

BROWN & ROOT U.S.A., INC.
SHELL DEER PARK MANUFACTURING COMPLEX

PROCEDURE 29
March 14, 1986

HAZARD COMMUNICATION - COMPLIANCE PLAN

I. GENERAL

On November 25, 1983, the "Hazard Communication Standard" (29 CFR 1910.1200) was issued as a final rule by the Occupational Safety and Health Administration.

The Federal Hazard Communication Standard will require chemical manufacturers and employers to label certain in-plant containers, to inform workers of hazards within their work areas, to make Material Safety Data Sheets (MSDSs) or comparable written information available to employees and to train workers to protect themselves when dealing with specific chemical hazards. Compliance with the regulation must be accomplished by the employer by May 25, 1986.

This procedure addresses the methods by which chemical hazards will be communicated, employee training and information and responsibility.

II. RESPONSIBILITIES

A. Client

1. To supply necessary MSDS's for chemicals over which Shell has control.
2. To convey health hazards and minimum safety requirements via Work Permit Addendum as part of work permit process.
3. To make available the use of MSDS's and the chemical hazard identification diagram which are located in each unit control room.

B. Purchasing Department

1. Acquire a MSDS for purchased materials as a "condition of sale" for any newly purchased chemicals.



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HAZARD COMMUNICATION - COMPLIANCE PLAN (continued)

C. Safety and Health Department

1. Conduct formal training of personnel.
2. Provide consultation on chemical hazards in the workplace
3. Maintain an up-to-date set of applicable MSDSs
4. Develop required container labels.

D. Supervisor

1. Supporting and actively involved in employee training and education of the various chemical hazards found in the workplace.
2. Ensure that each employee is informed about the hazards related to the workplace.
3. Assure a mutual understanding and agreement with operation personnel about the health hazards of certain chemicals and subsequent worker protection prior to initiating work.

E. Employee

1. Will become informed about the chemical and physical hazards of their workplace and how to protect themselves and other employees from these hazards, and be aware of where our hazard communication program, the standard, applicable MSDSs are located for their review.
2. Assure a mutual understanding and agreement with operation personnel about the health hazards of certain chemicals and subsequent worker protection prior to initiating work.

III. METHODS OF COMMUNICATION

A. Material Safety Data Sheets

Material Safety Data Sheets (MSDSs) are the basic reference source of health and safety information on chemicals used in the workplace. As such, they have a key role in employee protection programs and in complying with OSHA's Hazard Communication Regulation.



HAZARD COMMUNICATION - COMPLIANCE PLAN (continued)

B. Work Permit Addendums

Work Permit Addendums are the primary means of conveying health information to employees that are performing non-routine work (Maintenance). A part of the Departmental or Safe Work Permit, Work Permit Addendums provide chemical hazard information for maintenance personnel who may not be familiar with all of the hazardous properties of chemicals and mixed streams that may be encountered.

C. Labeling

Each container of hazardous chemicals shall be labeled, tagged or marked with the following information:

- o Identity of the hazardous chemical(s)
- o Appropriate hazard warnings.

In lieu of affixing labels to individual stationery process containers the client operating authority will generally use the Chemical Hazard Identification Diagram (C.H.I.D.). All vessels not included shall be labeled.

Exceptions:

Portable containers into which hazardous chemicals are transferred from labeled containers and which are intended only for the immediate use (within the work shift) by the employee who performs the transfer is exempt from the labeling requirement.

IV. EMPLOYEE TRAINING AND INFORMATION

A. Employee Training

All personnel who have potential exposure to process chemicals shall be informed as to their hazard and the required protective measures. The various training requirements are as follows:

1. All new employees at DPMC:

Initial training will be provided by the Safety and Health Department. This training will include:

- a. Review of this procedure



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HAZARD COMMUNICATION - COMPLIANCE PLAN (continued)

- b. Details of the project's Hazard Communication Program.
- c. Use, location and interpretation of the Material Safety Data Sheet
- d. Use and interpretation of the Work Permit Addendum.
- e. Container labeling - fixed vs. portable

2. All Newly Assigned Personnel

Training will be provided by the respective supervisor. Training is to include:

- a. A discussion of the primary chemical substances on the unit.
- b. Provide instructions on the location of MSDSs, Product Health Charts and other reference information.

3. Ongoing Training

All personnel will be retrained annually and on an ongoing basis by the respective area Safety and Health Departments. Training shall include:

- a. A review of this procedure
- b. Methods and observations that may be used to detect the presence of a material or chemical in the workplace (monitoring, visual appearance, odor)
- c. Measures employees can take to protect themselves from hazards including: protective equipment, work practices and emergency procedures.
- d. Training in specific safety procedures such as respiratory protection, hearing conservation and work permits will be utilized on an ongoing basis.

4. Training Records

All training is to be documented and retained by the Safety and Health Department.

B. Information Process

Supervisors will hold periodic meetings with their employees to discuss:

- 1. The physical and health hazards of the chemicals in the workplace and all information on the MSDS affecting the employee.



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AZARD COMMUNICATION - COMPLIANCE PLAN (continued)

2. The engineering controls, work practices and personal protection utilized to minimize any hazard to the employees.
3. Methods used to detect the presence or possibility of a release of a chemical to the work area.
4. The location of copies of the Hazard Communication Standard, the project's Hazard Communication Program, lists of chemicals at the facility and where additional information may be obtained.
5. Explanation of the signs, labels and Product Health Charts related to the workplace to inform employees about specific hazards.
6. Discuss emergency plans utilized in the workplace.

C. Information Availability

A copy of the Hazard Communication Standard is posted on the Brass Alley Bulletin Board. A copy of all MSDSs or Information Sheets is available at the following locations:

1. Unit Control Rooms
2. Area Safety/Health Offices
3. OP-3 Medical Facility

V. SUBCONTRACTORS

- A. All Subcontractors shall comply with the Hazard Communication Standard, 29 CFR 1919.1200.
- B. Subcontractor personnel shall be informed of the chemical hazards for non routine work as described in Section III of this procedure.
- C. The subcontractor shall supply Brown & Root a MSDS for all chemicals brought on site. The MSDS will be reviewed and evaluated by the Project Safety and Health Department. In the event the MSDS is not readily available, the product will be evaluated by the client's Industrial Hygiene Group.



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**STANDARD OPERATING PROCEDURES
FOR ASBESTOS ABATEMENT WORK**

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POLICY

All phases of Asbestos Abatement work shall be executed in accordance with OSHA and EPA regulations. Shell Oil Company has the responsibility to notify any governmental agencies when required.

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**BROWN & ROOT INDUSTRIAL SERVICES, INC.
SHELL DEER PARK MANUFACTURING COMPLEX**

SECTION 1	TRAINING
SECTION 2	MEDICAL SURVEILLANCE
SECTION 3	RESPIRATORY PROTECTION PROGRAM
SECTION 4	NOTIFICATION PROCEDURES
SECTION 5	INDUSTRIAL ASBESTOS ABATEMENT PROJECTS
SECTION 6	REGULATED AREA
SECTION 7	ASBESTOS MONITORING PROGRAM
SECTION 8	SUPPLEMENTAL INFORMATION

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SECTION 1 - TRAINING

PART	DESCRIPTION
1.1	ASBESTOS TRAINING PROGRAM - GENERAL
1.1.1	Introduction
1.1.2	Physical and Chemical Properties
1.1.3	Health Hazard
1.1.4	Job Exposure to Asbestos
1.1.5	Exposure Limits
1.1.6	Engineering and Work Practice Controls
1.1.7	Restricted Area
1.1.8	Regulated Area
1.2	EMPLOYEE TRAINING - HANDOUT
1.2.1	Introduction
1.2.2	Physical and Chemical Properties
1.2.3	Health Hazards
1.2.4	Specific Respiratory Protection
1.2.5	Clothing
1.2.6	Employee Decontamination Procedures
1.2.7	Employee Signature

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1.1 ASBESTOS TRAINING PROGRAM

OBJECTIVE: To educate our employees on the objective hazards of working with asbestos in a way that does not express complacency or create anxiety toward asbestos.

1. The nature of the health hazards from exposure to asbestos fiber.
2. Methods of asbestos exposure control.
3. Appropriate work practices.
4. The purpose for proper use and limitation of respiratory protective devices.
5. The purpose for and a description of the monitoring program.
6. The purpose for and the description of the Medical Surveillance Program.
7. The relationship between smoking and asbestos in producing lung cancer.
8. A review of the OSHA standard.

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1.1.1 INTRODUCTION

This training program has been developed for presentation to you to appraise you of the hazards that may exist in working with asbestos or asbestos containing products.

Only by properly educating our employees can we truly hope to prevent this possible hazard, then we must insist upon complete compliance with the safety procedures herein contained.

1.1.2 PHYSICAL AND CHEMICAL PROPERTIES

Asbestos contains several different hydrates silicant, fibrous minerals. Asbestos fibers generally have high tensile strength, flexibility, heat and chemical resistance and good frictional properties. Characteristics vary with the mineral:

CHRYSTOTILE - The fibrous form of serpentine, is the most common variety of asbestos. It can be crushed into fine white, silky fibers. It has high heat resistance but is destroyed by acids.

CROCIDOLITE - The fibrous form of riebeckite, has fine resilient blue fibers. The fibers are strong and resists acids.

AMOSITE - The fibrous variety of grunerite, can be broken down into long, somewhat harsh fibers, brownish-yellow to white in color. It is characterized by good resistance to acids and other chemicals.

ANTHOPHYLITE - Has rather fragile, brownish or off-white fibers with good heat and chemical resistance.

TRAMOLITE - A calcium magnesium iron silicate. Fibers have low tensile strength, making them undesirable for many industrial applications. It is often a major component of industrial and commercial talc.

ACTINOLITE - A calcium magnesium iron silicate. Fibers like tremolite fibers, have low tensile strength so that industrial use is limited.

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1.1.3 HEALTH HAZARDS

Asbestos in its commercial and or mineral form has been suspected in very recent time to be associated with the possible production of a variety of disease entities, specifically:

1. Asbestosis - a diffuse, non-malignant scarring of the lungs.
2. Bronchogenic Carcinoma - a malignancy of the interior of the lungs.
3. Mesothelioma - a diffuse malignancy of the lining of the lung and chest cavity (pleura Mesothelioma) or the lining of the abdomen (peritonea mesothelioma).
4. Certain cancers of the stomach, colon, and rectum.

All report research data has shown that the development of these diseases have occurred to people exposed to gross amounts of asbestos dust and fibers for a considerable period of time.

Furthermore, any symptoms of these disease potentials have not appeared until twenty years of exposure have passed from the initial exposure. The peak incidents is often not noted until thirty years from onset point, or later.

In addition, there is reason to believe that an individual's personal health habits contribute significantly to his susceptibility to these diseases.

For instance, it has been found that when comparing non-smokers with smokers, and asbestos workers with non-asbestos workers (general public), the asbestos workers that smoked had a higher chance of risks of contracting these diseases than non-smokers. When comparing non-smoking asbestos workers with non-smoking non-asbestos workers, there was no difference with either groups chances or risks of these diseases.

