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**I. SCOPE AND PURPOSE**

1. All employees working in lead remediation will receive either Lead Worker training or Lead Supervisor training before working with lead paint, or any surface coating containing lead at or above 1 milligram per square centimeter.
2. Each employee will receive initial and refresher training required by the state permitting office. The initial and refresher training includes but not limited to:

1. The content of the OSHA Construction standard 29 CFR 1926.62 and its appendices, including health effects of lead exposure, as well as 29 CFR 1926.59 Hazard Communications and 29 CFR 1926.21 Recognition and Avoidance of

unsafe acts or unsafe conditions applicable to the work environment.

2. The nature of operations that result in lead exposure, including job specific

task that may result in exposure to lead.

3. Respiratory Protection Program, Personal Protective

Equipment, and Decontamination requirements, including hands on

training.

4. Medical Surveillance including responsibilities.

5. Engineering controls to limit personnel exposure, including work

practices.

6. Employer’s compliance program for Lead Abatement Work.

7. Employees right to access of records per 29 CFR l9l0.20.

**II. RELATED PROCEDURES AND RESOURCES**

A. Project Hazard Control Procedures

B. Personal Protective Equipment

C. Respiratory Protection

D. Hazard Communication

H. 29 CFR 1910.134, Respiratory Protection

I. 29 CFR 1910.1200, Hazard Communication

J. 29 CFR 1926.62, Lead

L. Respiratory protection hands on training

M. Hazard Communication Hands on training

N. Personal Protective Equipment hands on training

**DEFINITIONS**

A. **Action Level** - means employee exposure, without regard to the use of

respirators, to an airborne concentration of lead of 30 micrograms per cubic meter

of air (30μg/m3) calculated as an 8-hour time-weighted average (TWA).

B. **Authorized Person** - means any person authorized by the employer and required

by work duties to be present in regulated areas.

C. **Competent person** - means one who is capable of identifying existing and

predictable lead hazards in the surroundings or working conditions and who has

the authority to take prompt corrective measures to eliminate them. The duties of

the competent person include at least the following:

1. Establishing a regulated area.

2. Ensuring the regulated area’s integrity.

3. Controlling entry to and exit from the regulated area.

4. Supervising any employee exposure monitoring required by the standard.

5. Ensuring that all employees working within such regulated area wear the

proper personal protective equipment.

6. Ensuring that all employees are trained in the use of appropriate methods

of exposure control.

7. Ensuring that all employees are trained in the use of hygiene facilities and

decontamination procedures specified in the standard.

8. Ensuring that engineering controls in use are in proper operating condition

and are functioning property.

D. **High-efficiency particulate air (HEPA) filter** - means a filter capable of

trapping and retaining at least 99.97 percent of all mono-dispersed particles of 0.3

micrometers in diameter.

E. **Lead** - means metallic lead, all inorganic lead compounds and organic lead soaps.

F. **LCM** (Lead Containing Material) - means

1. Any surfacing material found through testing to contain more than .5

percent by weight or 5000 PPM lead.

2. Any materials used or waste generated through the removal process that

has been contaminated with lead.

G. **Permissible Exposure Limit (PEL)** - means:

1. The employer shall assure that no employee is exposed to lead at

concentrations greater that fifty micrograms per cubic meter of air

(50μg/m3) averaged over an 8-hour period.

2. If an employee is exposed to lead for more than 8 hours in any work day,

the employee’s allowable exposure, as a time weighted average (TWA)

for that day, shall be reduced according to the following formula:

**a.** Allowable employee exposure in μg/m3 = 400 divided by hours

worked in the day.

**b.** For example, 400 divided by 12 hours worked, equals 33.33μg/m3

allowable employee exposure for that day.

H. **Regulated area** - is established to demarcate an area where Lead work is

conducted, and any adjoining area where debris and waste from such work is

accumulated. OSHA approved danger signs will demarcate a regulated area. Only

authorized personnel wearing proper protective equipment will be allowed access

to this area.

**IV. PERSONNEL RESPONSIBILITY**

A. **Supervisor**

1. It is the responsibility of the supervisor to know the requirements of this

procedure.

2. No unauthorized personnel shall enter or be directed to enter a regulated area where lead abatement is actively taking place unless:

a. A written plan has been established, medical monitoring instituted,

specific training of personnel has been conducted and successfully

completed by all effected employees.

B. **Employee**

1. It is the responsibility of the employee to report to their supervisor any

suspected exposure to lead in the workplace.

2. It is the responsibility of the employee to follow the requirements of this

procedure.

**V. ABATEMENT PROCEDURES**

A. **Protective Clothing**

1. All lead abatement employees will be provided with and required to wear

full-length disposable coveralls, or full-length washable coveralls and

foot-coverings or boots. As much as possible, wrists, ankles, and other

openings of the protective clothing, shall be taped to prevent the intrusion

of lead contaminated materials. Only NIOSH approved respirators will be

provided and required to be worn. At a minimum, half-face dual cartridge

respirators equipped with HEPA filters will be worn. Safety glasses or

goggles, work gloves and hard hats are required during all phases of lead

abatement work.

