order of State or local government agencies because of the danger of imminent collapse.

The WVAPCC has developed an Asbestos Removal Notification form (copy attached) that is to be used for all asbestos demolition/renovation projects within the State of West Virginia. The WVAPCC has specified that notices of asbestos demolition/renovation shall be delivered to WVAPCC as follows:

1) At least 10 days before demolition begins, if such demolition involves friable asbestos materials in the amounts of at least 260 linear feet on pipes or at least 160 square feet on other facility components,

2) At least 20 days before demolition begins, if such demolition involves friable asbestos materials in the amounts of less than 260 linear feet on pipes and less than 160 square feet on other facility components,

3) At least 1 day before demolition begins, if such demolition is being conducted under order of a State of local government agency because of the danger of imminent collapse,

4) At least 1 day before renovation begins, if such renovation involves friable asbestos materials in the amounts of at least 260 linear feet on pipes or at least 160 square feet on other facility components, and

5) At least 1 day before renovation begins, if such renovation involves friable asbestos materials in the amounts - such that the predicted additive amounts over a period of time (not to exceed one year) - are at least 260 linear feet on pipes or at least 160 square feet on other facility components.

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APPENDIX III

CONSTRUCTION OF NEGATIVE PRESSURE ENCLOSURE AND HYGIENIC AREA

a. Constructing the enclosure - When all objects have been removed from the work area or covered with plastic, all penetrations must be sealed with 6-mil plastic and tape to prevent airborne asbestos from escaping into outside areas. Penetrations that require sealing are typically around electrical conduits, telephone wires, water supply and drain pipes.

b. Establish a single entrance for access and egress to the work area. Seal all other entrances with 6-mil plastic and tape.

c. All exposed surfaces such as support columns, ledges, and other surfaces should also be covered with plastic sheeting prior to the construction of the walls.

d. Next a thin layer of spray adhesive should be sprayed along the walls surrounding the enclosed work area and a layer of polyethylene plastic sheeting should be attached to the adhesive and taped. The entire inside surface of all wall areas are covered in this manner.

e. Finally, the sheeting covering the walls is extended across the floor area until it meets in the center of the area, where it is taped to form a single layer.

f. A final layer of plastic sheeting is then laid across the plastic covered floor and up to the walls about two (2) feet. This layer provides a second layer of plastic sheeting over the floor which can then be removed and disposed of easily.

g. After construction of the enclosure, a ventilation system must be installed within the enclosure which is equipped with HEPA filters. A sufficient amount of air should be exhausted to create a negative pressure of 0.02 inches of water.

   NOTE: No asbestos tasks are to be performed without wearing proper respirator protection and industrial hygiene monitoring.

h. Constructing the hygienic area - Contiguous if feasible to the negative pressure enclosure, hygiene facilities which are to be used to decontaminate asbestos-exposed workers, equipment, and clothing before the employees leave the work area must be made available.

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APPENDIX III

CONSTRUCTION OF NEGATIVE PRESSURE ENCLOSURE AND HYGIENIC AREA- continued

i. The hygiene facilities shall consist of a clean change room, a shower, and an equipment room. The clean change is an area in which employees can remove their street clothing and don their respirators and disposable protective clothing.

j. The shower should be contiguous with both the clean and dirty change rooms and must be used by all workers leaving the work area.

Note: All employees must shower and change clothes prior to leaving the worksite.

k. The equipment room (dirty room) should be lined with 6-mil plastic in the same way as was done in the work area. The shower room and the clean change room do not have to be lined with plastic material.

l. After the structure has been checked and approved by the Competent Person or the Plant Industrial Hygienist, the removal project can be initiated.

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