In conclusion, although the evidence is not absolute, all data points to asbestos as either being the cause or possibly the triggering agent to the contraction of the diseases listed above. Thus, it is the intent of this program to appraise you of the potential hazards of asbestos, so as to prevent the occurrence and limit your chances of developing these potentially fatal diseases.

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1.1.4 EXPOSURE TO ASBESTOS

As an insulator with our company, you may come into contact with asbestos on a very infrequent basis. This exposure may occur when stripping off old insulation which contained asbestos.

Because of severe restrictions placed upon the use of asbestos in 1970, industry is changing.

Thus, a non-asbestos insulation is substituted for old asbestos insulation, your chances of ever being exposed to asbestos at all will be greatly reduced.

There still may be equipment or lines that will be insulated with asbestos, but we have no current knowledge of this practice.

Always be aware that the insulation you may be working with is asbestos. If in doubt, ask your supervisor. This is especially true if the material appears to be fibrous or stringy - an identification that it is asbestos. Non-asbestos insulation generally appears to be powdery, non-fibrous material.

1.1.5 EXPOSURE LIMITS

0.2 fibers per cubic centimeter of air in an eight hour time weighted average.

Of importance is the length of the fibers listed above. These limits apply only to fibers longer than five micrometers in length.

It has been shown that fibers shorter than five micrometers will be flushed out of your lungs by the lung's natural processes. These shorter and lighter fibers are attacked by mucus of the lung's mucous membranes and readily coughed up and out of the lungs and bronchial tubes. Thus these shorter, lighter fibers may not pose any health hazard.

1.1.6 ENGINEERING AND WORK PRACTICE CONTROLS

Our customers have developed priorities on the elimination of asbestos within plants and buildings with replacement by non-asbestos materials.

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Furthermore, we have established controls to isolate, enclose, exhaust and collect resulting ducts where these practices are technically feasible.

In addition, particular tools and equipment such as saws, scorers, grinders, drills, etc. which may be used on asbestos will be provided with local exhaust ventilation and dust collection systems, where technically feasible.

We will comply with the following work practices while working with asbestos:

1. Work with removal will only be performed under continuous wetting of the material being worked.
2. All asbestos or asbestos containing material shall be placed in impermeable bags immediately upon removal and bags sealed when filled or task completed.
3. Bagged scrap, excess, debris, etc. shall be discarded or dumped into appropriate garbage/trash containers, for proper disposal.
4. Area shall be cleaned as work progresses and when finished the entire area shall be washed down or vacuumed whichever is applicable. Do not leave dust on adjacent piping racks, etc.
5. Separate clothes lockers are now provided to prevent possible contamination of street clothes by work clothes. You will be required to keep street and work clothes separate and area cleaned of possible asbestos dusts. Decon facilities for bathing shall be used.
6. Signs shall be posted at locations around work area so that a fellow employee can read the signs and avoid the area without entering it.
7. Required signs shall have the following wording.

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

8. During any demolition, removal, or stripping of asbestos or asbestos containing materials, each employee will be required to wear complete body covering including coveralls, gloves, head and foot covering.

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1.1.7

Restricted Area

1. Usually a short duration job where you do not anticipate the exposure level to exceed the PEL TWA of 0.2 F/cc.
2. A hand wash station and a decontamination procedure is used.
3. Plastic is used on the floor and decking (never totally enclosed).
4. ACM is removed using wet method usually surfactant.
5. Use a half-mask air purifying respirator with high efficiency filters.

1.1.8

Regulated Areas

1. Used when you anticipate the exposure level to exceed the PEL TWA of 0.2 F/cc.
2. The job is totally enclosed with 6 mil. plastic (when feasible).
3. An exhaust unit is used to establish a negative pressure and ventilation in the enclosed work area during asbestos removal.
4. Half face respirators are sometimes substituted with a full face supplied air respirator with a HEPA egress filter.
5. You will enter and exit the regulated area through decontamination trailer. Showers are required everytime you exit.
6. You will not wear any street clothing or cloth coveralls. Protective clothing will be furnished to you.

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1.2 EMPLOYEE TRAINING HANDOUT

1.2.1 INTRODUCTION

The purpose of this training program is to offer the employee a comprehensive overview of the work procedures necessary in the asbestos abatement environment.

1.2.2 PHYSICAL AND CHEMICAL PROPERTIES

Asbestos includes several different hydrates silicant, fibrous minerals. Asbestos fibers generally have high tensile strength, flexibility, heat and chemical resistance and good frictional properties.

1.2.3 HEALTH HAZARDS

Asbestos in its commercial and or mineral form has been suspected in very recent time to be associated with the possible reproduction of a variety of disease entities, specifically:

1. Asbestosis - A diffuse, non-malignant scarring of the lungs.
2. Bronchogenic Carcinoma - A malignancy of the interior of the lungs.
3. Mesothelioma - A diffuse malignancy of the lining of the lung and chest cavity (Plural Mesothelioma) or the lining of the abdomen (Peritoneal Mesothelioma).

1.2.4 SPECIFIC RESPIRATORY PROTECTION

All employees will be fit tested prior to the use of respiratory equipment. (CFR 1926.58 Appendix C)

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1. The wearer of the respirator shall be instructed of the proper use and of its limitations.
2. Respirators shall be regularly cleaned and disinfected, usually after each days use as a minimum.
3. Respirators shall be stored in a convenient, clean and sanitary location.
4. Respirators used routinely shall be inspected after each use and deteriorated parts replaced immediately.
5. When a respirator is in use, the work area shall be observed and corrective action undertaken if conditions change, concentrations increase, task changes, etc. Corrective action to include (but not limited to) reducing concentrations, changing to higher rated respirators, or evacuation of the area.
6. Persons with chronic respiratory problems, i.e., asthma, chronic bronchitis, colds, hayfever, sinus problems, etc. shall not be assigned to work requiring the wearing of respirators.
7. All respirators must have a Bureau of Mines and NIOSH approval prior to use.

1.2.5 CLOTHING

Each worker will be supplied with disposable uniforms which include head covering, gloves and shoe covering. Disposable clothing shall not be worn over street clothes.

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SECTION 2 - MEDICAL SURVEILLANCE PROGRAM

PART	DESCRIPTION
2.1	Medical Surveillance Program

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2.1 MEDICAL SURVEILLANCE PROGRAM

A Medical Surveillance Program shall be instituted for each employee that will be exposed to asbestos or products containing asbestos. This program will provide each such employee with an opportunity for examinations and tests in accordance with this paragraph. All medical examinations and procedures shall be performed by or under the supervision of a licensed physician, and will be provided without cost to the employee.

1. PRE-EMPLOYMENT PHYSICAL

1. History
 2. Anthropometry (weight, height, temperature, etc.)
 3. Blood Pressure and Pulse
 4. Pulmonary Function Test
 5. X-Rays of Posterior - Anterior - Chest
 6. Hands-on Physical Examination
 7. Disease Questionnaire
2. Examinations provided in accordance with this paragraph will be performed annually.
3. Any employee who develops infirmities of the nature outlined elsewhere will be examined by a physician subject to provision of our State's Workers Compensation Laws.
4. Upon completion of the physical examination, the examining physician shall state on the physical form the results of his examination. Our company in consultation with the physician will then determine the suitability of the employee to being exposed to asbestos and asbestos containing products.
5. If any employee's health, as determined by the physician, would be materially impaired by continued exposure, such employee shall be withdrawn from possible contact with asbestos.
6. If the Medical Director determines the alterations should be made to the medical examination, then the company may except the alterations as aiding in the prevention of possible health hazards.

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SECTION 3 - RESPIRATORY PROTECTION PROGRAM

PART	DESCRIPTION
3.1	RESPIRATORY PROTECTION PROCEDURE
3.1.1	General
3.1.2	Selection and Use
3.1.3	Care of Respirators
3.1.4	Fit Testing

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3.1 RESPIRATORY PROTECTION PROCEDURE

This procedure will establish the requirements of an effective personnel protection while performing work in an Asbestos Environment. Included are requirements for selection, use, and care of respiratory equipment. It provides sufficient information to comply with current OSHA and EPA Regulations.

3.1.1. GENERAL

- A. Respirators should not be used as a substitute for exhaust ventilation or other engineering control methods.
- B. Respirators must be worn at all times where the atmosphere may be harmful to employees.
- C. The oxygen content of the atmosphere must be established and any deficiency evaluated.
- D. The action level for asbestos exposure is 0.1 fiber per cubic centimeter of air calculated as an eight hour time weighed average. The permissible exposure limit is 0.2 fiber per cubic centimeter of air as an eight hour time weighed average.
- E. Employees are required to utilize respiratory protection at any exposure or where exposure may be expected to occur.
- F. Asbestosis and cancer are associated with exposure to asbestos. Historically, the incidence of these diseases has been significantly higher amount asbestos worker than the general population.
- G. Filters for respirators may be changed wherever there is a detected breathing resistance by the employees. Filters will be available in adequate supply at each job location.
- H. Employees may leave the work area to wash their faces and respirator face pieces whenever necessary to prevent skin irritation associated with respirator use.
- I. Employees must be physically qualified to wear a respirator. If the examining physician determines the employee will be unable to perform normally while wearing a respirator of safety and health may be impaired, the employee will be offered another task IF AVAILABLE — at the same rate of pay.
- J. Contact lens in contaminated atmospheres or with a full face supplied air respirator is prohibited.
- K. Employees must be clean shaven in the area of the respirator seal.
- L. Only respirators that are MSHA/NIOSH approved will be utilized.

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3.1.2 SELECTION AND USE

A. CONCENTRATION

RESPIRATOR

Any possible exposure or exposure not in excess of 2 F/CC (10X PEL)

Half-mask air-purifying respirator equipped with high efficiency filters.

Not in excess of 10 F/CC (50X PEL)

Full-face air-purifying respirator with high efficiency filter.

Not in excess of 20 F/CC (100X PEL)

Any powered air purifying respirator equipped with high efficiency filters or any supplied air respirator operated in continuous flow mode

Not in excess of 200 F/CC (1000X PEL)

Full-face supplied air respirator operated in pressure demand mode

Greater than 200 F/CC (1000X PEL) or unknown concentration

Full-face supplied air respirator operated in pressure demand mode equipped with an auxiliary positive pressure self-contained breathing apparatus

- B. Respirators assigned for higher concentrations may be used at lower concentrations.
- C. Breathing air must meet Compressed Gas Association Commodity Specification G-7.1 for Grade D.
- D. Selection of respirators for task will be made by air sampling results.
- E. Field testing prior to use.
 - 1. NEGATIVE pressure test - cover or close off inlet to respirator. This is done by placing hands over the cartridge assembly. Inhale gently and hold breath 10 seconds. Respirator must remain slightly collapsed to indicate a good fit.
 - 2. POSITIVE pressure fit - close off exhalation valve. It may be necessary to remove exhalation valve cover. Exhale gently to produce slight pressure within the mask. During this process, feel for air leaks in the area between cheekbone and nose escaping toward the eyes. If pressure holds, a good fit has been achieved.