2. Under special circumstances where the use of disposable coveralls is not

practical, washable coveralls may be worn instead. Employees will use the

same as disposable coveralls. Washable coveralls will be put on in the

clean room, before going to work, and taken off in the dirty room of the

de-containment at breaks, lunch, anytime they need to exit the contained area and end of each shift. Contaminated suits will be collected in an impermeable bag and laundered at regular intervals The Company provides proper laundering service and replacement of these coveralls at no cost to the employee with reasonable care.

3. The company will provide protective clothing at no cost to the employee.

B. **Lead Abatement Containment Area and/or Enclosure**

1. During all lead removal projects larger than “small scale, short duration”,

it is the policy of the Company to build enclosures whenever feasible.

When determining the feasibility of enclosures the company will consult

with the client’s Industrial Hygiene and/or Safety official, because of their

familiarity with plant process. Factors that will also affect the decision to

construct an enclosure include, proximity to other people, the nature of the

abatement, materials to be abated, methods used, and the engineering controls to

prevent any possible bystander exposure at or above OSHA’s action

level of 30μg/cm².

2. All water will be collected and disposed of according to EPA/OSHA regulations. No water will be allowed to enter a storm drain or sewer system. Before cleaning water is put into a septic system all water will be strained properly to collect any visual chips or debris and strained with a filter before flushing into the sewer system, the customers drain will then be cleaned.

3. It will be the supervisor’s responsibility to maintain the integrity of the

regulated work area throughout the duration of the removal and decontamination work.

4. A designated fire extinguisher will be available at the containment area as

approved by the owner.

5. Procedures will be developed for evacuation of injured workers and

approved by owner prior to start of work.

6. All entrances to the containment area will be posted with an OSHA

approved caution sign describing the nature of the lead hazard.

C. **Controlled Access of Lead Work Area**

1. Only authorized persons will be allowed in the work area, authorized meaning no one, unless they have had proper training, proper respiratory equipment, etc.

2. The competent person of all individuals entering the controlled lead

work area will keep personnel logs, Attachment Form 8A.1f, Regulated

Area Entry/Exit Log. This log will be kept for the duration of the job. At

the completion of the job the logs shall be submitted to the Project

Manager.

D. **Methods of Lead Removal**

 The Method of Removal will be determined by the scope of work determined by the pre-bid reports.

E. **Abatement Method**

1. **Removal of lead paint to the bare substrate**

 a. Non Caustic chemical strippers

b. Heat gun less than 1100°

c. HEPA vacuum controlled needle-gun removal.

d. Manual wet scraping/sanding.

e. Mechanical scraping/sanding with Hepa vacuum attached.

**2.** **Replacement of the LBP Component**

 a. Remove the component with LBP and replace with new components.

**3. Enclosure of the LBP Component or building**

a. Wrapping Tyvek around the exterior of a building as the barrier between

the LBP and the new siding.

b. Building an enclosure around piping, columns, etc.

c. All enclosures must be guaranteed for a minimum of 20 years.

**4. Encapsulation of LBP**

a. A method of spraying an approved paint like material to bond the LBP to the substrate and has to be guaranteed for a minimum of 20 years.

F. **Engineering, Control Methods**

1. In conjunction with the abatement methods listed above, engineering

control options that can be used to control employee exposure to below the

OSHA PEL include (listed in order of preference):

a. Full enclosure with HEPA filtration

c. Localized containment (mini-enclosure, etc.)

d. Wet method removal.

G. **Administrative Control Methods**

1. The competent person for the job will

be responsible for rotating the workers to the different lead related tasks to

effectively minimize exposures. Specific tasks should be defined before

the project begins to aid in exposure monitoring of worst-case scenario

tasks.

2. These engineering and administrative controls and abatement methods will

be used to reduce employee exposure to as low a level as possible.

Respiratory protection will be used at all times during the LBP abatement

process. Air monitoring (both initial and periodic) will be conducted to

insure the respiratory protection provided employee’s is sufficient to

prevent exposure above the PEL.

3. Once removal has begun in a regulated area, the area will continue to be

regulated until completion.

4. Removal will be done using approved procedures. Lead containing

materials must be handled carefully to avoid creating dust unnecessarily.

5. All debris must be cleaned up periodically and loaded in designated

containers. Workers removing bagged or drummed waste from

containment area will wear the full protective clothing.

H. **Personnel Decontamination/Hygiene Facilities**

1. All company employees involved in lead abatement are required to

completely decontaminate after each work period (before breaks, lunch,

and quitting time).

