

Work Package 1
(responsive documents to item 7)



National Aeronautics and
Space Administration
John C. Stennis Space Center
Stennis Space Center, MS 39529-6000

CONTRACTOR TRANSMITTAL SHEET

DATE
2/6/2013

SHEET 1 OF 1

SECTION I - REQUEST FOR APPROVAL *(To be Initiated by the Contractor)*

TRANSMITTAL OF SHOP DRAWINGS, EQUIPMENT DATA, MATERIAL SAMPLES, OR
MANUFACTURER'S CERTIFICATES OF COMPLIANCE
(See Instructions on Reverse)

CONTRACT NO.
NNS13AB11T

NEW SUBMITTAL
 RESUBMITTAL

TO
(b)(6)

FROM
HARRY PEPPER & ASSOCIATES, INC

PREVIOUS TRANSMITTAL NO. *(If Any)*
007

TRANSMITTAL NO.
007A

SPECIFICATION AND SECTION NO. *(Cover Only One Section With Each Transmittal)*
200HF-G011002 82 33.13 20/

PROJECT TITLE AND LOCATION
12NCBZ-10 ASPIRATOR

ITEM NO. (a)	DESCRIPTION OF ITEM SUBMITTED (Type, Size, Model Number, ect.) (See Instruction No. 3) (b)	MANUFACTURER OF ITEM (See Instruction No. 8) (c)	NO. OF COPIES (d)	CONTRACT REFERENCE DOCUMENT		VARIATION (See Instruction No. 6) (g)	ACTION CODE (See Instruction No. 9) (h)
				SPECIFICATION PARAGRAPH NO. (e)	DRAWING SHEET NO. (f)		
93	Lead based paint/lead cont. Paint Removal Plan		5	1.5.2.2			

RECEIVED
 FEB - 7 2013
DOCUMENT CONTROL

REMARKS

I certify that the above submitted items have been reviewed in detail and are correct and in strict conformance with the contract drawings and specifications, except as stated.

(b)(6) _____
R

SECTION II - APPROVAL ACTION

ENCLOSURES RETURNED *(List by Item No.)*

NAME, TITLE, AND SIGNATURE OF APPROVING AUTHORITY

DATE



5420 Bay Center Dr. Suite 100
Tampa, FL 33609
Phone: 813.626.8156
Fax: 813.623.6702
www.ohcnet.com

Date: February 7, 2013

Mr. (b)(6)

Transmitted via email: (b)(6)

**Re: Review and approval of Revised Lead Compliance Plan
Revision 1 dated February 6, 2013
B2 Test Stand
Stennis Space Center**

Dear Mr. (b)(6)

This is to certify that Mr. (b)(6) CIH of record, has reviewed and approved the Revised Lead Compliance Plan and the Respiratory protection program submitted by Anderson Environmental Services for the above referenced project. The revision date for the plan is February 6, 2013. The plan is approved as submitted.

Sincerely,
OHC Environmental Engineering Inc.

(b)(6)

(b)(6) MS, CIH
President

LEAD ABATEMENT PLAN

STENNIS SPACE CENTER

PRESENTED BY

ANDERSON ENVIRONMENTAL SERVICES
P.O. BOX 16891
JACKSON, MS 39236

PREPARED FOR

HARRY PEPPER GENERAL CONTRACTORS

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NASA Comment

1. The Demolition Plan submitted indicates plate removal at the aspirator with torches, Page 1 of 4. The abatement plan indicates plate removal by saw cut, Page 7. Both plans should **be consistent in methodology to remove the aspirator plates.**

HPA Response

The work method in the Abatement Plan for removal of the top plate of the Aspirator is correct. Cutting of the top plate will be performed using a saw with diamond blades.

NASA Comment

2. The Lead Abatement plan indicates daily removal of the LBP drums, the plan should allow for temporary storage and method of storage for the drums onsite if daily removal is not possible.

HPA Response

Drums that are left on site for temporary storage prior to disposal will be sealed, labeled and placed in a designated storage area and protected from damage from moving equipment.

NASA Comment

3. Several certificates are near expiration. Depending on actual work start, the certificates may expire while the work is in progress.

HPA Response

Current worker certifications are attached. Additional certifications will be submitted as appropriate. The CIH will be responsible for record keeping on the project to ensure that all abatement workers are properly trained and current records are on file at the job site.

NASA Comment

4. The State of Mississippi certification for OHC Environmental Engineering expired in 2008

HPA Response

The expired Certification was required for State of Mississippi HUD Lead Abatement projects and is not applicable to this project. OHC's current EPA Certification is attached.

NASA Comment

5. What role does Ecology Tek have in the project, Page 2 Respirator Protection Program?

HPA Response

Ecology Teck is not involved in this project.

NASA Comment

6. Please provide signed training forms indicating the worker understands the written Respirator Protection Plan.

HPA Response

Signed Training forms attached.

NASA Comment

7. Please submit for approval the mask disinfectant.

HPA Response

Submittal for product data and MSDS submitted under separate cover.

NASA Comment

8. As a practical matter NASA prefers individual assign masks over shared common use masks.

HPA Response

Each lead worker will be provided a respirator for their individual use. Lead workers will be responsible for properly cleaning, maintaining and storage of their individual respirators.

1.0 PROJECT SUMMARY

Project Name: B2 Test Stand Work Package One, Building 4221
Restoration Aspirator and Rolling Deck

Project Location: Stennis Space Center, Mississippi

Project Dates: November 16, 2012-November 16, 2013

Owner: NASA

Prime Contractor: Harry Pepper & Associates, Inc.

Mississippi Licensed Abatement Contractor: Anderson
Environmental Services

Competent Person: (b)(6)

Industrial Hygiene

Consultant: OHC Environmental Engineering, Inc.

Competent Person (CIH) of Record: (b)(6) MS, CIH

Company: OHC Environmental Engineering Inc.

5420 Bay Center Dr.

Tampa, Florida 33609

813.626.8156

Analytical Laboratory: Schneider Laboratory

2512 W. Cary Street •

Richmond, Virginia • 23220-5117

804-353-6778

2.0 GENERAL INFORMATION

2.1 Scope of Work

Abatement of lead based paint for this plan will be limited to what is necessary for worker and environmental protection during the demolition process. It is not the intent of this plan to completely remove the Lead Based Paint (LBP) from all metals being removed and disposed of under this contract.

Lead Based Paint (LBP) was discovered at the Aspirator, Rolling Deck. The Aspirator and Rolling Deck are removed and replaced under this contract. The scope of abatement for this plan is limited to removal of LBP in areas that cutting is necessary for demolition.

LBP will be removed in min. 6" strips along the length of the cut lines to avoid release of air borne lead dust from abrading LBP or fumes from heated LBP.

LBP will be removed using Chemical Stripping by workers trained to use these products. Note: Methylene Chloride based solvents will not be used on this project. In the event that Chemical Stripping is not effective, needle gun procedure will be performed by a contractor who has received special training on working with LBP and the proper use of the equipment.

2.2 Sequencing of Work

The Aspirator will be demolished prior to beginning of any other demolition work on the project. Abatement will be performed as necessary on the Aspirator. Abatement for the Rolling Deck demolition will be performed following completion of the Fixed Deck repairs and painting.

Aspirator:

- Insulating concrete will be removed prior to Abatement.
- Abatement of cut locations will be performed
- Demolition of Aspirator metals will be performed

Rolling Deck

- At the completion of other scopes of work, that the rolling deck is used to support, the rolling deck will be positioned above the concrete deck at level 6.5, where abatement activities will be performed. (It will be necessary to keep the rolling deck operable so that it can be moved to bring the portions of the rolling deck to have abatement activities performed into position above the concrete deck.)
- Each cut location will have the LBP removed prior to beginning demolition operations.

2.3 Work Procedures

Areas not affected by LBP removal will be covered with polyethylene sheets and secured in place using tape or spray adhesive. LBP in the cut areas will be removed by either chemical methods using "Peel Away" solvents or by "needle guns" with vacuum recovery hood connected to a HEPA Vacuum. All LBP debris will be placed into properly labeled, NASA provided US DOT 55 gal. lined waste disposal drums. Waste disposal drums will be marked with the date of first time any material is disposed of in that drum. A composite sample of the waste drums will be collected for waste characterization (TCLP). Results of the samples will be provided to the contracting officer. Once full waste disposal drums will be collected by NASA.

A CIH, IH or Industrial Hygienist Technician (IHT) representing the CIH, will be on site at all times

that abatement conduct HAZ Com training, verify medical testing and fitness of the workers, supervise fit testing, conduct personnel air monitoring as well as background air monitoring to verify that no release of air borne dust or fumes contaminated with heavy metal contamination occurs during the performance of abatement.

Note: Entry into confined spaces, such as the interior of the Aspirator, will be mitigated via engineering controls. Exposed cut lines will have abatement of LBP performed. Exposure limits for cutting will be determined using lead trained personnel, monitored by the CIH, performing sawcutting with diamond blades to remove the top plate of the Aspirator and eliminate confined space hazards. In the event that the Permissible Exposure Level (PEL) is exceeded, other engineering controls will be employed to modify the work plan.

(b)(4)

(b)(4)

2.4 Demarcation of the Regulated Area

The entire Level 7 area of the B2 Test Stand will be designated "Construction Area. Entry by Authorized Personnel only."

Regulated Areas with in the Construction Area:

Aspirator (During Abatement Activities) - Barriers consisting of rope with signs attached and warning tape will be erected around the perimeter of the Aspirator to limit access to the work area to lead trained personnel. Signage will be erected every 25' around the work area stating: "Warning. Lead Work Area, Poison, No Smoking or Eating. Entry by authorized personnel only."

Rolling Deck (During Abatement Activities) - Barriers consisting of rope with signs attached and warning tape will be erected around the perimeter of the level 6.5' slab to limit access to the work area to lead trained personnel. Signage will be erected every 25' around the work area stating: "Warning. Lead Work Area, Poison, No Smoking or Eating. Entry by authorized personnel only."

2.5 Interface of Trades

Other contractors will not be allowed in the lead removal work area until it has been cleared for re-entry.

All employees and contractors must have current and detailed knowledge of Federal, State and local regulations applicable to the removal of lead based paints. The regulations listed below form a part of this plan to the extent referenced. They are referred to in the text by the basic designation only.

3.0 STATUTORY REQUIREMENTS

3.1 Code of Federal Regulation (CFR) Publications

Prevention
Signs and Tags

29 CFR 1910.134 Respiratory Protection
29 CFR 1926.200 Specifications for Accident

Firms Engaged

29 CFR 1926.62 Lead
29 CFR 1910.1200 Hazardous Communication
40 CFR 745-226 Certification for Individuals and
in Lead Based Paint Activities

40 CFR 262.11 Hazardous Waste Determination

40 CFR 61 SUBPART A&B General Provisions

3.2

American National Standard institute (ANSI)

Z9.2-79 Fundamentals governing the design and operation of local
exhaust systems.

Z88.2-80 Practices for Respiratory Protection

4.0 DEFINITIONS

Abatement: Operations to eliminate or minimize dust released from lead based paint removal.

Airlock: An enclosure permitting entrance and exit to or from a contaminated area and a clean area. Airflow is always from the clean area to the contaminated area.

Area Monitoring: Stationary sampling and analysis of lead concentrations inside the work area, inside the building, outside the lead control area, and outside the building, such as at the decontamination unit or at HEPA exhaust by discharge; concentration is measured in $\mu\text{g}/\text{m}^3$.

Lead Control Area: An area where lead removal operations are being performed which is isolated by physical boundaries to prevent the spread of lead dust, or debris.

Competent Person: One who is capable of identifying existing lead hazards in the workplace and has the authority to take prompt corrective measures to eliminate them. The duties include at least the following: establishing the negative pressure enclosure, ensuring its integrity, controlling entry to and exit from the enclosure, supervising any employee exposure monitoring required by the standard, ensuring that all employees working in such an enclosure wear the appropriate personal protection, are trained in the appropriate methods of exposure control, and use the hygiene facilities and decontamination procedures specified in the standard; and ensuring that engineering controls in use are in the proper operating conditions and are functioning properly.

Decontamination (decon) Unit: A decontamination system for personnel, equipment and materials; a series of connected rooms with airlocks/curtained doorways between any two adjacent rooms, for the decontamination of workers or of materials and equipment. Contaminated area is separated from clean area by showers for personnel; a washroom for equipment.

Enclosure: Permanent barriers erected around the removal area to isolate in an airtight, impermeable environment.

Equipment Room: A space provided for the storage of contaminated clothing and equipment; part of the personnel decontamination unit.

HEPA Filter Equipment: High Efficiency Particulate Absolute (HEPA) filtered vacuuming equipment with a filter system capable of collecting and retaining lead dust. Filters will be of 99.97 percent efficiency for retaining fibers of 0.3 microns or greater.

Lead: Metallic lead, all inorganic lead compounds.

Negative Pressure System: A system in which static pressure in an enclosed control area is lower than that of the environmental outside the control area, as specified.

Permissible Exposure Limit (PEL): Lead: the limit is fifty micrograms per cubic meter of air (50 ug/m^3) averaged over an 8-hour period.

Personal Monitoring: Sampling airborne lead concentrations within the breathing zone of an employee.

Plasticize: To cover floors, walls and fixed objects with plastic sheeting.

Time Weighted Average (TWA): The calculation made from the results of multiple air samples collected from the breathing zone from the same individual on the same day, over a specified period to determine a weighted average of airborne lead concentrations.

Wet Cleaning: Removing the residue of lead from building surfaces and installed objects by using mops, cloths, and other tools that have been wetted with amended water.

5.0 RESPONSIBILITIES

5.1 Contractor Health and Safety Director

HPA's Site Safety and Health manager shall:

- Be on site at all time that work is being performed.
- Verify proper safety training for supervisors, workers and IH personnel
- Verify that proper PPE is being employed during the performance of the work

- Verify that AHA's have been prepared and approved in prior to starting work.
- Review the AHA with the supervisors and workers each day and review the Job Risk Assessment (JRA), developed each day, with the workers performing the work each day.

5.2 Competent Person

- The Site Safety Supervisor will be designated competent person as mentioned in the OSHA Lead Standard. As such, he or she is responsible for assuring that supervisors of work involving potential lead exposures have been trained in the content of this program and are capable of implementing this procedure.

5.3 Employees

- The Site Supervisor in charge of the worksite will ensure that these procedures are followed by the personnel performing the work. This individual will ensure that personal protective equipment (PPE) requirements outlined in this plan are followed pertinent to the job at hand.
- Lead Workers will follow 29 CFR 1910 and 1926 requirements as well as the requirements of the Site Specific Health and Safety Plan, NASA Requirements, the requirements of the compliance plan while performing abatement work on the project and report any health or safety hazards to the supervisor.

5.4 Industrial Hygienist

- Be present at the site at all times that abatement activities are being performed.
- Inspect the regulated area daily to ensure that the demarcation is in tact as well as for any safety hazards.
- Ensure compliance with the Lead Compliance Plan
- Perform all the required air sampling for personnel, background and area monitoring.
- Ensure that all personnel in the demarcation area are utilizing proper PPE.
- Perform all the required clearance testing
- Perform the TCLP sampling

6.0 PRIOR TO COMMENCEMENT OF WORK

1. Ensure that the Abatement and Lead Compliance Plans are approved by the approving authority.
2. Ensure that the proper State of Mississippi notification has been given for Demolition / Renovation at least 10 days prior to beginning work.
3. Ensure that training certification and medical exam records are provided to the CIH for all Supervisors and lead workers.

4. Ensure that Hazardous Communication training has been provided for all employees working in the construction area during abatement activities.

7.0 OSHA STANDARDS

1. Action Level - 30 ug/m^3 (8 Hour TWA)
2. Permissible Exposure Level - 50 ug/m^3 (8 Hour TWA)
3. Extended Work Hours - 400

of hrs worked/day

8.0 TRAINING

State of Mississippi

*Department of Environmental Quality
Office of Pollution Control*

Certificate of Licensure

In accordance with the Lead-Based Paint Activity Accreditation and Certification Act, Mississippi Code Annotated Sections 49-17-501 through 49-17-531

Be it known that

Anderson Environmental Services, Inc.

Having submitted acceptable evidence of qualifications and other appropriate information, is hereby granted this

*Lead Based Paint Firm
Certification*

*Certificate No.: PBF-00000016
Expiration Date: Mar 14th, 2013*

(b)(6)

ENVMGNTPLUS



STATE OF MISSISSIPPI

(b)(6)

GOVERNOR

MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY

(b)(6) EXECUTIVE DIRECTOR

August 7, 2012

(b)(6)

Environmental Management Plus,
Inc.
PO Box 9361
Jackson, Mississippi 39286
Re: Certificate of Licensure
Lead Worker Certification

Your application for certification as a Lead-Based Paint Lead Worker has been approved by the Lead Certification Branch in accordance with the Mississippi Regulations for Lead-Based Paint Activities, Miss. Code Annotated Sections 49-17-501 through 49-17-531. Your Mississippi Certification Number is PBW-00001359. It is reflected on your enclosed Mississippi Certification identification card.

Your Mississippi Certification is valid through Aug 6th, 2013. In order to maintain certification as a Lead-Based Paint Lead Worker, you must renew your license on or before the expiration date stated on your card and pay the renewal fee. If you should continue to perform lead-based activities after the expiration date, you will be in violation of the Mississippi Regulations for Lead-Based Paint Activities and may be cited for non-compliance.

It is your responsibility to ensure that you have met all the requirements for renewal of your lead certification.

If you have any questions, please feel free to contact

(b)(6)

Sincerely,

(b)(6)

(b)(6) P.E.,

Chief
Air Division

49154 LIC20120001

OFFICE OF POLLUTION CONTROL

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STATE OF MISSISSIPPI

(b)(6)

GOVERNOR

MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY

(b)(6) EXECUTIVE DIRECTOR

April 24~ 2012

(b)(6)

Environmental Management Plus.Inc.
117 Richardson Drive
Jackson, Mississippi 39209

Re: Certificate of License
Lead Supervisor Certification

Your application for certification as a Lead-Based Paint Lead Supervisor. has been approved by the Lead Certification Branch in accordance with the Mississippi Regulations for Lead-Based Paint Activities, Miss. Code Annotated Sections 49-17-501 through 49-17-531. Your Mississippi Certification number is PBS-00001248. It is reflected on your enclosed Mississippi Certification identification card.

Your Mississippi Certification is valid through Apr 9th, 2013. In order to maintain certification as a Lead-Based Paint Lead Supervisor, you must renew your license 90 or before the expiration date stated on your card and pay the renewal fee. If you should continue to perform lead-based paint activities after the expiration date, you will be in violation of the Mississippi Regulations for Lead-Based Paint Activities and may be cited for non-compliance.

It is your responsibility to ensure that you have met all the requirements for renewal of your lead certification.

If you have any questions, please feel free to contact (b)(6)

Sincerely

Asbestos & Lead Certification Branch

Enclosure
cc:

48429 LJC20120003 .

OFFICE OF POLLUTION CONTROL

Post Office Box 2261 • JACKSON, MISSISSIPPI 39225-2261 • Telephone: (601) 961-5171 • FAX: (601) 371-5612 • www.dsqa.state.ms.us
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Anderson Environmental Services, Inc.

PHONE: (601) 940-4644 +) FAX: 6011354-3133
P. O. Box 16891 -c. JACKSON, MS 39236

1-18-13

RE: Competent Person and Lead Hazard Control Supervisor

On the B2 Test Stand Lead Paint Abatement Project located at the Stennis Space Center, (b)(6) (b)(6) is the appointed Project Manager and (b)(6) has been authorized to represent Anderson Environmental as the lead abatement contractors Competent Person as well as the Lead Abatement Supervisor. Both (b)(6) are highly qualified and have several years of experience in the abatement industry.

Sincerely,

(b)(6)
Project
Coordinator

*Licensed • Insured • Environmental Services • Commercial • Residential
Asbestos Abatement + Inspection • Air Monitoring • Mold Remediation • Demolition Services*



STATE OF
MISSISSIPPI

(b)(6)

G0V1:RN01t

MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL
QUALITY

(b)(6)

EXECIITIVE DIRECTOR

April 19~ 2012

(b)(6)

Environmental Management
Plus, Inc.
117 Richardson Drive
Jackson, Mississippi 39209

Licensure

Re: Certificate of
Lead Supervisor
Certification

Your application for certification as a Lead-Based Paint Lead Supervisor has been approved. by the Lead Certification Branch in accordance with the Mississippi Regulations for Lead-Based Paint Activities, Miss. Code Annotated Sections 49-17-501 through 49-17-531. Your Mississippi Certification number is .PBS-OOOOI069. It is reflected on your enclosed Mississippi Certification identification card.

Your Mississippi Certification is valid through Mar 17th, 2013. In order to maintain certification as a Lead-Based Paint Lead Supervisor, you must renew your license on or before the expiration date stated on your card and pay the renewal fee. If you should continue to perform lead-based paint activities after the expiration date, you will be in violation of the Mississippi Regulations for Lead-Based Paint Activities and may be cited for non-compliance.

It is your responsibility to ensure that you have met all. the requirements for renewal of your lead certification.

If you have any questions, please feel free to contact (b)(6)

(b)(6) P.E., Chief
Asbestos & Lead Certification Branch

(b)(6)

Enclosure
cc:

48432 LIC20120001

OFFICE OF POLLUTION CONTROL
POST OFFICE Box 226 • Jackson, Mississippi 39221 • Phone: (601) 961-5171 • Fax: (601) 344-6612
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9.0 MEDICAL SURVEILLANCE

All of our personnel who are or may be exposed to 30 ug/m cubed of lead for more than 30 days a year shall be included in a medical surveillance program. This program will include pre-assignment and periodic medical examinations. Additional medical examinations will be made available if lead exposed workers:

- Develop signs or symptoms of lead intoxication.
- Desire medical advice relative to current or past exposure effect on the ability to procreate a healthy baby.
- Become or are pregnant.
- Experience difficulty during respirator fit test or during respirator use.

The medical examination must include a detailed work history and medical history, a thorough physical examination, blood pressure measurement and a series of laboratory tests designed to check blood chemistry and kidney function.

Biological monitoring (blood sampling and analysis for lead and zinc protoporphyrin levels) shall be performed:

- On all personnel who may be exposed to airborne lead levels of 30 *ug/m* cubed for more than 30 days a year. If exposures are unknown, testing shall be at least once every 6 months.
- For each individual whose last blood sample and analysis indicate a blood level at or above 30 ug/100 g of whole blood. The tests should be repeated within 2 weeks of receiving the elevated level and then performed every 2 months until 2 consecutive analyses indicate results below 30 ug/100g.

Analysis shall be conducted by a laboratory licensed by the Center for Disease Control, United States Department of Health, Education and Welfare (CDC) or which has received a satisfactory grade in blood lead proficiency testing from CDC in the prior twelve months.

Notification of Medical Monitoring Results

- All personnel who are tested will be notified of their results and any respective medical interpretation in writing within 5 working days of receipt of these results from the physician.
- The company Safety Coordinator is responsible for issuing these notifications.

Medical Removal

- An individual shall be temporarily removed from work:
- Whenever periodic and blood sampling test indicates that his/her blood

level is at or above 40 ug/100 g of whole blood.

- Whenever a [mal medical determination places the individual at increased risk of medical impairment to health from exposure to lead.

Return to Work

- Personnel may return to their former job status as long as the following conditions are met:
- Whenever 2 consecutive blood level tests indicate that the individual's blood level is at or below 30 ug/100 g.
- Whenever a subsequent final medical determination no longer places the individual at risk of medical impairment to health from lead exposure.

10.0 HAZARD COMMUNICATION

The Hazard Communication requirements of the approved Site Specific Health and Safety plan will be followed. Contractor will also comply with the hazard communication provisions in 29 CFR 1910.1200.

Material Safety Data Sheets for lead and any other chemicals used on site will be added to the plan and a copy submitted to the prime contractor for review.

11.0 PROTECTIVE CLOTHING

Employees may be exposed to lead above the PEL on this project. Without regard to the use of respirators or where the possibility of skin or eye irritation exists, the company shall provide at no cost to the employee and assure that the employee uses appropriate protective work clothing and equipment such as, but not limited to:

- Disposable Coveralls or similar full-body work clothing will be worn by employees performing work on the project;
- Gloves, hats, and shoes or disposable shoe coverlets will be worn by employees performing work on the project;
- Eye protection will be used at all times. If chemicals or power tools are utilized, Face shields or vented goggles as appropriate will be utilized
- NIOSH-certified respirators with organic vapor cartridges, manufactured by North, will be utilized on this project.
- Other PPE including Hard Hats and safety harnesses will be used on the project as required by the approved Site Specific Health and Safety Manual.

12.0 RESPIRATORY PROTECTION

For employees who use respirators required by this section, the company must provide respirators that comply with OSHA requirements. Respirators must be used during:

- Periods necessary to install or implement engineering or work-practice controls.
- Work operations for which engineering and work-practice controls are not sufficient to reduce employee exposures to or below the permissible exposure limit.

- Periods when an employee requests a respirator.

The company must implement a respiratory protection program in accordance with 29 CFR 1910.134 (b) through (d) (except (d)(1)(iii)), and (f) through (m). If an employee has breathing difficulty during fit testing or respirator use, the company must provide the employee with a medical examination to determine whether or not the employee can use a respirator while performing the required duty.

The company shall implement a respiratory protection program in accordance with 29 CFR 1910.134 (b), (d), (e) and (f) in establishing a respiratory protection program, and 29 CFR 1926.62 for fit testing procedures . Each worker will be assigned a respirator for their individual use.

The company must select the appropriate respirator or combination of respirators from Table II below.

Airborne concentration of lead or condition of use	Required respirator
Not in excess of 500 ug/m(3)	<ul style="list-style-type: none"> - 1/2 mask air purifying respirator with high efficiency filters. - 1/2 mask supplied air respirator operated in demand (negative pressure) mode.
Not in excess of 1,250 ug/m(3)	<ul style="list-style-type: none"> - Loose fitting hood or helmet powered air purifying respirator with high efficiency filters. - Hood or helmet supplied air respirator operated in a continuous-flow mode - e.g., type CE abrasive blasting respirators operated in a continuous-flow mode.
Not in excess of 2,500 ug/m(3)	<ul style="list-style-type: none"> - Full facepiece air purifying respirator with high efficiency filters. - Tight fitting powered air purifying respirator with high efficiency filters. - Full facepiece supplied air respirator operated in demand mode. - 112 mask or full facepiece supplied air respirator operated in a continuous-flow mode. - Full facepiece self-contained breathing apparatus (SCBA) operated in demand mode.
Not in excess of 50,000 ug/m(3)	<ul style="list-style-type: none"> - 1/2 mask supplied air respirator operated in pressure demand or other positive-pressure mode.
Not in excess of 100,000 ug/m(3)	<ul style="list-style-type: none"> - Full facepiece supplied air respirator operated in pressure demand or other positive-pressure mode - type CE abrasive blasting respirators operated in a positive-pressure mode.
Greater than 100,000 ug/m(3), unknown concentration.	<ul style="list-style-type: none"> - Full facepiece SCBA operated in pressure demand or other positive-pressure mode.

The company must provide a powered air-purifying respirator instead of the respirator specified in Table II of this section when an employee chooses to use this type of respirator and such a respirator provides adequate protection to the employee.

13.0 HYGIENE

The following protective clothing must be worn when performing all tasks:

- Coveralls or similar full body work clothing;
- Gloves, hats, and shoes or disposable shoe coverlets;
- Face shields, vented goggles or equivalent.

Warning: Anyone who cleans or launders protective clothing must be warned in writing of the potentially harmful effects of lead exposure. The clothing must be double bagged and labeled ***"Caution: Clothing contaminated with lead. Do not remove dust by blowing or shaking. Dispose of lead contaminated wash water in accordance with applicable local, state or federal regulations."***

All protective clothing must be removed at the end of the work shift only in change areas specifically provided. The protective clothing must be cleaned, laundered or disposed of properly. Lead removal from clothing by blowing, shaking or other means which could disperse lead to the air is prohibited.

Proper disposal of protective clothing on this project will consist of the following: At the end of a work period protective clothing will be removed from the worker, placed in 6 mil poly bags, bags will be placed in seal tight, NASA provide, US DOT approved 55 gallon lined drums. The drums will be labeled and full drums will be returned to NASA for disposal.

Change Areas

- Change areas must be provided with separate storage facilities for protective work clothing and street clothing which prevent cross contamination between the 2.
- Protective clothing cannot be worn outside the work place or into designated eating or smoking areas.

Hand Washing Facilities

- Adequate hand washing facilities must be provided. A wash sink will be provided for employees to wash their face and hands that drains into a sealed drum to contain the wash water for testing and proper disposal
- Hands and faces must be washed at the end of each work period.

14.0 GENERAL SAFETY REQUIREMENTS

The Contractor is responsible for maintaining safe working conditions in accordance with 29 CFR 1926. 29 CFR 1926.20 (General safety and health provisions) will be adhered to in addition to the approved Site Specific Safety and Health plan. NASA, the Designer, and the Owner's representative assume no responsibility for the safety of the Contractor's employees. Ultimate responsibility remains with the Contractor to ensure compliance to all applicable safety and health requirements and will not be delegated. The Owner and/or his or her representative is authorized to stop work at any time, that a potential or existing safety hazard is discovered, and notify the Contractor of the condition for his corrective action.

15.0 RECORDKEEPING

Recordkeeping and Retention

Records of all exposure monitoring results will be maintained by us for at least the duration of the employee employment.

Exposure monitoring records shall include:

- The dates, number, duration, location and results of each of the samples taken including a description of the sampling procedure used to determine representative employee exposure.
- A description of the sampling and analytical methods used and evidence of their accuracy.
- The type of respiratory protective devices worn.
- Name, Social Security number, and job classification of the employee monitored and all other employees whose exposure the measurement is intended to represent.
- The environmental variables that could affect the measurement of employee exposure.

16.0 AIRBORNE LEAD MONITORING

Exposure monitoring will be performed in accordance with OSHA 29 CFR 1910.1025(d) or 29 CFR 1910.62(d). For defining monitoring requirements, worker exposure is that exposure that would occur if the worker were not wearing respiratory protection.

The action level of 30 micrograms per cubic meter of air (30 ug/m cubed) or greater is the exposure assessment level that warrants the use of engineering controls and/or respiratory protection.

Frequency of exposure monitoring shall be as follows:

- Monitoring during the first day of work to establish the worker exposure levels and verify the appropriate respiratory protection requirements.
- Once personnel lead exposures are determined to be below the action level of 30 ug/m cubed, further monitoring is not necessary unless there is a change in the work environment, process or procedures. Proper documentation requires two consecutive samples taken during the same work activity, taken at least 7 days apart, give results less than 30 ug/m cubed.
- If personnel exposures are determined to be between 30 ug/m cubed and 50 ug/m cubed, monitoring shall be conducted quarterly until 2 consecutive samples collected during the same work activity, collected at least seven days apart are less than 50 ug/m cubed and greater than 30 ug/m cubed. Then monitoring will be conducted every six months.
- If personnel exposures are found to be above 50 ug/m cubed, monitoring shall be conducted quarterly.
- For abrasive blasting, additional monitoring for respirable dust/particulate matter should be conducted.

Personnel Monitoring Notification

All personnel whose exposures are monitored will be notified of their results within 5 working days of the receipt of the results by us.

When results indicate that, without respirators, the worker was or would have been exposed to airborne levels at or above the permissible exposure limit (PEL) of 50 ug/m cubed, we will assure that the monitored worker is informed of the results. In addition, a written description of corrective action taken (additional engineering controls, administrative controls or respiratory protection equipment requirements) to be taken to reduce exposures below the PEL will be provided.

The company Safety Coordinator is responsible for issuing worker notifications.

17.0 Waste DISPOSAL

Lead contaminated waste generated during the abatement project must be disposed of as hazardous waste through NASA. Such waste includes lead paint chips; lead paint dust;

solvents, caustics, and sludge used for paint stripping; liquid waste from exterior blasting, wash water from cleanup; rags, sponges, and mops used for cleanup. Other wastes, which may be considered hazardous, include plastic sheets and tape used to cover floors and other surfaces during lead paint removal, and disposable protective clothing and respirator filters.

18.0 DECONTAMINATION

Workers will decontaminate each time that they leave the regulated area. Due to the nature of work it is not possible to install a full decontamination facility directly adjacent to the work area. Employees will proceed to the decontamination area to remove protective clothing. *After clothing has been removed employees will proceed to wash down area where they can wash their hands and face with disposable wipes.* Workers must wash off their hands and face prior to consumption of any food or drinks and at the end of every day. Full decontamination and showers will not be required for this process. *Used wipes will be disposed the same as the protective clothing as described above in section 13 of this plan*

19.0 FINAL CLEANING AND CLEARANCE OF EACH WORK AREA

Upon completion of all work activities that disturb LBP the work area shall be cleaned by HEPA vacuuming all loose dust and debris within the work area. Upon completion of the cleaning activity the on-site Industrial Hygienist shall conduct a visual inspection of the work area to verify that it is clean for re-occupancy by other contractors without the use of PPE. Final clearance will be by visual inspection only.