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3.1.3 CARE OF RESPIRATOR

A. Inspection

1. All respirators must be inspected routinely before and after each use.

B. Maintenance

1. When it is necessary to replace worn or deteriorated parts, only those made specifically for the device will be used. All repair work will be completed/supervised by trained persons.

C. Storage

1. Respirators must be stored in a clean, cool, dry place out of direct sunlight under conditions of moderate temperature. They must be kept in a designated storage bag in an accessible location. Do not store in a tool box or locker where materials may damage the face-piece structural integrity.

D. Cleaning

1. Respirators must be cleaned after each use except when assigned to an individual employee then they must be cleaned as necessary to assure a sanitary and proper functioning mask.
2. Cleaning procedure
 - a. Remove any filter, cartridges, canisters, or headbands and disassemble the major parts.
 - b. Wash face-piece in a cleaner-disinfectant solution at 120 degrees F. Use a handbrush (not wire) to remove dirt.
 - c. Rinse completely in clean, warm water.
 - d. Air dry in a clean area.
 - e. Inspect all parts: have replace with new parts if defective or visibly worn.

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3.1.4 FIT TESTING

Employees will be fit tested at least every six months. Other factors that may require additional testing are:

- Weight change of 20 lbs. or more
- Facial scarring
- Dental changes
- Cosmetic surgery
- Record keeping

Testing will be qualitative or quantitative as per 29CFR 1926.58 Appendix C.

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SECTION 4 - NOTIFICATION PROCEDURES

PART	DESCRIPTION
4.1	Written Notification Procedures

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- 4.1 Notification to Federal, State, and Local Agencies is handled by Shell Oil Company.

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SECTION 5 - ASBESTOS ABATEMENT INDUSTRIAL PROJECTS

PART	DESCRIPTION
5.1	Purpose
5.2	Requirements for Industrial asbestos projects
5.3	Rules and regulations
5.4	Engineering controls
5.5	Occupied building spaces
5.6	Methods
5.7	Area preparations
5.8	Transite siding
5.9	- Glove bag technique for pipe lagging removal
5.9.1	Materials
5.9.2	Procedures

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5.1 PURPOSE

This section is designed to outline procedures for removal of asbestos materials in industrial environments.

5.2 REQUIREMENTS FOR INDUSTRIAL ASBESTOS ABATEMENT PROJECTS

Requirements for certain aspects of industrial asbestos abatement shall remain unchanged. Those aspects are as follows:

1. Requirements for employees involved with asbestos abatements projects.
2. Asbestos training program.
3. Medical surveillance program.
4. Notification procedures.
5. Asbestos monitoring program.
6. Restricted area.

5.3 RULES AND REGULATIONS

All federal, state, and local regulation shall apply to industrial asbestos abatement projects.

5.4 ENGINEERING CONTROLS

Requirements for engineering controls may differ from those of asbestor abatement projects in buildings. Negative pressure containment areas may not be feasible in certain industrial environments. However, exposure levels of asbestos fibers shall remain within acceptable levels (0.2 F/CC 8 hours TWA) during all ACM removal.

5.5 OCCUPIED BUILDING SPACES

All asbestos abatement projects in occupied building spaces shall be performed under negative pressure containment or via glove bag techniques.

5.6 METHODS

Projects where negative pressure containment areas are not feasible are required to conform to wet method procedures using wetting agents to achieve acceptable levels.

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5.7 AREA PREPARATIONS

All areas where asbestos containing material is to be removed shall be draped with 6 mil. plastic sheeting to prevent bulk material from escaping from work area.

5.8 TRANSITE SIDING

Transite siding material projects shall be approached in the same manner as other asbestos projects. Transite material shall not be cut, drilled, or sanded to affect removal. Cutting transite material shall be accomplished breaking the material under amended water.

5.9 GLOVE BAG TECHNIQUE FOR PIPE LAGGING REMOVAL

5.9.1 MATERIAL AND SUPPLIES

1. Bone-saw
2. Tin snips
3. Utility knife with retracting blade
4. Wire cutters
5. Two gallon pump type garden sprayer with amended water
6. Glove bags (as many as required)
7. Bucket for washing tools
8. Disposal bags for materials (waste)
9. Disposal suit
10. Dual-cartridge HEPA-filtered respirator
11. Scrub brush
12. Duct tape
13. Stapler
14. Asbestos caution signs (as many as needed)
15. 2-3 rags
16. HEPA vacuum

5.9.2 PROCEDURE

1. Place signs outside work area to prevent accidental entry by personnel not involved with the project.
2. Put on disposable suit and respirator.
3. Prepare pipe lagging. Damaged sections of pipe not to be removed should be wrapped with 4-6 mil. poly. Alternatively, these areas may be wrapped with duct tape, metal tape or covered with an aluminum jacket.
4. Size the glove bag to fit the pipe, if necessary on cut area.
5. Never use a glove bag on a hot (greater than 130 degrees F) pipe.
6. Place removal tools in tool pouch.
7. Attach the glove bag over the section of lagging to be removed. Fold open edges together and seal with duct tape and staples. Place staples at one inch intervals.
8. Cut open the water port of the glove bag, seal wand from sprayer inside.
9. Seal the edges of the bag to form an airtight seal around the pipe.
10. First man places hands in glove bag to begin work.
11. Second man operates water sprayer.
12. Cut ends of insulation using bone saw while continuously misting inside bag with wetting agent.
13. If lagging has a metal jacket, this will have to be removed by cutting with tin snips first, then fold edges back so bag will not be cut. Place metal in bottom of bag.
14. Cut insulation along the bottom of the pipe to the two ends.
15. While spraying with water, gently remove insulation and place in bottom of bag.

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16. Wash pipe with water and rub clean.
17. Wet down top of bag, pipe ends, and dampen insulation at bottom of bag.
18. Wash off tools and place in tool pouch.
19. Remove water and wand and attach HEPA vacuum and collapse bag.
20. Twist bag just below tool pouch and seal with duct tape.
21. Place bottom of glove bag into 6 mil. disposal bag. (labeled)
22. Remove tape from one end of the pipe. Remove tools and place in water bucket to be washed again and wiped clean.
23. Remove all tape and staples and fold bag carefully into disposal bag.
24. Seal pipe ends with duct tape and staples or wettable cloth.
25. Remove suit and place in disposal bag. Twist and tape closed the disposal bag.
26. Wipe off respirator with damp cloth and remove.

SECTION 6 - REGULATED AREA

PART	DESCRIPTION
6.1	Regulated area
6.2	Equipment Requirements for a Regulated Area
6.3	Sign Specifics
6.4	Sign locations

ABS-003495

LAM 0315667.267

6.1 REGULATED AREA

A job you anticipate the exposure level to exceed the PEL TWA of 0.2 F/cc.

6.2 EQUIPMENT REQUIREMENTS FOR A REGULATED AREA

A. Enclosures

1. Constructed with two layers of 6 mil. plastic, completely enclosed and air tight.
2. Fur strips are used to help support the plastic on the walls of the enclosure.
3. The plastic is installed in a way that all joints are staggered to reduce the potential of air or water escaping the enclosure.
 - a. Floor Plastic
First layer lapped 12" up the wall of the enclosure.
Second layer lapped 18" up the wall of the enclosure.
 - b. Wall Plastic
First and second layers come down even or slightly lapping the floor plastic. The vertical laps between the two layers needs to be about 6 feet apart.
 - c. Emergency Exits
Emergency exits are marked with arrows at eye level and close to the floor of the enclosure, usually painted or taped to the plastic of the enclosure, should be able to read to 20 feet.

B. Exhaust Ventilation System with HEPA Filtration (Neg-Air)

1. Neg-air machine is used to contain the airborne asbestos fibers. This is accomplished by creating a negative pressure differential in the enclosure in relation with the outside atmosphere.
2. The neg-air machine is equipped with a series of pre filters as well as a HEPA filter. The neg-air machine pulls air through the work area, through the filters and exhaust clean air to the outside of the enclosure.
3. The neg-air machines are equipped with a control panel that has visual and audible alarms to warn of pressure differentials caused by clogged filter, or a major rupture in the HEPA filter.
4. Pre filters are changed when you get a 1" - H₂O drop on the megnehelic gauge on the neg-air machine, the filters may be changed while the machine is in operation. The machine must be shut down to change the HEPA filter.

C. Decontamination Unit

1. Clean Room
 - a. Supplies: You will find your filters (HEPA), towels, respirators, protective clothing, soap, lens protectors, lockers with locks provided by Brown and Root and other accessories.
 - b. Procedures: In the clean room you will remove all of your street clothing and dress in your protective clothing before you enter the containment barricade or the regulated area.

ABS-003496

LAM 0315667.268

There will be Tyvex coveralls and Tyvex under clothing provided in the clean room. Your HEPA filters will be located and installed on your respirator in the clean room. Initially, your rubber gloves and boots will be put on in the dirty room. Your respirator will be stored and inspected and put on in the clean room. Before you enter the containment barricade, there will be a "sign in/sign out" sheet that you will sign when entering and exiting. Don your respirator and do a fit test. If okay, proceed through the shower room through the dirty room to the work area.

2. Dirty Room or Equipment Room

The dirty room will have negative pressure on it.

The impact filters will need to be changed two or three times per shift. You pass through the dirty room when you are entering or exiting the regulated area.

When entering the dirty room from the clean room you will have on all of your protective equipment and clothing. Initially you will have on your rubber boots and gloves. Proceed to the regulated area. When exiting the regulated area you will need to remove all gross contaminated before entering the dirty room. The best way to do this is using the "buddy system" or help each other vacuum off. It is important to check the bottom of your rubber boots. Once you have removed all gross contaminants from yourself, proceed to the dirty room.

When you are in the dirty room you will remove your rubber boots and gloves. Do not remove your respirator in the dirty room. After you have removed your protective clothing put them in the bag provided. When you go to the shower room, your respirator will still be on. All you will carry into the shower room will be your respirator and your hard hat. Everything else stays in the dirty room.

3. Shower Room

When entering the shower room from the dirty room, all you will have will be your respirator and hard hat. First shower your person to remove contaminants. Then wash off the outside of your respirator while you are still wearing it. Wet the HEPA filter then remove it and place it into a bag provided on the dirty room side. Wash off your hard hat then place your protective equipment on the clean side of the shower room. Finish showering yourself and proceed to the clean room.

ABS-003497

LAM 0315667.269

6.3 SIGN SPECIFICS

Warning Signs

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

Warning label

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

6.4 SIGN LOCATION

We can not establish hard and fast policy on how far from actual work site these signs are to be posted. As a general rule they should be posted:

1. As a distance so that they can be read and adhered by all.
2. At approaches to asbestos area.
3. Far enough away to keep from exposing other people.

SECTION 7 - ASBESTOS MONITORING PROGRAM

PART 7.1

DESCRIPTION

Asbestos Monitoring Program

7.1.1

Frequency of samples

7.1.2

Sample Procedures

- -

ABS-003499

LAM 0315667.271

7.1 ASBESTOS MONITORING PROGRAM

We have established a comprehensive monitoring program to determine the extent of our exposure to asbestos in the work environment.