2. OSHA mandated decontamination facilities shall be installed.

**Employees leaving lead regulated areas will proceed as**

**follows:**

a. Employees will be suited with tyvek suits complete with booties and hoods

 b. Respirators will be worn at all times while in the containment area

c. When leaving the contamination area the workers will proceed through the equipment room where they will remove protective clothing, except for their respirator. From here, they will enter the shower room of the decontamination unit. Once inside the shower, they will completely rinse themselves and the respirator prior to removing it. (If the respirator is a dual cartridge type, they will soak the HEPA filter cartridges.) From here they will enter the clean room, change, and then dry and clean the respirator. All clothing, towels, etc., will be bagged and treated as waste or sent out for proper cleaning.

d. In lieu of full-decontamination as specified above, remote-partial

decontamination may be conducted **only** when exposure levels can

be maintained below the Action Level of 30μg/m3. Disposable

coveralls will be worn. The outer protective clothing will be HEPA

vacuumed before leaving the regulated area then removed and

treated as lead waste. Employees’ will then proceed to the wash

area to wash hands, face, etc., prior to removal of respiratory

protection. Respirators will then be removed; their filters removed

and discarded as lead waste.

I. **Lead Waste Disposal**

1. All lead removed will be collected in appropriate containers. Disposal of the lead containing waste will be the customer’s responsibility, unless other contractual arrangements have been made.

2. All EPA, DOT, and State and Local laws will apply when disposing of LBP waste.

J. **Housekeeping/Work Area Cleaning**

1. Housekeeping will be an ongoing integral part of lead abatement activities. Areas will be cleaned as lead is removed so that debris does not accumulate.

2. After all abatement and gross cleaning has been completed, final cleaning will begin. Hepa Vacuum, clean cloths, mops, etc., will be used in conjunction with a TSP solution in water to wipe/mop all surfaces in the work area. This will be repeated until all visible dust has been cleaned.

3. After final cleaning is complete, wipe samples representing (1) one square foot of surface area will be collected and analyzed by a third party laboratory. A clearance level of 40 μg/sf of floor surfaces, interior window sills not to exceed 250 μg/sf per square foot, exterior window wells not to exceed 400 μg/sf will be the final clearance criteria for the surfaces where lead containing coating is removed. As directed by local, state, federal or client specific requirements other wipe and/or air testing may be conducted to determine successful project cleaning before the work area is returned for re-occupancy. Final clearance and other monitoring requirements are outlined in the Environmental/Air Monitoring section.

K. **Emergency Procedures**

1. Injuries

a. In the event of an injury occurring within a regulated area,

immediate top-priority attention shall be given to the injured

individual(s).

b. Lead regulated areas, enclosures, decontamination units, etc., will

be altered or dismantled to whatever extent necessary to provide

prompt, safe first aid attention for the injured individual(s).

c. Altered or dismantled abatement structures will be re-constructed

and necessary decontamination of people and equipment will be

conducted as soon as the situation has stabilized and the injured

person/s have been tended to by the first aid provider or designated

emergency response personnel.

d. All emergency personnel should be briefed by the Customer

Industrial Hygienist or Safety Department on the appropriate

procedures to be used when responding to an emergency within a

regulated area including: Health Effects, PPE, Decontamination,

etc. Persons required to enter the lead regulated area should

remain in the area no longer than, necessary. After leaving the

area clothing should be removed and bagged for disposal or

laundering. All persons should, if possible, shower completely

with special attention given to cleaning their hair and exposed skin

areas.

2.  **Fire**

a. In the event of a fire, the Company’s employees are instructed to

react as required by policy. If a fire breaks-out while employees are inside abatement-regulated areas, precedence

will be given to following plant policy.

b. Abatement enclosures, decontamination units, etc., will be altered

or dismantled to whatever extent necessary to allow immediate

escape to safety. Altered or dismantled abatement structures will

be re-constructed and necessary decontamination of people and

equipment will be conducted as soon as the fire has been

extinguished and the Supervisor has received the all-clear signal.

**VI. ENVIRONMENTAL/AIR MONITORING PROCEDURES**

**NOTE: Unless otherwise specified, the Company will utilize a third party company for all environmental monitoring. The following are general environmental monitoring guidelines.**

A. **Frequency**

**1. Initial Air Monitoring**

a. Personal air monitoring will be conducted at the initiation of each

lead abatement project to determine employee exposures.

Additional monitoring will be required any time a significant

change in the abatement process (e.g., personnel, abatement

method, engineering controls, work area environment, type of

material abated, etc.) occurs.

**2. Periodic Monitoring**

a. Personal air monitoring may be repeated daily or weekly to

document that prevailing lead concentrations are consistent with

levels established during initial monitoring. If periodic monitoring

reveals exposure levels that exceed the permissible levels for the

protection factor (PF) provided by the respirator in use, necessary

adjustments in respiratory protection shall be made immediately.