APPENDIX I	RESPIRATORY PROTECTION FOR LEAD DUST AND FUMES
APPENDIX II	OHC CERTIFICATIONS
APPENDIX III	LABORATORY CERTIFICATION
APPENDIX IV	QUALIFICATION OF SAMPLING PERSONNEL
APPENDIX V	SKETCH OF LEAD CONTROL AREA
APPENDIX VI	LEAD WORKER SIGNED TRAINING FORMS

APPENDIX I

**RESPIRATORY PROTECTION FOR LEAD DUST
AND FUMES**

Anderson Environmental Services

Respirator Protection Program

PURPOSE

This purpose of this operating procedure is to ensure the protection of all employees from respiratory, hazards, through proper use of respirators. Respirators are to be used only where engineering control of respirator hazards is not feasible, while engineering controls are being installed, or in emergencies.

RESPONSIBILITY

The Safety Officer is solely responsible for all facts of this program and had full authority to make necessary decisions to ensure success of this program. This authority includes hiring personnel and equipment purchases necessary to implement and operate the program. The Safety Officer will develop written detailed instructions covering each of the basic elements in this program, and is the sole person authorized to amend these instructions.

Anderson Environmental has expressly authorized the Safety Officer to halt any operation of the company where there is danger of serious personal injury. This policy includes respiratory hazards.

PROGRAM ELEMENTS

1. The Safety officer will develop detailed written standard operating procedures governing the selection and use of respirators, using the NIOSH Respirator Decision Logic as a guideline. Outside consultation, manufacturer's assistance, and other recognized authorities will be consulted if there is any doubt regarding proper selection and use. These detailed procedures will be included as appendices to this respirator program. Only the Safety Officer may amend these procedures.
2. Respirators will be selected on the basis of hazards to which the worker is exposed. All selections will be made by the Safety Officer. Only MSHAINIOSH-certified respirators will be selected and used.
3. The users will be instructed and trained in the proper use of respirators and their limitations. Both Supervisors and workers will be so instructed by the Safety Officer. Training should provide the employee and opportunity to handle the

respirator, have it fitted properly, test its facepiece-to-face seal, wear it normal air for a long familiarity period, and finally to wear it in a test atmosphere. Every atmosphere wearer will receive fitting instructions, including demonstrations and practice in how the respirator should be worn, how to adjust it, how to determine if it fits properly.

Respirators should not be worn when conditions prevent a good face seal. Such conditions may be a growth of beard, sideburns, a skull cap that projects under the facepiece, or temple piece on glasses. No employees of Ecology Tek, who are required to wear respirators, may wear beards. Also the absence of one or both dentures can seriously affect the fit of a facepiece. The worker's diligence in observing these factors will be evaluated by periodic checks. To assure proper protection, the facepiece fit will be checked by the wearer each time the wearer puts on the respirator. This will be done by following the manufacturer's facepiece- fitting instructions.

4. Where practicable, the respirators will be assigned to individual workers for their exclusive use.
5. Respirators will be regularly cleaned and disinfected. Those issued for the exclusive use of one worker will be cleaned after each day's use, or more often if necessary. Those used by more than one worker will be thoroughly cleaned and disinfected after each use. The Safety Officer will establish a respirator cleaning and maintenance facility and develop detailed written cleaning instructions.
6. The central respirator cleaning and maintenance facility will store respirators and a clean and sanitary location.
7. Respirators used routinely will be inspected during cleaning. Worn or deteriorated parts will be replaced. Respirators for emergency use such as self-contained devices will be thoroughly inspected at least once a month and after each use. Inspection for SCBA breathing gas pressure will be performed weekly.
8. Appropriate surveillance work area conditions and degree of employee exposures or stress will be maintained.
9. There will be regular inspection and evaluation to determine the continued effectiveness of the program. The Safety Officer will make frequent inspections of all areas where respirators are used to ensure compliance with the respiratory protection programs
10. Persons will not be assigned to tasks requiring use of respirators unless it has been determined that they are physically able to perform the work and use the

equipment. The physician will determine what health and physical conditions are pertinent. The respirator user's medical status will be reviewed annually.

11. Certified respirators will be used.

Anderson Environmental Services

Respirator Program Evaluation Checklist

In general, the respirator program should be evaluated for each job or at least annually, with program adjustments, as appropriate, made to reflect the evaluation results. Program function can be separated into administration and operation.

A. Program Administration

___ (1) Is there a written policy, which acknowledges employer responsibility for providing a safe and healthful workplace, and assigns program responsibility, accountability, and authority?

(2) Is program responsibility vested in one individual who is knowledgeable and who can coordinate all aspects of the program at the jobsite?

___ (3) Can feasible engineering controls or work practices eliminate the need for respirators?

___ (4) Are there written procedures/statements covering the various aspects of the respirator program, including,

- ___ designation of an administrator;
- ___ respirator selection;
- ___ purchase of MSHAINIOSH certified equipment
- ___ medical aspects of respirator usage;
- ___ issuance of equipment;
- ___ fitting
- ___ training
- ___ maintenance, storage, and repair
- ___ inspection
- ___ use under special condition; and
- ___ works are surveillance?

B. Program Operation

(1) Respiratory protective equipment selection

___ Are work area conditions and workers exposures properly surveyed?

___ Are respirators selected on the basis of Hazards to which the worker is exposed?

___ Are Selections made by individuals knowledgeable of proper

selection procedures?

- (2) Are only certified respirators purchased and used; do they provide adequate protection for the specific hazard and concentration of the containment?
- (3) Has a medical evaluation of the prospective user been made to determine physical and psychological ability to wear the selected respiratory protective equipment?
- (4) Where practical, have respirators been issued to the users for their exclusive use, and are there records covering issuance?

(5) Respiratory protective equipment fitting

- Are the users given the opportunity to try on several respirators to determine whether the respirator they will subsequently be wearing is the fitting one?
- Is the fit tested at appropriate intervals?
- Are those users who require corrective lenses properly fitted?
- Are users prohibited from wearing contact lenses when using respirators?
- Is the facepiece-to-face seal tested in a test atmosphere?
- Are workers prohibited from wearing respirators in contaminated work areas when they have facial hair or other characteristics may cause face seal leakage?

(6) Respirator use in the work area

- Are respirators being worn correctly (i.e., head covering over respirator straps)?
- Are workers keeping respirators on all the time while in the work area?

(7) Maintenance of respiratory protective equipment

Cleaning and disinfecting

- ___ Are respirators cleaned and disinfected after each use when different people use the same device, or as frequently as necessary for devices issued to individual users?
- ___ Are proper methods of cleaning and disinfecting utilized

Storage

- ___ Are respirators stored in a manner so as to protect them from dust, sunlight, heat, excessive cold or moisture, or damaging chemicals
- ___ Are respirators stored properly in a storage facility so as to prevent them from deforming?
- ___ Is storage in lockers and tool boxes permitted only if the respirator is in a carrying case or carton?

Inspection

- ___ Are respirators inspected before and after each use and during cleaning?
- ___ Are qualified individuals/users instructed in inspection techniques?
- ___ Is respiratory protective equipment designated as "emergency use" inspected at least monthly (in addition to after each use)?
- ___ Are SCBA incorporating breathing gas containers inspected weekly for breathing gas equipment?
- ___ Is a record kept of the inspection of "emergency use" respiratory protective equipment?

Repair

- ___ Are replacement parts used in repair those of the manufacturer of the respirator?
- ___ Are repairs made by manufacturer or manufacturer-trained individuals?

(8) Special use conditions

- Is a procedure developed for respiratory protective equipment usage in atmosphere immediately dangerous to life or health?
- Is a procedure developed for equipment usage for entry into confined spaces?

(9) Training

- Are users trained in proper respirator use, cleaning, and inspection?
- Are users trained in the basis for selection of respirators?
- Are users evaluated, using competency-based evaluation, before and after training?

Respirator Inspection Record

1. Type _____ 2. No. _____

3. Defects Found:

A.Facepiece _____

B. Inhalation Valve _____

C.Exhalation Valve Assembly _____

D. Headbands _____

E.Cartridge Holder. _____

F.Cartridge/Canister _____

G.Filter _____

H. Harness Assembly _____

I.Hose Assembly _____

J.Speaking Diaphragm _____

K. Gaskets _____

L. Connections _____

M. Other Defects _____

APPENDIX II

OHC CERTIFICATIONS

United States Environmental Protection Agency

This is to certify that

OHC Environmental Engineering, Inc.

has fulfilled the requirements of the Toxic Substances Control Act (TSCA) Section 402, and has received certification to conduct lead-based paint activities pursuant to 40 CFR Part 745.226

In the Jurisdiction of:

Florida

This certification is valid from the date of issuance and expires April 30, 2015

FL-2391-3

Certification #

MAR 27 2012

Issued On

(b)(3)

Pesticides and Toxic Substances Branch

APPENDIX III

LABORATORY CERTIFICATION



AIHA

Laboratory Accreditation
Programs, LLC

AIHA Laboratory Accreditation Programs, LLC

acknowledges that

Schneider Laboratories, Inc.

2512 West Cary Street, Richmond, VA 23220-5117

Laboratory ID: 100527

along with all premises from which key activities are performed, as listed above, has fulfilled the requirements of the AIHA Laboratory Accreditation Programs (AIHA-LAP), LLC accreditation to the ISO/IEC 17025:2005 international standard, *General Requirements for the Competence of Testing and Calibration Laboratories* in the following:

LABORATORY ACCREDITATION PROGRAMS

- | | |
|--|-----------------------------------|
| <input checked="" type="checkbox"/> INDUSTRIAL HYGIENE | Accreditation Expires: 04/01/2013 |
| <input checked="" type="checkbox"/> ENVIRONMENTAL LEAD | Accreditation Expires: 04/01/2013 |
| <input type="checkbox"/> ENVIRONMENTAL MICROBIOLOGY | Accreditation Expires: |
| <input type="checkbox"/> FOOD | Accreditation Expires: |

Specific Field(s) of Testing (FoT)/Method(s) within each Accreditation Program for which the above named laboratory maintains accreditation is outlined on the attached **Scope of Accreditation**. Continued accreditation is contingent upon successful on-going compliance with ISO/IEC 17025:2005 and AIHA-LAP, LLC requirements. This certificate is not valid without the attached **Scope of Accreditation**. Please review the AIHA-LAP, LLC website (www.aihaaccreditedlabs.org) for the most current Scope.

(b)(6)

Chairperson, Analytical Accreditation Board

Revision 10: 01/13/2011

(b)(6)

Director, AIHA Laboratory Accreditation Programs, LLC

Date Issued: 04/01/2011

APPENDIX IV

QUALIFICATION OF SAMPLING PERSONNEL

United States Environmental Protection Agency

This is to certify that

(b)(6)

has fulfilled the requirements of the Toxic Substances Control Act (TSCA) Section 402, and has received certification to conduct lead-based paint activities pursuant to 40 CFR Part 745.226 as a:

Risk Assessor

In the Jurisdiction of:

Florida

This certification is valid from the date of issuance and expires December 10, 2013

FL-R-5741-4

Certification #

Issued On

(b)(6)

Pesticides and Toxic Substances Branch

United States Environmental Protection Agency

This is to certify that



has fulfilled the requirements of the Toxic Substances Control Act, Section 402, and has received certification to conduct lead-based paint abatement under Part 745.22 of the rule.

In the Jurisdiction of:

Florida

This certification is valid from the date of issuance and expires November 27, 2015

FL-R-6790-2

Certification # NOV 29 2015

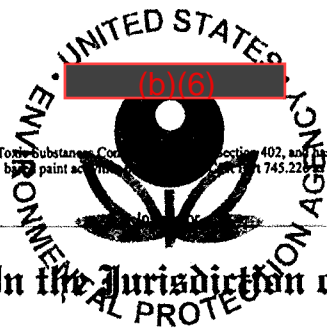
Issued On _____



Pesticides and Toxic Substances Branch

United States Environmental Protection Agency

This is to certify that



has fulfilled the requirements of the Toxic Substances Control Act, Section 402, and has received certification to conduct lead-based paint activities in accordance with EPA's 745.220-101(a).

In the Jurisdiction of:

Florida

This certification is valid from the date of issuance and expires September 14, 2015

FL-1-128019-1
Certification # SEP 14 2012
Issued On



(b)(6)
Pesticides and Toxic Substances Branch

APPENDIX V

SKETCH OF LEAD CONTROL AREA

Page 51 redacted for the following reason:

(b)(7)(F)

APPENDIX VI

LEAD WORKER SIGNED TRAINING FORMS

B2 TEST STAND WORK PACKAGE ONE

ABATEMENT PLAN FOR ASPIRATOR AND ROLLING DECK

LEAD WORKER TRAINING CERTIFICATION

Anderson Environmental Services, Inc.

PHONE: (601) 940-4644 ♦ FAX: 601/354-3133
P. O. BOX 16891 ♦ JACKSON, MS 39236

2-10-13

(b)(6)

Harry Pepper & Associates
6706 N 9th Ave # A7
Pensacola, FL 32504

RE: Stennis Space Center B2 Test Stand Project

(b)(6)

Please rescind (b)(6) as the supervisor and competent person on the above
aforementioned project. She has taken IL and cannot work at this time. She will be replaced with
(b)(6) who is also highly experienced in the abatement industry. (b)(6) will serve as
Anderson's superintendent and competent person to begin this project. We have also added three
additional lead abatement workers. Thank you for your attention and assistance in this matter.
We apologize for any inconvenience that these changes may have caused.

Sincerely,

(b)(6)

Project Coordinator

*Licensed ♦ Insured ♦ Environmental Services ♦ Commercial ♦ Residential
Asbestos Abatement ♦ Inspections ♦ Air Monitoring ♦ Mold Remediation ♦ Demolition Services*

CWD International, Inc. dba

Environmental Training Fund

39840.6682CERT/PBSE

900 N.W. 5TH Avenue, Fort Lauderdale, Florida 33311

(954) 524-7200 Processed By:

This is to Certify that

(b)(6)

(b)(6)

(b)(6)

*has successfully completed an English
Lead 40 Hr. Abatement Supervisor Course*

21-Jan-13

TO

25-Jan-13

Initial on tests include an extensive hands-on component.

Complies with Sec. 402 TSCA 15 USC 2682 and Accredited by NIOSH, OSHA, EPA, and

Trainer(s): Alberto A. Ania

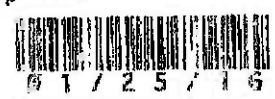
TEST SCORE: 87% Training Address: 2235 Park Avenue Suite 406, Orange Park, FL 32067

Passed the hands-on assessment & completed the course from on: 25-Jan-13

(b)(6)

This Certificate Expires:

OSHA DATE: 25-Jan-14
SUNSET DATE: 25-Jan-16
INTERIM DATE: 24-Jul-13



25-Jan-13
GA-PreAudit

USEPA's actual expiration date will appear on individual's license. See individual state rules for details.



Medical Fit Test

A. EMPLOYEE DATA

Employee name (b)(6) SS#

Job Description: Asbestos and Lead Abatement Worker

B. TRAINING RECORD

The below-signed employee affirms the she/he has been trained in each of the checked areas:

Table with 2 columns of training topics: Asbestos and Lead health effects, Maintenance Procedures, cleaning, Asbestos and Lead exposure routes, Effect of facial hair, Rationale of respirator use, Half mask cartridge respirators, Limitations of different types of Respirators, Full face cartridge respirators, P.A.P.R. respirators, Proper fitting procedures, Ambient air pump (constant flow), Inspection procedures, Type C, pressure demand, Regulations governing asbestos, Type C, constant flow, Availability of PAPR, Other ()

C. FIT TESTING RECORD

The below-signed employee was fit-tested in accordance with OSHA protocol with the following respirators (QN = Quantitative QL = Qualitative):

Half mask size_M rubber type (North) 7700
Full Face size rubber type
PAPR face mask rubber type
SARw/emergency HEPA, facepiece size Other ()

Employee signature (b)(6) Date 2-6-13
Trainer/Tester (b)(6) Date 2-6-13

"PHYSICIAN'S STATEMENT"

Addendum to the Application for Certification as an Asbestos Worker.

Instructions to the applicant:

1. Complete the administrative information below exactly as completed on your application.
2. Present this form to your examining physician for completion of the physician statement portion.
3. Attach this entire form with the physician's original signature to your application.

Applicant Name: _____

(b)(6)

Mailing Address: _____

City, State, Zip Code: _____

Social Security Number: _____

Instructions to the examining physician:

1. Complete the physician's statement below.
2. Return this entire form with your original signature to the applicant for attachment to his application.
3. Date - Will be the date the physical was taken on the applicant.

PHYSICIAN'S STATEMENT:

Based on my evaluation of the current health of the above-named individual, I hereby approve him/her to work on asbestos projects. I certify that I am currently licensed to practice medicine.

(b)(6)

Typed Name

10-5-12

Date of Physical

Practice Name: Providence Occupational Health
5100 Rangeline Service Road N.
Practice Address: Mobile, AL 36619

City, State, Zip Code



STATE OF MISSISSIPPI

(b)(6)
GOVERNOR

MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY

(b)(6) EXECUTIVE DIRECTOR

February 4, 2013

(b)(6)

Anderson Environmental Services, Inc.
PO Box 16891
Jackson, Mississippi 39236

Re: Certificate of Licensure
Lead Supervisor Certification

Your application for certification as a Lead Supervisor has been approved by the Lead Certification Branch in accordance with the Mississippi Regulations for Lead-Based Paint Activities, Miss. Code Annotated Sections 49-17-501 through 49-17-531. Your Mississippi Certification number is PBS-00005557 which is reflected on your enclosed Mississippi Certification identification card or certificate.

Your Mississippi Certification is valid through Feb 3rd, 2014. In order to maintain certification as a Lead Supervisor, you must renew your license on or before the expiration date stated on your card or certificate and pay the renewal fee. If you should continue to perform lead-based paint activities after the expiration date, you will be in violation of the Mississippi Regulations for Lead-Based Paint Activities and may be cited for non-compliance.

It is your responsibility to ensure that you have met all the requirements for renewal of your lead certification.

If you have any questions, please feel free to contact (b)(6)

(b)(6)

(b)(6) P.E., Chief
Asbestos & Lead Certification Branch

Enclosure

48225 LIC20130001

CERTIFICATE OF WORKERS ACKNOWLEDGMENT

PROJECT NAME: B2 Test Stand

PROJECT ADDRESS: Stennis Space Center

CONTRACTORS NAME: Anderson Environmental Services, Inc.

WORKING WITH ASBESTOS AND LEAD BASED PAINT CAN BE DANGEROUS. INHALING OR INGESTING ASBESTOS OR LEAD BASED PAINT HAS BEEN LINKED TO VARIOUS TYPES OF CANCERS. IF YOU SMOKE AND INHALE ASBESTOS FIBERS THE CHANCE THAT YOU WILL DEVELOP LUNG CANCER IS GREATER THAN THAT OF A NON-SMOKER.

YOUR EMPLOYER'S CONTRACT WITH THE OWNER FOR THE ABOVE MENTIONED PROJECT REQUIRES THAT: You be supplied with the proper respirator and be trained in its use. You have been trained in safe work practices and in the use of the equipment found on the job. You receive a medical examination. These things are to have been done at no cost to you.

RESPIRATORY PROTECTION:

You must have been trained in the proper use of respirators, and informed of the type respirator to be used on the above reference project. You must be given a copy of the written respiratory protection manual issued by your employer. You must be equipped at no cost to you with a respirator for the above mentioned project.

TRAINING COURSE:

You must have been trained in the dangers of inherent handling of asbestos and lead based paint, breathing asbestos and lead dust, the proper work procedures and in the personal and area protective measures. The topics covered in the course must have included the following:

- Physical characteristics of asbestos and lead
- Health hazards associated with asbestos and lead
- Respiratory protection
- Use of protective equipment
- Pressure Differential Systems
- Work practices including hands on or on-job training
- Personal decontamination procedures
- Air monitoring, personal and area

MEDICAL EXAMINATION

You must have had a medical examination within the past 12 months at no cost to you. This examination must have included: health history, pulmonary function tests and may have included an evaluation of a chest x-ray.

Signature: _____

(b)(6)

Social Security No _____

Printed Name _____

Witness: _____

(b)(6)

CWD International, Inc. dba

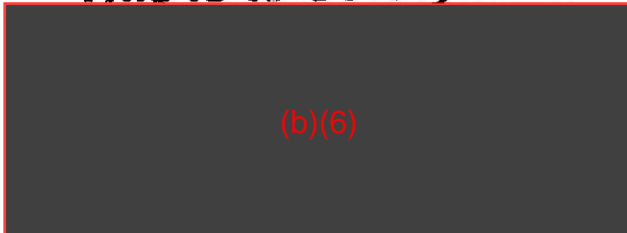
Environmental Training Fund

39844.6427CERT/PB16E

900 N.W. 5TH Avenue, Fort Lauderdale, Florida 33311

(954) 824-7208 Processed By:

This is to Certify that



(b)(6)



has successfully completed an English

Lead Initial 16 Hr. Abatement Worker Course

30-Jan-13

TO

31-Jan-13

Initial courses include an extensive hands-on component.

Complies with Sec. 402 TSCA 15 USC 2682 and Accredited by the CT-DPH, MO-

Trainer(s): Alberto A. Ania

BEST SCORE: 80 % Training Address: 2233 Park Avenue Suite 406, Orange Park

Passed the hands-on assessment & completed the course exam on: 31-



(b)(6)

This Certificate Expires:

OSHA DATE: 31-Jan-14
SUNSET DATE: 31-Jan-16
INTERIM DATE: 30-Jul-13



31-Jan-16

GA-PreAudit

Course Number JE1305

USEPA's actual expiration date will appear on individual's license. See individual state rules for actual state expiration date.

Medical Fit Test

A. EMPLOYEE DATA

Employee name (b)(6) SS# _____

Job Description: Asbestos and Lead Abatement Worker

B. TRAINING RECORD

The below-signed employee affirms the she/he has been trained in each of the checked areas:

<u>Asbestos and Lead health effects</u>	<u>Maintenance Procedures, cleaning</u>
<u>Asbestos and Lead exposure routes</u>	<u>Effect of facial hair</u>
<u>Rationale of respirator use</u>	<u>Half mask cartridge respirators</u>
<u>Limitations of different types of Respirators</u>	<u>Full face cartridge respirators</u>
<u>Proper fitting procedures</u>	<u>P.A.P.R. respirators</u>
<u>Inspection procedures</u>	<u>Ambient air pump (constant flow)</u>
<u>Regulations governing asbestos</u>	<u>Type C, pressure demand</u>
<u>Availability of PAPR</u>	<u>Type C, constant flow</u>
	<u>Other (_____)</u>

C. FIT TESTING RECORD

The below-signed employee was fit-tested in accordance with OSHA protocol with the following respirators (QN = Quantitative QL = Qualitative):

Half mask size_M _____ rubber type (North) 7700
Full Face _____ size _____ rubber type _____)
PAPR _____ face mask _____ rubber type _____)
SARw/emergency HEPA, facepiece size Other { _____ }

Employee signature (b)(6) Date 2-6-13

Trainer/Tester (b)(6) Date 2-6-13

"PHYSICIAN'S STATEMENT"

Addendum to the Application for Certification as an Asbestos Worker.

Instructions to the applicant:

1. Complete the administrative information below exactly as completed on your application.
2. Present this form to your examining physician for completion of the physician statement portion.
3. Attach this entire form with the physician's original signature to your application.

Applicant Name: _____

(b)(6)

Mailing Address: _____

City, State, Zip Code: _____

Social Security Number: _____

Instructions to the examining physician:

1. Complete the physician's statement below.
2. Return this entire form with your original signature to the applicant for attachment to his application.
3. Date - Will be the date the physical was taken on the applicant.

PHYSICIAN'S STATEMENT:

Based on my evaluation of the current health of the above-named individual, I hereby approve him/her to work on asbestos projects. I certify that I am currently licensed to practice medicine.

(b)(6)

Typed Name

2-10-12

Date of Physical

Providence Diagnostic
Practice Name

5100 Rensselaer Rd
Practice Address

Wrentham, MA
City, State, Zip Code



STATE OF MISSISSIPPI

(b)(6)
GOVERNOR

MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY

(b)(6) EXECUTIVE DIRECTOR

February 4, 2013

(b)(6)

Anderson Environmental Services, Inc.
870 Foley Street
Jackson, Mississippi 39236

Re: Certificate of Licensure
Lead Worker Certification

Your application for certification as a Lead Worker has been approved by the Lead Certification Branch in accordance with the Mississippi Regulations for Lead-Based Paint Activities, Miss. Code Annotated Sections 49-17-501 through 49-17-531. Your Mississippi Certification number is PBW-00005561 which is reflected on your enclosed Mississippi Certification identification card or certificate.

Your Mississippi Certification is valid through Feb 3rd, 2014. In order to maintain certification as a Lead Worker, you must renew your license on or before the expiration date stated on your card or certificate and pay the renewal fee. If you should continue to perform lead-based paint activities after the expiration date, you will be in violation of the Mississippi Regulations for Lead-Based Paint Activities and may be cited for non-compliance.

It is your responsibility to ensure that you have met all the requirements for renewal of your lead certification.

If you have any questions, please feel free to contact

(b)(6)

(b)(6)

Asbestos & Lead Certification Branch

Enclosure

48414 LIC20130001

OFFICE OF POLLUTION CONTROL

CERTIFICATE OF WORKERS ACKNOWLEDGMENT

PROJECT NAME: B2 Test Stand

PROJECT ADDRESS: Stennis Space Center

CONTRACTORS NAME: Anderson Environmental Services, Inc.

WORKING WITH ASBESTOS AND LEAD BASED PAINT CAN BE DANGEROUS. INHALING OR INGESTING ASBESTOS OR LEAD BASED PAINT HAS BEEN LINKED TO VARIOUS TYPES OF CANCERS. IF YOU SMOKE AND INHALE ASBESTOS FIBERS THE CHANCE THAT YOU WILL DEVELOP LUNG CANCER IS GREATER THAN THAT OF A NON-SMOKER.

YOUR EMPLOYER'S CONTRACT WITH THE OWNER FOR THE ABOVE MENTIONED PROJECT REQUIRES THAT: You be supplied with the proper respirator and be trained in its use. You have been trained in safe work practices and in the use of the equipment found on the job. You receive a medical examination. These things are to have been done at no cost to you.

RESPIRATORY PROTECTION:

You must have been trained in the proper use of respirators, and informed of the type respirator to be used on the above reference project. You must be given a copy of the written respiratory protection manual issued by your employer. You must be equipped at no cost to you with a respirator for the above mentioned project.


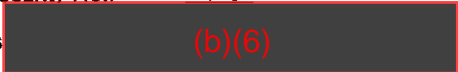
TRAINING COURSE:

You must have been trained in the dangers of inherent handling of asbestos and lead based paint, breathing asbestos and lead dust, the proper work procedures and in the personal and area protective measures. The topics covered in the course must have included the following:

- Physical characteristics of asbestos and lead
- Health hazards associated with asbestos and lead
- Respiratory protection
- Use of protective equipment
- Pressure Differential Systems
- Work practices including hands on or on-job training
- Personal decontamination procedures
- Air monitoring, personal and area

MEDICAL EXAMINATION

You must have had a medical examination within the past 12 months at no cost to you. This examination must have included: health history, pulmonary function tests and may have included an evaluation of a chest x-ray.

Signature:  Social Security No.: _____
Printed Name: _____ Witness: 

CWD International, Inc. dba

Environmental Training Fund

39844.6426CERT/PB16E

900 N.W. 5TH Avenue, Fort Lauderdale, Florida 33311

(954) 24-7208 Processed By:

This is to Certify that

(b)(6)



***has successfully completed an English
Lead Initial 16 Hr. Abatement Worker Course***

30-Jan-13 TO 31-Jan-13

Initial courses include an extensive hands-on component.

Complies with Sec. 402 TSCA 15 USC 2882 and Accredited by the CT-DPH, MO-

Trainer(s): Alberto A. Ania

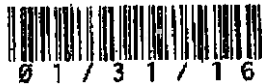
TEST SCORE: 74 % Training Address: 2233 Park Avenue Suite 406, Orange Park

Passed the hands-on assessment & completed the course exam on: 31-

(b)(6)

This Certificate Expires:

OSHA DATE: 31-Jan-14
SUNSET DATE: 31-Jan-16
INTERIM DATE: 30-Jul-13



31-Jan-16

GA-PreAudit

Course Number **JE1305**

USEPA's actual expiration date will appear on individual's license. See individual state rules for actual state expiration date.

Medical Fit Test

A. EMPLOYEE DATA

Employee name (b)(6) SS# _____

Job Description: Asbestos and Lead Abatement Worker

B. TRAINING RECORD

The below-signed employee affirms the she/he has been trained in each of the checked areas:

<u>Asbestos and Lead health effects</u>	<u>Maintenance Procedures, cleaning</u>
<u>Asbestos and Lead exposure routes</u>	<u>Effect of facial hair</u>
<u>Rationale of respirator use</u>	<u>Half mask cartridge respirators</u>
<u>Limitations of different types of Respirators</u>	<u>Full face cartridge respirators</u>
<u>Proper fitting procedures</u>	<u>P.A.P.R. respirators</u>
<u>Inspection procedures</u>	<u>Ambient air pump (constant flow)</u>
<u>Regulations governing asbestos</u>	<u>Type C, pressure demand</u>
<u>Availability of PAPR</u>	<u>Type C, constant flow</u>
	<u>Other (_____)</u>

C. FIT TESTING RECORD

The below-signed employee was fit-tested in accordance with OSHA protocol with the following respirators (QN = Quantitative QL = Qualitative):

Half mask size_M _____ rubber type (North) 7700
Full Face _____ size _____ rubber type _____
PAPR _____ face mask _____ rubber type _____
SARw/emergency HEPA, facepiece size Other (_____)

Employee signature _____ Date 2-6-13

Trainer/Tester (b)(6) Date 2-6-13

"PHYSICIAN'S STATEMENT"

Addendum to the Application for Certification as an Asbestos Worker.

Instructions to the applicant:

- 1. Complete the administrative information below exactly as completed on your application.
- 1. Present this form to your examining physician for completion of the physician statement portion.
- 1. Attach this entire form with the physician's original signature to your application.

Applicant Name:

(b)(6)

Mailing Address:

City, State, Zip Code:

Social Security Number:

Instructions to the examining physician:

- 1. Complete the physician's statement below.
- 1. Return this entire form with your original signature to the applicant for attachment to his application.
- 1. Date - Will be the date the physical was taken on the applicant.

PHYSICIAN'S STATEMENT:

Based on my evaluation of the current health of the above-named individual, I hereby approve him/her to work on asbestos projects. I certify that I am currently licensed to practice medicine.

(b)(6)

Typed Name

12/17/12

Date of Physical

MEA

Practice Name

Practice Address

City, State, Zip Code



STATE OF MISSISSIPPI

(b)(6)
GOVERNOR

MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY

(b)(6)
EXECUTIVE DIRECTOR

February 4, 2013

(b)(6)

Anderson Environmental Services, Inc.
870 Foley Street
Jackson, Mississippi 39236

Re: Certificate of Licensure
Lead Worker Certification

Your application for certification as a Lead Worker has been approved by the Lead Certification Branch in accordance with the Mississippi Regulations for Lead-Based Paint Activities, Miss. Code Annotated Sections 49-17-501 through 49-17-531. Your Mississippi Certification number is PBW-00005560 which is reflected on your enclosed Mississippi Certification identification card or certificate.

Your Mississippi Certification is valid through Feb 3rd, 2014. In order to maintain certification as a Lead Worker, you must renew your license on or before the expiration date stated on your card or certificate and pay the renewal fee. If you should continue to perform lead-based paint activities after the expiration date, you will be in violation of the Mississippi Regulations for Lead-Based Paint Activities and may be cited for non-compliance.

It is your responsibility to ensure that you have met all the requirements for renewal of your lead certification.

If you have any questions, please feel free to contact (b)(6)

Sincerely,

(b)(6)

Asbestos & Lead Certification Branch

Enclosure

63287 LIC20130001

CERTIFICATE OF WORKERS ACKNOWLEDGMENT

PROJECT NAME: B2 Test Stand

PROJECT ADDRESS: Stennis Space Center

CONTRACTORS NAME: Anderson Environmental Services, Inc.