This monitoring will be conducted on each abatement project.

Monitoring will be in two types:

1. Personal monitoring - Individual monitoring of our asbestos workers while they are working with asbestos to determine the air borne concentrations of asbestos.
2. Environment monitoring - Determining the air borne concentration of asbestos and adjacent to the work environment.

A copy of the results of this monitoring will be forwarded to Shell Industrial Hygiene Department.

In reference to the monitoring program, all supervisors are charged with the responsibility to assist and cooperate with our customer's personnel in their monitoring.

The responsibility must be shared with your craftsmen to be certain that the monitoring results truly reflect the actual exposures.

Failure to cooperate/assist, attempting to falsify results, contamination of samples, abuse of monitoring equipment and other behaviors detrimental to the monitoring program must be met with immediate discipline including discharge.

7.1.1 FREQUENCY OF SAMPLES

Samples shall be on a daily basis for personal and area.

7.1.2 SAMPLE PROCEDURES

All sample methods shall comply with CFR 29 1910.1001.

ABS-003500

LAM 0315667.272

SECTION 8 - SUPPLEMENTAL INFORMATION

- 8.1 Work Procedures for Asbestos Brake/Clutch Repair
- 8.2 Asbestos Work Procedure V-82 & V-83
- 8.3 Air Sampling Results V-82 & V-83
- 8.4 Personnel List Asbestos M.S.P.
- 8.5 Equipment List

ABS-003501

LAM 0315667.273

8.1 WORK PROCEDURES FOR ASBESTOS BRAKE/CLUTCH REPAIR

ABS-003502

LAM 0315667.274

BROWN & ROOT U.S.A., INC.

SHELL DEER PARK MANUFACTURING COMPLEX

REDUCING ASBESTOS EXPOSURE IN AUTOMOTIVE BRAKE/CLUTCH REPAIR

Simply wiping surfaces with a damp cloth doesn't always work. And some mechanics might still be tempted to use compressed air on asbestos brake and clutch surfaces. Doing so can result in personal asbestos exposures exceeding the PEL.

The following excerpt from Appendix F of the OSHA Asbestos Standard for General Industry describes the method of choice that we shall adopt:

Compressed Air/Solvent System Method

A compressed air hose fitted at the end with a bottle of solvent can be used to loosen the asbestos-containing residue and to capture the resulting airborne particles in the solvent mist. The mechanic should begin spraying the asbestos-contaminated parts with the solvent at a sufficient distance to ensure that the asbestos particles are not dislodged by the velocity of the solvent spray. After the asbestos particles are thoroughly wetted, the spray may be brought closer to the parts and the parts may be sprayed as necessary to remove grease and other material. The automotive parts sprayed with the mist are then wiped with a rag, which must then be disposed of appropriately. Rags should be placed in a labeled plastic bag or other container while they are still wet. This ensures that the asbestos fibers will not become airborne after the brake and clutch parts have been cleaned. (If cleanup rags are laundered rather than disposed of, they must be washed using methods appropriate for the laundering of asbestos-contaminated materials.)

OSHA believes that a variant of this compressed air/solvent mist process offers advantages over the compressed air/solvent mist technique discussed above, both in terms of costs and employees protection. The variant involves the use of spray cans filled with any of several solvent cleaners commercially available from auto supply stores. Spray cans of solvent are inexpensive, readily available and easy to use. These cans will also save time, because no solvent delivery system has to be assembled, i.e., no compressed air hose/mister ensemble. OSHA believes that a spray can will deliver solvent to the parts to be cleaned with considerably less force than the alternative compressed air delivery system described above, and will thus generate fewer airborne asbestos fibers than the compressed air method. The Agency therefore believes that the exposure levels of automotive repair mechanics using the spray can/solvent mist process will be even lower than the exposures reported by NIOSH (ex. 84-263) for the compressed air/solvent mist system (0.08 f/cc).

ABS-003503

LAM 0315667.275

BROWN & ROOT U.S.A., INC.

SHELL DEER PARK MANUFACTURING COMPLEX

February 17, 1987

**EMPLOYEE WORK PRACTICES FOR
ASBESTOS BRAKE/CLUTCH REPAIR**

A. Spray Can/Solvent Mist Method For Brake Shoe/Pad Repairs

1. Don respirator ($\frac{1}{2}$ mask cartridge respirator with high efficiency particulate filters, purple cartridges).
2. Remove wheel from vehicle.
3. Wet inside brake drum from the backside using spray can brake cleaning solvent.
4. Remove brake drum and thoroughly wet entire brake assembly via the spray can solvent spraying approximately 12-18 inches from assembly.
5. Continue spray wetting periodically throughout the brake shoe/pad removal operation.
6. Cloths wetted with solvent should be used to remove all residual material from the assembly.
7. Properly dispose of used cloths and brake shoes/pads in a labeled disposal bag. (Attachment 1)
8. The use of compressed air to clean the assembly shall be prohibited.
9. At completion of the job or prior to eating, drinking or smoking, hand washing shall be required.

B. Spray Can/Solvent Mist Method For Clutch Repairs

1. Don respirator ($\frac{1}{2}$ mask cartridge respirator with high efficiency particulate filters, purple cartridges).
2. Remove the starter assembly.
3. Wet the inside bell housing through the starter opening with brake cleaning spray solvent thoroughly.

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**EMPLOYEE WORK PRACTICES FOR
ASBESTOS BRAKE/CLUTCH REPAIR (continued)**

4. Remove bell housing assembly.
5. Wet the clutch assembly and inside bell housing with spray solvent; spray approximately 12-18 inches from the assembly.
6. Continue spray wetting periodically throughout the clutch removal operation.
7. Cloths wetted with solvent should be used to remove all residual material from the assembly.
8. Properly dispose of used cloths and clutch lining in a labeled disposal bag. (Attachment 1)
9. The use of compressed air to clean the assembly shall be prohibited.
10. At completion of the job or prior to eating, drinking or smoking, hand washing shall be required.

C. Employee Training

1. Employees engaged in automotive brake/clutch repairs shall review this procedure prior to initial assignment then annually thereafter. They shall also review the audio/visual training film "Asbestos In The Workplace" annually. The crew Safety Meeting will be used for this purpose.

ABS-003505

LAM 0315667.277

8.2 ASBESTOS WORK PROCEDURE V-82 & V-83

ABS-003506

LAM 0315667.278

August 24, 1989

**BROWN & ROOT INDUSTRIAL SERVICES, INC.
SHELL DEER PARK MANUFACTURING COMPLEX**

**ASBESTOS WORK PROCEDURE - V-82 & V-83
ASBESTOS REMOVAL**

The following procedure will be utilized by Brown & Root for the removal of the asbestos containing material (ACM) from V-82 & V-83 located at the "A" Plant Unit. The area for this project will be regulated.

I. Enclosure Erection

An enclosure will be erected around the vessels to contain any airborne asbestos emissions. The enclosure will be constructed of scaffolding, six-mil. plastic sheeting and additional lumber support as necessary. A portable exhaust ventilation system with HEPA filter will be used to create a negative pressure within the enclosure. A single entrance will be used for access and egress to the work area.

A. Decontamination Unit:

A decontamination unit consisting of a clean change room, shower, and an equipment room will be available adjacent to the abatement work area.

B. Work Procedures:

1. The area where ACM is being removed shall be barricaded to regulate access. Danger signs will be posted at all approach directions.
2. Protective clothing, supplied air with HEPA backup or half-face respirator equipped with HEPA filters (minimum), gloves, rubber boots and goggles will be worn while working in the regulated area.
3. ACM will be kept wet prior to and during removal using amended water (surfactant additive).
4. A HEPA vacuum will be used to clean up any residual insulation and water in the enclosure during each shift and prior to dismantling the enclosure. Also to be used to vacuum the protective clothing of each worker prior to exiting the enclosure.
5. Workers will be assigned to removing, wetting, and bagging the ACM. As the ACM removal progresses, the ACM will be kept wet and immediately bagged into a properly labeled disposable bag, and brought to the entrance of the enclosure. The bags will then be doubled-bagged and handed outside the entrance to another worker. The bags of ACM will be handled according to normal disposal procedures.

ABS-003507

LAM 0315667.279

6. Prior to breaks, lunch, and/or at the completion of the shift, the workers will proceed to the decontamination unit. (Refer to attached Decontamination Procedure).
7. Prior to dismantling the enclosure, the area will be cleaned by damp wiping and vacuumed. Finally the area inside the enclosure will be sprayed with an encapsulation agent to "lock down" any airborne asbestos fibers. The plastic containment barrier will then be bagged and handled as waste.

C. Exposure Monitoring:

Daily personnel and area monitoring will be conducted during the ACM removal operation. All monitored employees will be notified of the results of the sampling.

D. Competent Person:

A designated competent person will be responsible for the results for the duties as outlined in 29 CFR 1926.58

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8.3 AIR SAMPLING RESULTS V-82 & V-83

ABS-003509

LAM 0315667.281

BROWN & ROOT INDUSTRIAL SERVICES, INC.
ASBESTOS MONITORING RESULTS
SHELL DEER PARK MANUFACTURING COMPLEX

REA: A - PLANT

JOB ACTIVITY

Removed ACM from V-83

Negative pressure enclosure erected
and area regulated..

NAME	SOC.SEC. NUMBER	JOB TITLE	SAMPLE DATE	SAMPLE DURATION (MINUTES)	TIME-WEIGHTED AVERAGE RESULT (FIBER/cc) #1	8 HOUR TWA
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Area sample located at negative air exhaust of blower.			9-1-89	390		<.005
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Area sample located downwind at barricade			9-1-89	400		.005
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Cervantes, Mike	451-54-1681	Insulator	9-1-89	220		0.18
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Branstetter, Richard	454-35-7980	Insulator	9-1-89	335		0.09
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Permissible Exposure Limit..... 0.2 F/cc

1) Fiber/cc - Fibers Of Asbestos Per Cubic Centimeter Of Air.