B. **Air Monitoring Procedures**

1. Purpose

a. The Occupational Safety and Health Administration (OSHA) has

established as its Lead Permissible Exposure Level (PEL) at

50μg/m3. Air monitoring is required by OSHA in accordance with

29 CFR 1926.62 so as to continually insure that worker exposure

to lead does not exceed the PEL.

b. Initial and periodic monitoring is conducted on each lead work

area to insure that the work practices and engineering control

methods and personal protective equipment are proper and

adequate to comply with the Standard’s requirements and to

protect the Company’s workers from the harmful effects of lead.

c. Will protect workers as if the exposures for the respective job

tasks, listed below, are present until actual exposure measurements

can be obtained.

d. For lead containing coatings (either application or removal)

exposure should be anticipated at greater than the 50μg/m3 but

less than 500 μg/m3 (10 times the PEL) if the following operations

are conducted:

i. Manual demolition of structures (e.g. drywall).

ii. Manual scraping or sanding.

iii. Heat gun applications.

iv. Power-tool cleaning with dust collection.

e. For the use of lead containing mortar or the burning of lead, or if

lead containing coatings or paint are disturbed as follows, exposure

should be anticipated at greater than 500μg/m3 if the following

operations are conducted:

i. Rivet busting.

ii. Power tool cleaning without dust collection.

iii. Clean-up using dry expendable abrasive.

iv. Abrasive blasting enclosure movement and removal.

f. For lead containing coating or paint disturbed as follows, exposure

should be anticipated at greater than 50 times the 50μg/m3

(2,500μg/m3):

i. Abrasive blasting

ii. Welding

iii. Cutting

iv. Torch burning

g. Other respirators with superior protection factors that could be

used in any of the interim periods listed include:

i. Full face supplied air in pressure demand (PF = 2,000)

ii. CE abrasive blasting respirators in positive pressure mode

(PF = 2,000)

iii. Full-face self-contained breathing apparatus in positive or

pressure demand mode (PF = Greater than 2,000)

2. Definitions

a. **Air Monitoring** - The process of collecting samples of air and

analyzing them to determine the amount of lead present. The goal

of air monitoring is to determine the average amount of lead

present per cubic meter of air.

b. **Personal Samples** - Air samples collected from the breathing zone

of a person; used to determine actual worker exposure.

1. **Area Samples** - Air samples collected outside the lead work area

to document those areas beyond the work area are not

contaminated by lead.

1. **Air Monitoring Cassette** - Air is drawn through the cassette and

 dust particles are trapped on a filter within the cassette.

3. The Equipment Used For Air Monitoring

a. **Low-volume, battery powered, portable personnel pumps** with

a calibrated flow of at least 2.0 liters per minute and a self

containing power pack capable of sustaining this calibrated flow

for at least 75% of full shift exposure. This pump unit will also be

equipped with an automatic flow control unit, which will maintain

a 2.0-liter per minute flow even as filter resistance increases due to

trapped debris.

b. **High-volume, portable, battery powered pumps** will be used for

area samples.

c. **Portable flow calibrator**. (Rot meter or Gilibrator calibrators)

d. **Air monitoring cassette**. (27 mm, 0.8. micron mixed cellulose

ester filter membrane).

4. Type of Air Sampling

a. **Personnel Samples -** For the purpose of determining employee

exposure, protection needs and for compliance determinations,

samples must be collected outside respirators, including abrasive

blasting hoods. The cassette is pinned, clamped, or taped to the

forward part of the shoulder in the breathing zone of the worker.

The pump’s airflow is calibrated between 0.5 liters per minute and

2.5 liters per minute. Sampling will represent full shift exposure

for workers in each lead work area.

b. **Area Samples -** Either high-volume or low-volume pumps may be

used. The pump will remain stationary for the duration of the

sample. Sample duration can be for any length, however longer

durations are preferable. Sampling volume can be up to 10 liters

per minute.

5. Sampling and Analytical Procedure

a. Cassettes for personal samples must be 37 mm in diameter. Area

and dust sample cassettes can be of any size, shape or composition.

All cassettes must contain 0.8 micron mixed cellulose ester filter

membrane designed as suitable for lead.

b. Pumps are to be calibrated before and after each sample to

accurately calculate the total volume of air sampled. Calibrations

are to be recorded on the calibration form and submitted to the

Project Manager with other documentation for archives and kept

for thirty-years. Samples must be voided if the pre- and post librations

differ by more than ten (10%) percent.

c. Personal samples are to be collected on a minimum of twenty-five

(25 %) of the workers in each work area using the worst case

scenario and will be collected at all times that removal is being

conducted.

d. At least one area sample will be collected outside the lead work

area whenever removal is being conducted.

e. All sample cassettes are to be capped and labeled to identify the

sample number, date of collection, duration, and person or area

sampled. An air sample transmittal form will be used to serve as a

chain of custody for the Samples. Samples will be submitted on a

daily basis for analysis.