WORKING WITH ASBESTOS AND LEAD BASED PAINT CAN BE DANGEROUS. INHALING OR INGESTING ASBESTOS OR LEAD BASED PAINT HAS BEEN LINKED TO VARIOUS TYPES OF CANCERS. IF YOU SMOKE AND INHALE ASBESTOS FIBERS THE CHANCE THAT YOU WILL DEVELOP LUNG CANCER IS GREATER THAN THAT OF A NON-SMOKER.

YOUR EMPLOYER'S CONTRACT WITH THE OWNER FOR THE ABOVE MENTIONED PROJECT REQUIRES THAT: You be supplied with the proper respirator and be trained in its use. You have been trained in safe work practices and in the use of the equipment found on the job. You receive a medical examination. These things are to have been done at no cost to you.

RESPIRATORY PROTECTION:

You must have been trained in the proper use of respirators, and informed of the type respirator to be used on the above reference project. You must be given a copy of the written respiratory protection manual issued by your employer. You must be equipped at no cost to you with a respirator for the above mentioned project.

TRAINING COURSE:

You must have been trained in the dangers of inherent handling of asbestos and lead based paint, breathing asbestos and lead dust, the proper work procedures and in the personal and area protective measures. The topics covered in the course must have included the following:

- Physical characteristics of asbestos and lead
- Health hazards associated with asbestos and lead
- Respiratory protection
- Use of protective equipment
- Pressure Differential Systems
- Work practices including hands on or on-job training
- Personal decontamination procedures
- Air monitoring, personal and area

MEDICAL EXAMINATION

You must have had a medical examination within the past 12 months at no cost to you. This examination must have included: health history, pulmonary function tests and may have included an evaluation of a chest x-ray.

Signature: _____ Social Security No: _____
Printed Name: _____ Witness: _____

(b)(6) (b)(6)

CWD International, Inc. dba

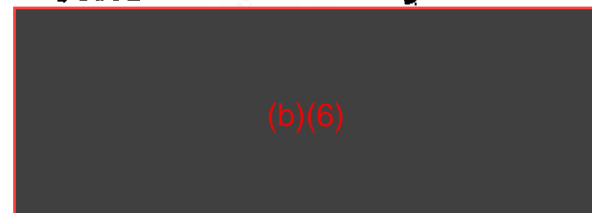
Environmental Training Fund

39844.6977CBRT/PB16E

900 N.W. 5TH Avenue, Fort Lauderdale, Florida 33311

(954) 224-7208 Processed By:

This is to Certify that



has successfully completed an English Lead Initial 16 Hr. Abatement Worker Course

30-Jan-13 TO 31-Jan-13

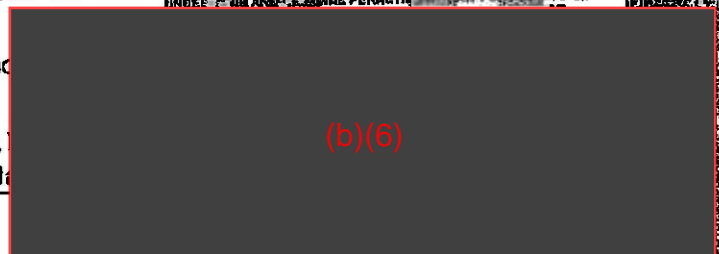
Initial courses include an extensive hands-on component.

Complies with Sec. 402 TSCA 15 USC 2682 and Accredited by the CT-DPH, MO-DC

Trainer(s): Alberto A. Ania

TEST SCORE: 78 % Training Address: 2233 Park Avenue Suite 406, Orange Park,

Passed the hands-on assessment & completed the course exam on: 31-J



This Certificate Expires:

OSHA DATE: 31-Jan-14
SUNSET DATE: 31-Jan-16
INTERIM DATE: 30-Jul-13



31-Jan-16
GA-PreAudit

Course Number JE1305

USEPA's actual expiration date will appear on individual's license. See individual state rules for actual state expiration date.

LITHO. IN U.S.A.

Medical Fit Test

A. EMPLOYEE DATA

Employee name (b)(6) SS# _____

Job Description: Asbestos and Lead Abatement Worker

B. TRAINING RECORD

The below-signed employee affirms the she/he has been trained in each of the checked areas:

<u>Asbestos and Lead health effects</u>	<u>Maintenance Procedures, cleaning</u>
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<u>Limitations of different types of</u>	<u>Full face cartridge respirators</u>
<u>Respirators</u>	<u>P.A.P.R. respirators</u>
<u>Proper fitting procedures</u>	<u>Ambient air pump (constant flow)</u>
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Employee signature (b)(6) Date 2-6-13
Trainer/Tester (b)(6) Date 2-6-13

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Applicant Name:

(b)(6)

Mailing Address:

City, State, Zip Code:

Social Security Number:

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(b)(6)

Typed Name

Date of Physical

12/17/12

MEA

Practice Name

Practice Address

City, State, Zip Code

CERTIFICATE OF WORKERS ACKNOWLEDGMENT

PROJECT NAME: B2 Test Stand.

PROJECT ADDRESS: Stennis Space Center.

CONTRACTORS NAME: Anderson Environmental Services, Inc.

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Signature: (b)(6) Social Security No. _____
Printed Name: _____ Witness: (b)(6)

CWD International, Inc. dba

Environmental Training Fund

900 N.W. 5TH Avenue, Fort Lauderdale, Florida 33311

(954) 524-7208 Processed By:

39844,6976CERT/PB16E

This is to Certify that



(b)(6)



**has successfully completed an English
Lead Initial 16 Hr. Abatement Worker Course**

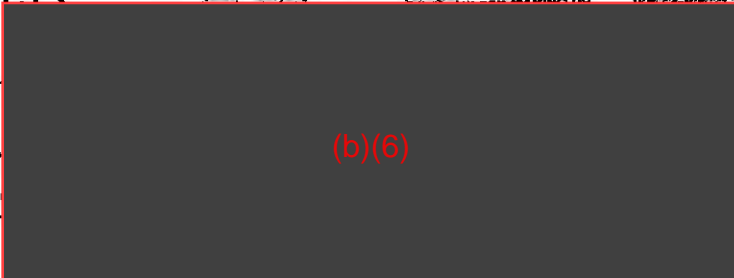
30-Jan-13 TO 31-Jan-13

Initial courses include an extensive hands-on component.

Complies with Sec. 402 TSCA 15 USC 2682 and Accredited by the CT-DPH, MO-DOH

Trainer(s): Alberto A. Arnia

TEST SCORE: 86 % Training Address: 2233 Park Avenue Suite 406, Orange Park, FL 32067
Passed the hands-on assessment & completed the course exam on: 31-Jan-13



(b)(6)

This Certificate Expires:

OSHA DATE: 31-Jan-14
SUNSET DATE: 31-Jan-16
INTERIM DATE: 30-Jul-13



31-Jan-16

GA-PreAudit

Course Number JE1305

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LITHO. IN U.S.A.

Medical Fit Test

A. EMPLOYEE DATA

Employee name (b)(6) SS# _____

Job Description: Asbestos and Lead Abatement Worker

B. TRAINING RECORD

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PAPR _____ face mask _____ rubber type _____
SARw/emergency HEPA, facepiece size Other (_____)

Employee signature (b)(6) Date 2/12/13

Trainer/Tester (b)(6) Date 2/6/13

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Applicant Name: (b)(6) _____

Mailing Address: _____

City, State, Zip Code: _____

Social Security Number: _____

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1. Return this entire form with your original signature to the applicant for attachment to his application.
1. Date - Will be the date the physical was taken on the applicant.

PHYSICIAN'S STATEMENT:

(b)(6)

Above-named individual, I hereby approve him/her to be licensed to practice medicine.

Physician's Signature

Typed Name MIA MEDICAL CLINIC - NORTH

506 OLD CANTON RD.

JACKSON, MS 39211

Date of Physical _____

(b)(6)

Practice Name _____

Practice Address _____

City, State, Zip Code _____



STATE OF MISSISSIPPI

(b)(6)
GOVERNOR

MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY

(b)(6) EXECUTIVE DIRECTOR

February 4, 2013

(b)(6)

Anderson Environmental Services
870 Foley Street
Jackson, Mississippi 39236

Re: Certificate of Licensure
Lead Worker Certification

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It is your responsibility to ensure that you have met all the requirements for renewal of your lead certification.

If you have any questions, please feel free to contact

(b)(6)

Sincerely,

(b)(6)

Asbestos & Lead Certification Branch

Enclosure

63285 LIC20130001

CERTIFICATE OF WORKERS ACKNOWLEDGMENT

PROJECT NAME: B2 Test Stand

PROJECT ADDRESS: Stennis Space Center

CONTRACTORS NAME: Anderson Environmental Services, Inc.

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- Air monitoring, personal and area

MEDICAL EXAMINATION

You must have had a medical examination within the past 12 months at no cost to you. This examination must have included: health history, pulmonary function tests and may have included an evaluation of a chest x-ray.

Signature: _____ (b)(6) _____ Social Security No _____
Printed Name: _____ (b)(6) _____ Witness _____ (b)(6) _____

APPENDIX VII

RESPIRATOR CLEANING SOLUTION

B2 TEST STAND WORK PACKAGE ONE
ABATEMENT PLAN FOR ASPIRATOR AND ROLLING DECK
RESPIRATOR MASK CLEANING SOLUTION

Item# / Product Description

A32659 Aegis Alcohol Respirator Wipes, (100) per Dispenser Box

Product Image



Your Price:

Qty

Price

Total Availability: In Stock

Quantity

bx

ADD ITEM TO CART

ADD ITEM TO MY PRODUCT GROUPS

[View Custom Part Numbers and Availability](#)

Product Information

These wipes are recommended to efficiently clean and prevent cross-contamination* for various personal protective items, such as respirators, hearing protectors, hard hats, and eye protectors.

- Ideal for silicone and plastic facepieces
- Individually wrapped and pre-moistened for user convenience
- Make respirator usage more acceptable to the wearer by improving comfort
- Provide a quick, easy method of removing perspiration and body oils from the respirator facepiece
- Keep workers compliant with OSHA mandates

*contains isopropyl alcohol

MATERIAL SAFETY DATA SHEET

Identity: Personal Protective Equipment Wipe Contains alcohol
 Company Product Code: **1LPPE200/1WH895/64051444**
 Sizes: Towelette 5" x 7" non woven wipes moistened with a clear thin liquid
 Product Use: PPE Cleanser

Supplier: H. L. Bouton Co. 11 Kendrick Rd. Wareham, Ma. 02571	Information Phone 1-800-426-1881 (business hours) Fax 1-508-295-3521 Emergency Phone 1-800-535-5053
---	---

Date Prepared July 1 2008
 Prepared by H. L. Bouton Co.

Section II Material Identification and Information

Components (Chemical Names & Common Names) (Hazardous Components 1 % or greater, Carcinogens 0.1% or greater)	CAS #'s	% wt/vol	OSHA PEL	ACGIH TWA
Isopropyl Alcohol	67-63-0	70	400ppm 980MG/M3 8 HR TWA	200ppm 8 HR TWA A4 STEL 400ppm
Propylene Glycol	57-55-6	6-12	None established	None established
Water	7732-18-5			

Section III Physical / Chemical Characteristics

Physical State: Liquid / towelette paper / foil packet	Specific Gravity 0.853
PH 5-7	
Boiling Point: (79 C) 175 F	
Vapor Pressure 39.5 MMHg	Evaporation Rate: 2.5
Vapor Density 1.1	Water Reactive: None
Solubility in Water: 100% complete	
Percent Volatile: 100%	
Appearance and Odor: Clear solution / white towelette paper / foil packet. Alcohol odor	

Section IV Fire and Explosion Data

Flash Point: (26 C) 79 F	Auto-Ignition Temperature: (341 C) 645 F
Stable at normal temperatures and storage conditions	
Flammability Limits in Air:	LEL: 1.9% UEL 10.6%
Extinguisher Media: Carbon Dioxide, Water, Foam, Dry Chemical	
Special Fire Fighting Procedures: Firefighters should wear appropriate turn-out gear and SCBA's	
Unusual Fire and Explosion Hazards: Not expected to be a hazard under normal conditions	

Extinguishing Media

Suitable Extinguishing Media: Alcohol foam, dry chemical, carbon dioxide, water fog.

Section VII - Health Hazard Data		
Eye Contact: Flush with plenty of water for at least fifteen minutes. If irritation persists, consult a physician.		
Skin Contact: Prolonged exposure not likely to cause significant skin irritation. Wash thoroughly with soap and water.		
Inhalation: Excessive exposure may result in respiratory irritation. Move person to fresh air		
Ingestion: Not likely a form of exposure, in the event of exposure may cause irritation. Seek medical advice.		
Carcinogens: None of the ingredients in this mixture have been identified as carcinogenic or a probable carcinogen by NTP, IARC, OR, OSHA		
Stability and Reactivity		
Chemical stability: Stable at normal temperatures and storage conditions		
Compatible with other materials		
Decomposition will not occur		
Polymerization will not occur		
Control and Protective Measures		
Respiratory Protection (Specify Type): None		
Hygiene recommendations to prevent continued exposure: Use normal good industrial hygiene practices		
Protection Gloves: None		Eye Protection: None
Ventilation to be used: N/A	Local Exhaust: N/A	Special: N/A
	Mechanical (General): N/A	Other: N/A
Other Protective Clothing and Equipment: Not required.		
Hygienic Work Practices: Always read label before use.		
Precautions for Safe Handling and Use/Leak Procedures		
Steps to be taken if Material is Spilled or Released: Liquid; Contain in a diked area and clean to prevent from entering storm drains and streams. Follow standard procedures.		
Waste Disposal Methods: In accordance with municipal, provincial and federal regulations. (Ignitable waste EPA # D001		
Precautions to be taken in handling and storage: Keep away from excessive heat.		
Other Precautions and/or Special Hazards: Keep from freezing. Read label before using.		
HMIS Rating: Health: 2 Flammability: 3 Reactivity: 0 Personal Protection:		
NFPA Rating: Health: 2 Flammability: 3 Reactivity: 0 Special: 0		
.		
EXTINGUISHING MEDIA		
Suitable Extinguishing Media: Alcohol foam, dry chemical, carbon dioxide, water fog.		
ACCIDENTAL RELEASE MEASURES		
Containment Technique:	Liquid	Prevent from entering waterways and storm sewers.
Clean-Up Technique:	Liquid	Contain spill. Cover spill with inert absorbent (absorbball, vermiculate). Using tools, shovel or sweep up into a clean container. Remove from area. Flush spill with water.
Evacuation Procedures: Follow normal Emergency Response Plan (ERP).		
HANDLING AND STORAGE		
Handling Practices:	Use grounding wires if transferring large quantities of liquid Keep away from oxidizers, heat and other ignition sources. Do not allow to freeze.	
STORAGE		
Conditions for Safe Storage:	Keep away from oxidizers, heat and other ignition sources. Do not store in direct sunlight. Store in cool, dry well-ventilated area. Do not allow to freeze.	
Ventilation Requirements For Storage:	None required.	

Note

Training Requirements: Workplace Hazardous Materials Information System training is required for handling and using this product in Canadian workplaces. U.S. OSHA requirements for handling chemical substances must be in place for handling and using this product in the United States.

Recommended Uses and Restrictions: Cleaning of clear surfaces. Check for compatibility with material to be cleaned prior to use.

DISCLAIMER: This information is furnished without warranty, representation, or license of any kind, except that it is accurate to the best of H. L. Bouton Co., Inc.'s knowledge, or obtained from sources believed to be accurate. H. L. Bouton Co., Inc. does not assume any legal responsibility for use or reliance upon the same. Customers are encouraged to conduct their own tests and investigations. Before using the product, please read and understand the label and the Material Safety Data Sheet.



National Aeronautics and
Space Administration
John C. Stennis Space Center
Stennis Space Center, MS 39529-6000

CONTRACTOR TRANSMITTAL SHEET

DATE
4/12/12

SHEET 1 OF 1

SECTION I - REQUEST FOR APPROVAL *(To be Initiated by the Contractor)*

TRANSMITTAL OF SHOP DRAWINGS, EQUIPMENT DATA, MATERIAL SAMPLES, OR
MANUFACTURER'S CERTIFICATES OF COMPLIANCE
(See Instructions on Reverse)

CONTRACT NO.
NNS13AB11T

NEW SUBMITTAL
 RESUBMITTAL

TO
(b)(6)

FROM
HARRY PEPPER & ASSOCIATES, INC

PREVIOUS TRANSMITTAL NO. *(If Any)*
N/A

TRANSMITTAL NO.
059

SPECIFICATION AND SECTION NO. *(Cover Only One Section With Each Transmittal)*
200HF-G011/02 82 33.13 20

PROJECT TITLE AND LOCATION
12NCBZ-10 ASPIRATOR

ITEM NO. (a)	DESCRIPTION OF ITEM SUBMITTED (Type, Size, Model Number, ect.) (See Instruction No. 3) (b)	MANUFACTURER OF ITEM (See Instruction No. 8) (c)	NO. OF COPIES (d)	CONTRACT REFERENCE DOCUMENT		VARIATION (See Instruction No. 6) (g)	ACTION CODE (See Instruction No. 9) (h)
				SPECIFICATION PARAGRAPH NO. (e)	DRAWING SHEET NO. (f)		
103	SD07 Lead-based paint Removal Plan	ICCI	5	1.5.3			

REMARKS

I certify that the above submitted items have been reviewed in detail and are correct and in strict conformance with the contract drawings and specifications, except as stated.

(b)(6)

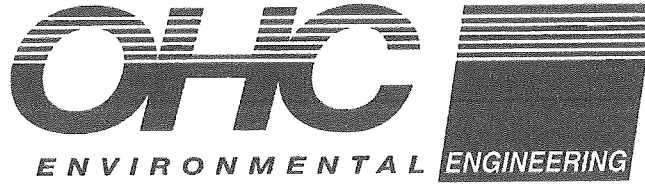
OR _____

SECTION II - APPROVAL ACTION

ENCLOSURES RETURNED *(List by Item No.)*

NAME, TITLE, AND SIGNATURE OF APPROVING AUTHORITY

DATE



5420 Bay Center Dr. Suite 100
Tampa, FL 33609
Phone: 813.626.8156
Fax: 813.623.6702
www.ohcnet.com

Date: April 9, 2013

Mr. (b)(6)
Project Manager
Harry Pepper & Associates

Transmitted via email: (b)(6)

**Re: Review and approval of ICCI Lead Compliance Plan
B-2 TEST STAND
BUILDING 4221 ASPIRATOR**

Dear Mr. (b)(6)

This is to certify that Mr. (b)(6) CIH of record, has reviewed and approved the Lead Compliance Plan and the Respiratory protection program submitted by Industrial Corrosion Control Inc. for the above referenced project. The plan is approved as submitted.

Sincerely,
OHC Environmental Engineering Inc.

(b)(6)

President

**B-2 TEST STAND
BUILDING 4221 ASPIRATOR
LEAD COMPLIANCE AND COATING
APPLICATION WORK PLAN**

- 1.0 **SITE SPECIFIC WORK SCOPE: This Lead Compliance Plan covers the removal of LBP from the Aspirator north beam that extends from East to West under the bottom side of the aspirator. This is the only area on the Aspirator that requires deleading. The beam is 15 feet wide and extends the width of the flame bucket which is approximately 80 feet high.**

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- 1.1 **Surface Preparation (SSPC SP-10 Near White)**
The abrasive blasting will be performed utilizing the Advanced Recycling Unit And Peerless Recyclable Steel Grit.

VACUUM:

- BLOWER: 5,400 CFM or 6,400 CFM
- VACUUM: 27" Hg - high vacuum
- CYCLONE: Prefilter
- STAINLESS STEEL FINAL FILTER
- DUST COLLECTOR #1: 46 bag pulsating system
- POWER PLANT: 350 hp diesel or 400 hp
- ELECTRIC POWER AVAILABLE
- FUEL TANK: 240 gallons
- EMERGENCY STOP SYSTEM: 3 Locations

CLASSIFICATION:

- MAGNETIC PARTICLE SEPARATOR
- VIBRATORY SCREENER/FEEDER
- AIR WASH SEPARATORS: Six (6) stage
- BUCKET ELEVATORS: Two (2) per unit
- DUST COLLECTOR #2: 30 bag pulsating system
- 7.5 hp FAN: 1800 CFM, powers dust collector #2
- ROTARY SCREEN - PRECLEANER

BLASTING:

- SIX (6) AUTO FILL BLAST POTS
- 200 PSI, CODE STAMPED & REGISTERED
- BIN LOADING SYSTEM: AUGER TYPE
- FULLY AUTOMATIC CONTROL SYSTEM
- HOLDS 60+ BARRELS OF GRIT

AIR DRYING (DUAL TYPE):

- TWO OVERSIZED AIR-COOLED AFTERCOOLERS
- TWO LARGE CAPACITY DELIQUESCENT SALT TANKS
- 3" NPT PIPING STANDARD
- TWO PARTICULATE FILTERS

OTHER:

- 48ft EXTRA HEAVY DUTY TRAILER
- AIR BRAKES WITH ANTILOCK SYSTEM
- DUAL 25K DROP LEGS ON REAR OF TRAILER
- DIESEL GENERATOR: 40 KW
- GENSET: Marine Protection Package
- GENSET: Sound Attenuation Package

1.2 Equipment Operation

The equipment utilized for the abrasive blasting, vacuuming and recycling will be the Advanced recycling System (See Data Sheet). The unit is mounted on a tractor trailer rig. This ARS consist of 6 blasting pots and a vacuum and recycling system that utilizes recyclable steel grit. The dust collector is a 30,000 CFM Advanced Environment (see data sheet). The Air Compressors will be 1000 CFM. The equipment operator will have documented training on all equipment. The equipment will be flagged with caution tape to control the area around all equipment and high pressure hoses. The air connection hoses will have cable straps. The equipment area will have area monitoring during operations to determine the exposure levels to lead. The equipment operator will wear a ½ mask respirator during the times the equipment is being operated or worked on. The 3M 6000 Series respirator has a protection factor of 500 for lead. Once exposure levels are received the operations will be adjusted in accordance with exposure levels.

1.3 Coating Application

Primer Coat--- Dimet Coat 9

Applied by the means of Agitating Conventional Pot.

Top Coat---Amercoat 878 Aluminum Silicone

All coatings will be applied under containment to eliminate over spray issues.

1.4 Accessing aspirator

- * The north bottom and end beams will be accessed by the use of 125 man lift.
- * All personnel that work or operate the man lift will have experience along with documented training.
- * There will be a 100% tie off with full body harness during man lift operations
- * On all areas of the aspirator while working off of ladders the ladder will be tied off.
- * The workers working off ladders will be in full body harness with double lanyard and tied off.

1.5 Controlling Lead Waste Generated and Exposure's (SSPC CLASS 2A CONTAINMENT SYSTEM)

A Containment Support Structure

The containment will be supported by the means of steel cables. There will be ½" cable that will run along the bottom side of the aspirator. This cable will be secured to the steel beams that are attached at each end of the flame bucket on the under side of the aspirator. The bottom ½" cable will be attached to the steel lugs that is attached to the floor of the flame bucket. There will be ¼" cable that will attach every 5 feet that will run vertically from the top cable to the bottom cable.

B Containment Shroud

- Tarps will be Eagle Industries Air Bag Tarp Coated Nylon (see Data Sheet)
- Industrial Grade Woven Nylon
- Silicone Coated
- Heavy Duty Polypropylene webbing on all edges
- Rust Proof Grommets every 2 ft.
- Light weight flexible
- Air impenetrable

The tarps will be secured to the cables at every grommet. The seams of the tarps will connect and the webbing at each side will be rolled together to create a full seal.

C Dust Collector

The containment will be ventilated by the use of 30,000 CFM dust collector. (See Data Sheet) The dust collector tubing will enter the containment at the base and the tarps will seal around the tubing entering the containment system. This will create a down draft therefore reducing exposure levels.

D Airlock

The airlock will be constructed at the base east end of the containment. The airlock will be the only entry and exit point of the containment system. The airlock will be sealed to the outer side of the containment with a entry panel that will reseal. The entry into the airlock from the outside will also have panels that will seal. The airlock will be 100% shrouded as well as having ground cover. The airlock will have a heap vacuum system the will allow all personnel exiting the containment to vacuum off all loose dust. The airlock will have its own negative pressure that will be supported from the dust collector.

1.6 Decontamination Procedures

- 1) Employees entering the lead exposure environment will have current lead training as well as initial Blood Lead Levels and ZPP test results.
- 2) The employees will be instructed that there work boots will remain on the job till the completion of all lead work and then will be cleaned prior to leaving the job site.
- 3) The employees entering the lead environment will go to the clean side of the decontamination trailer and remove all of their clothing and put on clothing provided by ICCI.
- 4) There will be lockers provided for the employee to lock up their clothing and belongings. When the surface preparation starts, the employees in the containment will have on proper PPE.
- 5) Upon completion of work in the containment they will exit the containment at the bottom east end through the air lock.
- 6) After resealing the access panel to the main containment the employee will vacuum their external clothing removing all loose materials.
- 7) The employee will exit the air lock being sure to reseal the exit panel and the will remove their blasting hood and outer.
- 8) The employee will proceed directly to the hand wash station and wash their hands and face.
- 9) At the end of the shift the employee will proceed directly from the hand wash to the dirty side of the decontamination shower and will remove all clothing and place in labeled containers.
- 10) Employee will enter the shower and after washing will exit to the clean side and put the clothing that the employee wore to work back on.
- 11) The employee will not be allowed to enter the lead environment in their clothing that they will be wearing home.
- 12) The equipment operator will proceed directly to the hand wash station every time they exit the controlled area.
- 13) The equipment operator at the end of the shift will proceed to the decontamination trailer and enter the dirty side and remove clothing provided and will shower prior to exiting to the clean side to put the clothing that they came to work in back on.
- 14) See Aspirator plot plan for decontamination trailer location.

1.7 Cleaning Decontamination Trailer

- 1) There will be designated person that will be responsible for the cleaning of the decontamination trailer as well as the laundering of the clothing provided to the employees.
- 2) The decontamination trailer will have washer and dryer capabilities.
- 3) The designated employee cleaning and doing laundry will have lead training as well as Blood Lead

Levels and ZPP testing performed.

- 4) Every morning the employee will clean the dirty and clean side of the decontamination trailer.
- 5) The employee will wear a ½ mask respirator while cleaning and doing laundry.
- 6) The waste that is vacuumed up will be placed in labeled containers that are provided for the lead waste disposal.
- 7) The water that is used for mopping will also be placed into labeled containers for disposal.
- 8) The cleaning operations will have lead exposure monitoring performed to verify that there is no exposure level being created during this process.
- 9) The Decontamination Trailer is equipped with a HEPA filtering system on the gray water tank.
- 10) The tank has a pumping system that will pump the water from the gray water holding tank.
- 11) The water will be pumped into drums provided by SSC and labeled for proper disposals provided by SSC.

1.8 Hazardous Waste Storage Area

- 1) The hazardous waste storage area will be placed as close as possible to the equipment area to minimize the transportation of the drums containing the waste.
- 2) The storage area will have ground cover over a secondary containment and all drums will be placed on pallets.
- 3) The drums provided by SSC will be properly labeled and sealed.
- 4) The waste area will have flagging for lead and will be controlled.

1.9 Personnel Protective Equipment

Equipment Operator/Decontamination Trailer Cleaner

Ear Plugs	Steel Toe Boots
Long Sleeve Cotton Cover Alls	Gloves
½ Mask Respirator	Hard Hat
Safety Glasses	Safety Vest

During Blasting and Vacuuming

Ear Plugs	Steel Toe Boots
Long Sleeve Cotton Cover Alls	Gloves
Bullard 88 Blasting Hood	Full Body Harness

During Coating Applications

Ear Plugs	Steel Toe Boots
Tyvek Cover Alls	Gloves
½ mask Respirator	Roll a Film Goggles
Full Body Harness	

2.0 HAZARD COMMUNICATION PROGRAM

In accordance with the Hazard Communication Rule, 29 CFR 1926.59, and to ensure the information necessary

for the safe use, handling and storage of hazardous chemicals is provided and made available to employees the following is Industrial Corrosion Control's Hazard Communication (HazCom) program.

2.1 Responsibilities

2.1.1 (b)(3) Safety Coordinator

1. Maintain a list of hazardous chemicals in use at all projects and at company facilities.
2. Monitor the effectiveness of the program.
3. Conduct an annual audit of the program.
4. Conduct project audits for the effectiveness of the program.
5. Ensure all workers receive annual hazard communication training.
6. Ensure Material Safety Data Sheets (MSDS) are available.
7. Ensure MSDS are three years old or less.
8. Conduct weekly chemical inventory at warehouse.

2.1.2 (b)(6) Foreman/ Competent Person/ QC

1. Conduct site specific hazard communication training. If new chemicals are brought to a project, conduct training for the new chemical at the next safety meeting or prior to its use.
2. Ensure chemicals are properly labeled and stored.
3. Ensure that all MSDS are onsite and all workers know where they are located.
4. Create a chemical inventory for each project. Post the chemical inventory in the decontamination trailer, project postings board or other appropriate location.
5. Conduct weekly chemical inventory at project locations.

2.1.3 Employees

1. Comply with the requirements of the hazard communication program.
2. Report any chemicals not properly labeled or stored.
3. Immediately report any spills.
4. Use chemicals only for specific assigned tasks.

2.2 Chemical Hazards

1. Physical hazards can produce a dangerous situation outside the body.
2. Health hazards can damage one's health by acute and chronic exposures.

2.3 Chemical Inventory

1. The Competent Person will maintain an inventory of all known chemicals in use at the work-site. A chemical inventory list and Material Safety Data Sheets (MSDS) will be available from the Competent Person.
2. Hazardous chemicals brought onto the work site by Industrial Corrosion Control will be included on the hazardous chemical inventory list.
3. Employees who work with hazardous chemicals may request a copy of the Material Safety Data Sheets

(MSDS). Requests for MSDS should be made to the site Competent Person.

- There will be no product that has a MSDS brought on site prior to the MSDS being submitted to Harry Pepper for written approval.

3.0 CONTAINER LABELING

- All chemicals on-site will be stored in their original or approved containers with a proper label attached; except small quantities intended for immediate use. Any container not properly labeled should be given to the foreman or competent person for proper labeling or disposal.
- Workers may dispense chemicals from original containers only in small quantities intended for immediate use. Any chemicals left after work is completed must be returned to the original container or to the foreman or competent person for proper handling and labeling.
- Unmarked containers of any size are not to be left unattended in the work area at any time.
- Industrial Corrosion Control will rely on manufacturer applied labels whenever possible and will ensure the labels are maintained. Containers that are not labeled or on which the manufacturers label has been removed or destroyed will be re-labeled.
- The foreman or competent person will ensure that each container is labeled with the identity of the hazardous chemical contained, name and address of the chemical manufacturer and any appropriate hazard warning using the appropriate MSDS and the below table.

	BLUE- HEALTH	RED FLAMMABILITY	YELLOW-REACTIVITY
4	very short exposure could cause death or major residual injury	materials which will rapidly or completely vaporize at atmospheric pressure and ambient temperature	materials which are readily capable of detonation or of explosive decomposition or reaction at normal temperatures and pressures
3	short exposure could cause serious temporary or residual injury	liquids and solids that can be ignited under almost all ambient temperature conditions	materials that are capable of detonation or explosive reaction but require a strong initiating source, or that must be heated under confinement before initiation or <u>react explosively with water</u>
2	intense or continued exposure could cause temporary incapacitation or possible residual injury	materials that must be moderately heated or exposed to relatively high ambient temperatures before ignition can occur	materials that are normally unstable and readily undergo violent chemical changes but do not detonate; also materials that may react with water violently, or that may form potentially explosive mixtures with water
1	exposure would cause irritation but only minor residual injury	materials that must be preheated before ignition can occur	materials that are normally stable, but that can become unstable at elevated temperatures and pressures, or that may react with water with some release or energy but not violently
0	no hazards	materials that will not burn	materials that are normally stable even under fire explosive conditions, and that

Source of the table is the National Fire Protection A

4.0 MATERIAL SAFETY DATA SHEET (MSDS)

MSDS contain the following information:

1. Chemical Identification which states the product name, manufacturer's name and address.
2. Physical and chemical characteristics of the hazardous chemical such as vapor pressure and flash point.
3. The physical hazards of the hazardous chemical including the potential for fire, explosion and reactivity.
4. The health hazards of the hazardous chemical including signs and symptoms of exposure, medical conditions which may be aggravated by exposures to the chemical.
5. The primary route(s) of entry.
6. The OSHA Permissible Exposure Limit (PEL), ACGIH Threshold Limit Value (TLV) and any other exposure limit used or recommended by the manufacturer.
7. Safe handling procedures including hygienic practices protective measures and procedures for the clean-up of spills and leaks.
8. Control measures such as appropriate engineering controls, work practice controls or personal protective equipment.
9. Emergency and first aid procedures.
10. The date the MSDS was prepared and the latest change made.