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LAM 0315667.282

8.4 PERSONNEL LIST ASBESTOS M.S.P.

ABS-003511

LAM 0315667.283

LISTING OF TRAINING RECORDS
REQUESTED BY THE FOLLOWING
CLASSIFICATION AREA CLASS
CC

ACTIVE FILE

EMPLOYEE NAME	S.S. NO.	CLASSIFICATION	AREA
AMARZ, JOSE F	407221625	INSULATOR	WR1
07/01/82 ASBESTOS H.S.P.			
APALACAR, J	407351023	PAINTER HLPR	30P
07/01/82 ASBESTOS H.S.P.			
BACILLO, MARIO	452038253	INSULATOR	WR1
07/01/82 ASBESTOS H.S.P.			
BLACKWELL, KENNETH D	414509353	INSULATOR FNN	WR1
01/01/79 ASBESTOS H.S.P.			
BRADSTETTER, RICHARD L	454357180	INSULATOR HLPR	30P
07/01/79 ASBESTOS H.S.P.			
BROWN, GLEN THOMAS ST	441151252	WAREHOUSEMAN	PAC
07/01/79 ASBESTOS H.S.P.			
BROWN, JAMES BOY	454921918	INSULATOR	30P
07/01/79 ASBESTOS H.S.P.			
CABRERA, ROBERTO	451419146	INSULATOR	WR1
07/01/79 ASBESTOS H.S.P.			
CARDENAS, JOSE C	455020307	INSULATOR	WR1
07/01/79 ASBESTOS H.S.P.			
CASO, MIGUEL ANGEL	455022515	INSULATOR FNN	WR1
07/01/79 ASBESTOS H.S.P.			
CASANOVA, HECTOR	512929255	INSULATOR	30P
01/01/79 ASBESTOS H.S.P.			
CASTILLO, JOSE A	460458914	INSULATOR HLPR	WR1
07/01/79 ASBESTOS H.S.P.			
CAVALLI, ENRIQUE	538583341	INSULATOR	30P
07/01/79 ASBESTOS H.S.P.			
CEPEDA, MIGUEL BARTO	557354425	INSULATOR	WR1
07/01/79 ASBESTOS H.S.P.			
CHAVEZ, JORGE A	457541911	INSULATOR	30P
07/01/79 ASBESTOS H.S.P.			
CHAVEZ, ANTONIO	451573317	INSULATOR	30P
07/01/79 ASBESTOS H.S.P.			
CHAVEZ, SILBERTO F	466345133	PAINTER HLPR	30P
07/01/79 ASBESTOS H.S.P.			
CHIFFER, CURTIS WILLIAM	479500090	INSULATOR FNN	WR1
07/01/79 ASBESTOS H.S.P.			
CHONA, JOSE LUIS	465671656	INSULATOR HLPR	WR1
07/01/79 ASBESTOS H.S.P.			
CHUC, PEDRO	451068224	INSULATOR	WR1
07/01/79 ASBESTOS H.S.P.			
DE LOZ, SANTOS MARAFIO C	455253125	INSULATOR HLPR	WR1
07/01/79 ASBESTOS H.S.P.			
DEANING, JOHN W	418504547	INSULATOR FNN	30P
07/01/79 ASBESTOS H.S.P.			
DEWITT, ROCKY D	525133513	INSULATOR FNN	30P
07/01/79 ASBESTOS H.S.P.			
DEWAPES, TRACY D	461637357	INSULATOR HLPR	30P
07/01/79 ASBESTOS H.S.P.			

ABS-003512

LAM 0315667.284

PAGE NO. 2 LISTING OF TRAINING RECORDS 11/03/88 TO 11/30/88

REQUESTED BY THE FOLLOWING

CLASSIFICATION AREA CLASS ENTIRE FILE

EMPLOYEE NAME	S.S. NO.	CLASSIFICATION	AREA
FLEWING, JAMES IEA 07/01/83 ASBESTOS H.S.F.	455555731	INSULATOR	WHI
FLORES, MARIO 07/01/83 ASBESTOS H.S.F.	451349182	CARPENTER	CBH
FLORES, ROLANDO ALANIS RESTRICTED ON VINYL CHLORIDE 07/01/83 ASBESTOS H.S.F.	570046345	CARPENTER	WHI
FUENTES, MANUEL 07/01/83 ASBESTOS H.S.F.	453174753	CARPENTER	CBH
GARCIA, ARCEL 07/01/83 ASBESTOS H.S.F.	450221031	INSULATOR	WHI
GARCIA, ROBERT 07/01/83 ASBESTOS H.S.F.	452189711	INSULATOR HLPR	CBH
GARCIA, JOSE H 07/01/83 ASBESTOS H.S.F.	450024939	INSULATOR	CBH
GHEE, JUAN FRANCISCO 07/01/83 ASBESTOS H.S.F.	450968310	INSULATOR	WHI
GONZALEZ, EULALIO G 07/01/83 ASBESTOS H.S.F.	452251633	CARPENTER	TRH
GONZALEZ, FEDERICO 07/01/83 ASBESTOS H.S.F.	457251416	INSULATOR	CBH
GUARDADO, ALBINO G 07/01/83 ASBESTOS H.S.F.	450030875	CARPENTER	WHI
HOLLIN, JUEL 07/01/83 ASBESTOS H.S.F.	450110359	CARPENTER	CBH
HARD, JESSE 07/01/83 ASBESTOS H.S.F.	450107115	INSULATOR	CBH
HARRIS, LOWMYRT 07/01/83 ASBESTOS H.S.F.	455333377	PAINTER HLPR	CBH
HARRIS, LANCE E 07/01/83 ASBESTOS H.S.F.	457507474	ILLUMINANT HLPR	CBH
HARVEY, STEVEN WAYNE 07/01/83 ASBESTOS H.S.F.	453041833	INSULATOR FHW	CBH
HARVEY, TERRY JOE 07/01/83 ASBESTOS H.S.F.	453068315	INSULATOR HLPR	CBH
HATFIELD, BRADY COLE 07/01/83 ASBESTOS H.S.F.	452252433	CARPENTER FHW	WHI
HERNANDEZ, ANGELIO A 07/01/83 ASBESTOS H.S.F.	443354252	RIGGER HLPR	WHI
HERNANDEZ, DECHIE T 07/01/83 ASBESTOS H.S.F.	453040336	INSULATOR	WHI
HERNANDEZ, APOLINAR 07/01/83 ASBESTOS H.S.F.	451153195	CARPENTER HLPR	CBH
HODGE, MATTHEW JR 07/01/83 ASBESTOS H.S.F.	453113331	SAFETY FLD SUFY	WHI
HOLLINGSWORTH, JAMES HENRY 07/01/83 ASBESTOS H.S.F.	447933705	CARPENTER FHW	WHI

ABS-003513

LAM 0315667.285

PAGE NO. 1 LISTING OF TRAINING RECORDS 11/01/80 TO 1/31/83
 REQUESTED BY THE FOLLOWING
 CLASSIFICATION AREA CLASS ENTIRE FILE
 C01

EMPLOYEE NAME	S.S. NO.	CLASSIFICATION	AREA
MOLINA, ALBERTO	438707092	INSULATOR	581
01/01/80 ASBESTOS H.S.P.			
MORATA, JUAN BOCHA	438271003	INSULATOR	581
01/01/80 ASBESTOS H.S.P.			
MORATA, LUIS	438338297	INSULATOR FHM	581
01/01/80 ASBESTOS H.S.P.			
MULLEN, JERRY KEITH	418700841	INSULATOR	50F
01/01/80 ASBESTOS H.S.P.			
MURRAY, FRANCISCO CORTEZ	438371733	INSULATOR	JM1
01/01/80 ASBESTOS H.S.P.			
N.Y. DONALD RAY	438371014	INSULATOR HUSE	50F
01/01/80 ASBESTOS H.S.P.			
OLIVERIA, RAYMOND	414663471	CARPENTER	481
01/01/80 ASBESTOS H.S.P.			
ORR, RICARDO	438414239	INSULATOR	781
01/01/80 ASBESTOS H.S.P.			
LIRA, DONALD	438354157	INSULATOR	JM1
01/01/80 ASBESTOS H.S.P.			
LOPEZ, ALEJANDRO G	438702387	INSULATOR	50F
01/01/80 ASBESTOS H.S.P.			
LOPEZ, EDUARDO	438232139	LABORER	481
01/01/80 ASBESTOS H.S.P.			
LOPEZ, PEDRO LOPEZ	437036746	INSULATOR	581
01/01/80 ASBESTOS H.S.P.			
MANCIA, GERARDO TREVIÑO	438371032	CARPENTER	JM1
01/01/80 ASBESTOS H.S.P.			
MARTINEZ, ALBERTO MOLINA	439931546	INSULATOR	581
01/01/80 ASBESTOS H.S.P.			
MARTINEZ, ALFREDO M	438331021	INSULATOR	50F
01/01/80 ASBESTOS H.S.P.			
MARTINEZ, PEDRO A	438001047	INSULATOR	481
01/01/80 ASBESTOS H.S.P.			
MARTINEZ, SEBASTIAN	438081501	INSULATOR	581
01/01/80 ASBESTOS H.S.P.			
MC KINNEY, PHILIP ALAN	438743355	CARPENTER	JM1
01/01/80 ASBESTOS H.S.P.			
MOORE, JAMES	438338016	INSULATOR	JM1
01/01/80 ASBESTOS H.S.P.			
MORRISON, JERRY ALBERT	534591023	INSULATOR FHM	50F
01/01/80 ASBESTOS H.S.P.			
NELSON, PAUL BERNARD JR	422405502	INSULATOR	781
01/01/80 ASBESTOS H.S.P.			
NELSON, BETH T	438295143	INSULATOR	581
01/01/80 ASBESTOS H.S.P.			
OGADA, SANTIAGO	431193131	INSULATOR	50F
01/01/80 ASBESTOS H.S.P.			

ABS-003514

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PAGE NO. 1 LISTING OF TRAINING RECORDS 11/01/88 TO 11/30/88
 REQUESTED BY THE FOLLOWING
 CLASSIFICATION AREA CLASS ENTIRE FILE
 COI

EMPLOYEE NAME	S.S. NO.	CLASSIFICATION	AREA
GATEGA, JAVIER J	835824103	INSULATOR	WRI
01/01/89 ASBESTOS H.S.P.			
GATZ, DAVID F	430766333	INSULATOR FHM	EEI
07/01/87 ASBESTOS H.S.P.			
GAVALLES, RENAN D	433518227	INSULATOR	WRI
07/01/89 ASBESTOS H.S.P.			
GARTER, DAVID E	430017173	INSULATOR FHM	30P
01/01/89 ASBESTOS H.S.P.			
GENTILL, HUGO RAFAEL JR	443132619	INSULATOR	30P
07/01/88 ASBESTOS H.S.P.			
GINERS, RAY RYON JR	419219131	INSULATOR	EEI
01/01/89 ASBESTOS H.S.P.			
GINERS, STONEY RAY	426155315	INSULATOR	WRI
07/01/89 ASBESTOS H.S.P.			
GRINCE, ROBERT EUGENE	236746733	INSULATOR FHM	30P
07/01/89 ASBESTOS H.S.P.			
RAMIREZ, ALFREDO	457081332	INSULATOR	WRI
07/01/89 ASBESTOS H.S.P.			
KAMIREZ, JOSE GUADALUPE	462120409	INSULATOR	JMI
01/01/89 ASBESTOS H.S.P.			
KAMIREZ, LUIS D	457031344	INSULATOR	EEI
07/01/89 ASBESTOS H.S.P.			
KAMIREZ, SALVADORE	462434417	CARPENTER	WRI
07/01/89 ASBESTOS H.S.P.			
KAMIREZ, VICENTE	463103974	INSULATOR	JMI
01/01/89 ASBESTOS H.S.P.			
ROBERTS, ANTHONY	503101308	CARPENTER	TEE
07/01/89 ASBESTOS H.S.P.			
RODRIGUEZ, JOAN ENRIQUE	501821733	INSULATOR	30P
07/01/89 ASBESTOS H.S.P.			
RODRIGUEZ, LUIS M	451870720	INSULATOR HLPF	WRI
07/01/89 ASBESTOS H.S.P.			
ROMERO, JESUS	412515330	INSULATOR HLPF	JMI
07/01/89 ASBESTOS H.S.P.			
RUEDA, ALBERTO	416235434	INSULATOR	TEE
01/01/89 ASBESTOS H.S.P.			
SALAZAR, RAFAEL L	425601336	INSULATOR	EEI
01/01/89 ASBESTOS H.S.P.			
SALAZAR, SANTIAGO	450419877	INSULATOR	EEI
01/01/89 ASBESTOS H.S.P.			
SCHALES, BILLY LEN	303663403	INSULATOR FHM	JMI
01/01/89 ASBESTOS H.S.P.			
SEPULVEDA, SERVANDO GARCIA	184060272	INSULATOR HLPF	30P
01/01/89 ASBESTOS H.S.P.			
SOLIS, REFUNDIO A	450520331	INSULATOR	30P
01/01/89 ASBESTOS H.S.P.			