6. Record Keeping-Records will be maintained on all air monitoring and

analysis. The third party Hygienist will provide these data sheets.

Sampling data sheets will be used to document the following information:

a. Job Number

b. Sample Number

c. Date collected

d. Sampling device (pump type)

e. Collection Medium (cassette type)

f. Name and birth date(05/15/1954), if personal

g. Area in which the sample was collected

h. Sampling flow rate

i. Sample duration

j. Total volume of air sampled (Flow x Duration in minutes)

k. Total shift length (work day length)

7. Employee Notification

a. A record of the laboratory analysis showing the results of the

samples will be attached to the sample data sheet and posted in the

worker break room or in the clean room for worker review within

five days of receipt. A roster will be made available for workers to

confirm that they have been notified and understand the results of

the exposure assessment performed. The roster along with the

results will be retained in the job file and forwarded to the Record

Keeping department for permanent storage. All air monitoring

results will be kept in the main office for thirty-years.

8. Samples and a copy of the data sheet(s) are packaged with sufficient no electrostatic packing to keep the samples from being jarred.

9. The package is sent to a qualified laboratory, (ELPAT Certified lab, or

participant in AIHA sponsored ELPAT rounds), for analysis. The

laboratory analyzes the samples and returns a report of the results.

C**. Environmental Monitoring.**

1. Pre- and post-abatement sampling of surfaces inside the work area will be

required on each Lead Abatement project. Soil, water or other samples

may be collected depending on the location of the Lead Abatement work

area and its surroundings. An accredited independent third party firm will

collect these samples.

2. Sample Types

a. **Bulk Samples** are taken to determine the presence of lead in the

material. Generally, a paint chip is collected in a container. The

container is labeled and a chain of custody filled out before it is

sent to an accredited laboratory. Laboratory results are reported in

mg/kg which is equivalent to parts per, million.

b. **Wipe Samples** are a type of dust sample used for baseline

determination and final clearance. One square foot of surface area

is measured off. With a damp cloth a “5” shaped motion is made

with the cloth inside the marked area. The cloth is folded and the

motion repeated. Three wipes in this manner are normally used to

sample all dust inside the marked, area. The Cloth is placed in a

label container; a chain of custody filled out and sent to an

accredited laboratory for analysis. Wipe sample results are

reported in μg/sq. ft.

c. **Soil Samples** are taken to determine the presence of lead in soil. A

qualified third party when applicable should collect soil sample.

1. **Water Samples** are taken to determine the presence of lead in

water. A qualified third party when applicable should take water

samples.

3. Sample Frequency

a. **Bulk Samples** - unless the material is assumed to be lead

containing, a bulk sample should be taken any time it is required to

disturb coatings. Samples should be collected that are

representative of the full application of the coating, from the

topcoat to the substrate. Samples should be containerized, labeled

and sent to an approved laboratory with a chain of custody for

analysis.

b. **Wipe Samples**

i. Baseline - After the work area has been pre-cleaned and

before any poly is laid on the flooring of the work area, a

wipe sample should be taken to determine baseline

cleanliness.

ii. Final Clearance - A final clearance wipe sample will be

collected after the work area has been final cleaned.

Generally two samples will be collected. The first sample

will be collected off of the substrate from which the lead

containing coating was removed. Clearance level for these

surfaces will be 500μg/sq. ft. A second sample will be

collected from the flooring of the work area. Final

clearance level for floors will be 200μg/sq. ft.

c. **Soil Samples -** The owners, Industrial Hygienist or Environmental

Department should be consulted before any soil samples are

collected. Soil samples will be collected anytime soil is part of the

flooring for the lead abatement work area. These soil samples will

serve as a baseline determination. Similarly at the completion of

final cleaning a second soil sample should be collected to assure

contamination has not occurred.

d. **Water Samples** - The owners, Industrial Hygienist or

Environmental Department should be consulted before any water

samples are collected. Water samples maybe collected whenever

bodies of water are immediately adjacent to the lead work area. A

water sample will be collected before abatement begins to

determine a baseline, and after final cleaning to assure no

contamination has occurred.

**VII. RESPIRATORY PROTECTION**

1. This written protection plan for employees is required by OSHA as per Federal

Register 29 CFR 1910.134. The written program, S.O.P. 5F, shall be approved

and periodically revised as necessary by the Safety Director.

1. The responsibility for implementation and adherence to this program falls

on the company. However, Project Managers, supervisors and foremen

have the direct responsibility for enforcement of the procedures at the

jobsite.

1. Employees violating this program will be disciplined. Documentation of

such actions concerning this policy will be maintained in project and

individual employee files (i.e., written reprimands, suspension and/or

dismissal of individuals not complying with the program).