4.1 MSDS Date

1. MSDS will be three years old or less.
2. If a MSDS is greater than three years old, the Safety Coordinator will contact the manufacturer for a more recent MSDS.
3. If a MSDS is greater than three years old and a more recent MSDS is unavailable the Safety Coordinator will either have the MSDS faxed to show a more current date from the manufacturer or will document the date and the time of the telephone call to the manufacturer requesting a more recent MSDS.

4.2 Employee Training

Employees will be trained annually to work safely with hazardous chemicals. Employee training will include:

1. Methods that may be used to detect a release of a hazardous chemical(s) in the work place.
2. Physical properties and health hazards associated with each chemical.
3. Protective measures to be taken in order to reduce the risk of chemical exposure including safe work Practices, emergency responses and the proper use of Personal Protective Equipment (PPE).
4. The details of the Hazardous Communication Program developed by Industrial Corrosion Control.
5. How to read and interpret information on labels and the MSDS.
6. Location of the MSDS and hazard communication program.
7. Explanation of the chemical labeling system.

Site specific training will be conducted at a pre job safety meeting. If new chemical(s) are brought to a project, all workers will receive training for the new chemical(s) at the next safety meeting or prior to its use.

4.3 Emergency Response

1. Any incident, over-exposure or spill of a hazardous chemical(s) must be reported to the site Competent Person immediately.
2. The site Competent Person or foreman will be responsible for insuring that proper emergency response

actions are taken in the event of a leak or spill.

4.4 Informing Other Contractors, Subcontractors and Visitors

1. Other on-site employers and/or visitors are required to adhere to the provisions of the Hazard Communication Program.
2. Information on hazardous chemicals known to be present will be exchanged with other employers or subcontractors. Each employer will be responsible for providing the necessary information to their employees.
3. Other on-site employers and/or visitors will be provided with a copy of the Hazard Communication Program.

4.5 Task Evaluation

Until laboratory results of personnel samples are available, respiratory protection, personal protective equipment (PPE), change areas, hand wash facilities, biological monitoring and lead training must be provided based upon the exposure hazard of the job category as established in OSHA's 29 CFR 1926.62 Lead Standard. The following table will be used to ensure adequate respiratory protection during the initial exposure assessment.

The level of respiratory protection, the need for personal protective equipment (PPE), changes areas, hand wash facilities, biological monitoring, showers and lunchrooms will be modified based upon the results of the initial exposure assessment. The following table outlines the minimum requirements.

Exposure Level	Respiratory Protection	PWC ¹	Change Areas ²	Hand Wash Facilities ³	Showers ⁴	Lunchrooms ⁵	Biological Monitoring ⁶
<30 ug/m ³	not required	not required	not required	Yes	Not required	Not required	Not required
>30 but < 50 ug/m ³	not required	not required	not required	Yes	not required	not required	Yes
> 50 but <500 ug/m ³	1/2 face air purifying respirator with P100 filters	Yes	Yes	Yes	Yes	Yes	Yes
>500 but < 2500 ug/m ³	Full face air purifying respirator with P 100 filters	Yes	Yes	Yes	Yes	Yes	Yes
>2500 ug/m ³	Bullard CE Blast Helmet	Yes	Yes	Yes	Yes	Yes	Yes

1. Coverall or similar full body work clothing, gloves, hats and shoes or disposable shoe coverlets
2. Change areas equipped with separate storage facilities for PWC and equipment and for street clothes
3. Hand wash facilities must be located near the work area
4. Must be used at the end of the shift by workers exposure above the OSHA permissible exposure limit
5. Area as free as practicable from lead contamination
6. Blood lead and zinc protoporphyrin level

4.6 Selection Of Respiratory Protection

Job Category	Assumed Exposure Level	Respirator
Abrasive Blast Vacuum during Abrasive Blast Operation Cleaning the dust collector or recycles filters, where entry is necessary	>2,500 ug/m ³	BULLARD 88 AIR SUPPLIED ABRASIVE BLAST HOOD
Power Tool Operations without HEPA Vacuum Vacuuming after Abrasive Blast Operations Clean-up Operations Set-up and Tear down Operations	>500 but < 2500 ug/m ³	Full face air purifying respirator with P100 filters or powered air purifying respirator with P100 filters
Water-jetting Operations Power Tool Cleaning with HEPA Vacuum Painting during Prime Coat Operations Equipment Operator of a steel grit recycler Water Setting Operator	>50 and <500 ug/m ³	half-face air purifying respirator with P100 filters
Hand Tool Operations Support Workers outside of regulated areas Equipment Operator for black beauty operations	<50 ug/m ³	Respiratory protection is not required

4.7 Signs of Lead Poisoning

Signs and symptoms that lead poisoning may have occurred include:

Fatigue	Sleep Problems	Clumsiness	Dizziness
Irritability	Depression	Nervousness	
Headaches	Memory Loss	Difficulty Concentrating	
Hyperactivity (in kids)	Numbness	Joint and Muscle aches	
Weakness	Wrist or Foot Drop	Loss of Appetite	
Stomach Aches	Constipation	Metal Taste in Mouth	
Problems having Healthy Children		Lead Line in Gums	

Through the implementation of engineering controls and respiratory protection, and personal protective equipment industrial Corrosion Control makes every effort to keep its workers healthy.

4.8 Action Level

An Action Level (AL) of 30 ug/m³ is the exposure to lead without regard to respirators, when the following requirements of the OSHA Lead in Construction Standard must first be implemented.

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1. Written Worker Protection Plan
2. Exposure Monitoring
3. Housekeeping
4. Employee Medical Surveillance and Medical Removal Protection
5. Employee Information and Training
6. Signs and Regulated Areas
7. Record keeping

4.9 Permissible Exposure Limit

The Permissible Exposure Limit (PEL) is 50 ug/m³ averaged over 8-hours without regard to respiratory protection. When in addition to complying with the requirements identified when exceeding the Action Level, the following protective measures are required:

1. Engineering and Work Practice Controls
2. Respiratory Protection
3. Protective Clothing and Equipment
4. Hygiene Facilities and Practices

The PEL will be reduced for extended work shifts as follows: Adjusted PEL = 8hr. PEL x (8/hours worked in a day) e.g. Lead for an 8 hr shift: PEL = 50 ug/m³ Lead for a 10 hr shift: PEL = 40 ug/m³

Results of additional sampling for heavy metals during paint removal and cleaning operations or organic vapors during painting will be compared with the established Permissible Exposure Limits (PEL) in 29 CFR 1910.1000 Table Z.

5.0 Regulate Areas

Regulated areas are the areas where the exposure to lead dust is at or above the PEL and support areas are the areas not inside the regulated area. The regulated area(s) will be delineated using signs and/ or tape to prevent inadvertent contamination from leaving the work site and to minimize contamination to the workers during the work shift. Work areas include containment enclosures and all work areas involved in lead paint removal, clean-up and set-up or tear down of containment systems. The area(s) around equipment will initially not be a regulated area, unless area monitoring around the equipment indicates otherwise.

The regulated area will have access limited to workers who have received the required training, medical surveillance and are wearing the personal protective equipment required for the job they are performing, and supervisors and/or authorized visitors wearing appropriate clothing and/or protective equipment. No food, beverages or tobacco products are to be present or consumed in the work area.

Initially the support area will be a minimum of five feet from the work area. This is based upon several years of area monitoring around containment. The regulated area may be moved closer or further from the work area if initial or periodic monitoring indicates the need for a change.

5.1 Signs

Signs will be used to identify the areas where exposures could exceed the Action Level (the OSHA Lead Standard states the signs are above the PEL, use of the Action Level will minimize exposures to outside personnel) Signs will read as follows:

DANGER
LEAD WORK AREA
POISON
NO EATING OR DRINKING

5.2 Hygiene Facilities

Hand Wash Facilities

Hand wash stations will be located on exterior of Decontamination trailer. Hands and face must be washed before eating, drinking or smoking. (see plot plan)

Portable Decontamination Trailer

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If employee exposure level exceeds the PEL as an 8 hour TWA then employees will be required to undergo full decontamination upon exiting the work area. Employees will enter the decontamination trailer through the dirty room and remove any contaminated clothing, proceed to the shower and wash off then proceed to the clean room to dress in street clothe.

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5.3 Lunch Facility

Lunch facilities will be set up in a clean area near the work area, away from all sources of contamination. The lunch area will be on the north side of the B2 test stand away from the controlled areas (See Plot Plan). All work clothing must be cleared of loose dust by vacuuming with a HEPA vacuum prior to exiting the work area and the outer layer of the abrasive blasters work clothing will be removed just outside the work area to minimize transporting any hazardous waste around the support and clean areas. The lunch facility will be cleaned using a HEPA vacuum on a daily basis. (See plot plan)

5.4 Protective Work Clothing (PWC)

Workers entering lead work areas where exposure to lead dust may exceed the PEL will change their clothing before entering the work areas for work, and again at the end of the day before leaving the Decontamination Area, Street clothing may not be worn during work on this project, unless fully covered by PWC. Contaminated work clothing should be vacuumed of loose dust using a HEPA vacuum, but may not be taken away from the job site after work. Work clothing consisting of cloth shirts and trousers, disposable or cloth coveralls, and gloves will be provided and maintained by Industrial Corrosion Control for workers involved in these designated job functions.

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Disposable coveralls will not be used as the sole means of PWC if such garments are likely to become torn or fall apart under normal use. In these cases cloth coveralls or similar PWC will be used.

5.5 Housekeeping

All work areas will be maintained as free as practical of accumulation of lead dust. In order to minimize the likelihood of dust becoming airborne, cleaning will be conducted daily in all work areas using a vacuum equipped with a HEPA filter or by wet cleaning.

5.6 Exposure Monitoring

Exposure monitoring is essential to identifying the need for proper industrial hygiene controls at the job site. Air sampling will be conducted in the worker's breathing zone (six to nine inches from the nose and mouth) to determine actual worker exposures and recommend respiratory protection that is adequate for those levels. ICCI will perform exposure monitoring to 25% of all workers in lead environment.

5.7 Personnel Air Sampling

Initial air sampling will be conducted to represent actual worker exposures to lead in each job category. Sampling will be conducted on 25% of crew. Sampling will be conducted for a full work shift, minimally 7 hours. If initial exposure monitoring results are above the PEL, then check the adequacy of engineering controls, and determine if personal protective equipment is adequate.

Air samples will be collected and analyzed in accordance with appropriate NIOSH Methods. The laboratory used to analyze the samples will have current accreditation by the American Industrial Hygiene Association. The lab that will be performing all analytical for this project is EMSL (see lab credentials).

Employees and other workers in the same job category will be notified in writing of the monitoring results within five (5) days after receiving results.

5.8 Area Monitoring

1. The purpose of the regulated (the area where a worker may be exposed to lead above the OSHA PEL) area is to ensure that unprotected personnel are not permitted access to areas where the airborne exposures are above the designated Action Level (30 ug/m for lead).
2. Job categories and/or areas that may generate airborne hazardous material emissions include paint removal activities, dust collection systems, abrasive vacuum systems and waste storage areas.
3. Area monitoring will be performed by others.

5.9 Observation of Monitoring

All workers or their designated representatives will be given the opportunity to observe the personal exposure monitoring procedures in accordance with 29 CFR 1926.62 (o). The observer will be allowed to receive an explanation of the monitoring procedures, observe all steps related to the monitoring of lead and receive copies of the results when returned from the laboratory.

6.0 Record Keeping

Detailed records of the exposure will be in compliance with 29 CFR 1926.62 (n) as given below. All personal air sampling results will be maintained by Industrial Corrosion Control or its subcontractors for at least 30 years.

1. The date(s), number, duration, location and results of each sample taken, including a description of the sampling procedure used to determine representative employee exposure where applicable.
2. A description of the sampling and analytical methods used and evidence of their accuracy.
3. The type of respiratory protective devices worn.
4. Name, social security number, and job category of the employee monitored and all other employees whose exposure the measurement is intended to represent.
5. The environmental variables that could affect the measurement of employee exposure.

6.1 Engineering Controls

All feasible engineering controls will be used to minimize lead dust exposure. Additional control measures may be implemented based on the results of air monitoring once the project begins. The following engineering controls will be used.

Job Task	Control Methods
Abrasive Blast Operation Vacuuming during Abrasive Blast Operations	Dust collector with natural or forced ventilation 100 fpm horizontal air flow or 60 fpm vertical air flow minimum average
Water Jetting Operations	Water Dust collector may be required based upon containment type
Power tool cleaning	HEPA vacuums
Hand tool cleaning	Wet misting
Clean up after paint removal	HEPA vacuums
Spray painting	adequate ventilation using windows and/ or a dust collector

Engineering controls selected above are the industry standards, when new technology is produced that would reduce worker exposures and costs, Industrial Corrosion Control will evaluate that method or will seek others in the industry for their evaluation. In addition, this specification requires the use of abrasive material for cleaning the structures. Additional control measures will be re-evaluated if exposures are found to exceed the protection factor of respiratory protection normally used for this type of work.

The contractor will establish diminished pressure in the containment of at least 0.02 inches of water. This will be accomplished by exhausting the air from the containment using the dust collector. Make up air will be provided through louvers installed on the opposite side of the containment in order to establish good laminar flow. Negative pressure will be measured continuously by the contractor to ensure compliance.

6.2 Administrative Controls

Job rotation on a lead abatement project typically is not feasible due to the limited amount of qualified personnel. However, Industrial Corrosion Control will implement work practice controls including but not limited to: hygiene facilities, personal protective clothing and respiratory protection.

6.3 Respiratory Protection

Prior to wearing a respirator, employees must comply with Section B 2.0 of this Health and safety Plan and the OSHA Respirator Standard 29 CFR 1910.134. Respirators will be selected in accordance with the following^g table.

Airborne concentration of lead	Required respirator
500 ug/m ³ or less	Half-face air purifying respirator with P100 HEPA filters
1,250 ug/m ³ or less	Hood or helmet supplied air respirator operating in the continuous flow mode
2,500 ug/m ³ or less	Full face piece air purifying respirator with P100 HEPA filters
50,000 ug/m ³ or less	Approved Type CE abrasive blasting helmet such as Bullard CE 88
100,000 ug/m ³ or less	1. Full face piece supplied air respirator operated in pressure demand or other positive pressure mode 2. Type CE abrasive blasting helmet operated is a positive pressure mode
100,000 ug/m ³ or more or unknown concentration	1. Full face piece SCBA operated in the pressure demand or other positive pressure mode

Where a worker is required to enter into the dust collector recycles or roll-off to either move dust and debris around or to remove the dust and debris, the competent person will ensure the worker is wearing the proper personal protective clothing including respiratory protection and where applicable follows confined space procedures.

1. Entering the dust collector to remove or clean out debris, workers will wear a supplied air respirator that provides protection up to 50,000 ug/m³
2. Entering the dust collector section of a recycler unit to remove or clean out debris, workers will wear a supplied air respirator that provides protection up to 50,000 ug/m³
3. Employees performing the abrasive blasting operation will don the Bullard 88 abrasive blasting hood system.

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6.4 Medical Surveillance Program

As a condition of employment with Industrial Corrosion Control, all workers exposed to lead for the B2 test stand project will receive an initial Blood Lead Level along with ZPP. The employee will be initially tested and every 2 months will be tested for 6 months or at the completion of the job ever which comes first.

6.5 Program Elements

The program elements listed below are for exposures above the Action Level to lead, additional testing may be required if exposed to other toxic metals.

1. Each worker must have a baseline examination within one year prior to commencing work.
2. Each worker must have blood testing for lead and zinc protoporphyrin before starting a new project, unless a previous blood test was completed within 60 days prior to starting a new project.
3. After initial testing, bi-monthly testing will be conducted for the first six months and semi-annual thereafter. However, the typical work season is less than ten months; therefore, Venus Painting Company may continue bi-monthly testing for the duration of the work season.
4. Blood lead testing will be performed by an OSHA approved laboratory.
5. When blood testing reveals 50 micrograms of lead per deciliter of whole blood or more and that level does not decrease upon subsequent testing within two weeks, that worker will be removed from Industrial Corrosion Control projects until two consecutive blood tests result in levels below 40 ug/dl
6. Whenever blood testing reveals 40 ug/dl or greater of lead in whole blood, workers will be offered a medical evaluation, be retrained, and reminded about medical removal protection. PPE will be upgraded if necessary to provide a higher level of protection.
7. Each worker must receive authorization from a physician or other licensed health care professional (PLHCP) for wearing respiratory protection. The authorization will be maintained in the employee's file.
8. The OSHA Medical Removal Program (MRP) is for workers who have a blood lead level of 50 ug/ dl after two tests within two weeks.
9. Post employment or yearly physical examinations, as outlined for baseline exams, will be provided for all workers whose blood levels at any time during the duration of the job reach or exceed 40 ug/dl whole blood.
10. Workers are allowed to request another physician to review the findings (multiple physician review) or to have another physician conduct examinations. The physician must have knowledge about lead exposures.

6.6 Exit Medical Examination

Workers will be offered an exit medical examination consisting of a blood lead level and zinc protoporphyrin and a physical within five days of exiting a project or during extended project shut downs. All offers will be made either at the job site, mailed via certified mail with return receipt or sent with employee paychecks.

6.7 Notification of Workers

All workers tested and/or examined under this medical surveillance program will be notified in writing of the results of testing within five working days after Industrial Corrosion Control has received the results.

Notification will be completed by the worker signing the original medical result form or the employee notification of biological monitoring results form. The signed form will be maintained in the workers records.

6.8 Record Keeping

Medical records will be maintained for the duration of employment plus 30 years. Workers or their appointed

representatives will be able to access those records upon written request to Industrial Corrosion Control. Access will be provided within 15 days after the employee's request, unless Industrial Corrosion Control states the reason for the delay and the earliest date when the records will be made available. Those records will include but not be limited to the following items:

1. Name, social security number and job description.
2. Copy of physician's written opinion, including clearance to wear a respirator.
3. Results of exposure monitoring and medical testing and examinations.
4. Records of medical complaints related to lead exposure.

If an individual worker is removed from exposure to lead, the following records will be kept as well:

1. Date of each occasion that the individual was removed from exposure, and returned to work.
2. A brief explanation of how each removal was or is being accomplished.
3. A statement indicating the reason for removal and blood level results.

6.9 Training for Lead

All workers must be trained prior to starting any project where the exposures will be above the OSHA Action Level for lead in the hazards of lead. Signed and dated training records will be required stating that each worker has received the training. Copies of the OSHA Lead Standard and the site specific Health and Safety Plan will be made available to all workers. Training will include:

- a. The OSHA Lead Standard 29 CFR 1926.62
 1. Health Effects Of Exposure To Lead
 2. Routes Of Exposure
 3. Personal Protective Equipment
 4. Personal Hygiene & Decontamination
 5. Medical Surveillance And Removal Programs
 6. Exposure Monitoring
 7. Engineering Controls And Work Practice
 8. Information Regarding Chelating Agents
 9. Employee Rights To Information
- b. The Health And Safety Plan
- c. Hazardous Waste Procedures (40 CFR 265.16)
- d. Emergency Response
- e. The OSHA Hazard Communication Standard 29 CFR 1926.59
- f. Respiratory Protection Program 29 CFR 1910.134
- g. Basic *Safety* And Health Training 29 CFR 1926.21

7.0 Attachments to this compliance plan

Advanced Recycling System Data Sheet

30,000 CFM Dust Collector Data Sheet
Decontamination Trailer Data Sheet
Bullard 88 Abrasive Blasting Hood Data Sheet
3M 6000 Series Respirator Data Sheet
Air Bag Tarp Coated Nylon Data Sheet
Plot Plan
Containment Drawing

Work Package 3
(responsive documents to item 7)



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SECTION I - REQUEST FOR APPROVAL *(To be Initiated by the Contractor)*

TRANSMITTAL OF SHOP DRAWINGS, EQUIPMENT DATA, MATERIAL SAMPLES, OR
MANUFACTURER'S CERTIFICATES OF COMPLIANCE
(See Instructions on Reverse)

CONTRACT NO. X NEW SUBMITTAL
NNS14AA30T
RESUBMITTAL

TO (b)(6)	FROM HARRY PEPPER & ASSOCIATES, INC.	PREVIOUS TRANSMITTAL NO. (If Any) n/a	TRANSMITTAL NO. 19
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SPECIFICATION AND SECTION NO. <i>(Cover Only One Section With Each Transmittal)</i> 200HF-G013/ 02 82 33.13 20 Removal & Collection of Lead-Cont	PROJECT TITLE AND LOCATION 12NCBZ-18 SLS RELOCATE MPTA SUPERSTRUCTURE
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ITEM NO. (a)	DESCRIPTION OF ITEM SUBMITTED (Type, Size, Model Number, etc.) (See Instruction No. 3) (b)	MANUFACTURER OF ITEM <i>(See Instruction No. 8)</i> (c)	NO OF COPIES (d)	CONTRACT REFERENCE DOCUMENT		VARIATION (See Instruction No. 6) (g)	ACTION CODE (See Instruction No. 9) (h)
				SPECIFICATION PARAGRAPH NO. (e)	DRAWING SHEET NO. (f)		
1	Lead Compliance Plan	ADS	3	1.5.3			

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SPECIFICATION AND SECTION NO. <i>(Cover Only One Section With Each Transmittal)</i> 200HF-G013/ 02 82 33.13 20 Removal & Collection of Lead-Cont	PROJECT TITLE AND LOCATION 12NCBZ-19 CORE STAGE SUPPORT SUPERSTRUCTURE
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ITEM NO. (a)	DESCRIPTION OF ITEM SUBMITTED (Type, Size, Model Number, etc.) (See Instruction No. 3) (b)	MANUFACTURER OF ITEM (See Instruction No. 8) (c)	NO OF COPIES (d)	CONTRACT REFERENCE DOCUMENT		VARIATION (See Instruction No. 6) (g)	ACTION CODE (See Instruction No. 9) (h)
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SPECIFICATION AND SECTION NO. <i>(Cover Only One Section With Each Transmittal)</i> 200HF-G013/ 02 82 33.13 20 Removal & Collection of Lead-Cont	PROJECT TITLE AND LOCATION 12NCBZ-20 SLS BATTLESHIP POINT LOAD REINFORCE
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ITEM NO. (a)	DESCRIPTION OF ITEM SUBMITTED (Type, Size, Model Number, etc.) (See Instruction No. 3) (b)	MANUFACTURER OF ITEM (See Instruction No. 8) (c)	NO OF COPIES (d)	CONTRACT REFERENCE DOCUMENT		VARIATION (See Instruction No. 6) (g)	ACTION CODE (See Instruction No. 9) (h)
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SPECIFICATION AND SECTION NO. <i>(Cover Only One Section With Each Transmittal)</i> 200HF-G013/ 02 82 33.13 20 Removal & Collection of Lead-Cont	PROJECT TITLE AND LOCATION 12NCBZ-22 ELECTRICAL
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ITEM NO. (a)	DESCRIPTION OF ITEM SUBMITTED (Type, Size, Model Number, etc.) (See Instruction No. 3) (b)	MANUFACTURER OF ITEM (See Instruction No. 8) (c)	NO OF COPIES (d)	CONTRACT REFERENCE DOCUMENT		VARIATION (See Instruction No. 6) (g)	ACTION CODE (See Instruction No. 9) (h)
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SPECIFICATION AND SECTION NO. <i>(Cover Only One Section With Each Transmittal)</i> 200HF-GC02/ 02 82 33.13 20 Removal & Collection of Lead-Cont	PROJECT TITLE AND LOCATION SK441PFL00-02 REPLACE FLAME DEFLECTOR BACK WALL MANIFOLDS
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ITEM NO. (a)	DESCRIPTION OF ITEM SUBMITTED (Type, Size, Model Number, etc.) (See Instruction No. 3) (b)	MANUFACTURER OF ITEM (See Instruction No. 8) (c)	NO OF COPIES (d)	CONTRACT REFERENCE DOCUMENT		VARIATION (See Instruction No. 6) (g)	ACTION CODE (See Instruction No. 9) (h)
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SPECIFICATION AND SECTION NO. <i>(Cover Only One Section With Each Transmittal)</i> 200HF-GM08/ 02 82 33.13 20 Removal & Collection of Lead-Cont	PROJECT TITLE AND LOCATION SK442PFL00 PROCESS PIPING SYSTEM RESTORATION
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ITEM NO. (a)	DESCRIPTION OF ITEM SUBMITTED (Type, Size, Model Number, etc.) (See Instruction No. 3) (b)	MANUFACTURER OF ITEM (See Instruction No. 8) (c)	NO OF COPIES (d)	CONTRACT REFERENCE DOCUMENT		VARIATION (See Instruction No. 6) (g)	ACTION CODE (See Instruction No. 9) (h)
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SPECIFICATION AND SECTION NO. <i>(Cover Only One Section With Each Transmittal)</i> 200H0-GA05 02 82 33.13 20 Removal & Collection of Lead-Cont	PROJECT TITLE AND LOCATION SK444YFL00 REPAIRS TO PLATFORMS AND STAIRS
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ITEM NO. (a)	DESCRIPTION OF ITEM SUBMITTED (Type, Size, Model Number, etc.) (See Instruction No. 3) (b)	MANUFACTURER OF ITEM (See Instruction No. 8) (c)	NO OF COPIES (d)	CONTRACT REFERENCE DOCUMENT		VARIATION (See Instruction No. 6) (g)	ACTION CODE (See Instruction No. 9) (h)
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SPECIFICATION AND SECTION NO. <i>(Cover Only One Section With Each Transmittal)</i> 200H0-GA04 02 82 33.13 20 Removal & Collection of Lead-Cont	PROJECT TITLE AND LOCATION SL430WFB00-03 SOFT CORE PAINTING
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ITEM NO. (a)	DESCRIPTION OF ITEM SUBMITTED (Type, Size, Model Number, etc.) (See Instruction No. 3) (b)	MANUFACTURER OF ITEM (See Instruction No. 8) (c)	NO OF COPIES (d)	CONTRACT REFERENCE DOCUMENT		VARIATION (See Instruction No. 6) (g)	ACTION CODE (See Instruction No. 9) (h)
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REMARKS: EMAILED AND 3 HARD COPIES	I certify that the above submitted items have been reviewed in detail and are correct and in strict conformance with the contract drawings & specifications. except as stated. <div style="text-align: center; border: 1px solid red; background-color: #cccccc; padding: 5px; width: fit-content; margin: 0 auto;">(b)(6)</div> NAME AND SIGNATURE OF CONTRACTOR
------------------------------------	--

SECTION II - APPROVAL ACTION

ENCLOSURES RETURNED <i>(List by Item No.)</i>	NAME, TITLE, AND SIGNATURE OF APPROVING AUTHORITY	DATE
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Lead-Based Paint Abatement
B2 Test Stand Restoration
Work Package 3
Stennis Space Center, Mississippi

LEAD COMPLIANCE PLAN

Submitted to:

Mr. (b)(6)
Harry Pepper & Associates, Inc.
9000 Regency Square, Suite 100
Jacksonville, Florida 32211

Submitted by:



ADS Services, Inc.
5451 N. 59th Street, Tampa, Florida 33610
Phone (813) 875-4600 / Fax (813) 872-0901
www.ADSenviro.com

DATED:

March 21, 2014

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APPENDIX I	RESPIRATORY PROTECTION FOR LEAD DUST AND FUMES
APPENDIX II	CERTIFICATIONS
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APPENDIX IV	QUALIFICATION OF SAMPLING PERSONNEL

1.0 PROJECT SUMMARY

Project Name: B2 Test Stand Repairs, Work Package 3

Project Location: Building #4221, NASA John C. Stennis Space Center,
Mississippi 39529

Project Dates: March 24, 2014 – July 31, 2014

Owner: NASA

Prime Contractor: Harry Pepper & Associates, Inc.

**Prime Contractor
Project Manager:** (b)(6)

Abatement Contractor: ADS Services, Inc.

ADS Project Manager: (b)(6)

ADS Competent Person: (b)(6)

**Industrial Hygiene
Consultant:** OHC Environmental Engineering, Inc.

**Competent Person (CIH)
of Record:** (b)(6) MS CIH

Company: OHC Environmental Engineering Inc.
5420 Bay Center Drive, Suite 100
Tampa, Florida 33609
813-626-8156

Analytical Laboratory: Schneider Laboratory
2512 W. Cary Street
Richmond, Virginia 23220-5117
804-353-6778



2.0 GENERAL INFORMATION

This plan is designed to protect ADS, OHC Environmental Engineering, Inc. (OHC) employees and any other contractor on site within the vicinity of our work areas as well as the environment from Lead hazard during the Lead abatement on the B2 Test Stand Repairs.

2.1 Scope of Work

Abate lead-based paint in the following locations:

- SLS Build-out Relocation of B2 MPTA Superstructure
- B2 SLS Core Stage Support Superstructure and Battleship Point Load Reinforcement
- B2 Test Stand Process Power & Piping, Grounding & Lighting Protection
- Replace B2 Flame Deflector Back Wall Manifolds 25, 26 & 27
- B2 Test Stand Repairs to Platforms and Stairs
- B2 Test Stand Soft Core Painting

2.2 Description of Lead Abatement-Related Work Activities: More specifically, lead abatement-related work activities will consist of the following procedures;

2.2.1 Coordinate with the Superintendent for Harry Pepper & Associates to determine the required scope of work and work area for the upcoming work shift and determine the best choice of means and methods to safely and effectively complete the work. Additionally, further demarcate and “lay-out” limits of spot abatement required on each affected component and/or surface for next work activity to safely proceed (i.e. demolition, torch-cutting, etc.)

2.2.2 Establish an OSHA-regulated lead abatement work area around a safe proximity to the work activities by demarcating each affected area with “Lead Warning” signs and barrier tape to restrict access to other trades during completion of the work.

2.2.3 Supply work area protections consisting of installation of 6-mil polyethylene sheeting over the floor and/or immediate walking and working surfaces sealed with duct tape to collect and contain any fugitive lead paint chips, dust and/or debris during the performance of the work.

2.2.4 Supply engineering controls and hygiene facilities within the regulated work area consisting of a HEPA-filtered vacuum, pump up sprayer with amended water, and a bucket with wash water and rags.

2.2.5 Don the additional appropriate personal protective equipment (PPE) for lead abatement work activities including but not limited to the following; two (2) Tyvek or other disposable coveralls (one over the other), ½ face dual cartridge negative-pressure HEPA-filtered respirator, rubber gloves, goggles, etc.

2.2.6 Strip existing lead-based paint (LBP) coatings from the existing painted steel components and/or surfaces by using the following means of lead abatement;

2.2.6.1 Employ the use power-assisted hand tools to mechanically remove the designated area(s) and/or surfaces intended to be abated including Roto-peens, grinders and/or needle guns specially equipped with HEPA shrouds and vacuum attachments to directly collect the lead paint, dust and debris. Constantly monitor the work area to verify the absence of any fugitive lead waste paint chips, dust and debris.

2.2.7 Decontaminate each member of the abatement team by thoroughly HEPA vacuuming the entire outer disposable coverall. Place the outer coverall in the designated waste container. Thoroughly wash hands with the use of disposable hand sanitizing wipes and place all waste wipes along with the containment protections into designated waste container.

2.2.8 At appropriate intervals in the work activities including water breaks, lunch breaks and the end of the work shift, proceed to the remote "decontamination Trailer" and fully decontaminate including shower and redressing prior to leaving the work site.

2.3 Sequencing of Work: To be determined.

2.4 Work Procedures

The contractor shall install physical boundaries, in the form of warning tape and signs, at least 10 feet away from the work area or as practical as possible. The contractor will construct a lead control area.

Warning signs shall be placed at entrances to the work area to clearly identify the potential hazard and that is a regulated area and accessibility is limited to authorized personnel only. No unauthorized personnel will be allowed in the regulated area without the proper training and personal protective equipment.

Dust Control: It is very important to control any dust or contaminated water release from the work area.

2.5 Demarcation of the Regulated Area

ADS shall post warning signs demarcating all regulated areas exceeding the PEL. The signs shall have the following legend:

**WARNING
LEAD WORK AREA
POISON
NO SMOKING, EATING OR CHEWNG TOBACCO**

2.6 Interface of Trades

Other contractors will not be allowed in the lead removal work area until it has been cleared by the on-site Industrial Hygienist.