ABS-003515

LAM 0315667.287

PAGE NO. 1
 HISTORY OF TRAINING RECORDS
 REQUESTED BY THE FOLLOWING
 CLASSIFICATION AREA CLASS ENTRY FILE
 001 4

EMPLOYEE NAME	E.O. NO.	CLASSIFICATION	AREA
TALBOTT, THOMAS E JR	462543537	INSULATOR	JN1
01/01/53 ASBESTOS M.S.P.			
WATKINS, EUGENIO	550334250	INSULATOR	JN1
01/01/53 ASBESTOS M.S.P.			
WILKINSON, ERIC ALLEN	556610310	CARPENTER WIRE	SCF
01/01/53 ASBESTOS M.S.P.			
WILKINSON, ERIC P	553347649	INSULATOR FWM	SCF
01/01/53 ASBESTOS M.S.P.			
WILKINSON, RUSSELL W	553347649	INSULATOR	SCF
01/01/53 ASBESTOS M.S.P.			
WILKINSON, KENNETH EARL	553347649	CARPENTER FWM	JN1
01/01/53 ASBESTOS M.S.P.			

ABS-003516

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8.5 EQUIPMENT LIST

ABS-003517

LAM 0315667.289

EQUIPMENT LIST

- 2 Ea. Magnum AIK - Negative Air Machine
- 2 Ea. Zeph - Air 2000 - Negative Air Machine
- 2 Ea. P25 - Low Pressure Airless Sprayers
- 1 Ea. Quick Clean - Decontamination Shower Trailer 8' x 20' 2 ea. showers
- 1 Ea. Quick Clean - Decontamination Shower Trailer 10' x 44' 8 ea. Showers
- 16 Ea. Hako Minuteman - HEPA Filter Vacuum Model # C87015-01-02
- 14 Ea. Willson 6000: Powered Air Purifying Respirator
- 12 Ea. Racal Airstream S.A.R. with HEPA egress

ABS-003518

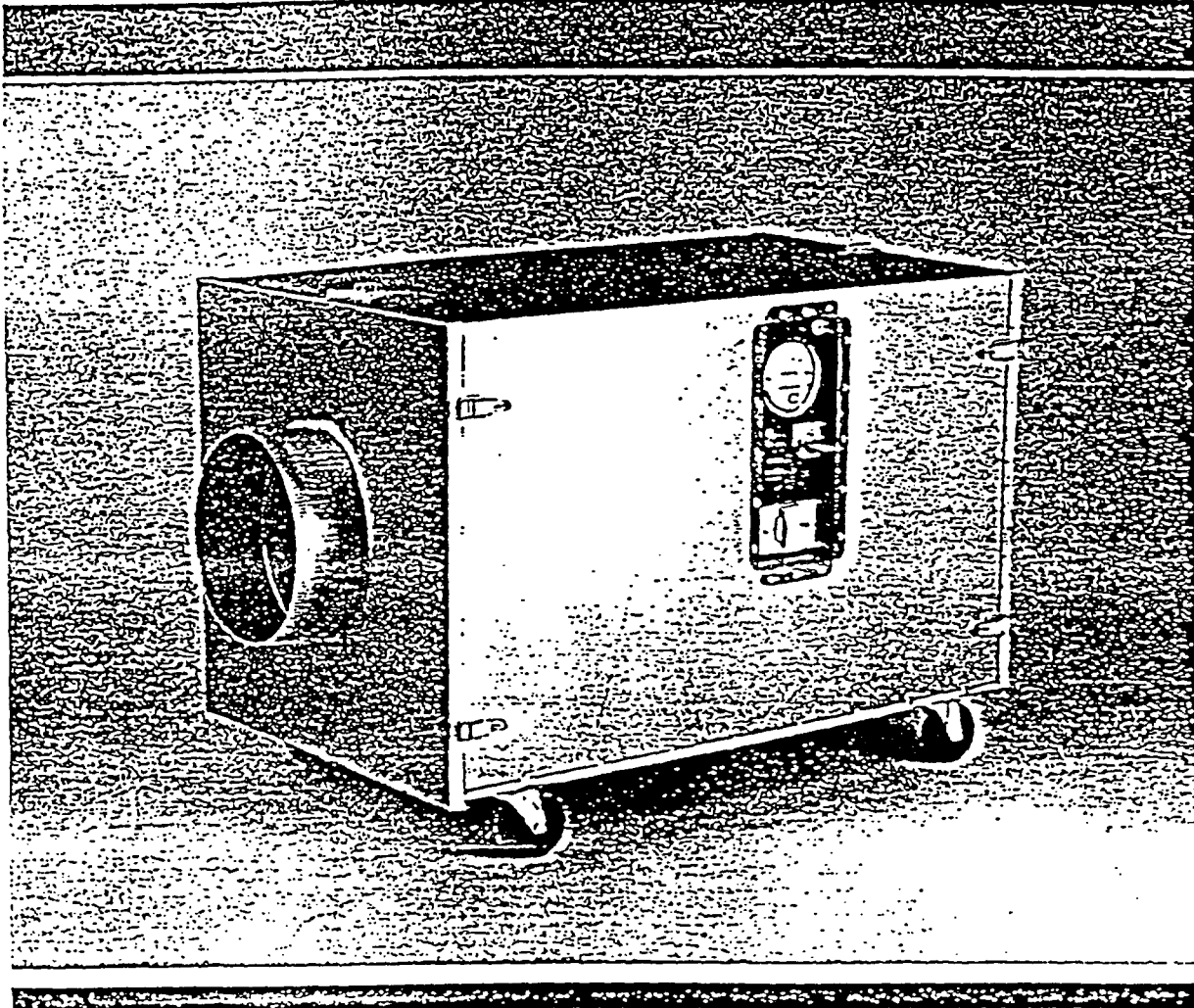
LAM 0315667.290

Introducing

MAGNUM AIR™

The revolutionary new Negative
Air Machine

- Breaks the Static Pressure Barrier
- Saves Filter Costs
- Certified Air Performance



- MAGNUM AIR breaks the static pressure barrier by delivering more air at 3 1/2" S.P. than others do at 2" S.P.

filter costs by utilizing 100% of the filter capacity as compared to the industry average of 25%.

- MAGNUM AIR's Certified Air Performance:

Static Pressure Reading	1.7	2.0	2.5	3.0	3.5
Filter					

Certified CFM Delivery	1900	1800	1600	1400	1200
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**Asbestos
Specialties™ Inc.**

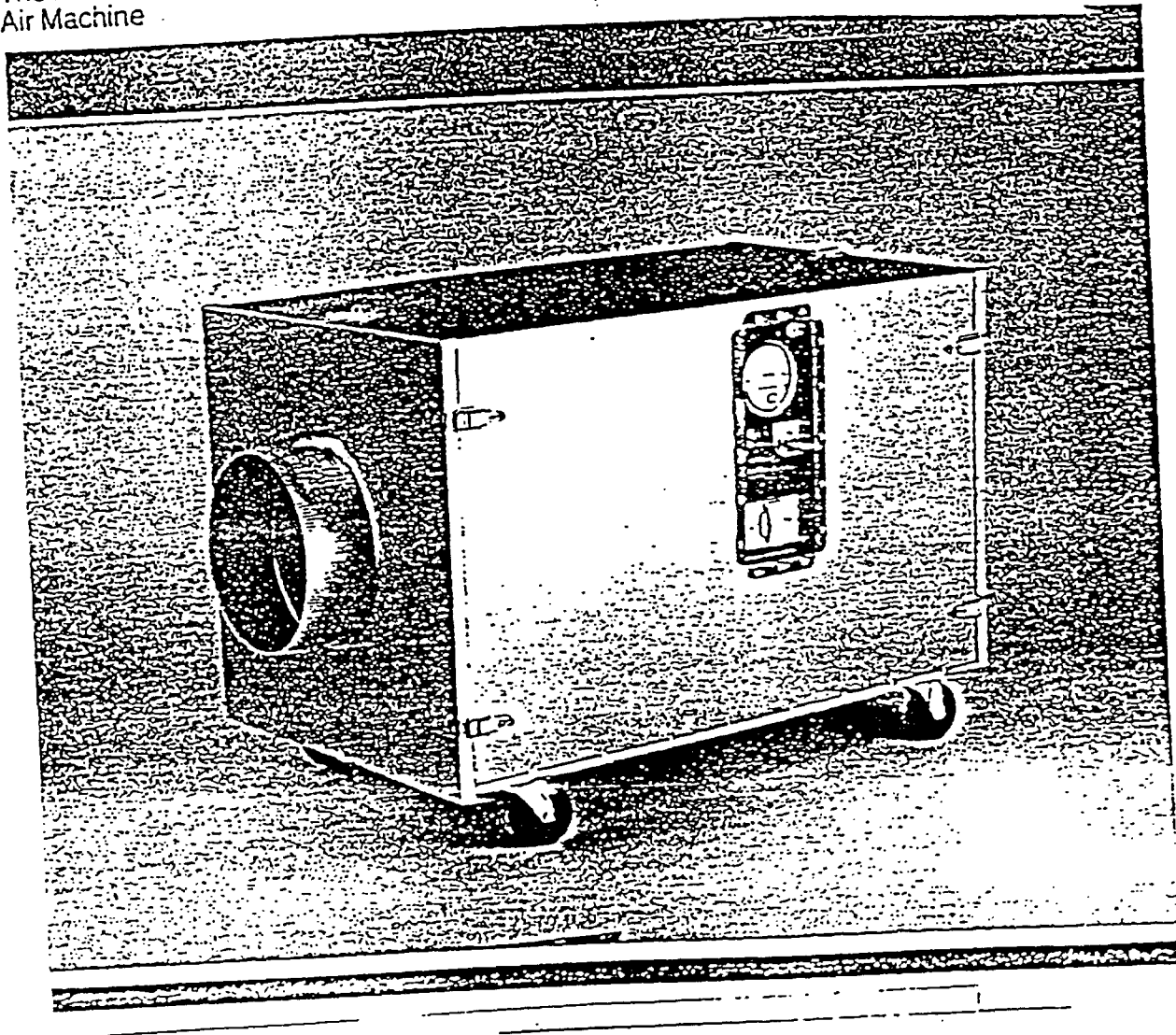
A Division of Environmental
Protective Industries

ABS-003519

LAM 0315667.291

Introducing
MAGNUM AIR™

The revolutionary new Negative
Air Machine



Acbestos
Specialties,™ Inc.