B. **Respirator Selection and Use**

 1. An improperly fitted respirator or one that has a defective part offers little

protection to its user. Before beginning lead removal work, employees

should be instructed about the atmosphere in which they will be working,

the need for respiratory protection and approved procedures for fitting,

adjusting, maintenance, cleaning and storage of respirators. It is important

that all employees follow these procedures.

 2. The company’s selection of respirators as listed elsewhere in this section,

has been chosen from respirators approved by the Mine Safety and Health

Administration (MSHA) and/or the National Institute for Occupational

Safety and Health (NIOSH) for use in atmospheres containing lead.

C. **Protective Factors**

 1. Respirators offer varying degrees of protection against lead. The key to

understanding the difference between types of respirators (air-purifying,

powered-air purifying, air supplied, etc) is the amount of protection

afforded the wearer. To compare these, one must understand the concept

of protection factor (PF).

 2. A protection factor is a number obtained when the concentration of a

contaminant outside the mask is divided by the concentration found inside

the mask. This simple formula is illustrated below.

1. The protection factor depends greatly on the fit of the mask to the wearer’s

face. Accordingly, the protection offered by any one respirator will be

different for each individual person. Further, the protection constantly

changes depending upon the worker’s activity and even shaving habits.

When a worker laughs or coughs inside a respirator, the protection factor

will decrease since the mask will not “fit” as well during the laughing or

coughing. Similarly, a worker who forgot to shave one morning will not

receive as much protection that day since the mask will not fit as well to

the face. The importance of properly fitting the mask should now be

obvious.

 4. It is virtually impossible to measure the concentration inside the mask

(where the worker is breathing) for each worker, all the time, during all

the various activities he or she may be conducting. Accordingly,

protection factors, based on extensive research, have been developed for

different categories of respirators. Using these protection factors, it is easy

to determine what type of respirator is appropriate to maintain the

concentration of a contaminant inside the mask below a certain level. For

example, if 1.0 fiber per cubic centimeter (1 f/cc) is the current

permissible exposure level listed in the Federal Register for a particular

contaminant, then workers should never be exposed above this level inside

the respirator.

1. Appendix Attachment Form, 5F.1c is a list of Respiratory Protection

Factors used in the general industry, based on the wearer successfully

passing a fit test.

D. **Respirator Assignment and Maintenance**

 1. The Company field supervisors will implement a system of record keeping

to document and record respiratory protection equipment assignment, as

well as periodic cleaning and maintenance of equipment on a per job

basis.

 2. Assigned respirators shall be regularly cleaned and disinfected as

described by the listed procedures and the supervisor’s control.

 3 Record keeping forms are available from the Safety department.

E. **Facial Hair**

A. Recent studies have proven that any facial hair inside the respirator, other

than neatly trimmed mustaches (that do not extend beyond the edges of the

mouth), eye lashes and eye brows, significantly reduce the protection

factor of the respirator.

B. In response to these tests, OSHA now forbids such facial hair. No

employees that are required to wear a respirator or visitors into our

regulated areas will be allowed to have any facial hair (other than the

aforementioned cases) that interferes with the seal of the respirator, or that

is within the respirator.

C. Employees and/or visitors who have more than one-days growth of facial

hair will be required to shave prior to wearing respirators and entering a

regulated area.

 1. Supervisors shall have available disposable razors for such use.

 2. Employees who consistently report to work at projects requiring

respiratory protection with more than one-day growth of facial hair

will be subject to disciplinary measures up to and including

termination.

F. **Respirator Care**

 1. Before leaving the work area, each user must shower with the respirator

on, to remove any lead containing material, which may have settled on the

equipment.

 2. Respiratory equipment shall be washed using a brush with detergent and

warm water. Detergents containing a bactericide are to be used. If this is

not available, disinfectants may be made by:

a. Using two (2) tablespoons of chlorine bleach to one (1) gallon of

water, or

b. Adding one (1) tablespoon tincture of iodine to one gallon of

water.

c. A two-minute immersion of the respirator into either solution is

sufficient for disinfections.

3. The respiratory equipment should be thoroughly rinsed in warm clean

water to remove all traces of detergent, cleaners and sanitizer.

4. Respiratory equipment will be allowed to air dry on a clean surface or

hung from a horizontal wire.

5. When not in use, respiratory equipment should be sealed in plastic bags

and stored so as not to distort the respirator valves or face-piece.