3.0 STATUTORY REQUIREMENTS

All employees and contractors must have current and detailed knowledge of Federal, State and local regulations applicable to the removal of lead based paints. The regulations listed below form a part of this plan to the extent referenced. They are referred to in the text by the basic designation only.

3.1 Code of Federal Regulation (CFR) Publications

29 CFR 1910.134	Respiratory Protection
29 CFR 1926.200	Specifications for Accident Prevention Signs and Tags
29 CFR 1926.62	Lead
EM 385-1-1	September 15, 2008 Safety & Health Requirements Manual
29 CFR 1910.1200	Hazardous Communication
40 CFR 745-.226	Certification for Individuals and Firms Engaged in Lead Based Paint Activities: target housing and child-occupied facilities.
40 CFR 262.11	Hazardous Waste Determination
40 CFR 61 SUBPART A&B	General Provisions

3.2 American National Standard institute (ANSI)

Z9.2-79	Fundamentals governing the design and operation of local exhaust systems.
Z88.2-80	Practices for Respiratory Protection

4.0 DEFINITIONS

Abatement: Operations to eliminate or minimize dust released from lead based paint removal.

Airlock: An enclosure permitting entrance and exit to or from a contaminated area and a clean area. Airflow is always from the clean area to the contaminated area.

Area Monitoring: Stationary sampling and analysis of lead concentrations inside the work area, inside the building, outside the lead control area, and outside the building, such as at the decontamination unit or at HEPA exhaust by discharge; concentration is measured in ug/m³.

Lead Control Area: An area where lead removal operations are being performed which is isolated by physical boundaries to prevent the spread of lead dust, or debris.

Project Manager: One who is capable of identifying existing lead hazards in the workplace and has the authority to take prompt corrective measures to eliminate them. The duties include at least the following: establishing the negative pressure enclosure, ensuring its integrity, controlling entry to and exit from the enclosure, supervising any employee exposure monitoring required by the standard, ensuring that all employees working in such an enclosure wear the appropriate personal protection, are trained in the appropriate methods of exposure control, and use the hygiene facilities and decontamination procedures specified in the standard; and ensuring that engineering controls in use are in the proper operating conditions and are functioning properly.

Decontamination (decon) Unit: A decontamination system for personnel, equipment and materials connected with airlocks/curtained doorways between work area and adjacent rooms, for the decontamination of workers or of materials and equipment.

Enclosure: Permanent barriers erected around the removal area to isolate in an airtight, impermeable environment.

HEPA Filter Equipment: High Efficiency Particulate Absolute (HEPA) filtered vacuuming equipment with a filter system capable of collecting and retaining lead dust. Filters will be of 99.97 percent efficiency for retaining fibers of 0.3 microns or greater.

Lead: Metallic lead, all inorganic lead compounds.

Negative Pressure System: A system in which static pressure in an enclosed control area is lower than that of the environmental outside the control area, as specified.

Permissible Exposure Limit (PEL): Lead: the limit is fifty micrograms per cubic meter of air (50 ug/m³) averaged over an 8-hour period.

Personal Monitoring: Sampling airborne lead concentrations within the breathing zone of an employee.

Plasticize: To cover floors, walls and fixed objects with plastic sheeting.

Time Weighted Average (TWA): The calculation made from the results of multiple air samples collected from the breathing zone from the same individual on the same day, over a specified period to determine a weighted average of airborne lead concentrations.

Wet Cleaning: Removing the residue of lead from building surfaces and installed objects by using mops, cloths, and other tools that have been wetted with amended water.



5.0 RESPONSIBILITIES

Key Staff Assigned to this project			
Employee Name	Assigned Responsibility	Cell Phone Number	E-Mail Address
(b)(6)	Harry Pepper & Associates Project Manager		(b)(6)
	OHC Project Manager		
	OHC on-site Industrial Hygienist		
	ADS Project Manager		
	ADS on-site Competent Person		

5.1 ADS Health and Safety Director

ADS Health and Safety Director shall:

- Assure that all employees who have the potential to come in contact with lead containing materials are aware of the hazards associated with lead dust.
- Initiate medical surveillance for any employee who has the potential for exposure to lead as outlined in 29 CFR 1910.1025 or 29 CFR 1926.62.

5.2 ADS Project Manager

The competent person shall:

- Verify training meets all federal, State, and local requirements
- Review and approve Lead Compliance Plan for conformance to the applicable referenced standards,
- Oversee all the required air sampling and provide recommendations on the use of proper PPE based on the employees exposure levels,
- Ensure that work is performed in strict accordance with specifications at all times.
- Supervise final cleaning of the lead control area, verify clearance as necessary,
- Certify the conditions of the work as called for elsewhere in this specification.

5.3 Site Supervisors

Site Supervisors shall:

- Assure that all employees who have a potential to be exposed to lead have received the appropriate training
- Ensure that all employees and subcontractors who will perform abatement have completed training through an OSHA-compliant lead class
- Assure that employees under their control follow the lead removal practices as described in the scope of work



- Coordinate assessment of materials to determine lead content as necessary to determine exposure potential
- Report any problem associated with the lead abatement to the TSI Safety Director

5.4 Employees

Employees shall:

- Perform his/her work as safely as possible and follow all safety procedures.
- Comply with the provisions of the lead abatement scope of work and work practices identified for individual tasks.
- Report existing health or safety hazards to the supervisor.

5.5 Industrial Hygienist

- Ensure compliance with the Lead Compliance Plan
- Perform all the required air sampling
- Ensure that employees are properly wearing the personal protective equipment
- Perform all the required clearance testing
- Perform the TCLP sampling

6.0 PRIOR TO COMMENCEMENT OF WORK

Submit documentation to the competent person (CIH) records indicating that each employee has successfully completed training course for lead work activities. Also submit verification that all employees have received medical examinations as required by OSHA regulations. Upon approval of the submittal by the CIH, a copy will be forwarded to the contracting officer.

7.0 OSHA STANDARDS

1. Action Level - 30 ug/m^3 (8 Hour TWA)
2. Permissible Exposure Level - 50 ug/m^3 (8 Hour TWA)
3. Extended Work Hours - $\frac{400 \text{ ug/m}^3}{\text{\# of hrs worked/day}}$

8.0 TRAINING

Site Competent Person: The competent person must be a Lead Based Risk Assessor.

Each worker potentially exposed to Lead above the action level shall receive training on: the hazards of lead, the written compliance program, engineering controls, containment practices, respiratory protection and symptoms of lead poisoning.

9.0 MEDICAL SURVEILLANCE

9.1 Regulatory Compliance



ADS will comply with the provision of 29 CFR 1926.62 for each and every employee assigned to lead work on this project; will sign and submit the Affidavit of Medical Surveillance of Employees at project start-up.

Blood lead levels will be monitored before and after lead abatement in accordance with 29 CFR 1926.62 *Medical Surveillance* sampling for **Blood Level Levels (BLL)** and **Zinc Protoporphyrin (ZPP)**.

- 9.2 Initial Screening** - Anyone who may be exposed above action level on any one day.
- 9.3 Periodic Screening** - Medical Surveillance Program to anyone exposed above the action level for more than 30 days per year.
- 9.4 Exposure above Action Level**
1. Every 2 months, first 6 months.
 2. Every 6 months thereafter.
 3. If Blood Lead Level is above 40 ug/dl then continue monitoring at least every 2 months until 2 consecutive blood samples are below 40 ug/dl.
 4. Every month during medical removal due to elevated BLL.
- 9.5 Employee Notification**
Within 5 working days, in writing from the receipt of results.
- 9.6 Medical Examination**
1. Annually for each employee whose BLL was at or above 40 ug/dl within the past 12 months.
 2. If any employee complaints of signs or symptoms associated with lead.
 3. If employee questions their ability to procreate a healthy child.
 4. If the employee is pregnant.
 5. Difficulty in breathing when wearing a respirator or during fit testing.
 6. Employee removed from exposure to lead due to increased risk.
 7. Employee may seek a second medical opinion.
- 9.7 Temporary Medical Removal**
1. If an employee exposed above Action Level and BLL is at or above 50 ug/dl.
 2. Repeat screening within 2 weeks.
 3. If follow-up test confirm initial data, employee must be removed.
 4. Due to medical determination has detected a medical condition which places employee at higher risk.
 5. Remove up to 18 months with full benefits or until the project is completed.
 6. Chelation Therapy is not allowed.

9.8 Return to Work

1. If 2 consecutive BLL at or below 40 ug/dl.
2. If subsequent medical determination released the employee to return to work.

10.0 HAZARD COMMUNICATION

ADS will post a copy of 29 CFR 1926.62. "Health Hazard Data" in a prominent place in the office area. Contractor will also comply with the hazard communication provisions in 29 CFR 1910 1200.

Material Safety Data Sheets for lead and any other chemicals used on site will be added to the plan and a copy submitted to the prime contractor for review.

11.0 PROTECTIVE CLOTHING

Personnel who are potentially exposed to airborne lead dust or fumes in excess of the action level will be provided with disposable protective whole body clothing, head coverings, foot coverings, and gloves. Hard hats and eye protection will be provided as needed.

12.0 RESPIRATORY PROTECTION

12.1 Regulatory Compliance

ADS will comply with the provisions of 29 CFR 1910.134 (b),(d),(e) and (f) in establishing a respiratory protection program, and 29 CFR 1926.62 for fit testing procedures and respirator selection until a database is established. (Refer to Appendix I for more information on respiratory protection)

12.2 NIOSH Approval

The respirators must be approved by National Institute for Occupational Safety and Health (NIOSH). The type of respirator will be appropriate to the airborne lead concentration in the enclosed area at the time of entry. Refer to Appendix I for respiratory protection values.

12.3 Job Specific Regulations for Respirators

During the decontamination of Lead activities contractor employees will don half face respiratory protection equipped with a HEPA filter N, R, P 100. If chemical removal is used then follow manufacturer instructions for the proper type of respirator use.

12.4 Contractor Respirator Program

ADS will provide a copy of the respiratory protection program as part of their submittal.

13.0 HYGIENE

Protective work clothing and equipment for workers



13.1 Provision and Use

If employees are exposed to lead levels above the PEL, without regard to the use of respirators, or where the possibility of skin or eye irritation exists, the employer shall provide, at no cost to the employee, and assure that the employee uses appropriate protective work clothing and equipment such as, but not limited to:

- Coveralls or similar full-body work clothing;
- Gloves, hats, and shoes or disposable shoe coverlets; and
- Face shields, vented goggles, or other appropriate protective equipment which complies with CFR 29 Section 1910.133 of Part 1910.

13.2 Cleaning and Replacement.

Provide Disposable Protective Clothing as Needed.

- The employer shall provide for the disposal of required protective clothing and equipment.
- The employer shall repair or replace required protective clothing and equipment as needed to maintain their effectiveness.
- The employer shall prohibit the removal of lead from protective clothing or equipment by blowing, shaking, or any other means, which disperses lead into the air.

13.3 Eating and Drinking Area

ADS will designate an outdoor eating and drinking area for employees. OHC will monitor the air in this area and will perform wipe samples on any tables in this area to ensure that it is free of lead dust.

14.0 GENERAL SAFETY REQUIREMENTS

The Contractor is responsible for maintaining safe working conditions in accordance with all applicable safety instructions in 29 CFR 1926.62 and all other applicable safety procedures in 29 CFR 1926.20 (General safety and health provisions) will be adhered to. The Owner, the Designer, and the Owner's representative assume *no responsibility* for the safety of the Contractor's employees. That is a responsibility the Contractor will not delegate. Nevertheless, the Owner and/or his or her representative is authorized to stop operations upon their discovery of a potential or existing safety hazard, notifying the Contractor of the condition for his corrective action.

15.0 RECORDKEEPING

1. Exposure Records - 30 Years.



-
2. Medical Surveillance - 30 Years after Termination of Employment.
 3. Medical Removal - Duration of Employment.
 4. Objective Data - 30 Years.

(b)(4)

(b)(4)

17.0 DISPOSAL

All waste generated during the dust cleaning activity will be segregated as hazardous and non hazardous waste. All suspect hazardous waste will be placed in a lined 55-gallon drum. The drum will be properly labeled as suspected hazardous waste and dated with the first day of use. Upon completion of the project collect a sample from the drum and submit to a state accredited lab for TCLP analysis. If the TCLP results are greater than 5 ppm then the waste must be disposed of as hazardous waste. The contractor will complete the proper manifest forms and submit a copy to the contracting officer.

If any waste generated on site is determined to be hazardous waste then ADS will submit a disposal plan for the disposal of any hazardous waste. The plan will include the site of the disposal facility and transportation of hazardous material. Hazardous waste will not leave the site until the contracting officer signs off on the waste manifest forms. Hazardous waste manifest forms and certificate of disposal will be submitted to the contracting officer within 30 days after disposal.

Dust collection: TSI will utilize HEPA vacuums dust collector system to vacuum any dust and debris generated during the clean-up activities. The system is equipped with a HEPA filter to filter the air exhausted to the exterior environment.

Waste Water: All water generated from the containment or the decontamination process



shall be collected and filtered through a 1 micron filter. Once filtered the water may be disposed of as regular non-potable water.

18.0 DECONTAMINATION

ADS will set up a remote decontamination area for the employees to wash their hands and face prior to eating, drinking or leaving the worksite.

19.0 SECURITY OF THE WORK AREA:

Entry and exit from the work is through the decontamination chamber only.

20.0 FINAL CLEANING AND CLEARANCE OF EACH WORK AREA

Upon completion of all work activities that disturb LBP, the work area shall be cleaned by HEPA vacuuming and wiping down all surfaces from the structure in accordance with OSHA guideline for Lead in construction. HEPA vacuuming all loose dust and debris within the work area. Upon completion of the cleaning activity, the on-site Industrial Hygienist shall conduct a visual inspection of the work area, **in the presence of the IH/inspector**, to verify that it is clean for re-occupancy by other contractors without the use of PPE.

APPENDIX I

**RESPIRATORY PROTECTION FOR
LEAD DUST AND FUMES**

RESPIRATORY PROTECTION FOR LEAD DUST AND FUMES:

	UP TO 500 ug/m ³	UP TO 1,250 ug/m ³	UP TO 2,500 ug/m ³	UP TO 50,000 ug/m ³	UP TO 100,000 ug/m ³	>THAN 100,000 ug/m ³
1. 1/2 Mask APR w/HEPA Filter - 10 X PEL	X					
2. Loose Fitting Hood or Helmet-PAPR w/HEPA Filter - 25 X PEL		X				
3. Hood or Helmet Supplied Air Operated in Continuous Mode - Abrasive Blasting - 25 X PEL		X				
4. Full Facepiece APR - 50 X PEL			X			
5. Tight Fit PAPR w/HEPA Filter - 50 X PEL			X			
6. SCBA - Demand Mode - 50 X PEL			X			
7. Full-face - Supplied Air Pressure Demand or Other Positive Pressure Mask - 1000 X PEL					X	
8. Full-face SCBA - Pressure Demand or Positive Pressure Mode - >2000 X PEL						X

NOTE: APR = Air Purifying Respirator
HEPA = High Efficiency Particulate Filters
PEL = 50 ug/m³



APPENDIX II

CERTIFICATIONS

United States Environmental Protection Agency

This is to certify that

Krane Development, Inc. dba ADS Services, Inc.

has fulfilled the requirements of the Toxic Substances Control Act (TSCA) Section 402 and has received certification to conduct lead-based paint activities pursuant to 40 CFR Part 745.226

In the Jurisdiction of:

Florida

This certification is valid from the date of issuance and expires August 06, 2016

FL-44906-2

Certification #

July 19, 2013

Issued On



(b)(6)

Lead, Heavy Metals, and Inorganics Branch

Active Environmental Training

PO Box 707
Loughman, Fl. 33858
407-860-0369

Certifies that:

(b)(6)

(b)(6)

Has Successfully Met the Requirements, Training and Passed the Exam for Lead
Abatement Accreditation as Required by OSHA 29 CFR 1926.62(1)
In the Discipline of:

8- Hour Lead Supervisor Refresher

November 23, 2013



AET11232013LSR-02

Certificate Authentication
Number

(b)(6)

Course Administrator

Provider No: USF-09678

Course Date
This Certificate Expires One
Year from This Date



INCORPORATED

PHYSICIAN'S WRITTEN OPINION (LEAD)

TO: ABATEMENT & DEMOLITION SERVICES (b)(6)

FROM: Examining Physician/Clinic: BAY WEST COMMERCE PARK
5820 C WEST CYPRESS STREET
SUITE C

Physician/Clinic Address: TAMPA, FL 33607
PHONE: (813) 839-9119
FAX: (813) 839-1039

Telephone Number: _____

In accordance with the requirements of OSHA, 29 CFR 1926.62 (Lead in the Construction Industry), and as applicable, in accordance with the requirements of OSHA 29 CFR 1926.1127 (Cadmium in the Construction Industry), the examining physician/clinic will provide the employer with a written medical opinion containing the following:

1. This is to certify, that on this date 11-6-13 and in accordance with the OSHA requirements, I have examined (b)(6) whose Social Security number is (b)(6) and based on my findings, have determined this individual may (✓) may not () use a respiratory device while performing his/her required employment services and is (✓) is not () capable of working in hot work environments;

2. The results of this examination have () have not (✓) detected any medical condition which would place the employee at an increased risk of material health impairment from exposure to lead and/or cadmium, including any indications of potential lead and or cadmium, including any indications of potential lead and/or cadmium toxicity; and zinc.

3. I have ()* have not (✓) recommended special protective measures to be provided to the employee, or limitations to be placed upon the employee's exposure to lead and/or cadmium; and

4. In accordance with OSHA requirements, I have informed the above named individual of the results of his/her complete medical examination (including biological monitoring) and of any medical condition that may result from his/her exposure to lead and/or cadmium.

*Describe special protective measures or limitations placed upon the employee's exposure to lead and/or cadmium: _____

The complete medical examination report on the above named individual will be forwarded to the employer pending final conclusion and interpretation of any additional medical data collected during the examination.

Signed: (b)(6)
(Examining Physician/Physician's Representative)

(b)(6)
(Physician's Name; Printed or Typed)

Abatement & Demolition Services, Incorporated

QUALITATIVE FIT TEST RECORD FOR LEAD

DATE: 2/3/14 EMPLOYEE: (b)(6) SS#: (b)(6)

I. Sensitivity Test:

IS: STANNIC CHLORIDE

IA: Did Not Run

SA: Did Not Run

II. Note Unusual Conditions:

NONE

III: Respirator Selection:

Mask:

North Half Face

✓

Size:

M

Result:

Good

IV: Qualitative Tests:

NP PP IS IA SA

(b)(6)

Signature/Firma del Empleado

2/3/14

Date/Fecha

(b)(6)

Administrator of Fit Test

Firma del Administrador del Fit Test

2/3/14

Date/Fecha

I. IS: Irritant Smoke IA: Isoamyl Acetate SA: Saccharin

II: 1. Beard/Heavy 2. Beard/Light 3. Sears 4. Wrinkles 5. Glasses
6. Several days beard growth 7. Other

III. Masks-Name	Filter-NIOSH #	Mask-Model	Sizes	Results
2. North (Half Face)	TC-21C-152	7700-30	1. Small 2. Medium 3. Large	1. Passed 2. Failed 3. Did not run

IV. NP: Negative Pressure PP: Positive Pressure IS: Irritant Smoke IA: Isoamyl Acetate SA: Saccharin

Active Environmental Training

PO Box 707
Loughman, Fl. 33858
407-860-0369

Certifies that:

(b)(6)

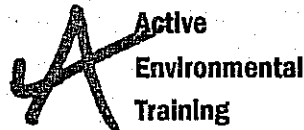
(b)(6)

Has Successfully Met the Requirements, Training and Passed the Exam for Lead
Abatement Accreditation as Required by OSHA 29 CFR 1926.62(1)
In the Discipline of:

8- Hour Lead Worker Refresher

November 2, 2013

Course Date
This Certificate Expires One
Year from This Date



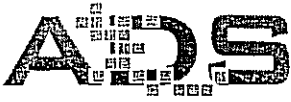
AET11032013LWR-03

Certificate Authentication
Number

(b)(6)

Course Administrator

Provider No: USF-09678



INCORPORATED

PHYSICIAN'S WRITTEN OPINION (LEAD)

TO: ABATEMENT & DEMOLITION SERVICE (b)(6)
 BAY WEST COMMERCE PARK
 FROM: Examining Physician/Clinic: 5820 C WEST CYPRESS STREET;
 SUITE C
 Physician/Clinic Address: TAMPA, FL 33607
PHONE: (813) 639-9119
FAX: (813) 639-1039
 Telephone Number: _____

In accordance with the requirements of OSHA 29 CFR 1926.62 (Lead in the Construction Industry), and as applicable, in accordance with the requirements of OSHA 29 CFR 1926.1127 (Cadmium in the Construction Industry), the examining physician/clinic will provide the employer with a written medical opinion containing the following:

1. This is to certify, that on this date 11/07/2013, and in accordance with the OSHA requirements I have examined (b)(6) whose Social Security number is (b)(6) and based on my findings, have determined this individual may (✓) may not () use a respiratory device while performing his/her required employment services and is () is not () capable of working in hot work environments;
2. The results of this examination have () have not (✓) detected any medical condition which would place the employee at an increased risk of material health impairment from exposure to lead and/or cadmium, including any indications of potential lead and or cadmium, including any indications of potential lead and/or cadmium toxicity; and zinc.
3. I have ()* have not (✓) recommended special protective measures to be provided to the employee, or limitations to be placed upon the employee's exposure to lead and/or cadmium; and
4. In accordance with OSHA requirements, I have informed the above named individual of the results of his/her complete medical examination (including biological monitoring) and of any medical condition that may result from his/her exposure to lead and/or cadmium.

*Describe special protective measures or limitations placed upon the employee's exposure to lead and/or cadmium: _____

The complete medical examination report on the above named individual will be forwarded to the employer pending final conclusion and interpretation of any additional medical data collected during the examination.

Signed: (b)(6) _____
 (representative)

(b)(6)
 (Physician's Name; Printed or Typed)

Abatement & Demolition Services, Incorporated

QUALITATIVE FIT TEST RECORD FOR LEAD

DATE: 10/1/13 EMPLOYEE: (b)(6) SS# (b)(6)

I. Sensitivity Test:

IS: STANNIC CHLORIDE
IA: Did Not Run
SA: Did Not Run

II. Note Unusual Conditions:

NONE

III: Respirator Selection:

Mask:

North Half Face

checkmark

Size:

Large

Result:

checkmark

IV: Qualitive Tests:

checkboxes for NP, PP, IS, IA, SA with checkmarks for NP and PP

(b)(6) Signature/Firma del Empleado

10/1/13 Date/Fecha

(b)(6) Firma del Administrador del Fit Test

10-1-13 Date/Fecha

Legend table with categories I, II, III, IV and sub-items for irritants, beard growth, mask details, and test types.

Active Environmental Training

PO Box 707
Loughman, Fl. 33858
407-860-0369

Certifies that:

(b)(6)

Has Successfully Met the Requirements, Training and Passed the Exam for Lead
Abatement Accreditation as Required by OSHA 29 CFR 1926.62(1)
In the Discipline of:

8- Hour Lead Worker Refresher

November 23, 2013



AET11232013LWR-01

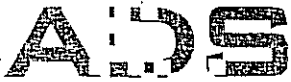
Certificate Authentication
Number

(b)(6)

Course Administrator

Provider No: USF-09678

Course Date
This Certificate Expires One
Year from This Date



PHYSICIAN'S WRITTEN OPINION (LEAD)

TO: ADS SERVICES INC.

FROM: Examining Physician/Clinic: (b)(6)
BAY WEST COMMERCE PARK

Physician/Clinic Address: 5820 C WEST CYPRESS STREET
SUITE C

Telephone Number: TAMPA, FL 33607
PHONE: (813) 888-8119
FAX: (813) 888-1899

In accordance with the requirements of OSHA 29 CFR 1926.62 (Lead in the Construction Industry), and as applicable, in accordance with the requirements of OSHA 29 CFR 1926.1127 (Cadmium in the Construction Industry), the examining physician/clinic will provide the employer with a written medical opinion containing the following:

1. This is to certify, that on this date 11.14.13 and in accordance with the OSHA requirements I have examined (b)(6) whose Social Security number is (b)(6) and based on my findings, have determined this individual may may not use a respiratory device while performing his/her required employment services and is is not capable of working in hot work environments;

2. The results of this examination have have not detected any medical condition which would place the employee at an increased risk of material health impairment from exposure to lead and/or cadmium, including any indications of potential lead and or cadmium, including any indications of potential lead and/or cadmium toxicity; and zinc.

3. I have * have not recommended special protective measures to be provided to the employee, or limitations to be placed upon the employee's exposure to lead and/or cadmium; and

4. In accordance with OSHA requirements, I have informed the above named individual of the results of his/her complete medical examination (including biological monitoring) and of any medical condition that may result from his/her exposure to lead and/or cadmium.

*Describe special protective measures or limitations placed upon the employee's exposure to lead and/or cadmium: _____

The complete medical examination report on the above named individual will be forwarded to the employer pending final conclusion and interpretation of any additional medical data collected during the exam: (b)(6)

Signed: (b)(6)
(Examining Physician/Physician's Representative)

(b)(6)
(Physician's Name; Printed or Typed)

QUALITATIVE FIT TEST RECORD FOR LEAD

DATE: 2/3/14 EMPLOYEE (b)(6) SS# (b)(6)

I. Sensitivity Test:

II. Note Unusual Conditions:

IS: STANNIC CHLORIDE

NONE

IA: Did Not Run

SA: Did Not Run

III: Respirator Selection:

Mask:

Size:

Result:

North Half Face ✓

M

✓

IV: Qualitive Tests:

NP PP IS IA SA

(b)(6)

2/3/14
Date/Fecha

2/3/14
Date/Fecha

Administrator of Fit Test
Firma del Administrador del Fit Test

I.	IS: Irritant Smoke	IA: Isoamyl Acetate	SA: Saccharin
II:	1. Beard/Heavy 2. Beard/Light 3. Sears 4. Wrinkles 5. Glasses 6. Several days beard growth 7. Other		
III.	Masks-Name	Filter-NIOSH #	Mask-Model Sizes Results
	2. North (Half Face)	TC-21C-152	7700-30 1. Small 1. Passed 2. Medium 2. Failed 3. Large 3. Did not run
IV.	NP: Negative Pressure	PP: Positive Pressure	IS: Irritant Smoke IA: Isoamyl Acetate SA: Saucharin

Active Environmental Training

PO Box 707
Loughman, Fl. 33858
407-860-0369

Certifies that:

(b)(6)

Has successfully met the Requirements, Training, and passed the exam for Lead Abatement Accreditation as required by OSHA 29 CFR 1926.62, including appendices A, B and C.

In the Discipline of:

16- Hour Lead Initial Worker

April 20, 2013

Course Date

This Certificate Expires One Year
from This Date



AET03082013LWI-02

Certificate Authentication
Number

(b)(6)

Course Administrator

Provider No: USF-09678



INCORPORATED

PHYSICIAN'S WRITTEN OPINION (LEAD)

TO: ABATEMENT & DEMOLITION SERVICES, INC. (b)(6)
 5820 C WEST COMMERCE PARK
 5820 C WEST CYPRESS STREET
 SUITE C
 FROM: Examining Physician/Clinic: _____
 TAMPA, FL 33607
 Physician/Clinic Address: _____
 PHONE: (813) 639-9119
 FAX: (813) 639-1039
 Telephone Number: _____

In accordance with the requirements of OSHA 29 CFR 1926.62 (Lead in the Construction Industry), and as applicable, in accordance with the requirements of OSHA 29 CFR 1926.1127 (Cadmium in the Construction Industry), the examining physician/clinic will provide the employer with a written medical opinion containing the following:

1. This is to certify, that on this date 11/08/2013, and in accordance with the OSHA requirements, I have examined (b)(6) whose Social Security number is (b)(6), and based on my findings, have determined this individual may may not use a respiratory device while performing his/her required employment services and is is not capable of working in hot work environments;
2. The results of this examination have have not detected any medical condition which would place the employee at an increased risk of material health impairment from exposure to lead and/or cadmium, including any indications of potential lead and or cadmium, including any indications of potential lead and/or cadmium toxicity; and zinc.
3. I have * have not recommended special protective measures to be provided to the employee, or limitations to be placed upon the employee's exposure to lead and/or cadmium; and
4. In accordance with OSHA requirements, I have informed the above named individual of the results of his/her complete medical examination (including biological monitoring) and of any medical condition that may result from his/her exposure to lead and/or cadmium.

*Describe special protective measures or limitations placed upon the employee's exposure to lead and/or cadmium: _____

The complete medical examination report on the above named individual will be forwarded to the employer pending final conclusion and interpretation of any additional medical data collected during the examination.

Signed: (b)(6)
(Employer Representative)

(b)(6)
(Physician's Name; Printed or Typed)

Abatement & Demolition Services, Incorporated

QUALITATIVE FIT TEST RECORD FOR LEAD

DATE: 11-1-13 EMPLOYEE: (b)(6) SS# (b)(6)

I. Sensitivity Test:

IS: STANNIC CHLORIDE
IA: Did Not Run
SA: Did Not Run

II. Note Unusual Conditions:

NONE

III: Respirator Selection:

Mask: North Half Face ✓ Size: _____ Result: ✓

IV: Qualitative Tests:

NP PP IS IA SA

(b)(6)

Administrador of Fit Test
Firma del Administrador del Fit Test

11/1/13
Date/Fecha
11-1-13
Date/Fecha

I.	IS: Irritant Smoke	IA: Isoamyl Acetate	SA: Saccharin		
II:	1. Beard/Heavy	2. Beard/Light	3. Sears	4. Wrinkles	5. Glasses
	6. Several days beard growth	7. Other			
III.	Masks-Name	Filter-NIOSH #	Mask-Model	Sizes	Results
	2. North (Half Face)	TC-21C-152	7700-30	1. Small 2. Medium 3. Large	1. Passed 2. Failed 3. Did not run
IV.	NP: Negative Pressure	PP: Positive Pressure	IS: Irritant Smoke	IA: Isoamly Acctetate	SA: Saucharin

APPENDIX III

LABORATORY CERTIFICATION



August 30, 2013

Laboratory ID: 100527

Dr. (b)(6)
Schneider Laboratories Global, Inc.
2512 West Cary Street
Richmond, VA 23220-5117

Dear Dr. (b)(6)

Congratulations! The AIHA Laboratory Accreditation Programs (AIHA-LAP), LLC's Analytical Accreditation Board (AAB) has approved Schneider Laboratories Global, Inc. as an accredited Industrial Hygiene, Environmental Lead and Environmental Microbiology laboratory.

Accreditation documentation includes the IHLAP, ELLAP and EMLAP accreditation certificate, scope of accreditation document and a copy of the current AIHA-LAP, LLC license agreement (if your completed agreement is not on file at AIHA-LAP, LLC). The accreditation logo has been designed for use by all AIHA-LAP, LLC accredited laboratories. If your laboratory chooses to use the logo in its advertising the laboratory's accreditation, you must complete and return the AIHA-LAP, LLC license agreement to a Laboratory Accreditation Specialist. Once submitted, an electronic copy of the accreditation logo will be sent to you. Please inform us if your laboratory does not wish to use the logo in advertising.

At the close of your site assessment, your site assessor recommended a surveillance visit for EMLAP between six and twelve months. We will contact you regarding this surveillance within six months of this letter. This recommendation was approved by the AAB. As your laboratory was assessed and accredited to ISO/IEC17025:2005, AIHA Laboratory Accreditation Programs, LLC is obligated to follow the ISO/IEC17011 standard as an accrediting body. Please see ISO17011 Section 7.11 and AIHA LAP Policy 3.5.10 on surveillance visits.

Laboratory accreditation shall be maintained by continued compliance with IHPAT, ELPAT and EMPAT requirements (*see Policy Modules 2B, 2C, 2D, and 6*), which includes proficient participation in AIHA-LAP, LLC approved proficiency testing, demonstration of competency, or round robin program as indicated on the AIHA-LAP "Approved PT and Round Robin" webpage, its associated PT-Scope table, and as required in Policy Module 6, for all Fields of Testing (FoTs) for which the laboratory is accredited. An accredited laboratory that wishes to expand into a new FoT must submit an updated accreditation application to AIHA-LAP, LLC for review by the AAB.

Any changes in ownership, laboratory location, personnel, FoTs/Methods, or significant procedural changes shall be reported to AIHA-LAP, LLC in writing within twenty (20) business days of the change.

The accreditation certificate is the property of AIHA-LAP, LLC and must be returned to us should your laboratory withdraw or be removed from the IHLAP, ELLAP and EMLAP.