A Division of Environmental
Protective Industries

ABS-003520

LAM 0315667.292

Asbestos Specialties,™ Inc.

A Division of Environmental
Protective Industries

MAGNUM AIR™ Negative Air Machine

The ONLY Neg Air DESIGNED TO OPERATE AT THE HIGH STATIC PRESSURES PRODUCED WITH LOADING HEPA FILTERS. Meets or exceeds EPA and OSHA standards. Produces more consistent air flow at 25% of the filter cost of other neg airs. The revolutionary new MAGNUM AIR will out perform any negative air on the market today.

DIMENSIONS:

26" Width x 31" Height x 46" Length

WEIGHT:

160 Lbs. (with filters)

POWER SUPPLY

115 Volt, 20 amp circuit

MOTOR:

1½ HP direct drive, 60 Hz, Single Speed

AIR CAPACITY (certified)

S.P.	1.7"	2.0"	2.5"	3.0"	3.5"
CFM	1900	1800	1600	1400	1200

CABINET:

High Strength Aircraft Aluminum with Rigid Frame

FILTERS:

24 x 24 x 2—10 Micron Rigid Frame Polyester Prefilter

24 x 24 x 2—5 Micron Secondary Filter

24 x 24 x 11½—High Capacity (2000 CFM)

HEPA filter tested at .3 microns for 99.97% efficiency. A complete line of replacement filters is available.

INSTRUMENT PANEL (Standard Features)

110 Volt Power Outlet

Magnehelic gauge

20 Amp Breaker Switch

Hour Meter

On/Off Switch

SAFETY PACKAGE (Factory-Installed Option)

Amber warning light and buzzer for filter loading. Red light and automatic shut-down for no filter or filter failure.

(Custom factory-installed safety and warning options are available as regulations require.)

SPECIAL FEATURES:

individually sealed instruments for moisture protection.

Quick disconnect instrument and motor connections for easy field repair.

Asbestos Specialties,™ Inc.
5930 Conincrest

ABS-003521

LAM 0315667.293

BWE[®]

Best Low Pressure Spray Equipment

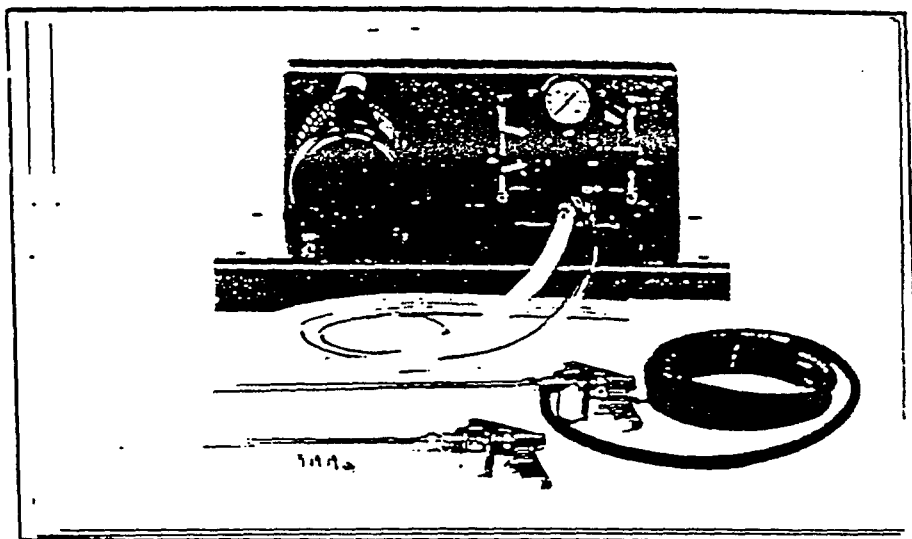
APPLY BWE 5000 BWE 3000
ACM 35-50 PSI 35-50 PSI
MIST 150 + PSI 150 + PSI
MIST WITH WIDE ANGLE TIP)

PUMP DELIVERY
4 (GPM)

NOZZLE DELIVERY IN GPM				
ORIFICE	PSI	PSI	PSI	RATING AT
	50	100	150	500 PSI
.052	.45	.63	.75	1.4
.060	.60	.87	1.05	1.9
.072	.80	1.2	1.5	2.8

BWE P25

LOW PRESSURE AIRLESS SPRAY EQUIPMENT IS SIMPLE AND EASY TO USE



TO CALCULATE
TIME TO APPLY
75 GAL AT 50 PSI
.052 ORIFICE
DELIVERY .45 GPM
75 GAL ÷ .45 GPM
= 166 MIN ÷ 60
= 2.8 HOURS

JUST TAKE THE BWE P25 OUT OF ITS CRATE, PLACE ON A DRUM
OF EITHER BWE 3000 OR BWE 5000, DROP THE HOSES INTO
THE DRUM HOLES, PLUG INTO A 110/115V POWER SOURCE
AND SPRAY. THAT'S ALL THERE IS TO IT!

EACH BWE P25 INCLUDES:

- | | |
|---|---|
| 1 — BWE P25 DIAGRAM PUMP | 4 — SPRAY TIPS (GRAINGER'S #2P063) .052 ORIFICE |
| 1 — 1 HP MOTOR | 2 — SPRAY GUNS |
| 1 — HEAVY STEEL BASE | 1 — STRAINER |
| 1 — BELT GUARD | 1 — FAN BELT |
| 250' — 3/4" I.D. HOSE | 4 — SMALL HOSE CLAMPS |
| 6' — 3/4" I.D. NYLON
REINFORCED HOSE | 2 — LARGE HOSE CLAMPS |
| 6' — 3/4" I.D. NYLON HOSE | 2 — TAPER HOSE
CONNECTORS |
| 1 — FAN BELT PULLEY | 1 — INSTRUCTION BOOKLET |
| 1 — PRESSURE GAUGE | 1 — SHIPPING CRATE |
| 1 — POWER CORD | |

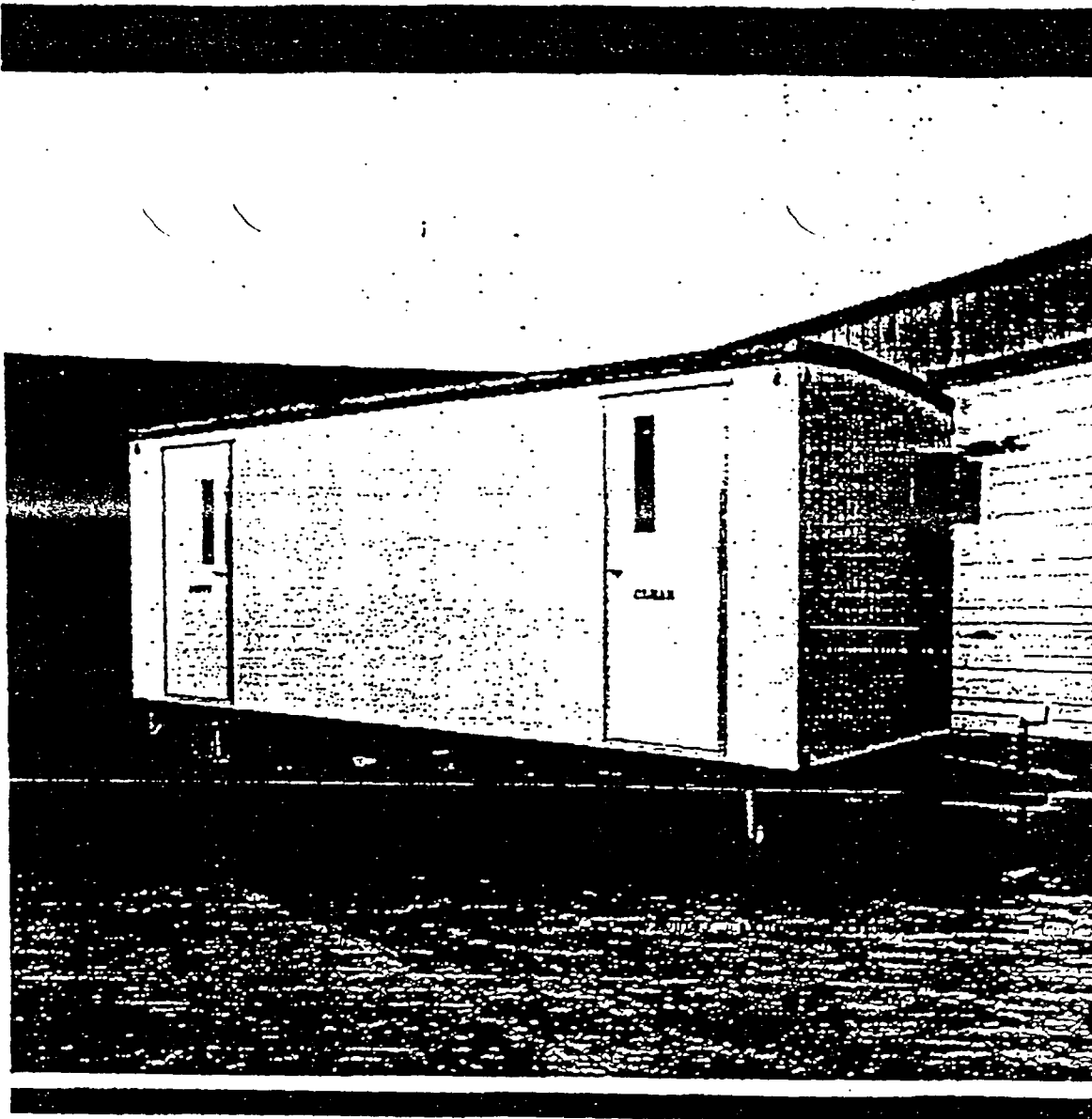
For ordering or Free information: Call BWE
TOLL FREE 800-654-6792, (From Calif.) 800-331-6775
(619) 259-1606

ABS-003522

LAM 0315667.294

QUICK CLEAN™

20, 26 and 26-B Trailer-Housed
Decontamination System



**Asbestos
Specialties,™ Inc.**

PERSONAL PROTECTIVE EQUIPMENT
Protective Industries

ABS-003523

LAM 0315667.295

Asbestos Specialties,™ Inc.

A Division of Environmental
Protective Industries



QUICK CLEAN™ 20, 26 and 26-B Trailer-Housed Decontamination System

The QUICK CLEAN trailer units are specially designed for large commercial projects and heavy industrial use. The "clean air" side is designed with contractor and worker in mind. It's air conditioned, has a 15-man locker set, a lockable, three-shelf material cabinet, storage shelves and cabinets, dressing bench, towel rack and special, no-slip floor tape. The "dirty side" is equipped with a hard hat shelf and clothes hooks. The QUICK CLEAN 26-B has the same features as the other units with the addition of complete restroom facilities.