6. Qualified personnel, who have been designated by management, must do

repair or replacement of component parts. A respirator becomes invalid if

parts are substituted from a different brand or type of respirator. Inspection

for defects in the respiratory equipment must be done before and after

each use and during the cleaning process. Areas to be inspected for defects

and overall inspection should be as follows:

a. ***Air Purifying Respirators (quarter-mask, half-mask)***

i. **Rubber face-mask** - check for the following:

aa. *Excessive dirt* - clean all dirt from face-piece.

bb. *Cracks, tears, or holes* - obtain new face-piece.

cc. *Distortion* - allow face-piece to “sit” free from any

constraints and see if distortion disappears. If so,

obtain new face-piece.

dd. *Cracked, scratched or loose fitting lenses* - replace

parts or obtain new face-piece.

ii **Head-straps** - check for the following:

aa. *Breaks or tears* - replace head-strap.

bb. *Loss of elasticity* - replace head-strap.

cc. *Broken or malfunctioning buckles or attachments* -

obtain new buckles.

dd. *Face-piece slips* - replace head-strap.

iii. **Inhalation Valves/Exhalation Valves** - check for the

following:

aa. *Detergent residue, dust particles, or dirt on valve or*

*valve seat* - remove residue with soap and water.

bb. *Cracks, tears, or distortion in valve material or*

*valve seat* - obtain new respirator.

cc. *Missing or defective valve cover* - obtain valve

cover from manufacturer.

iv. **Filter Element(s)** - check for the following:

aa. *Proper filter for the hazard* – if not replace with the

proper filter for the hazard.

bb. *Missing or worn gaskets* - replace gaskets.

cc. *An approval designation number or code.*

dd. *Worn threads, both filter threads and face-piece*

*threads* - replace either filter or face-piece as required.

ee. *Cracks or dents in filter housing* - replace filter.

ff. *Missing or loose hose clamps* - obtain new clamps.

b. ***TYPE “C” - Supply Air Respirators***

i. **Check face-mask, head-straps, valves, and breathing**

**tube as for the air purifying respirators.**

ii. **Hood, helmet, blouse, or full suit, if applicable, check**

**for the following:**

aa. *Headgear suspension* - adjust per individual.

bb. *Cracks or breaks in face-shield* - replace face

shield.

cc. *Protective screen to see that it is intact and fits*

*correctly over the face-shield, abrasive blasting*

*hoods and blouses* - obtain new screen.

iii. **Air supplying system** - check for the following:

aa. *Breathing air quality*

bb. *Breaks or kinks in air supply hoses and end fitting*

*attachments* - replace hose and/or fittings.

cc. *Tightness of connections.*

dd. *Proper setting of regulators and valves* - see

Manufacturer’s Recommendations.

ee. *Correct operation of air purifying elements and*

*carbon monoxide or high-temperature alarms.*

G. **Employee Respirator Training Program**

1. Each employee required to wear a respirator will receive sufficient respiratory training. The training sessions, initial and periodic re-training, will be conducted by qualified personnel (Safety personnel, qualified

supervisors/foremen) to ensure that the employees understand the limitations, use and maintenance of the respiratory equipment. Acknowledgement that each employee has received and understands this training will be documented and retained in the company and employee records.

**VIII. MEDICAL SURVEILLANCE**

A. **Work Condition Surveillance**

1. Personnel air sampling will be conducted during each company lead

abatement project (refer to Air Monitoring Procedures in this document).

This will be performed by a qualified subcontractor (hygienist service) or

by a qualified employee trained in the proper use of the equipment and in

the documentation of the monitoring techniques. The data collected will

be used to determine proper respiratory protection for the hazard

encountered as indicated by employee exposure levels for the airborne

lead in the work area. Typically, half face, dual cartridge, air purifying,

and negative pressure respirators with HEPA filter will be used during

work area preparation. Powered air purifying respirators equipped with

HEPA filters will usually be worn once abatement begins, and may be

downgraded to half mask, if air-monitoring results warrant.

2. All employees will receive instructions regarding emergency procedures.

These will include:

a. Leaving the work area immediately should they (the employee)

experience difficulty in breathing or dizziness.

b. No employee wearing a respirator should be allowed to work

alone.

c. Emergency procedures in case of a “Hazardous Situation” inside

the work area.

B. **Medical Tracking**

1. All Lead Medical Surveillance documentation will be reviewed upon

receipt and maintained in the employee’s personnel file and entered into

the computer system for tracking purposes. Before lead abatement projects

begin, the employees medical record will be investigated and the latest

blood lead levels determined. No employee is to remove lead based paint

until medical exams and blood lead levels are reviewed. In the event an

employee’s blood lead level is found to be elevated, the project manager

for the site is to be notified and prompt action taken, if necessary [see

Medical Removal, section (VIII)(I)].

C. **Initial and Subsequent Exams**

1. The content of medical exams for Lead Abatement employees will be

determined by an examining physician.

D.  **Mandatory**

1. Detailed work history, medical history, past lead exposure, personal habit

(smoking), and past gastrointestinal, hematological, rehab, cardiovascular,

reproductive and neurological problems.

2. A thorough physical exam, paying particular attention to teeth, gums,

hematological, gastrointestinal, renal, cardiovascular, and neurological

systems.

3. Pulmonary function tests (FVC, FEV 1)

4. Blood Pressure measurement

5. Blood sample analysis including

a. Blood lead level

b. Zinc protoporphyrin

6. Any other test relevant to lead exposure as deemed necessary by the

examining physician.