Again, congratulations. If you have any questions, please contact (b)(6) Laboratory Accreditation Specialist, at (b)(6)

Sincerely,

AIHA Laboratory Accreditation Programs, LLC
3141 Fairview Park Drive, Suite 777, Falls Church, VA 22042 USA
main +1 703-846-0736 fax +1 703-207-8558

Twitter: @AIHA_LAP_LLC

R2 04/26/2013

Page 1 of 2



AIHA

Laboratory Accreditation
Programs, LLC

(b)(6)

Managing Director
AIHA Laboratory Accreditation Programs, LLC



AIHA Laboratory Accreditation Programs, LLC

acknowledges that

Schneider Laboratories Global, Inc.

2512 West Cary Street, Richmond, VA 23220-5117

Laboratory ID: 100527

along with all premises from which key activities are performed, as listed above, has fulfilled the requirements of the AIHA Laboratory Accreditation Programs (AIHA-LAP), LLC accreditation to the ISO/IEC 17025:2005 international standard, *General Requirements for the Competence of Testing and Calibration Laboratories* in the following:

LABORATORY ACCREDITATION PROGRAMS

- | | |
|--|-----------------------------------|
| <input checked="" type="checkbox"/> INDUSTRIAL HYGIENE | Accreditation Expires: 05/01/2015 |
| <input checked="" type="checkbox"/> ENVIRONMENTAL LEAD | Accreditation Expires: 05/01/2015 |
| <input checked="" type="checkbox"/> ENVIRONMENTAL MICROBIOLOGY | Accreditation Expires: 05/01/2015 |
| <input type="checkbox"/> FOOD | Accreditation Expires: |
| <input type="checkbox"/> UNIQUE SCOPES | Accreditation Expires: |

Specific Field(s) of Testing (FoT)/Method(s) within each Accreditation Program for which the above named laboratory maintains accreditation is outlined on the attached Scope of Accreditation. Continued accreditation is contingent upon successful on-going compliance with ISO/IEC 17025:2005 and AIHA-LAP, LLC requirements. This certificate is not valid without the attached **Scope of Accreditation**. Please review the AIHA-LAP, LLC website (www.aihaaccreditedlabs.org) for the most current Scope.

(b)(6)

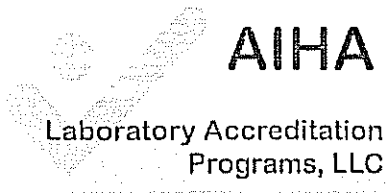
Chairperson, Analytical Accreditation Board

(b)(6)

Managing Director, AIHA Laboratory Accreditation Programs, LLC

Revision 13: 03/12/2013

Date Issued: 08/30/2013



AIHA Laboratory Accreditation Programs, LLC

SCOPE OF ACCREDITATION

Schneider Laboratories Global, Inc.
 2512 West Cary Street, Richmond, VA 23220-5117

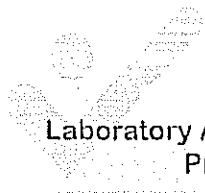
Laboratory ID: **100527**
 Issue Date: 08/30/2013

The laboratory is approved for those specific field(s) of testing/methods listed in the table below. Clients are urged to verify the laboratory's current accreditation status for the particular field(s) of testing/Methods, since these can change due to proficiency status, suspension and/or withdrawal of accreditation.

Industrial Hygiene Laboratory Accreditation Program (IHLAP)

Initial Accreditation Date: 12/01/1987

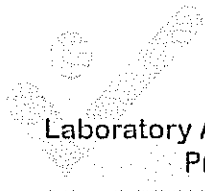
IHLAP Scope Category	Field of Testing (FoT)	Technology sub-type/ Detector	Published Reference Method/Title of In-house Method	Method Description or Analyte <i>(for internal methods only)</i>
Chromatography Core	Gas Chromatography	GC/FID	NIOSH 1001	
			NIOSH 1003	
			NIOSH 1004	
			NIOSH 1005	
			NIOSH 1007	
			NIOSH 1015	
			NIOSH 1018	
			NIOSH 1019	
			NIOSH 1020	
			NIOSH 1022	
			NIOSH 1300	
			NIOSH 1301	
			NIOSH 1302	
			NIOSH 1400	
			NIOSH 1401	
			NIOSH 1402	
			NIOSH 1403	
			NIOSH 1450	
			NIOSH 1451	
			NIOSH 1454	
NIOSH 1457				
NIOSH 1458				
NIOSH 1459				
NIOSH 1500				



AIHA

Laboratory Accreditation
Programs, LLC

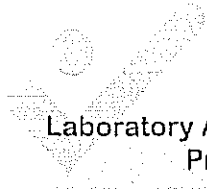
IHLAP Scope Category	Field of Testing (FoT)	Technology sub-type/ Detector	Published Reference Method/Title of In-house Method	Method Description or Analyte <i>(for internal methods only)</i>
Chromatography Core	Gas Chromatography	GC/FID	NIOSH 1501	
			NIOSH 1550	
			NIOSH 1551	
			NIOSH 1552	
			NIOSH 1602	
			NIOSH 1603	
			NIOSH 1604	
			NIOSH 1606	
			NIOSH 1609	
			NIOSH 1610	
			NIOSH 1615	
			NIOSH 1616	
			NIOSH 1617	
			NIOSH 2000	
			NIOSH 2002	
			NIOSH 2004	
			NIOSH 2005	
			NIOSH 2007	
			NIOSH 2010	
			NIOSH 2011	
			NIOSH 2012	
			NIOSH 2500	
			NIOSH 2505	
			NIOSH 2516	
			NIOSH 2526	
			NIOSH 2530	
			NIOSH 2537	
			NIOSH 2557	
			NIOSH 2558	
			NIOSH 5020	
			NIOSH 5523	
			NIOSH S-150	
			OSHA 07	
OSHA 1004				
OSHA 101				
OSHA 56				
OSHA 80				
OSHA 83				
OSHA 84				
OSHA 94				



AIHA

Laboratory Accreditation
Programs, LLC

IHLAP Scope Category	Field of Testing (FoT)	Technology sub-type/ Detector	Published Reference Method/Title of In-house Method	Method Description or Analyte <i>(for internal methods only)</i>
Chromatography Core	Gas Chromatography	GC/FID	OSHA 99	
			OSHA PV2011	
			OSHA PV2042	
			OSHA PV2100	
		GC/ECD	NIOSH 5503	
			OSHA 67	
	Gas Chromatography (Diffusive Samplers)		NIOSH 1001	
			NIOSH 1003	
			NIOSH 1004	
			NIOSH 1005	
			NIOSH 1007	
			NIOSH 1015	
			NIOSH 1018	
			NIOSH 1020	
			NIOSH 1022	
			NIOSH 1300	
			NIOSH 1301	
			NIOSH 1302	
			NIOSH 1400	
			NIOSH 1401	
			NIOSH 1402	
			NIOSH 1403	
			NIOSH 1450	
			NIOSH 1451	
			NIOSH 1453	
			NIOSH 1454	
			NIOSH 1457	
			NIOSH 1458	
			NIOSH 1459	
			NIOSH 1500	
			NIOSH 1501	
			NIOSH 1550	
NIOSH 1551				
NIOSH 1600				
NIOSH 1602				
NIOSH 1604				
NIOSH 1606				
NIOSH 1609				
NIOSH 1610				
NIOSH 1615				



AIHA

Laboratory Accreditation
Programs, LLC

IHLAP Scope Category	Field of Testing (FoT)	Technology sub-type/ Detector	Published Reference Method/ Title of In-house Method	Method Description or Analyte <i>(for internal methods only)</i>
Chromatography Core	Gas Chromatography (Diffusive Samplers)		NIOSH 2000	
			NIOSH 2004	
			NIOSH 2500	
			NIOSH 2505	
			NIOSH 2508	
			NIOSH 2516	
			NIOSH 2520	
			NIOSH 2526	
			NIOSH 2529	
			NIOSH 2537	
			NIOSH 2555	
			NIOSH 2557	
			OSHA 07	
			OSHA 1004	
			OSHA 101	
			OSHA 16	
			OSHA 56	
			OSHA 72	
			OSHA 80	
			OSHA 83	
			OSHA 84	
	OSHA 94			
	OSHA 99			
	OSHA PV2041			
	OSHA PV2042			
	OSHA PV2100			
	Ion Chromatography (IC)		EPA 300.0	
			NIOSH 6004	
			NIOSH 6005	
			NIOSH 6011	
			NIOSH 6013	
			NIOSH 6016	
			NIOSH 7903	
NIOSH 7906				
OSHA ID-182				
OSHA ID-188				
OSHA ID-190				
Liquid Chromatography	HPLC/FL	OSHA ID-214		
		NIOSH 5506		
			OSHA 42	



AIHA

Laboratory Accreditation
Programs, LLC

IHLAP Scope Category	Field of Testing (FoT)	Technology sub-type/ Detector	Published Reference Method/Title of In-house Method	Method Description or Analyte <i>(for internal methods only)</i>
Chromatography Core	Liquid Chromatography	HPLC/FL	OSHA 47	
			OSHA PV2034	
			OSHA PV2092	
		HPLC/UV	NIOSH 1014	
			NIOSH 2016	
			NIOSH 2523	
			NIOSH 2546	
			NIOSH 5002	
			NIOSH 5004	
			NIOSH 5008	
			NIOSH 5009	
			OSHA 32	
			OSHA 32 Modified	
			OSHA 34	
			OSHA 36	
			OSHA 39	
			OSHA 40	
			OSHA 41	
			OSHA 55	
			OSHA 57	
		OSHA 60		
		OSHA 64		
		OSHA 86		
OSHA 90				
OSHA CSI /Chemical Sampling				
OSHA PV2005				
Spectrometry Core	Atomic Absorption	CVAA	NIOSH 6009	
			OSHA ID-145	
		FAA	NIOSH 7024	
			NIOSH 7029	
			NIOSH 7030	
			NIOSH 7048	
			NIOSH 7082	
	NIOSH 7102			
	OSHA ID-121			
	Inductively-Coupled Plasma	ICP/AES	NIOSH 7300	
UV/VIS (Colorimetric)		NIOSH 7600		



AIHA

Laboratory Accreditation
Programs, LLC

IHLAP Scope Category	Field of Testing (FoT)	Technology sub-type/ Detector	Published Reference Method/Title of In-house Method	Method Description or Analyte <i>(for internal methods only)</i>
Spectrometry Core	Infrared		NIOSH 5026	
			NIOSH 7602	
Asbestos/Fiber Microscopy Core	Phase Contrast Microscopy (PCM)		NIOSH 7400	
Miscellaneous Core	Gravimetric		NIOSH 0500	
			NIOSH 0600	
			NIOSH 5000	
			OSHA 58	
Beryllium Testing	Atomic Absorption (GFAA)		NIOSH 7102	
	Inductively-Coupled Plasma	ICP/MS	EPA 6020A	
		ICP/AES	NIOSH 7300	

A complete listing of currently accredited Industrial Hygiene laboratories is available on the AIHA-LAP, LLC website at: <http://www.aihaaccreditedlabs.org>



AIHA Laboratory Accreditation Programs, LLC

SCOPE OF ACCREDITATION

Schneider Laboratories Global, Inc.
 2512 West Cary Street, Richmond, VA 23220-5117

Laboratory ID: **100527**
 Issue Date: 08/30/2013

The laboratory is approved for those specific field(s) of testing/methods listed in the table below. Clients are urged to verify the laboratory's current accreditation status for the particular field(s) of testing/Methods, since these can change due to proficiency status, suspension and/or withdrawal of accreditation.

The EPA recognizes the AIHA-LAP, LLC ELLAP program as meeting the requirements of the National Lead Laboratory Accreditation Program (NLLAP) established under Title X of the Residential Lead-Based Paint Hazard Reduction Act of 1992 and includes paint, soil and dust wipe analysis. Air analysis is not included as part of the NLLAP.

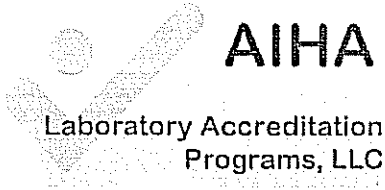
Environmental Lead Laboratory Accreditation Program (ELLAP)

Initial Accreditation Date: 05/06/1994

Field of Testing (FoT)	Method	Method Description <i>(for internal methods only)</i>
Paint	16 CFR Part 1303 (CPSC-CH-E1003-9.1)	
	ASTM E1613-04	
	ASTM E1645-01	
	EPA SW-846 3050B	
	EPA SW-846 6010C	
	EPA SW-846 6020A	
	EPA SW-846 7000B	
	EPA SW-846 7010	
Soil	EPA SW-846 3050B	
	EPA SW-846 6010C	
	EPA SW-846 6020A	
	EPA SW-846 7000B	
	EPA SW-846 7010	
Settled Dust by Wipe	EPA SW-846 3050B (Modified)	
	EPA SW-846 6010C	
	EPA SW-846 6020A	
	EPA SW-846 7000B	
	EPA SW-846 7010	
Airborne Dust	EPA SW-846 6010C	
	EPA SW-846 6020A	
	EPA SW-846 7000B	
	EPA SW-846 7010	
	NIOSH 7082	
	NIOSH 7105	
	NIOSH 7300	



A complete listing of currently accredited Environmental Lead laboratories is available on the AIHA-LAP, LLC website at: <http://www.aihaaccreditedlabs.org>



AIHA Laboratory Accreditation Programs, LLC SCOPE OF ACCREDITATION

Schneider Laboratories Global, Inc.
2512 West Cary Street, Richmond, VA 23220-5117

Laboratory ID: **100527**
Issue Date: 08/30/2013

The laboratory is approved for those specific field(s) of testing/methods listed in the table below. Clients are urged to verify the laboratory's current accreditation status for the particular field(s) of testing/Methods, since these can change due to proficiency status, suspension and/or withdrawal of accreditation.

Environmental Microbiology Laboratory Accreditation Program (EMLAP)

Initial Accreditation Date: 09/01/2013

EMLAP Category	Field of Testing (FoT)	Method	Method Description <i>(for internal methods only)</i>
Fungal	Air - Culturable	MB-008	In House: SOP for Culturable Examination of Mold
	Bulk - Culturable	MB-008	In House: SOP for Culturable Examination of Mold
	Surface - Culturable	MB-008	In House: SOP for Culturable Examination of Mold
	Air - Direct Examination	MB-009	In House: SOP for Non-Culturable Direct Examination of Mold
	Bulk - Direct Examination	MB-009	In House: SOP for Non-Culturable Direct Examination of Mold
	Surface - Direct Examination	MB-009	In House: SOP for Non-Culturable Direct Examination of Mold

A complete listing of currently accredited Environmental Microbiology laboratories is available on the AIHA-LAP, LLC website at: <http://www.aihaaccreditedlabs.org>

APPENDIX IV

**QUALIFICATIONS OF SAMPLING
PERSONNEL**

ABIH[®]

american board of industrial hygiene[®]

organized to improve the practice of industrial hygiene
proclaims that

(b)(6)

having met all requirements of
education, experience and examination, and
ongoing maintenance,
is hereby certified in the

COMPREHENSIVE PRACTICE of INDUSTRIAL HYGIENE

and has the right to use the designations

CERTIFIED INDUSTRIAL HYGIENIST

CIH

Certificate Number 3956 CP
Awarded: June 30, 1988
Expiration Date: June 1, 2016



(b)(6)

(b)(6)



National Aeronautics and
Space Administration

John C. Stennis Space Center
Stennis Space Center, MS 39529-6000

CONTRACTOR TRANSMITTAL SHEET

DATE	May 18, 2015
SHEET	
1	OF 1

SECTION I - REQUEST FOR APPROVAL *(To be Initiated by the Contractor)*

TRANSMITTAL OF SHOP DRAWINGS, EQUIPMENT DATA, MATERIAL SAMPLES, OR MANUFACTURER'S CERTIFICATES OF COMPLIANCE <i>(See Instructions on Reverse)</i>	CONTRACT NO. NNS14AA30T	<input type="checkbox"/> NEW SUBMITTAL <input checked="" type="checkbox"/> RESUBMITTAL	
TO	FROM	PREVIOUS TRANSMITTAL NO. (If Any)	TRANSMITTAL NO.
(b)(6)	HARRY PEPPER & ASSOCIATES, INC.	308A	308B

SPECIFICATION AND SECTION NO. <i>(Cover Only One Section With Each Transmittal)</i> 200HF-G013/ 02 82 33.13.20 ADS lead Paint Removal/Control Plan	PROJECT TITLE AND LOCATION 12NCBZ-18 SLS RELOCATE MPTA SUPERSTRUCTURE
---	--

ITEM NO.	DESCRIPTION OF ITEM SUBMITTED <small>(Type, Size, Model Number, etc.) (See Instruction No. 3)</small>	MANUFACTURER OF ITEM	NO OF COPIES	CONTRACT REFERENCE DOCUMENT		(See Instruction No. 6) (g)	ACTION CODE <small>(See Instruction No. 9) (h)</small>
				SPECIFICATION PARAGRAPH NO. (e)	DRAWING SHEET NO. (f)		
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)
1	ADS LEAD PAINT REMOVAL/CONTROL PLAN	ADS	3	1.4			

REMARKS: 3 Hard Copies included.	I certify that the above submitted items have been reviewed in detail and are correct and in strict conformance with the contract drawings & specifications, except as stated. <div style="text-align: center; border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;">(b)(6)</div> NAME AND SIGNATURE OF CONTRACTOR
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ENCLOSURES RETURNED <i>(List by Item No.)</i>	NAME, TITLE, AND SIGNATURE OF APPROVING AUTHORITY	DATE
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National Aeronautics and
Space Administration

John C. Stennis Space Center
Stennis Space Center, MS 39529-6000

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(See Instructions on Reverse)

CONTRACT NO. NEW SUBMITTAL
NNS14AA30T
 RESUBMITTAL

TO (b)(6)	FROM HARRY PEPPER & ASSOCIATES, INC.	PREVIOUS TRANSMITTAL NO. (If Any) 308A	TRANSMITTAL NO. 308B
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SPECIFICATION AND SECTION NO. <i>(Cover Only One Section With Each Transmittal)</i> 200HF-G013/ 02 82 33.13.20 ADS lead Paint Removal/Control P	PROJECT TITLE AND LOCATION 12NCBZ-19 CORE STAGE SUPPORT SUPERSTRUCTURE
--	---

ITEM NO. (a)	DESCRIPTION OF ITEM SUBMITTED (Type, Size, Model Number, etc.) (See Instruction No. 3) (b)	MANUFACTURER OF ITEM (See Instruction No. 8) (c)	NO OF COPIES (d)	CONTRACT REFERENCE DOCUMENT		VARIATION (See Instruction No. 6) (g)	ACTION CODE (See Instruction No. 9) (h)
				SPECIFICATION PARAGRAPH NO. (e)	DRAWING SHEET NO. (f)		
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REMARKS:	<p>I certify that the above submitted items have been reviewed in detail and are correct and in strict conformance with the contract drawings & specifications, except as stated.</p> <div style="text-align: center; margin-top: 10px;"> (b)(6) NAME AND SIGNATURE OF CONTRACTOR </div>
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SECTION II - APPROVAL ACTION

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John C. Stennis Space Center
Stennis Space Center, MS 39529-6000

CONTRACTOR TRANSMITTAL SHEET

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(See Instructions on Reverse)

CONTRACT NO. NEW SUBMITTAL
NNS14AA30T
 RESUBMITTAL

TO (b)(6)	FROM HARRY PEPPER & ASSOCIATES, INC.	PREVIOUS TRANSMITTAL NO. (If Any) 308A	TRANSMITTAL NO. 308B
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SPECIFICATION AND SECTION NO. <i>(Cover Only One Section With Each Transmittal)</i> 200HF-G013/ 02 82 33.13.20 ADS lead Paint Removal/Control P	PROJECT TITLE AND LOCATION 12NCBZ-20 SLS BATTLESHIP POINT LOAD REINFORCE
--	---

ITEM NO. (a)	DESCRIPTION OF ITEM SUBMITTED (Type, Size, Model Number, etc.) (See Instruction No. 3) (b)	MANUFACTURER OF ITEM (See Instruction No. 8) (c)	NO OF COPIES (d)	CONTRACT REFERENCE DOCUMENT		VARIATION (See Instruction No. 6) (g)	ACTION CODE (See Instruction No. 9) (h)
				SPECIFICATION PARAGRAPH NO. (e)	DRAWING SHEET NO. (f)		
1	ADS LEAD PAINT REMOVAL/CONTROL PLAN	ADS	3	1.4	-	-	-
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REMARKS:	<p>I certify that the above submitted items have been reviewed in detail and are correct and in strict conformance with the contract drawings & specifications, except as stated.</p> <div style="text-align: center; margin-top: 10px;"> (b)(6) NAME AND SIGNATURE OF CONTRACTOR </div>
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John C. Stennis Space Center
Stennis Space Center, MS 39529-6000

CONTRACTOR TRANSMITTAL SHEET

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(See Instructions on Reverse)

CONTRACT NO. NEW SUBMITTAL
NNS14AA30T
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TO (b)(6)	FROM HARRY PEPPER & ASSOCIATES, INC.	PREVIOUS TRANSMITTAL NO. (If Any) 308A	TRANSMITTAL NO. 308B
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SPECIFICATION AND SECTION NO. <i>(Cover Only One Section With Each Transmittal)</i> 200HF-G013/ 02 82 33.13.20 ADS lead Paint Removal/Control P	PROJECT TITLE AND LOCATION 12NCBZ-22 ELECTRICAL
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ITEM NO. (a)	DESCRIPTION OF ITEM SUBMITTED (Type, Size, Model Number, etc.) (See Instruction No. 3) (b)	MANUFACTURER OF ITEM (See Instruction No. 8) (c)	NO OF COPIES (d)	CONTRACT REFERENCE DOCUMENT		VARIATION (See Instruction No. 6) (g)	ACTION CODE (See Instruction No. 9) (h)
				SPECIFICATION PARAGRAPH NO. (e)	DRAWING SHEET NO. (f)		
1	ADS LEAD PAINT REMOVAL/CONTROL PLAN	ADS	3	1.4	-	-	-
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REMARKS:	I certify that the above submitted items have been reviewed in detail and are correct and in strict conformance with the contract drawings & specifications, except as stated. <div style="background-color: #cccccc; color: red; text-align: center; padding: 5px;">(b)(6)</div> NAME AND SIGNATURE OF CONTRACTOR
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John C. Stennis Space Center
Stennis Space Center, MS 39529-6000

CONTRACTOR TRANSMITTAL SHEET

DATE May 18, 2015

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MANUFACTURER'S CERTIFICATES OF COMPLIANCE
(See Instructions on Reverse)

CONTRACT NO. NEW SUBMITTAL
NNS14AA30T X RESUBMITTAL

TO (b)(6)	FROM HARRY PEPPER & ASSOCIATES, INC.	PREVIOUS TRANSMITTAL NO. (If Any) 308A	TRANSMITTAL NO. 308B
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SPECIFICATION AND SECTION NO. <i>(Cover Only One Section With Each Transmittal)</i> 200HF-GC02/ 02 82 33.13.20 ADS lead Paint Removal/Control P	PROJECT TITLE AND LOCATION SK441PFL00-02 REPLACE FLAME DEFLECTOR BACK WALL MANIFOLDS
--	---

ITEM NO. (a)	DESCRIPTION OF ITEM SUBMITTED (Type, Size, Model Number, etc.) (See Instruction No. 3) (b)	MANUFACTURER OF ITEM (See Instruction No. 8) (c)	NO OF COPIES (d)	CONTRACT REFERENCE DOCUMENT		VARIATION (See Instruction No. 6) (g)	ACTION CODE (See Instruction No. 9) (h)
				SPECIFICATION PARAGRAPH NO. (e)	DRAWING SHEET NO. (f)		
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REMARKS:	<p>I certify that the above submitted items have been reviewed in detail and are correct and in strict conformance with the contract drawings & specifications, except as stated.</p> <div style="text-align: center; margin-top: 10px;"> (b)(6) NAME AND SIGNATURE OF CONTRACTOR </div>
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National Aeronautics and
Space Administration

John C. Stennis Space Center
Stennis Space Center, MS 39529-6000

CONTRACTOR TRANSMITTAL SHEET

DATE May 18, 2015

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(See Instructions on Reverse)

CONTRACT NO. NEW SUBMITTAL
NNS14AA30T
 RESUBMITTAL

TO (b)(6)	FROM HARRY PEPPER & ASSOCIATES, INC.	PREVIOUS TRANSMITTAL NO. (If Any) 308A	TRANSMITTAL NO. 308B
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SPECIFICATION AND SECTION NO. <i>(Cover Only One Section With Each Transmittal)</i> 200HF-GM08/ 02 82 33.13.20 ADS lead Paint Removal/Control P	PROJECT TITLE AND LOCATION SK442PFL00 PROCESS PIPING SYSTEM RESTORATION
--	--

ITEM NO. (a)	DESCRIPTION OF ITEM SUBMITTED (Type, Size, Model Number, etc.) (See Instruction No. 3) (b)	MANUFACTURER OF ITEM (See Instruction No. 8) (c)	NO OF COPIES (d)	CONTRACT REFERENCE DOCUMENT		VARIATION (See Instruction No. 6) (g)	ACTION CODE (See Instruction No. 9) (h)
				SPECIFICATION PARAGRAPH NO. (e)	DRAWING SHEET NO. (f)		
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SECTION II - APPROVAL ACTION

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National Aeronautics and
Space Administration

John C. Stennis Space Center
Stennis Space Center, MS 39529-6000

CONTRACTOR TRANSMITTAL SHEET

DATE May 18, 2015

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CONTRACT NO. NEW SUBMITTAL
NNS14AA30T
 RESUBMITTAL

TO (b)(6)	FROM HARRY PEPPER & ASSOCIATES, INC.	PREVIOUS TRANSMITTAL NO. (If Any) 308A	TRANSMITTAL NO. 308B
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SPECIFICATION AND SECTION NO. <i>(Cover Only One Section With Each Transmittal)</i> 200H0-GA05 02 82 33.13.20 ADS lead Paint Removal/Control P	PROJECT TITLE AND LOCATION SK444YFL00 REPAIRS TO PLATFORMS AND STAIRS
---	--

ITEM NO. (a)	DESCRIPTION OF ITEM SUBMITTED (Type, Size, Model Number, etc.) (See Instruction No. 3) (b)	MANUFACTURER OF ITEM (See Instruction No. 8) (c)	NO OF COPIES (d)	CONTRACT REFERENCE DOCUMENT		VARIATION (See Instruction No. 6) (g)	ACTION CODE (See Instruction No. 9) (h)
				SPECIFICATION PARAGRAPH NO. (e)	DRAWING SHEET NO. (f)		
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REMARKS:	<p>I certify that the above submitted items have been reviewed in detail and are correct and in strict conformance with the contract drawings & specifications. except as stated.</p> <div style="text-align: center; margin-top: 10px;"> (b)(6) NAME AND SIGNATURE OF CONTRACTOR </div>
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National Aeronautics and
Space Administration

John C. Stennis Space Center
Stennis Space Center, MS 39529-6000

CONTRACTOR TRANSMITTAL SHEET

DATE May 18, 2015

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1 OF 1

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NNS14AA30T
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TO (b)(6)	FROM HARRY PEPPER & ASSOCIATES, INC.	PREVIOUS TRANSMITTAL NO. (If Any) 308A	TRANSMITTAL NO. 308B
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SPECIFICATION AND SECTION NO. <i>(Cover Only One Section With Each Transmittal)</i> 200H0-GA04 02 82 33.13.20 ADS lead Paint Removal/Control P	PROJECT TITLE AND LOCATION SL430WFB00-03 SOFT CORE PAINTING
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ITEM NO. (a)	DESCRIPTION OF ITEM SUBMITTED (Type, Size, Model Number, etc.) (See Instruction No. 3) (b)	MANUFACTURER OF ITEM (See Instruction No. 8) (c)	NO OF COPIES (d)	CONTRACT REFERENCE DOCUMENT		VARIATION (See Instruction No. 6) (g)	ACTION CODE (See Instruction No. 9) (h)
				SPECIFICATION PARAGRAPH NO. (e)	DRAWING SHEET NO. (f)		
1	ADS LEAD PAINT REMOVAL/CONTROL PLAN	ADS	3	1.4	-	-	-
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Resubmittal Package:
OHC Environmental Engineering
Lead Paint Removal/Control Plan
(Section 02 82 33.13 20 paragraph 1.4)

FOR:
B2 Test Stand Restoration – Work Package 3
All EMI Packages
Stennis Space Center, MS

CONTRACT NO. NNS14AA30T

Prepared By:



Harry Pepper and Associates, Inc.
6406 N. 9th Avenue Suite A7
Pensacola, Florida 32504

**OHC Environmental Engineering
Lead Paint Removal/Control Plan
(Section 02 82 33.13 20 paragraph 1.4)**

**SUBMITTAL
TABLE OF CONTENTS**

TAB 1 – SD:01 Preconstruction Submittals – Lead Based Paint/Lead Containing Paint Removal Plan

**TAB 1 – SD:01 Preconstruction Submittals –
Lead Based Paint/Lead Containing Paint
Removal Plan**

Contractor Response Sheet

NASA Comment Item 1: ADS Lead Paint Removal/ Control Plan - **Disapproved. Resubmission Required.** • In a previous NASA comment, the following was stated: " ... the respiratory protection that will be used by employees until exposure concentrations are determined and adequate respirator assigned protection factors (APRs) are verified." This query had not been answered in the revised plan. The revised plan "Amended" section refers to Appendix V. Upon NASA's review of the cited Appendix V, this requested information was not contained in Appendix V. Appendix V only provides copies of manufacturers' literature for respiratory protection products and no contractor respirator selection decision logic on what "respiratory protection will be used by employees until exposure concentrations are determined". The current respirator selection plan is based on airborne lead concentrations. Air sampling results may be obtained as long as 72 hours after exposure. The question remains, what respiratory protection will be used by employees until the airborne concentrations are determined? Also, how will the contractor revise the respiratory protection required by personnel as the paint constituents (lead, hexavalent chromium, etc.) vary with the individual surfaces (and paint constituents) being blasted and cleaned up?

Contractor Response - The respiratory protection will be a powered air purifying respirator. The Program Administrator (b)(6) will determine the type of respirator that will be used based on the air sample results that are collected.

NASA Comment • Section 12.3, last sentence indicates that a "Sullair TRS 20 air compressor which is an electric compressor and uses no oil" will be used. Based on Sullair published technical data and from phone conversations with a Sullair representative (b)(6) the compressor unit referenced is electrically driven, however, the compressor component, itself, is oil lubricated. A review of the technical data indicated that 2 primary compressor lubricants are used for the Sullair TSR 20; Sullube and Sullair 24 KT.

Technical data sheets (see attached) for the above Sullair products have notations:

Warning

Sullube is not to be used in machines that produce breathing air.

Warning

24KT is not to be used in machines that produce breathing air.

The contractor must use breathing air compressors which the manufacturer does not expressly prohibit their use.

Contractor Response - Item 1 Bullet point 2: Section 12.3 has been amended from the Sullair TRS 20 to the Doosan 750. Section 12.3 was also amended to include that the air produced will travel through the Radex Air Filtration Unit to purify the air to Grade D quality prior to be delivered to the CSM 3 CO alarm system, then finally delivered to the employee in the Clemco Apollo 60 HP Blast Hood, thereby making it acceptable for breathing air.

NASA Comment • Also, approval of this plan is pending submission of a hexavalent chromium control plan.

Contractor Response - See Appendix III for the Hexavalent Chromium Program

**B 2 Test Stand
Stennis Space Center
Work Package 3
Soft Core**

Site Specific

LEAD COMPLIANCE PLAN

Submitted to:

Harry Pepper & Associates

Prepared by:

ADS Environmental Services

(b)(6)

Date: 4-22-2015

(b)(6)

Date: 4-22-2015

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APPENDIX II LEAD PROTECTION PROGRAM
APPENDIX III HEXAVALENT CHROMIUM PROGRAM
APPENDIX IV OHC CERTIFICATIONS
APPENDIX V ADS STATE OF MISSISSIPPI LEAD LICENSE
APPENDIX VI ADS EMPLOYEE STATE OF MISSISSIPPI STATE LICENSE
APPENDIX VII SPECIALIALTY BLASTING EQUIPMENT

1.0 PROJECT SUMMARY

Project Name: B2 Test Stand- Soft Core

Project Location: Stennis Space Center

Project Dates: March 17, 2015

Owner: NASA

Prime Contractor: Harry Pepper & Associates

Subcontractor: ADS Services INC.