DIMENSIONS: These units are available in 20' to 26' trailer lengths.

FEATURES: The unit is designed to provide plenty of ground clearance for the 46-gallon holding tank, water pump and four-way filtration system. Hot water is provided by two in-line electrical water heaters for continuous hot shower water. Both showers have three-way, over-lapping curtains which exceed - OSHA requirements.

FILTERS: The four-way filtration system consists of two 50 micron filters and two 5 micron filters. The "dirty side" is equipped with a built-in 70 CFM negative air filtration unit (HEPA).

Asbestos Specialties,™ Inc.
5900 Centralcrest
Houston, Texas 77092
713/684-1423
1-800-322-3251

ABS-003524

LAM 0315667.296

Hako

Minuteman, Inc.

111 South Rohlwing Road, Addison, Illinois 60101-4244 USA • Phone (312) 627-6900 Telex 910-991-3992

March 1, 1987

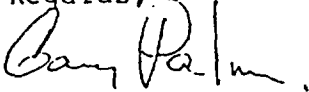
RE: 800 Series H.E.P.A. Equipped Vacuums

To Whom It May Concern:

We wish to take this opportunity to advise you that all our 800 Series H.E.P.A. filter vacuums, including the Model 80315 Asbestos Vacuum, meet the ANSI Z9.2 standards.

All our H.E.P.A. filters are DOP tested in accordance with MIL-STD 282, and are registered and labeled on each individual unit by the manufacturer. All the filters we use meet, and in most cases, exceed the minimum standard of 99.99% efficiency for .12 micrometer particles.

Regards,



Gary Palmer
Vice President,
Engineering

GP:jrw

VACUUMS FLOOR & CARPET MACHINES GAS & ELECTRIC SWEEPERS AUTOMATIC SCRUBBERS

Hako
Minuteman

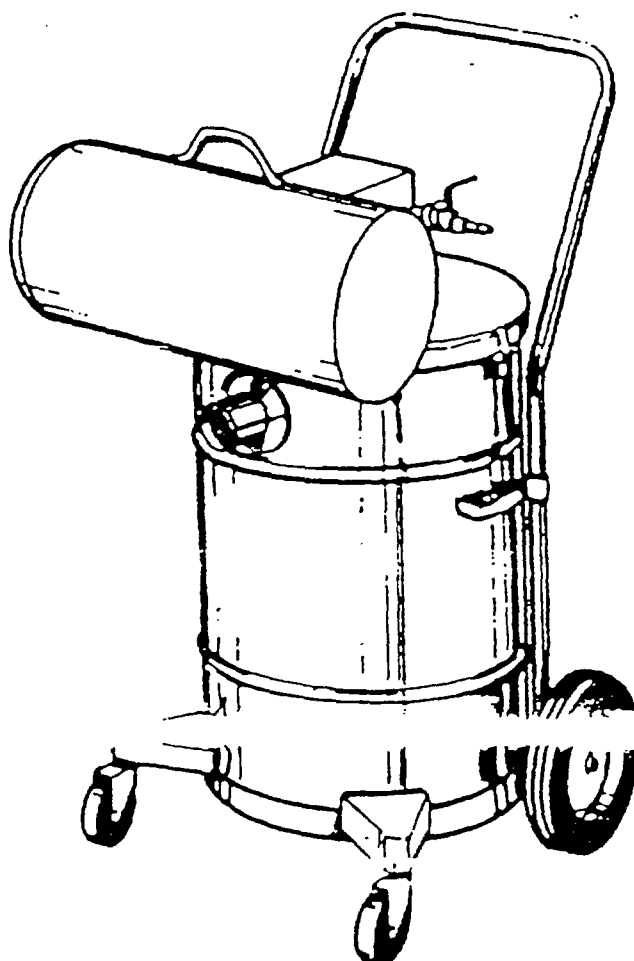
ABS-003525

LAM 0315667.297

- OPERATION
- SERVICE
- PARTS
- CARE

Hako®
Minuteman®

Model No: C87015-01-02
- H.E.P.A. Filter Vacuum
- Air Operated



Revised 2/89

ABS-003526

LAM 0315667.298

WILLSON®

**6000 SERIES
POWERED AIR PURIFYING RESPIRATOR**

INSTRUCTIONS FOR USE AND APPROVAL

BEFORE USING THE RESPIRATOR, CAREFULLY READ THE FOLLOWING INSTRUCTIONS AND REFER TO THE MSHA / NIOSH APPROVAL LABEL SHEET WHENEVER NECESSARY.

The instructions furnished with these respirators are for your benefit, to inform you of the specific limitations, proper use and required maintenance of your Willson respirators. For your effective protection, read and understand them before using the respirator. They must be followed to obtain adequate levels of protection. Failure to follow all instructions, cautions and warnings on the use of this product and/or failure to wear this respirator during all times of exposure will reduce respirator effectiveness and wearer protection, which may result in serious injury, disability or death.

WARNING !

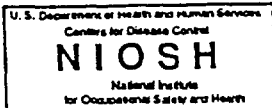
IMPROPER USE OF THIS PRODUCT COULD RESULT IN SERIOUS INJURY OR DEATH.

ABS-003527

LAM 0315667.299

PERMISSIBLE

POWERED AIR PURIFYING
RESPIRATOR FOR
DUSTS, FUMES, AND MISTS,
ASBESTOS, AND RADIONUCLIDES



MINE SAFETY AND HEALTH ADMINISTRATION
NATIONAL INSTITUTE FOR OCCUPATIONAL
SAFETY AND HEALTH

APPROVAL NO. TC - 21C - 453 -

ISSUED TO
WILLSON SAFETY PRODUCTS
READING, PENNSYLVANIA, U. S. A.

LIMITATIONS

Approved for respiratory protection against dusts, fumes, and mists having a time weighted average less than 0.05 milligram per cubic meter, asbestos containing dusts and mists, and radionuclides.

Not for use in atmospheres containing less than 19.5 percent oxygen.

Not for use in atmospheres immediately dangerous to life or health.

This respirator shall be selected, fitted, used, and maintained in accordance with Mine Safety and Health Administration, Occupational Safety and Health Administration, and other applicable regulations.

Not evaluated as an ignition source in flammable or explosive atmospheres by MSHA/NIOSH.

CAUTION

In making renewals or repairs, parts identical with those furnished by the manufacturer under the pertinent approval shall be maintained.

Follow the manufacturer's instructions for changing filters.

Do not use this respirator system if the airflow is less than 4 cubic feet per minute.

MSHA - NIOSH Approval TC-21C-453

Issued to Willson Safety Products March 3, 1988 for dusts.

The approved assembly consists of the following Willson parts:
(1) RP1, RP2, or RP3 Facepiece, (1) RP10 Exhalation Valve Assembly, (1) RP4 Suspension, (1) RP18 Plug, (1) RP19 Elbow, (1) RP45 Breathing Hose, (1) RP 41 Blower Assembly, (1) RP 40 Battery, (1) RP 44 Belt, and (1) R73 (TC-21C-371) Filter.

WILLSON

SAFETY PRODUCTS

Division of WGM Safety Corp.

P.O. Box 612 • READING, PA 19603

51376-6161

PERMISSIBLE

POWERED AIR PURIFYING
RESPIRATOR FOR
DUSTS, FUMES, AND MISTS,
ASBESTOS, AND RADIONUCLIDES



MINE SAFETY AND HEALTH ADMINISTRATION
NATIONAL INSTITUTE FOR OCCUPATIONAL
SAFETY AND HEALTH

APPROVAL NO. TC - 21C - 452

ISSUED TO
WILLSON SAFETY PRODUCTS
READING, PENNSYLVANIA, U. S. A.

LIMITATIONS

Approved for respiratory protection against dusts, fumes, and mists having a time weighted average less than 0.05 milligram per cubic meter, asbestos containing dusts and mists, and radionuclides.

Not for use in atmospheres containing less than 19.5 percent oxygen.

Not for use in atmospheres immediately dangerous to life or health.

This respirator shall be selected, fitted, used, and maintained in accordance with Mine Safety and Health Administration, Occupational Safety and Health Administration, and other applicable regulations.

Not evaluated as an ignition source in flammable or explosive atmospheres by MSHA/NIOSH.

CAUTION

In making renewals or repairs, parts identical with those furnished by the manufacturer under the pertinent approval shall be maintained.

Follow the manufacturer's instructions for changing filters.

Do not use this respirator system if the airflow is less than 4 cubic feet per minute.

MSHA - NIOSH Approval TC-21C-452

Issued to Willson Safety Products March 3, 1988 for dusts.

The approved assembly consists of the following Willson parts:
(1) RP25, RP25S, RP26, or RP26S Fullfacepiece, (2) RP18 Plugs, (1) RP14 Exhalation Valve Assembly, (1) G877 Connector, (1) G882 Connector, (1) G758 Washer, (1) G764 Clamp, (1) RP43 Breathing Hose, (1) RP 41 Blower Assembly, (1) RP 40 Battery, (1) RP 44 Belt, and (1) R73 (TC-21C-371) Filter.

or

(1) RP25, RP25S, RP26, or RP26S Fullfacepiece, (1) RP18 Plug, (1) RP19 Elbow, (1) RP14 Exhalation Valve Assembly, (1) RP33 End Plug, (1) G764 Clamp, (1) RP45 Breathing Hose, (1) RP 41 Blower Assembly, (1) RP 40 Battery, (1) RP 44 Belt, and (1) R73 (TC-21C-371) Filter.

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LAM 0315667.300 ABS-003528



HEPA
NEGATIVE
PRESSURE
BACKUP

PRESSURE
DEMAND
SUPPLIED
AIR

NIOSH/MSHA
APPROVED

TM

Introducing the pressure-demand breathing system with a built-in second chance.

Racal's new DUAL-AIR pressure-demand respirator is one of the first supplied-air systems to give the wearer the second chance of particulate air-purifying escape capability. Now, workers have the added assurance they can quick-disconnect in case of emergency and exit using automatic HEPA negative-pressure backup for respiratory protection.

DUAL-AIR is lightweight and well-balanced with a unique harness attachment that allows complete control of breathing hose lines for easy maneuverability. Its newly-designed pressure-demand valve regulates the flow of air to the breathing zone and enables the wearer to maintain positive pressure in the face mask. Easily decontaminated, DUAL-AIR provides NIOSH/MSHA approved emergency HEPA protection against dusts (including asbestos), mists, fumes, radionuclides and radon daughters.

DUAL-AIR's full facepiece is made of soft, flexible neoprene to form an effective face seal. Peripheral vision and two-way communication capabilities are excellent. The result: wearers work comfortably, confidently—and productively.

For complete information on Racal's new DUAL-AIR, call 800-682-9500 toll-free. In Maryland, call 301-695-8200. In Canada, call 416-222-4111.

1-800-638-8986

Andy
John

RACAL

The Air You Wear

ABS-003529

Racal Airstream, Inc.
7309A Grove Road, Frederick, Md. 21701

LAM 0315667.301