7. The Company will provide a physician and/or medical clinic to the

employee for the medical examination.

8. ***Biological Monitoring-*** Biological monitoring that includes blood lead

and ZPP level determination will be conducted as follows:

a. Before initial assignment (entry physical).

b. At termination of employment (exit physical).

E. **Frequency**

1. ***Medical Exams-*** Initial exams are provided before an employee is

assigned to a work area where lead exposure is anticipated. Subsequent

medical exams are provided as follows:

a. The employee has developed symptoms commonly associated with

lead-related disease.

b. The employee desires advice concerning the effects of current or

past lead exposure on his/her reproductive ability and/or the ability

to procreate healthy offspring.

c. Every 12 months for the first six months of exposure above the

action level of 30μg/cm².

E Every two months if the blood lead level is greater than or equal to

50μg/dl. This frequency will continue until two consecutive

samples drop below 40μg/dl. And/or under the advice of the medical physician.

F. **Information Provided to Physician**

1. Copy of 29 CFR 1926.62 (Lead Standard) with all appendices.

2. Employee‘s duties related to lead exposure.

3. Anticipated employee exposure to lead (as well as any other toxic

substance).

4. Description of personal protective equipment.

*5.* Any prior blood leads determinations.

6. Any prior written opinions.

G. **Information Received From Physicians**

1. The physician’s opinion as to whether the employee has any detected

medical conditions that would place the employee at increased risk of

impaired health due to lead exposure.

2. Any recommended special protective measures to be provided to the

employee or limitations to be placed upon the employees’ exposure to

lead.

3. Any restrictions on the use of negative pressure respirators including a

determination if a powered air-purifying respirator can be used if the

physician determines the employee should not use a negative pressure

respirator.

4. Results of any blood lead determinations.

H. **Employer Instructions to Physicians**

1. Non-release to employer of any information discovered that are unrelated

to employees occupational exposure to lead.

2. Physician must advise employee, of **any** medical conditions that dictate

further medical examination or treatment.

3. No prophylactic chelation is allowed.

4. Physician should provide employer with a medical emergency alert

informing the employer if any employee blood lead levels reach or exceed

40 micro-grams of lead per deciliter of blood.

I. **Medical Removal**

1. If during any periodic blood-level test a result of 50μg/dl is achieved the

employee will be removed from work or task having providing the

exposure to lead at or above the action level. A follow-up test within two

weeks is then required. If the second blood test result is also above

50μg/dl, the employee will remain removed from the work area. Results

cannot be averaged to determine eligibility for medical removal.

2. An employee must be removed from a work area with airborne levels of

lead at or above 30μg/m3 (Action Level) in the following situations:

1. Any periodic or follow-up blood lead tests reveal blood lead levels

at or above 50μg/dl.

1. If, any medical exam reveals a medical condition which, places the

employee at an increased risk from lead exposure.

3. Employees removed for medical reasons will not be returned to a work

area with airborne lead levels at or above the Action Level (30μg/m3) until

two consecutive blood lead tests reveal levels at or below 40μg/dl, and/or

until a subsequent medical exam reveals that whatever medical condition

existed, that caused the medical removal, no longer exists. Blood test to

determine an employee’s readiness to return to work should be

administered monthly.

4. While removed for medical reasons, the following stipulations apply:

a. The employee must receive his/her total normal earnings, seniority

and other benefits for up to 18 months or until medically capable

of returning or his former job position ceases to exist.

b. Workers compensation, other benefits, or any other earnings from

another employer shall reduce the contribution necessary.

5. If after 18 months the employee’s bloods’ lead levels or a physician’s

determination of medical condition do not warrant the employees return to

work the employer must:

1. Provide employee with a medical exam to obtain a final

determination if employee may return.

b. Provide any necessary personal protection, work schedule, etc.,

that would allow the employee to return.

1. Continue to provide medical removal protection benefits until the

employee is returned to former job status, until a medical

determination is made that the employee will never be able to

return, or until the job the employee was removed from has

concluded.

J.  **Records of Medical Removals**

1. The employer will maintain the records of all medical removals. Each

record shall include:

a. Employee name and social security number

b. Dates removed and returned.

c. Description of how each removal is accomplished.

d. Description of the reason for removal (voluntary, blood lead level,

medical conditions, etc.).

2. Medical removal records will be maintained for employee’s duration of

employment.

K. **Recordable Medical Removal (OSHA 300 Logs)**

1. Each medical removal will be addressed on a case-by-case basis as to its

recordability.

L.  **Employee Access to Medical Records**

1. The employee, their designated representatives, the Assistant Secretary,

and the Director have ready access and will be provided copies upon

request of 29 CFR 1926.62, its appendices, and all medical records for that

employee by signed employee consent or with a medical access order.

M. **General Record Retention**

1. Medical records must be maintained for the duration of employment plus

thirty years.