ADS Project Manager: (b)(6)

ADS Project Manager Assistant: (b)(6)

ADS On-Site Competent Person: (b)(6)

Industrial Hygiene Consultant: OHC Environmental Engineering, Inc.

Competent Person (CIH) of Record: (b)(6) MS CIH

Company: OHC Environmental Engineering Inc.
5420 Bay Center Drive, Suite 100
Tampa, Florida 33609
813-626-8156

Analytical Laboratory: EMSL

2.0 GENERAL INFORMATION

This plan is designed to protect HPA, ADS and OHC Environmental Engineering, Inc. (OHC) employees and any other contractor on site within the vicinity of our work area, and the environment from Lead hazard during the repair and paint removal of structures coated with lead based paint at the B2 Test Stand located at Stennis Space Center. This plan addresses Lead Compliance only and Exposure to other contaminants are addressed separately.

2.1 Scope of Work

According to the specification provided Lead containing paint exist on this structure. OHC conducted a hazardous material survey for each work package in order to determine what the location of any hazardous materials which may be disturbed during the operation. The wall of the soft-core was determined to contain a low concentration of Lead paint while the yellow stair railing contains a high concentration of Lead. Previous employee exposure assessment performed on blasters removing paint on soft-core was well below the OSHA PEL. Exposure level performed on employees blasting the stair railing was well above the OSHA PEL.

The surface preparation will involve removing all paint using abrasive blasting and mechanical means such as sanders and wire brush to remove the coating. Most of the work will be performed on scaffolds. Scaffold safety and fall protection are addressed in a separate safety plan. Abrasive blasting operation will utilize black beauty as the blast media. Blasters will wear a tight fit hood model AV 2000 Apollo 60HP Supplied Air-Respirator.

Based on the hazardous materials survey performed by OHC the following components contain Lead paint on the Soft-core:

Sample Number	Level	Location	Color	Results % wt
ST-2	19	Handrail	White	4.2
ST-4	19	Stairs	White	0.12
ST-8	18	East Side Paint on Flashing of Soft-core	Grey	0.56
ST-9	18	East Side Paint on Flashing of Soft-core	Grey	0.27
ST-10	18	East Side Soft-core Wall	Grey	0.29
ST-11	18	E. side Paint on I-Beam	Grey	19
ST-12	17	E. side Paint on I-Beam	Grey	2.8
ST-20	16	Railing	White	0.29
ST-21	11	E. Side Soft-core P1-3801 Pipe	Grey	3.4
ST-25	11	VA 3J01HA 2 1/2" pipe on Soft-core		27

2.2 Description of Work Activities Emitting Lead: Based on initial employee exposure assessment it has been determined that employees working inside the containment area involved with blasting operations removing paint on the structural members, including the wall of the Soft-core and the handrails on the South side may be overexposed to levels exceeding the OSHA PEL for Lead in construction. Workers performing any other operations in the containment while blasting is in progress may also be overexposed to Lead exceeding the PEL. The crew size inside each containment is 1 blasters and 1 helpers. The engineering controls, work practices and job responsibilities are addressed in other parts of this document.

2.3 Sequencing of Work

All work will be performed on the East and South side of the Soft-core.

2.4 Work Procedures

In order to better control the environment in each containment ADS will construct smaller containments separating each ½ floor of the test stand as a separate containment. ADS is planning on having three active containments operating consecutively. There will be one blaster and one helper assigned to each containment. Six other crew members for each work area will be utilized for containment fabrication and cleanup after the removal process. One person will be in charge of the decontamination units and one person in charge of maintaining the blast compressor.

The contractor shall install physical boundaries, in the form of warning tape and signs, at least 20 feet away from the work area or as practical as possible. The contractor will construct a lead control area consisting of a full negative pressure enclosure consisting of two layer of 6 mil re-enforced fire retardant polyethylene sheeting or equal containment tarp on the walls, and 10 mil on the floor of the containment. The containment will be completely sealed and waterproofed. All penetrations into the work area shall be sealed and covered with tape. Install a three chamber wet decontamination unit, adjacent to the work area, as the means for egress and ingress into the enclosure. Place the enclosure under diminished pressure of at least 0.03 inches of water using a series of 2,000 CFM negative air machines equipped with HEPA filters. The negative air machines will be placed as close as possible to each containment to minimize loss of pressure. A back up machine will be available at all time. Negative pressure shall be continuously monitored with a chart recorder monometer. The alarm will be set on 0.03 inches of water. At any time the Alarm is activated all blasting operation must stop immediately until adequate negative pressure is restored.

Engineering Controls to Achieve Exposure Compliance: The contractor shall establish a negative pressure system within the containment to exhaust the air from the work area at a rate of at least 4 air changes per hour. Place the exhaust nozzles as close as possible to the blast area in order to capture the dust at point of generation. The air make-up shall be through the Polygon environmental control system. Administrative controls shall not be allowed on this project.

Demarcation of the work area: Warning signs shall be placed at entrances and approaches to the work area to clearly identify the potential hazard and that is a regulated area and accessibility is limited to authorized personnel only. No unauthorized personnel will be allowed in the regulated area without the proper training and personal protective equipment.

Dust and Contaminated Water Control: Most of the work will be performed over waterways so it is very important to control any dust or contaminated water release from the work area. It is not expected that contaminated water will be generated during this project. All potentially contaminated water shall be collected in drums and filtered through a 1 micron filter. The water will then be characterized for hazardous waste using the TCLP sampling procedure. The contractor shall completely seal the containment to prevent any dust release into the atmosphere. The containment integrity will be inspected daily by the on-site supervisor and OHC Industrial Hygienist. Blast media and Lead paint will be removed daily in each containment using RUWAC HEC-DB High Efficiency Cyclone pre-separation system with a high velocity HEPA vacuum attached. The separator will bag the media and will be stockpiled in a Super sack box then placed in a steel Skip box for removing with the crane once per week from each area.

Remove the paint coating using abrasive blasting and mechanical means such as power sanders or grinders. Workers protection shall be in the form of respiratory protection, according to the schedule listed below, full coveralls, eye protection and gloves. Employees will remove all debris from their coveralls and vacuum the coveralls before leaving the work area. Remove and dispose of all coveralls and gloves in the decontamination chamber.

HEPA vacuum all blast media as clean as possible using the RUWAC HEC-DB High Efficiency Cyclone and portable HEPA vacuums. HEPA vacuum all dust on the ground. Dust collector must be operational at all time that compressed air is in use. After removing all waste and dust in the work area the OHC IH will conduct a visual inspection to ensure satisfactory removal and cleaning of the work area. Upon passing the visual inspection the contractor will remove the poly and HEPA vacuum all surfaces of the structure.

Place all waste generated from this process into a U.S. Department of Transportation approved rolling dumpster for testing. Properly label each dumpster to identify the type of waste and the date the waste was generated. Collect a representative number of TCLP samples to characterize the waste. Any hazardous waste generated will be turned over to NASA for disposal. It is not expected that any liquid hazardous waste will be generated from this process.

2.4.1 Housekeeping: the contractor shall maintain the work area as clean as possible of any accumulation of blast media and debris inside the containment. ADS will remove the blast media daily from inside the containment. ADS will also maintain the decontamination facility clean at all time. One person will be dedicated to maintain the decontamination facility and wipe clean the clean room and outside the clean room daily.

2.5 Demarcation of the Regulated Area

ADS shall post warning signs demarcating all regulated areas exceeding the PEL. The signs shall have the following legend:

**WARNING
LEAD WORK AREA
POISON
NO SMOKING OR EATING
ONLY AUTHORIZED EMPLOYEES MAY ENTER**

2.6 Interface of Trades

Other contractors will not be allowed in the lead removal work area until it has been cleared by the on-site OHC Industrial Hygienist.

3.0 STATUTORY REQUIREMENTS

All employees and contractors must have current and detailed knowledge of Federal, State and local regulations applicable to the removal of lead based paints. The regulations listed below form a part of this plan to the extent referenced. They are referred to in the text by the basic designation only.

3.1 Code of Federal Regulation (CFR) Publications

29 CFR 1910.134	Respiratory Protection
29 CFR 1926.200	Specifications for Accident Prevention Signs and Tags
29 CFR 1926.62	Lead
EM 385-1-1	
September 15, 2008	Safety & Health Requirement Manual
29 CFR 1910.1200	Hazardous Communication
40 CFR 745-226	Certification for Individuals and Firms Engaged in Lead Based Paint Activities
40 CFR 262.11	Hazardous Waste Determination
40 CFR 61 SUBPART A&B	General Provisions

3.2 American National Standard institute (ANSI)

Z9.2-79	Fundamentals governing the design and operation of local exhaust systems.
Z88.2-80	Practices for Respiratory Protection

4.0 DEFINITIONS

Abatement: Operations to eliminate or minimize dust released from lead based paint removal.

Airlock: An enclosure permitting entrance and exit to or from a contaminated area and a clean area. Airflow is always from the clean area to the contaminated area.

Area Monitoring: Stationary sampling and analysis of lead concentrations inside the work area, inside the building, outside the lead control area, and outside the building,

such as at the decontamination unit or at HEPA exhaust by discharge; concentration is measured in $\mu\text{g}/\text{m}^3$.

Lead Control Area: An area where lead removal operations are being performed which is isolated by physical boundaries to prevent the spread of lead dust, or debris.

Competent Person: One who is capable of identifying existing lead hazards in the workplace and has the authority to take prompt corrective measures to eliminate them. The duties include at least the following: establishing the negative pressure enclosure, ensuring its integrity, controlling entry to and exit from the enclosure, supervising any employee exposure monitoring required by the standard, ensuring that all employees working in such an enclosure wear the appropriate personal protection, are trained in the appropriate methods of exposure control, and use the hygiene facilities and decontamination procedures specified in the standard; and ensuring that engineering controls in use are in the proper operating conditions and are functioning properly.

Decontamination (decon) Unit: A decontamination system for personnel, equipment and materials; a series of connected rooms with airlocks/curtained doorways between any two adjacent rooms, for the decontamination of workers or of materials and equipment. Contaminated area is separated from clean area by showers for personnel; a washroom for equipment.

Enclosure: Permanent barriers erected around the removal area to isolate in an airtight, impermeable environment.

Equipment Room: A space provided for the storage of contaminated clothing and equipment; part of the personnel decontamination unit.

HEPA Filter Equipment: High Efficiency Particulate Absolute (HEPA) filtered vacuuming equipment with a filter system capable of collecting and retaining lead dust. Filters will be of 99.97 percent efficiency for retaining fibers of 0.3 microns or greater.

Lead: Metallic lead, all inorganic lead compounds.

Negative Pressure System: A system in which static pressure in an enclosed control area is lower than that of the environmental outside the control area, as specified.

Permissible Exposure Limit (PEL): Lead: the limit is fifty micrograms per cubic meter of air ($50 \mu\text{g}/\text{m}^3$) averaged over an 8-hour period.

Personal Monitoring: Sampling airborne lead concentrations within the breathing zone of an employee.

Plasticize: To cover floors, walls and fixed objects with plastic sheeting.

Time Weighted Average (TWA): The calculation made from the results of multiple air samples collected from the breathing zone from the same individual on the same day,

over a specified period to determine a weighted average of airborne lead concentrations.

Wet Cleaning: Removing the residue of lead from building surfaces and installed objects by using mops, cloths, and other tools that have been wetted with amended water.

5.0 RESPONSIBILITIES

5.1 ADS Health and Safety Director

ADS Health and Safety Director, Gregory Godec shall:

- Assure that all employees who have the potential to come in contact with lead containing materials are aware of the hazards associated with lead dust.
- Initiate medical surveillance for any employee who has the potential for exposure to lead as outlined in 29 CFR 1910.1025 or 29 CFR 1926.62
- Be responsible for the selection of the type of respirator to be used.

5.2 Competent Person

The competent person shall:

- Verify training meets all federal, State, and local requirements
- Review and approve Lead Compliance Plan for conformance to the applicable referenced standards,
- Oversee all the required air sampling and provide recommendations on the use of proper PPE based on the employees exposure levels,
- Ensure that work is performed in strict accordance with specifications at all times.
- Supervise final cleaning of the lead control area, verify clearance as necessary,
- Certify the conditions of the work as called for elsewhere in this specification.

5.3 Site Supervisors

Site Supervisors shall:

- Assure that all employees who have a potential to be exposed to lead have received the appropriate training
- Ensure that all employees and subcontractors who will perform abatement have completed training through an OSHA-compliant lead class
- Assure that employees under their control follow the lead removal practices as described in the scope of work
- Coordinate assessment of materials to determine lead content as necessary to determine exposure potential
- Report any problem associated with the lead abatement to the ADS Safety Director

5.4 Employees

Employees shall:

- Perform his/her work as safely as possible and follow all safety procedures.

- Comply with the provisions of the lead abatement scope of work and work practices identified for individual tasks.
- Report existing health or safety hazards to the supervisor.

5.5 Industrial Hygienist

- Inspect the containment daily to ensure integrity
- Ensure compliance with the Lead Compliance Plan
- Perform all the required air sampling
- Ensure that employees are properly wearing the personal protective equipment
- Perform all the required clearance testing
- Perform the TCLP sampling

6.0 PRIOR TO COMMENCEMENT OF WORK

Submit documentation to the competent person (CIH) records indicating that each employee has successfully completed training course for lead work activities. Also submit verification that all employees have received medical examinations as required by OSHA regulations. Upon approval of the submittal by the CIH, a copy will be forwarded to the contracting officer.

7.0 OSHA STANDARDS

1. Action Level - 30 ug/m³ (8 Hour TWA)
2. Permissible Exposure Level - 50 ug/m³ (8 Hour TWA)
3. Extended Work Hours - $\frac{400}{\text{\# of hrs worked/day}}$

8.0 TRAINING

Site Competent Person: The competent person must be EPA trained and licensed through the Mississippi Department of Environmental Quality Office of Pollution Control.

Each worker potentially exposed to Lead above the action level shall receive training on: the hazards of lead, the written compliance program, engineering controls, containment practices, respiratory protection and symptoms of lead poisoning.

9.0 MEDICAL SURVEILLANCE

9.1 Regulatory Compliance

ADS will comply with the provision of 29 CFR 1926.62 for each and every employee assigned to lead work on this project; will sign and submit the Affidavit of Medical Surveillance of Employees at project start-up.

Blood lead levels will be monitored before and after lead abatement in accordance

with 29 CFR 1926.62 *Medical Surveillance* sampling for **Blood Level Levels (BLL)** and **Zinc Protoporphyrin (ZPP)**.

- 9.2 Initial Screening** - Anyone who may be exposed above action level on any one day.
- 9.3 Periodic Screening** - Medical Surveillance Program to anyone exposed above the action level for more than 30 days per year.
- 9.4 Exposure above Action Level**
1. Every 2 months, first 6 months.
 2. Every 6 months thereafter.
 3. If Blood Lead Level is above 40 ug/dl then continue monitoring at least every 2 months until 2 consecutive blood samples are below 40 ug/dl.
 4. Every month during medical removal due to elevated BLL.
- 9.5 Employee Notification**
Within 5 working days, in writing from the receipt of results.
- 9.6 Medical Examination**
1. Annually for each employee whose BLL was at or above 40 ug/dl within the past 12 months.
 2. If any employee complaints of signs or symptoms associated with lead.
 3. If employee questions their ability to procreate a healthy child.
 4. If the employee is pregnant.
 5. Difficulty in breathing when wearing a respirator or during fit testing.
 6. Employee removed from exposure to lead due to increased risk.
 7. Employee may seek a second medical opinion.
- 9.7 Medical Removal**
1. If an employee exposed above Action Level and BLL is at or above 50 ug/dl.
 2. Repeat screening within 2 weeks.
 3. If follow-up test confirm initial data, employee must be removed.
 4. Due to medical determination has detected a medical condition which places employee at higher risk.
 5. Remove up to 18 months with full benefits or until the project is completed.
 6. Chelation Therapy is not allowed.
- 9.8 Return to Work**
1. If 2 consecutive BLL at or below 40 ug/dl.
 2. If subsequent medical determination released the employee to return to work.

10.0 HAZARD COMMUNICATION

ADS will post a copy of 29 CFR 1926.62. "Health Hazard Data" in a prominent place in the office area. Contractor will also comply with the hazard communication provisions in 29 CFR 1910.1200.

Material Safety Data Sheets for lead and any other chemicals used on site will be added to the plan and a copy submitted to the prime contractor for review.

11.0 PROTECTIVE CLOTHING

Provide personnel who are potentially exposed to airborne lead dust or fumes in excess of the action level with disposable protective whole body clothing, head coverings, foot coverings, and gloves. Hard hats and eye protection will be provided as needed.

12.0 RESPIRATORY PROTECTION

12.1 Regulatory Compliance

ADS will comply with the provisions of 29 CFR 1910.134 (b),(d),(e) and (f) in establishing a respiratory protection program, and 29 CFR 1926.62 for fit testing procedures and respirator selection.

12.2 NIOSH Approval

The respirators must be approved by National Institute for Occupational Safety and Health (NIOSH). The type of respirator will be appropriate to the airborne lead concentration in the enclosed area at the time of entry. Refer to Appendix I for respiratory protection values.

12.3 Job Specific Regulations for Respirators

During the removal of paint activities using abrasive blasting technique contractor will don a Clemco Apollo 60 HP supplied air Respirator abrasive blasting hood respirator (Appendix V) operating in pressure demand mode. The compressor for supplied air respirators will be dedicated to breathable air only. ADS will test the breathable for Grade D air quality. The air will travel from the Doosan 750 air compressor through the Radex Breathing Air filter, after the air is purified it will move through the CSM-3 CO monitoring alarm system where the Grade D air is delivered to the employee inside the blasting hood, thereby making it acceptable for breathing air.

All other workers inside the containment shall wear a "tight fit" Powered Air Purifying Respirator (PAPR) equipped with HEPA filters until we establish a database of their exposure levels at which time the IH on site may downgrade the required respiratory protection based on Appendix I.

12.4 Contractor Respirator Program

ADS will provide a copy of the respiratory protection program as part of their submittal.

13.0 HYGIENE

Protective work clothing and equipment for workers

13.1 Provision and Use

Blasters will wear a tight fit hood during abrasive blasting operations. Clean-up crews will wear a full face tight fit APR until exposure levels are determined and respiratory protection can be downgraded accordingly. If employees are exposed to lead levels above the PEL, employees will wear a 5400 Full Face APR (APPENDIX I), or where the possibility of skin or eye irritation exists, the employer shall provide, at no cost to the employee, and assure that the employee uses appropriate protective work clothing and equipment such as, but not limited to:

- Coveralls or similar full-body work clothing;
- Gloves, hats, and shoes or disposable shoe coverlets; and
- Face shields, vented goggles, or other appropriate protective equipment which complies with CFR 29 Section 1910.133 of Part 1910.

13.2 Cleaning and Replacement.

Provide Disposable Protective Clothing as Needed.

- ADS shall provide for the disposal of required protective clothing and equipment.
- ADS shall repair or replace required protective clothing and equipment as needed to maintain their effectiveness.
- ADS shall prohibit the removal of lead from protective clothing or equipment by blowing, shaking, or any other means, which disperses lead into the air.

13.3 Eating and Drinking Area

ADS will designate an outdoor eating and drinking area for employees. OHC will monitor the air in this area and will perform wipe samples on any tables in this area to ensure that it is free of lead dust.

13.4 Hot Water

Removal operations may not begin until there is an adequate supply of hot water available in the decontamination unit for the number of personnel assigned to the enclosure area.

14.0 GENERAL SAFETY REQUIREMENTS

The Contractor is responsible for maintaining safe working conditions in accordance with all applicable safety instructions in 29 CFR 1926.62 and all other applicable safety procedures in 29 CFR 1926.20 (General safety and health provisions) will be adhered to. The Owner, the Designer, and the Owner's representative assume *no responsibility* for the safety of the Contractor's employees. That is a responsibility the Contractor will not delegate. Nevertheless, the Owner and/or his or her representative, as well as, any employee is authorized to stop operations upon their discovery of a potential or existing

safety hazard, notifying the Contractor of the condition for his corrective action.

15.0 RECORDKEEPING

1. Exposure Records - 30 Years.
2. Medical Surveillance - 30 Years after Termination of Employment.
3. Medical Removal - Duration of Employment.
4. Objective Data - 30 Years.

16.0 EMPLOYEE EXPOSURE ASSESSMENT

16.1 Personal Air Samples

Initial Assessment: OHC shall perform an initial employee exposure assessment on blasters and helpers working within the containment to determine their exposure levels to Lead. Based on the exposure assessment OHC shall revise the Lead Compliance Plan accordingly.

Continuous Monitoring: Based on the employee initial exposure assessment it has been determined that all employees involved with blasting operations and all other employees working in the containment while blasting is in progress may be exposed to Lead in excess of the OSHA PEL. OHC will perform continuous daily monitoring on these employees to determine their exposure level.

The persons selected for monitoring will be the ones anticipate having the greatest exposure potential. Air samples will be collected in the breathing zone of employees outside the respirator. All air samples will be analyzed following the NIOSH 7082 method using an AIHA accredited lab.

The Monitoring consultant for this project is OHC Environmental Engineering, Inc., which is an EPA licensed lead consultant. License is enclosed as Appendix II. All sampling will be performed under the direction of Mr. James F. Rizk, CIH.

Analysis of samples will be completed within 48 hours and the results posted at the job site. The results will be posted within 72 hours of collection. All exposure assessment and airborne lead monitoring results will be made continually available upon request by NASA or NASA representatives.

16.2 Airborne Lead Monitoring

The CIH and his representative will be responsible for establishing a database for each operation. Initially the CIH will be on site for the first 3 days of blasting to ensure compliance with the plan and oversee the sampling protocol. The IH on site will perform continuous monitoring for the first two weeks to develop a database while performing the blasting operation.

16.3 Sampling Protocol

The Industrial Hygiene consulting firm contracted for this project is OHC Environmental Engineering Inc. located at 5420 Bay Center Dr. Tampa, FL 33602. The CIH of record for this project is James F. Rizk.

All monitoring will be in accordance with 29 CFR 1926.62.

All air monitoring and analysis shall be performed in accordance with NIOSH method 7082. Samples shall be collected on a cellulose ester filter, 0.8- um pore size, 37-mm diameter, in cassette filter holder. Average flow rate 2.0-2.5 LPM. Maximum volume- 1500 Liters. Samples shall be collected for the duration of the work shift minus one hour. All samples shall be collected in the breathing zone of employees outside the respirator. Sampling pumps shall be calibrated before and after each sample interval using a primary calibrator. One control (blank) sample will be submitted to the lab with each batch of samples. A Chain-of-Custody (COC) shall accompany each sample batch submitted to the lab, the COC must be signed by the monitor, the shipper and the person who receives the samples at the lab. The laboratory maintains a separate COC internally for sample transmission.

16.4. Environmental Sampling:

OHC shall also collect area samples surrounding the containment, on a daily basis to ensure there is no cross contamination of dust released from the containment. A Minimum of five area samples will be collected daily. Samples will be collected at the entrance to each active work area and at the exhaust of each negative air machines. If any of the exterior air samples indicate levels exceeding 30 ug/m³ then all work must stop until we determine the cause of the elevated levels and corrective action implemented. Notify the contracting officer immediately of the elevated levels. Do not resume work until the CP and the contracting officer give approval.

Samples shall be transmitted to EMSL Laboratories, an AIHA accredited laboratory for analysis. Certification of the lab is attached in Appendix II. Sample shall be analyzed following the NIOSH 7082 method using Flame Atomic Absorption Spectrophotometer (FAA). The estimated limit of detection (LOD) for this method is 2.6 µg per sample. All test results shall be submitted to the contracting officer within 72 hours of sample collection.

17.0 DISPOSAL

All waste generated during the paint removal activity will be segregated as hazardous and non-hazardous waste. All suspect hazardous waste will be placed in a lined container. The Container will be properly labeled and dated with the first day of use. Upon completion of the project collect a sample from the drum and submit to a state accredited lab for TCLP analysis. If the TCLP results are greater than 5 ppm then the waste must be disposed of as hazardous waste.

Dust collection: ADS will utilize the ARS dust collector system (Appendix XII) to

vacuum any dust and debris generated in the blasting work area. The system is equipped with a HEPA filter to filter the air exhausted to the exterior environment.

Waste Water: All water generated from the containment or the decontamination process shall be collected and filtered through a 5 micron filter. Once filtered the water may be disposed of as regular non-potable water.

18.0 DECONTAMINATION

ADS will construct a three stage wet decontamination facility adjacent to each work area where feasible. The decontamination facility shall consist of one clean room to change from street clothe to work clothe, one shower stage, and one equipment room (dirty room) to remove contaminated clothing. All ADS employees shall shower when leaving the regulated work areas every time they pass through the shower section. The decontamination units will be the only mean of egress and ingress into each containment except in case of emergency.

ADS will also set up 1 Eagle decontamination trailer (Appendix VI) in an area adjacent to the containment. The decontamination trailer is remote from the work area. ADS employees working outside of the containments will decontaminate upon each egress from the regulated area.

Procedure for entry into the work area: The only means of access into the work area is through the decontamination chamber. Workers must follow the procedure listed below when entering the work area:

1. Workers will remove their street clothe and don a cotton coverall (only required when blasting) in the clean room.
2. Place disposable coverall over the cotton coverall in the clean room.
3. Don half face respiratory protection equipped with HEPA filter
4. Proceed to the work area and blasters will don the blast hood.

Procedure for exiting from the work area: the only mean for exiting the work area is through the decontamination chamber. Workers will follow the procedure listed below when exiting the work area:

1. Blasters will remove their blasting hood and immediately don the half face respiratory protection. Immediately place the hood in a plastic bag or container to keep it clean.
2. Proceed to the tunnel and remove the disposable coverall in the tunnel. Keep the half face respirator on. Place the disposable coverall in plastic waste bag or lined 55 gallon drum.
3. Proceed to the dirty room, remove the cotton coverall then proceed to the shower.
4. Remove the half face respirator in the shower area and decontaminate. Protect the filters from getting wet. During breaks and lunch workers will only be required to thoroughly wash hands and face. At the end of each shift workers will be required to take a shower in order to properly decontaminate.
5. Proceed to the clean room and don street clothe.

19.0 Security of the Work Area:

Entry and exit from the work is through the decontamination chamber only. The door to the decontamination chamber shall be locked when not attended.

20.0 FINAL CLEANING AND CLEARANCE OF EACH WORK AREA

Upon completion of all work activities that disturb LBP, the work area shall be cleaned by blown down the dust from the structure HEPA vacuuming all loose dust and debris within the work area. Upon completion of the cleaning activity, the on-site Industrial Hygienist shall conduct a visual inspection of the work area to verify that it is clean for re-occupancy by other contractors without the use of PPE. Final clearance will be by visual inspection only.

The CP shall certify in writing that air samples collected outside the lead control area during paint removal operations are less than 30 micrograms per cubic meter of air; the respiratory protection used for the employees was adequate; the work procedures were performed in accordance with 29 CFR 1926.62; and that there were no visible accumulations of material and dust containing lead left in the work site. Do not remove the lead control area or roped off boundary and warning signs prior to the Contracting Officer's acknowledgement of receipt of the CP certification.

APPENDIX I

RESPIRATOR PROTECTION PROGRAM

RESPIRATORY PROTECTION FOR LEAD DUST AND FUMES:

	UP TO 500	UP TO 1,250	UP TO 2,500	UP TO 50,000	UP TO 100,000	>THAN 100,000
1. 1/2 Mask APR w/HEPA Filter - 10 X PEL	X					
2. Loose Fitting Hood or Helmet- PAPR w/HEPA Filter - 25 X PEL		X				
3. Hood or Helmet Supplied Air Operated in Continuous Mode - Abrasive Blasting - 25 X PEL		X				
4. Full Facepiece APR - 50 X PEL			X			
5. Tight Fit PAPR w/HEPA Filter - 50 X PEL			X			
6. SCBA - Demand Mode - 50 X PEL			X			
7. Full-face - Supplied Air Pressure Demand or Other Positive Pressure Mask - 1000 X PEL					X	
8. Full-face SCBA - Pressure Demand or Positive Pressure Mode - >2000 X PEL						X

NOTE: APR = Air Purifying Respirator
 HEPA = High Efficiency Particulate Filters
 PEL = 50 ug/m³

ADS SERVICES, INC.

RESPIRATORY PROTECTION PROGRAM

POLICY

ADS Services, Inc. makes every attempt to provide for a safe and hazard free workplace. If any situation should occur in which respiratory protection is required this plan will be immediately implemented. Failure to comply with this or any safety policy of ADS Services, Inc., or the willful tampering or destruction of any safety equipment provided for your protection, will be grounds for disciplinary action and/or termination.

SUMMARY

The Respiratory Protection Program outlines protection procedures so that personnel can have a complete understanding of ADS Services Inc., and of their own responsibilities as participants of the program. The proper selection and use of safety equipment, respiratory hazards, record-keeping requirements, fit testing, and information and training according to 29 CFR 1910.134 are covered in this program. In those instances where engineering controls are not feasible respiratory protection will be provided.

DEFINITIONS

Air-Purifying Respirator- A device to protect the wearer from inhalation of harmful contaminants by cleansing the atmosphere through mechanical and/or a chemical filtering media.

Exhalation Valve- A device that allows exhaled air to leave the respirator and prevents outside air from entering through the valve.

Immediately Dangerous to Life and Health (IDLH)- Conditions that pose an immediate threat to life or health, or conditions that pose an immediate threat of severe exposure to contaminants which are likely to have adverse cumulative or delayed effects on health.

Inhalation Valve- A device that allows air to enter the face piece of a respirator and prevents exhaled air from leaving the face piece through the intake opening.

Negative Pressure Respirator- A respirator that in the event of a leak would leak contaminated air into the face piece.

Oxygen Deficiency- An atmosphere having less than the percentage of oxygen found

ADS SERVICES, INC.

RESPIRATORY PROTECTION PROGRAM

in normal air. Normally air contains 21% to 19% oxygen.

Permissible Exposure Limit- The permitted dermal or inhalation exposure to any material as designated by OSHA.

Positive Pressure Respirator (PAPR)- A respirator that supplies air at a positive pressure and in the event of a leak, would leak clean air out of the face piece.

SCBA - Self Contained Breathing Apparatus

Supplied Air Respirator- A device that protects the wearer from inhalation of harmful contaminants.

Threshold Limit Value (TLV)- An airborne concentration of a substance to which nearly all personnel can be repeatedly exposed, day after day, without adverse health effects.

Time Weighted Average (TWA)- The average concentration for a normal 8 hour workday and 40 hour workweek to which nearly all personnel may be repeatedly exposed, day after day, without adverse health effects.

RESPONSIBILITIES

Employees

- Use the appropriate respirator as designated.
- Maintain face condition so as to allow for a good face piece seal.
- Inspect personal respirator before each use.
- Do not wear contact lenses when using any respirator.
- Do not wear eyeglasses when using a full-face respirator.
- Perform positive and negative fit checks prior to use.
- Responsible for assuring that their respirator is kept clean, sanitary and in good working condition.

Management

- Select appropriate respirators and cartridges for use at the facility or job site.
- Provide information, training, and instruction to employees on the selection, use, maintenance, and care of respirators.

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- Inspect emergency and non-emergency respirators.
- Fit test employees annually who use respirators.
- Provide cleaning and disinfecting capabilities for respirators.
- Perform evaluations to determine the continued effectiveness of the respirator program.
- Perform workplace and personnel monitoring.
- Fit test employees who use respirators on a quarterly basis.
- Inspect required respiratory protection work area to ensure personnel are wearing protection.
- The Company Safety Director/Program Administrator Gregory Godec is responsible for the implementation & regulation of this program.

SELECTION OF RESPIRATORS

The effectiveness of personal respiratory protection rests with the proper matching of the protective system to the hazard. Respirators are designed to protect against specific conditions. Using the wrong type of respirator for the conditions in which you are working is the same as not using any protection at all. It is important that you understand this because serious injuries can occur when you think you are protected when you are not. The PA G.Godec will select the proper respiratory protection based on the hazards to which the worker is exposed. The PA G.Godec will make all selections and only MSHA/NIOSH certified respirators would be selected and used. The supervisors and managers will conduct periodic inspections of the work area to ensure adequate ventilation and hazard free working conditions exist.

RESPIRATOR TYPES

The following respirators will be supplied to employees depending on the appropriate hazard identified:

Dust Masks - Single use disposable dust mask respirators provide protection against non-toxic airborne matter (i.e. dusts, mists)

Chemical Cartridge Respirators - Negative pressure air purifying respirators provide protection against airborne particulate matter. (i.e. organic vapors, alkaline gases, acid gases, pesticides, mists and fumes, radioactive particulate and combinations of the above materials) They include ½ mask with twin cartridges, full-face mask with twin cartridges, and disposable ½ mask units.

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Powered Air Purifying Respirators (PAPR) - Positive pressure air purifying respirators supply air to the respirator by positive pressure protecting against particulate and/or gases and vapors. (Full-face mask)

Air Supplied Respirators - Provide protection against oxygen deficient or enriched environments and in situations where high or unknown concentrations of toxic gas, vapors or particulate are present. (SCBA, airline, loose fitting suits, and hoods)

RESPIRATOR DETERMINATION

The selection of respirators for specific jobs or work areas will be based on the following:

- Type of use intended for the respirator
- Toxicological characteristics of the contaminant and the potential for exposure
- Possibility of skin exposure
- Potential of eye irritation from contaminant
- Warning properties of contaminant
- Sorbet characteristics
- IDLH concentrations
- Employee characteristics
- Industrial exhaust which may contain elements other than hot air
- Any painting or adhesive application in a space of inadequate ventilation
- When working with asbestos, silica, lead, cadmium, or hexavalent Chromium
- Or any other identified or suspected hazard at a work site whose primary point of contact is the respiratory system

RESPIRATOR SELECTION GUIDE

The following chart will be used by the safety coordinator as a guide for recommending a respirator for a particular task depending on the potential hazard:

Respirator Type:

½ face respirator (air purifying)
Full face respirator (air purifying)
Positive pressure air purifying respirator (PAPR)
Continuous flow
Pressure demand
SCBA

Allowable Usage:

10x the PEL or less
50x the PEL or less
50x-100x the PEL or less
100x the PEL or less
1000x the PEL or less
> 1000x the PEL

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The life expectancy of a respirator cartridge depends on the quantity and size of particles in the atmosphere. Therefore, when there is a change in breathing resistance (i.e. hard to inhale) stop the work activities, leave the respirator zone, and change the cartridge. You should not be able to smell any odors in the work atmosphere when the respirator fits and the cartridge is functioning properly. If you begin to smell odors, stop the work activities, leave the respirator zone, and change the cartridge. If you have any questions ask your supervisor or project managers. (Note: Some chemicals are odorless, therefore, use the breathing resistance factor as a guide for changing cartridges.)

CLEANING & DISINFECTING A RESPIRATOR

A great deal of responsibility and care is assigned to the use and maintenance of respirators as personal protection equipment so that you can be assured that the mask will perform its function every time you use it. Each employee using a respirator must clean and disinfect the unit and change the filter cartridges after each use or as appropriate. The following are basic steps used to clean and disinfect the rubber material of a respirator:

- Wash with warm soap and water
- Rinse in a disinfecting solution
- Rinse thoroughly in clean water
- Air dry

Any respirator not issued to an individual employee (i.e. emergency respirator) should be returned to the safety coordinator for cleaning and disinfecting immediately after use. If you have any questions or problems ask your supervisor or project manager.

LOCATION & PROPER STORAGE OF RESPIRATORS

If you are assigned a task, which requires the use of a respirator, you can obtain one by simply asking your supervisor or project manager to provide you with one. If the mask does not fit properly, request the supervisor or project manager to supply you with another mask.

- Respirators must be stored in a convenient, clean, and sanitary location
- Respirators should be stored so as to prevent any damage or deterioration to the valves and rubber material.

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- Respirators should be protected from dust, sunlight, temperature extremes, moisture, and chemicals.
- Emergency use respirators should be kept in emergency storage cabinets.

The respirators can be reused many times and still maintain their filtering effectiveness. Once you have finished your work task examine the respirator for cuts and tears, and disinfect and clean. The respirator will then be resealed in a plastic bag and stored for future use. If you stop using the respirator and wish to continue your task in a short period of time, simply remove it from your face and place it in the plastic bag. The filter cartridges will continue to absorb vapors whether you are wearing the mask or not. That is why it is very important that you reseal the mask in the plastic bag if you wish to wear it again for protection against potential hazards.

INSPECTION OF RESPIRATORS

The respirators are cleaned and inspected on a regular basis. All masks are stored in sealed plastic bags to keep them clean and to ensure the quality of the filter cartridges. Any respirator inspection includes the following:

- Checking tightness of connections and the condition of the face piece, headbands, straps, valves, connecting tubes and hoses, and cartridges/canisters.
- Checking for pliability and signs of deterioration of rubber parts.
- Replacement or repair of worn or defective parts.

A thorough inspection will occur each time respirators are used routinely. All respirators, emergency respirators, including SCBA, will be inspected monthly and after use by the safety coordinator.

MEDICAL SURVEILLANCE

It will be determined medically that an employee is physically able to wear a respirator before that individual is assigned a job requiring the use of a respirator. In addition, once a determination is made as to physical ability to wear a respirator and perform the work task, a review of the employee's health status will be made on an annual basis. The treating physician will determine what medical factors are pertinent, which tests will be performed, such as a pulmonary function test, and ultimately whether or not an employee may wear a respirator. The following information will be obtained from the employee:

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- History of respiratory disease, such as, asthma, emphysema, or chronic lung disease.
- Work History, such as, previous exposure to asbestos, silica, cotton dust, beryllium, etc.
- Any other medical information, such as, physical deformities, use of medication, and/or increased heart rate.

The following factors will be evaluated to determine a person's ability to wear a respirator:

Pulmonary/Lungs - Respirator wearers should be examined for any evidence of respiratory problems. The individual may be able to perform work adequately with continuous flow air supplied respirators. Breathing difficulty may not prohibit the wearer of a respirator if the employee is reasonably comfortable using the device, and a proper medical clearance has been obtained.

Pulmonary Function Test - These tests are known as FVC, Forced Vital Capacity, on DLSB, singular-breathing diffusion. There are seven tests, which take about one hour. The employee breaths into a mouthpiece attached to a computer that test for forced vital capacity, tidal breathing, maximum volume ventilation, functional residual capacity, diffusion test, post-dilator study-forced vital capacity, and dilator-maximum voluntary ventilation. These tests are graphed and will show possible asthma, emphysema, and obstruction.

Cardiovascular (Heart & Blood Flow) - The use of air purifying, demand type, or pressure demand supplied air devices may pose serious problems for employees with cardiovascular disease. These employees may be able to use continuous flow respirators with proper medical clearance. Consideration should be given to job assignments.

Psychological Limitations - Not clearly defined, some psychological limitations may prevent employees from wearing a respirator, such as paranoia to enclosed places. Consult a physician for advice in these situations.

Facial Limitations - Facial deformities, dentures, or excessive facial hair may prohibit wearing certain types of respirator face pieces or mouthpieces. These situations prohibit the correct seal of a respirator to the face. Excessive facial hair is more than 24-hour growth.

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SURVEILLANCE OF WORK CONDITIONS

The supervisors or project managers will conduct personnel and work site inspections on a routine basis to help determine the adequacy of protective equipment. Where respirators are currently in use and where exposure levels have not been documented, conservative estimates of employee potential exposure and equipment requirements will be made. In some situations, industrial hygiene monitoring will be conducted to evaluate the level of potential contaminants. The surveillance of work conditions will consist of the following:

- Identification of the substance that may cause employee exposure.
- Whether feasible engineering controls are or can be provided to reduce or eliminate exposure.
- The estimated average and potential maximum exposure concentration on a time weighted average (TWA) basis that can be reasonably expected for normal operation. This estimate will be based on an 8 hour daily exposure and include the sum of exposure during routine operation, handling, and preparation of substances used. This estimate will be made using the best information available and will include results of industrial hygiene monitoring. The estimate will be made for each job classification.
- The estimated peak exposures that can be expected from any short-term exposure. As an example during clean up and maintenance operations.
- The location in the operation, type of respirator required, and other personal protective equipment.
- Frequency of periodic monitoring to be conducted. The periodic reviews of airborne contaminants are made to ensure employee protection and meet regulatory compliance. This review includes air sampling, process and work practice, raw materials, intermediates, product review, engineering controls, and emergency procedures.

EMERGENCY RESPIRATORY PROTECTION

Emergency escape conditions have the potential for unexpected and rapid release of dangerous concentrations of gases or vapors. There are three conditions for which respirators are used in emergency situations:

- Employees self rescue when process excursions, spills, etc., create a sudden potentially hazardous environment.

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- For the rescue of personnel trapped or overcome in a hazardous environment.
- To shut down or repair an operation that is creating a hazardous environment.

RESPIRATORY PROTECTION PROGRAM REVIEW

The safety coordinator will perform annual evaluations of the respiratory protection program to ensure the continued effectiveness of the program. This evaluation will address at a minimum:

- Employee motivation and subjective evaluation.
- Actual usage of respirators.
- Written program versus actual program.
- Modifications necessary to the program due to changes in operation, technology advances, or regulatory revisions.

RECORDS MAINTENANCE

All records that are generated from the respiratory protection program are located at the corporate office. Any records generated at a particular site will be kept on file with the site supervisor. The following records will be maintained:

- Industrial hygiene monitoring (if available)
- Medical surveillance and job assessment data
- Respirator information and training acknowledgment form
- Fit test records
- Emergency equipment inspection/maintenance tags
- Respirator monthly inspection form

INFORMATION-INSTRUCTION-TRAINING

On an annual basis, ADS Services, Inc. will provide training to all applicable personnel required to wear a respirator as part of their job. Respirator training will consist of the following elements:

- An explanation of the nature of the hazards that may be present.
- An explanation as to why respirators are required.
- A discussion of the use of respirators and the proper selection processes, including supplied air respirators.
- A discussion of the capabilities and limitations of the respirator to be used.

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- A discussion of the use of respirators in emergency situations.
- A discussion of the care, inspection, and maintenance procedures for the respirator.
- Familiarization with areas and times respirators must be worn at the facility or work site.
- Each individual will be given the opportunity to handle and wear the respirator in normal air for a familiarization period.
- Each individual will be fitted with a respirator.
- Each individual will be taught two methods for testing the seal of the respirator.

Records of the annual training will be retained at the corporate office for a period of five years. Fit testing records will be retained until a more current record is available. On a quarterly basis, the respirator wearer must demonstrate to their supervisor/project manager the ability to properly put on a respirator, select the correct cartridge/canister, and dispose of a used cartridge/canister. Any employee who fails to demonstrate compliance with those items listed above to their supervisor/project manager will be retrained.

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Respiratory Protection Assessment Form

Job Site & Address: _____

Phone Number: _____ Job Description: _____

Recommended Respiratory Protection (circle those that apply):

Self Contained	Supplied Air	Chemical Cartridge
Dust Mask	Powered Air	Pre-Filter
Dust/Mist Filter	HEPA Filter	Dust/Mist/Fume Filter
Other: _____		

Atmospheric Monitoring Results (if known please attach): _____

Other Special Respiratory Protection Requirements: _____

Identified Respiratory Protection Zones or Areas at the Site: _____

Respiratory Protection Storage Area: _____

Has the employee had instruction and training?	Yes	No
Has the employee had fit testing?	Yes	No

Investigator Signature: _____ Date: _____

Note: The respirators recommended on this page are the minimal required protection. Greater protection may be necessary if monitoring data should suggest otherwise, or if warranted by the particular conditions at the time.

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Air Supplied Respirators

Breathing air used by employees will be at least Grade D air at a minimum. Grade D air must:

- Be at least 19.5% oxygen but no more than 23.5%
- Have < 5mg/m³ of hydrocarbons
- Have < 20 ppm CO
- Have < 1000 ppm CO₂
- Have no unusual odor

Breathing air used by employees may be supplied to respirators from cylinders or air compressors or through air filtering devices designed to purify plant air.

All breathing air cylinders will be tested and maintained as prescribed in the Shipping Container Specification Regulations of the Department of Transportation (401 CFR Part 178).

Breathing air containers will be marked accordingly.

All airline couplings shall be incompatible with outlets for other gas systems.

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Respirator Fit Testing

Anyone assigned a job in which a respirator may be worn will be fit tested to determine whether a particular size and brand of respirator provides a satisfactory seal against the face. This determination will be made using a qualitative fit test method.

- The individual to be fit tested is asked to don the respirator and wear it for a familiarization period prior to the actual fitting. When the familiarization period is over the individual will be fitted.
- A sufficient quantity of the qualitative test solution will be generated near the respirator wearer. The individual will then perform a series of head, face, body movements, and acknowledge whether any irritation is perceived.
- When an individual is successfully fitted with a respirator, the brand, size, and type of respirator will be recorded. The date the fitting was conducted; the signature of the individual who conducted the fitting, and the signature of the individual fitted will also be recorded.
- The employee will then be apprised of the necessary information so that he/she may obtain the correct respirator.

Field Positive-Negative Fit Test

As part of the fit test portion of respirator training and a field fit check, the individual is taught to perform two field fit check methods to determine if the respirator is fitting each time it is donned. These two methods are:

Negative Pressure Test - Performed by closing off the inlet valves to the respirator, inhaling gently, and briefly holding the breath. Collapse of the face piece indicates a good fit.

Positive Pressure Test - Performed by closing off the exhalation valve, and exhaling gently. If a slight positive pressure builds up in the face piece (respirator puffs outward), a good fit is indicated.

Note: In order to be fit tested, the individual must pass a physical exam as described in the medical surveillance section of this program. The employee must be fit tested in each type of respirator to be worn on the job (i.e. ½ face and full face). This does not apply to disposable respirators (dust mask) or positive pressure respirators.

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Respirator Specification & Fit Test Record

Employee Name: _____ Date: _____

Job Description: _____

Recommended Respiratory Protection: _____

Respirator Size: _____ Respirator Manufacturer: _____

NIOSH Approval Number: _____

Fit Test Performed: _____

Any Limitations? Yes No If Yes, explain: _____

Respirator Maintenance:

Cleaning: __Daily __Weekly other _____

Disposal: __Daily __Weekly other _____

Cleaning By __Individual other _____

Employee Signature: _____

Individual Who Conducted Fit Test: _____

Approved By: _____

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Respirator Monthly Inspection Form

Department: _____

Employee Name: _____ Date: _____

Type of Respirator: _____

Respirator Inspection Checklist

<u>Component</u>	<u>Satisfactory</u>	<u>Non-Satisfactory</u>	<u>Explanation</u>
Face Piece	_____	_____	_____
Valves	_____	_____	_____
Cartridge	_____	_____	_____
Straps	_____	_____	_____
Rubber	_____	_____	_____
Storage	_____	_____	_____
Other _____	_____	_____	_____
Other _____	_____	_____	_____
Other _____	_____	_____	_____

Parts Replaced: _____

Parts on Order: _____

Employee Signature: _____

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Respiratory Protection Program Quiz & Acknowledgment of Training

Name: _____ Date: _____

1. A respirator is a device to protect the wearer from inhalation of harmful contaminants. True False
2. Oxygen deficiency is an atmosphere having less than 21% to 19% of oxygen found in normal air. True False
3. Supplied air respirator is a device to protect the wearer from inhalation of harmful contaminants by delivering contamination free breathing air to the wearer. True False
4. Always perform a positive and negative fit check before each use. True False
5. The respirator user is responsible for assuring that their respirator is kept clean, sanitary, and in good working condition. True False
6. Employees using a respirator must clean and disinfect the unit and change the filter cartridges after each use or as appropriate. True False
7. Basic respirator cleaning steps include:
 - a. Wash with warm soap and water
 - b. Rinse in a disinfecting solution
 - c. Rinse thoroughly in clean water
 - d. All of the above
8. Storage of a respirator includes:
 - A. Respirators must be stored in a convenient, clean, and sanitary location
 - B. Respirators should be stored so as to prevent any damage or deterioration to the valves and rubber material.
 - C. Respirators should be protected from dust, sunlight, temperature extremes, moisture, and chemicals.
 - D. All of the above
9. Respirator inspection includes the following:
 - A. Checking tightness of connections and the condition of the respirator that can include the face piece, headbands and straps, valves, connecting tubes and hoses, and cartridges/canisters.
 - B. Checking for pliability and signs of deterioration of rubber parts.
 - C. Replacement or repair of worn or defective parts.
 - D. All of the above

I acknowledge that I have received instruction, information, and training on the company Respiratory Protection Program. I understand the importance of the proper use, maintenance, storage, and cleaning of respirators provided to me. I have been instructed on the Positive-Negative Fit Test procedure and will complete the test before starting my assigned job task. If I do not understand any instructions I will ask questions.

Participant Signature: _____ Date: _____

Instructor Signature: _____ Date: _____

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Voluntary Respirator Use Acknowledgement Form

Name: _____ Date: _____

In accordance with Appendix D, of 29 CFR 1910.134 the following information is provided for employees using respirators when not required under the standard.

This information is mandatory.

Respirators are an effective method of protection against designated hazards when properly selected and worn. Respirator use is encouraged, even when exposures are below the exposure limit, to provide an additional level of comfort and protection for workers. However, if a respirator is used improperly or not kept clean, the respirator itself can become a hazard to the worker. Sometimes, workers may wear respirators to avoid exposures to hazards, even if the amount of hazardous substance does not exceed the limits set by OSHA standards. If your employer provides respirators for your voluntary use, or if you provide your own respirator, you need to take certain precautions to be sure that the respirator itself does not present a hazard.

You should do the following:

1. Read and heed all instructions provided by the manufacturer on use, maintenance, cleaning and care, and warnings regarding the respirators limitations.
2. Choose respirators certified for use to protect against the contaminant of concern. NIOSH, the National Institute for Occupational Safety and Health of the U.S. Department of Health and Human Services, certifies respirators. A label or statement of certification should appear on the respirator or respirator packaging. It will tell you what the respirator is designed for and how much it will protect you.
3. Do not wear your respirator into atmospheres containing contaminants for which your respirator is not designed to protect against. For example, a respirator designed to filter dust particles will not protect you against gases, vapors, or very small solid particles of fumes or smoke.
4. Keep track of your respirator so that you do not mistakenly use someone else's respirator.

Received by: _____

Date: _____

Supervisor Signature _____

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MEDICAL EVALUATION QUESTIONNAIRE

Can you read (circle one): Yes/No

Your employer must allow you to answer this questionnaire during normal working hours, or at a time and place that is convenient to you. To maintain your confidentiality, your employer or supervisor must not look at or review your answers, and your employer must tell you how to deliver or send this questionnaire to the health care professional who will review it.

Part A. Section 1. (Mandatory) The following information must be provided by every employee who has been selected to use any type of respirator (please print).

1. Today's date: _____

2. Your name: _____

3. Your age (to nearest year): _____

4. Sex (circle one): Male/Female

5. Your height: _____ ft. _____ in.

6. Your weight: _____ lbs.

7. Your job title: _____

8. A phone number where you can be reached by the health care professional who reviews this questionnaire (include the Area Code): _____

9. The best time to phone you at this number: _____

10. Has your employer told you how to contact the health care professional who will review this questionnaire (circle one): Yes/No

11. Check the type of respirator you will use (you can check more than one category):

a. _____ N, R, or P disposable respirator (filter-mask, non-cartridge type only).

b. _____ Other type (for example, half- or full-facepiece type, powered-air purifying, supplied-air, self-contained breathing apparatus).

12. Have you worn a respirator (circle one): Yes/No

If "yes," what type(s): _____

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Part A. Section 2. (Mandatory) Questions 1 through 9 below must be answered by every employee who has been selected to use any type of respirator (please circle "yes" or "no").

1. Do you currently smoke tobacco, or have you smoked tobacco in the last month: Yes/No

2. Have you ever had any of the following conditions?
 - a. Seizures (fits): Yes/No
 - b. Diabetes (sugar disease): Yes/No
 - c. Allergic reactions that interfere with your breathing: Yes/No
 - d. Claustrophobia (fear of closed-in places): Yes/No
 - e. Trouble smelling odors: Yes/No

3. Have you ever had any of the following pulmonary or lung problems?
 - a. Asbestosis: Yes/No
 - b. Asthma: Yes/No
 - c. Chronic bronchitis: Yes/No
 - d. Emphysema: Yes/No
 - e. Pneumonia: Yes/No
 - f. Tuberculosis: Yes/No
 - g. Silicosis: Yes/No
 - h. Pneumothorax (collapsed lung): Yes/No
 - i. Lung cancer: Yes/No
 - j. Broken ribs: Yes/No
 - k. Any chest injuries or surgeries: Yes/No
 - l. Any other lung problem that you've been told about: Yes/No

4. Do you currently have any of the following symptoms of pulmonary or lung illness?
 - a. Shortness of breath: Yes/No
 - b. Shortness of breath when walking fast on level ground or walking up a slight hill or incline: Yes/No
 - c. Shortness of breath when walking with other people at an ordinary pace on level ground: Yes/No
 - d. Have to stop for breath when walking at your own pace on level ground: Yes/No
 - e. Shortness of breath when washing or dressing yourself: Yes/No
 - f. Shortness of breath that interferes with your job: Yes/No
 - g. Coughing that produces phlegm (thick sputum): Yes/No
 - h. Coughing that wakes you early in the morning: Yes/No
 - i. Coughing that occurs mostly when you are lying down: Yes/No
 - j. Coughing up blood in the last month: Yes/No
 - k. Wheezing: Yes/No
 - l. Wheezing that interferes with your job: Yes/No
 - m. Chest pain when you breathe deeply: Yes/No
 - n. Any other symptoms that you think may be related to lung problems: Yes/No

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5. Have you ever had any of the following cardiovascular or heart problems?

- a. Heart attack: Yes/No
- b. Stroke: Yes/No
- c. Angina: Yes/No
- d. Heart failure: Yes/No
- e. Swelling in your legs or feet (not caused by walking): Yes/No
- f. Heart arrhythmia (heart beating irregularly): Yes/No
- g. High blood pressure: Yes/No
- h. Any other heart problem that you've been told about: Yes/No

6. Have you ever had any of the following cardiovascular or heart symptoms?

- a. Frequent pain or tightness in your chest: Yes/No
- b. Pain or tightness in your chest during physical activity: Yes/No
- c. Pain or tightness in your chest that interferes with your job: Yes/No
- d. In the past two years, have you noticed your heart skipping or missing a beat: Yes/No
- e. Heartburn or indigestion that is not related to eating: Yes/No
- f. Any other symptoms that you think may be related to heart or circulation problems: Yes/No

7. Do you currently take medication for any of the following problems?

- a. Breathing or lung problems: Yes/No
- b. Heart trouble: Yes/No
- c. Blood pressure: Yes/No
- d. Seizures (fits): Yes/No

8. If you've used a respirator, have you ever had any of the following problems? (If you've never used a respirator, check the following space and go to question 9:)

- a. Eye irritation: Yes/No
- b. Skin allergies or rashes: Yes/No
- c. Anxiety: Yes/No
- d. General weakness or fatigue: Yes/No
- e. Any other problem that interferes with your use of a respirator: Yes/No

9. Would you like to talk to the health care professional who will review this questionnaire about your answers to this questionnaire: Yes/No

Questions 10 to 15 below must be answered by every employee who has been selected to use either a full-facepiece respirator or a self-contained breathing apparatus (SCBA). For employees who have been selected to use other types of respirators, answering these questions is voluntary.

10. Have you ever lost vision in either eye (temporarily or permanently): Yes/No

11. Do you currently have any of the following vision problems?

- a. Wear contact lenses: Yes/No
- b. Wear glasses: Yes/No
- c. Color blind: Yes/No
- e. Any other eye or vision problem: Yes/No

12. Have you ever had an injury to your ears, including a broken ear drum: Yes/No

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13. Do you currently have any of the following hearing problems?

- a. Difficulty hearing: Yes/No
- b. Wear a hearing aid: Yes/No
- c. Any other hearing or ear problem: Yes/No

14. Have you ever had a back injury: Yes/No

15. Do you currently have any of the following musculoskeletal problems?

- a. Weakness in any of your arms, hands, legs, or feet: Yes/No
- b. Back pain: Yes/No
- c. Difficulty fully moving your arms and legs: Yes/No
- d. Pain or stiffness when you lean forward or backward at the waist: Yes/No
- e. Difficulty fully moving your head up or down: Yes/No
- f. Difficulty fully moving your head side to side: Yes/No
- g. Difficulty bending at your knees: Yes/No
- h. Difficulty squatting to the ground: Yes/No
- i. Climbing a flight of stairs or a ladder carrying more than 25 lbs: Yes/No
- j. Any other muscle or skeletal problem that interferes with using a respirator: Yes/No

APPENDIX II

LEAD PROTECTION PROGRAM

ADS SERVICES, INC.

LEAD PROTECTION PROGRAM

POLICY

To provide a hazard free workplace and have a Lead Protection Program to ensure the safety and health of all ADS Services, Inc. employees performing job tasks in which a potential lead exposure could occur.

Compliance with this program is mandatory and is applicable to all ADS Services, Inc. employees who work in an environment where lead is present in any amount. Failure to comply will result in disciplinary action and/or is grounds for termination.

METHODS OF COMPLIANCE

The nature of job activities sometimes involves working with lead environments where there is a potential for lead exposure. Prior to commencing work on a job site where potential lead exposure is identified as a hazard, a pre-job investigation using the Lead Assessment Form is completed which allows the company to provide effective control methods for employees. The Lead Protection Program incorporates all of the requirements of 29 CFR 1926.62(e)(2)(ii)(A)-(I) as follows:

- 1926.62(e)(2)(ii)(A) A description of each activity in which lead is emitted; e.g. equipment used, material involved, controls in place, crew size, employee job responsibilities, operating procedures and maintenance practices.
- 1926.62(e)(2)(ii)(B) A description of the specific means that will be employed to achieve compliance and, where engineering plans and studies used to determine methods selected for controlling exposure to lead.
- 1926.62(e)(2)(ii)(C) A report of the technology considered in meeting the PEL.
- 1926.62(e)(2)(ii)(D) Air monitoring data which documents the source of lead emissions.
- 1926.62(e)(2)(ii)(E) A detailed schedule for implementation of the program, including documentation such as copies of purchase orders for equipment, construction contracts, etc.
- 1926.62(e)(2)(ii)(F) A work practice program which includes items required under paragraphs (g) *protective work clothing and equipment*, (h) *housekeeping*, and (i) *hygiene facilities and practice* of this program and incorporate other relevant work practices such as those specified in paragraph

ADS SERVICES, INC.

LEAD PROTECTION PROGRAM

(e)(5) *employees will follow safe work practice.*

- 1926.62(e)(2)(ii)(G) An administrative control schedule required by paragraph (e)(4) *administrative controls-implementation of a job rotation schedule.*
- 1926.62(e)(2)(ii)(H) A description of arrangements made among contractors on multi-contractor sites with respect to informing affected employees of potential exposure to lead and with respect to responsibility for compliance with this program.
- 1926.62(e)(2)(ii)(I) Other relevant information. (e.g. site inspections, revision of the program every six months, and reviewing the performance of mechanical ventilation).

Once the site specific Lead Assessment Form is completed (this form provides a specific step by step sequence for implementing all aspects of the program) all applicable employees will receive information and training for the identified areas of potential lead exposure at that site. During work activities, the site manager or supervisor will periodically inspect the area to maintain the effectiveness of the lead protection program. If the inspection reveals a change in the work environment that could increase potential lead exposure, all employees will evacuate the area and a follow-up lead assessment will be completed and the necessary additional precautions will be implemented before work activities resume.

DEFINITIONS

Permissible Exposure Limit - means the dermal or inhalation exposure limit figured on an (8) eight-hour time weighted average of (50) micrograms per cubic meter of air.

Time Weighted Average (TWA) - the sum of all exposure over an 8-hour work shift.

Action Level - employee exposure, without regard to the use of respirators, to an airborne concentration of lead of 30 ug/m³ averaged over an (8) hour time weighted average.

Exposure Assessment - Employers are required to determine if any employee is exposed to lead concentrations at or above the action level of (30) thirty microns per cubic meter of air at an (8) eight hour TWA.

Lead (Pb) - metallic lead, all inorganic lead compounds, and organic lead soaps. It is a

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heavy metal at room temperature and pressure and is a basic chemical element. It can combine with various other substances to form numerous lead compounds. Excluded from this definition are all other organic lead compounds.

Final Medical Determination - the outcome of a multiple physical review or an alternate medical determination.

INTRODUCTION

Exposure to lead occurs in at least 120 different occupations, including primary and secondary lead smelting, lead storage, battery manufacturing, lead pigment manufacturing and use, shipbuilding and ship repair, auto manufacturing, and printing. As an employee of the company, potential exposure to various forms and amounts of lead may occur during certain jobsite activities. Lead exposure is not limited to the lead industries; in fact, food, water, and air all contain certain amounts of lead. Therefore, each of us has normal amounts of lead stored in body tissue.

FORMS OF LEAD EXPOSURE

- Lead Metal
- Lead Dust
- Lead Fumes
- Lead Mist

Non-occupational exposure to lead is less than industrial exposure. Lead and lead forms are found at operations such as stacking, pasting, casting, burning and smelting, oxide manufacturing and assembly. There may be a potential health hazard at manufacturing facilities where lead is a part of operations.

WAYS LEAD CAN ENTER THE BODY

- Inhalation
- Ingestion

When lead is absorbed into the body in certain doses it is a toxic substance. Lead is not absorbed through the skin, but can enter the body by inhalation and ingestion. When lead is scattered through the air as a dust, fume, or mist it can be inhaled and absorbed by the lungs and upper respiratory tract.

Inhalation of airborne lead is generally the most important source of occupational lead

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absorption. Lead can also be absorbed through the digestive system if swallowed. Handling food, cigarettes, chewing tobacco, or make-up with hands contaminated with lead will contribute to ingestion. It is for these reason that eating, drinking, and smoking in identified lead areas are avoided.

Lead blood levels will continue to increase if exposure is not controlled. A significant portion of the lead that you inhale or ingest gets into the blood stream. Once in your blood stream, lead is circulated throughout your body and stored in various organs and body tissue. Some of the lead is filtered out of the body by excretion, but some remains in the blood and other tissues. The amount of lead stored in the body will increase if lead absorption is more than body excretion. The lead stored in the body can slowly cause irreversible damage to cells, organs, and the body system.

HEALTH EFFECTS OF LEAD OVEREXPOSURE

If steps are not taken to control exposure, continued absorption of lead could result in:

- Constipation or diarrhea
- Lack of appetite
- Weight loss
- Nausea
- Abdominal pain
- Adverse effects in the male and female reproductive systems
- Adverse effects in an unborn fetus

Short Term Overexposure (Acute)

Lead is a systemic poison that serves no known useful function once absorbed by the body. Exposure to lead in large enough quantities can kill in a matter of days. A condition affecting the brain may arise, known as acute encephalopathy that develops into seizures, coma, and death. A short-term exposure of this magnitude is highly unlikely, but not impossible. There is no sharp dividing line between developing acute and chronic health effects. Lead adversely affects numerous body systems and causes forms of health impairment and disease that arise after periods of exposure as short as days or as long as several years.

Long Term Overexposure (Chronic)

Chronic overexposure to lead may result in severe damage to your blood-forming, nervous, urinary, and reproductive systems. Some common symptoms of chronic

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overexposure include loss of appetite, metallic taste in the mouth, anxiety, constipation, nausea, excessive tiredness, weakness, insomnia, headache, nervous irritability, muscle and joint pain or soreness, fine tremors, numbness, dizziness, and hyperactivity. At this stage, a qualified physician may diagnose lead poisoning.

Human Reproductive & Fetal Health

The medical and scientific community has recognized that lead exposure can have significant adverse health effects on an unborn fetus and the reproductive systems of males and females. At current acceptable OSHA blood-lead levels there are no known teratogenic effects that may result in birth defects or malformations, however, at higher blood-lead levels diverse effects have been reported. Some symptoms of lead overexposure affecting the male reproductive system may include a decrease in sexual drive, impotence, decreased ability to produce healthy sperm and sterility. With respect to females, these effects may include menstrual disturbances, decreased viability of the fertilized ovum and changes in reproductive capacity.

REPORTING OF PROBLEMS

Immediately notify your supervisor if you develop potential signs or symptoms associated with lead poisoning. You should also notify your supervisor if you have difficulty breathing while wearing a respirator or suspect problems with other personal protective equipment.

EXPOSURE ASSESSMENT

The company will determine if employees are exposed to concentrations of lead at or above the action level of 30 ug/m³ on an eight-hour TWA. The exposure determination shall be based on the following:

- Personal exposure monitoring
- Objective data demonstrating that the lead containing material, product, process, operation, or activity cannot result in exposure at or above the action level
- Historical measurements of airborne lead that have been taken within the last 12 months

If the initial exposure determination reveals employee exposure to be at or below the PEL, monitoring will be performed at least every six months. If the exposure

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LEAD PROTECTION PROGRAM

determination reveals employee exposure above the PEL, monitoring will be performed quarterly. Additional monitoring will take place if a change in an operations production process occurs which may result in additional exposure to lead. In addition, employees will be given written notification of the results of their exposure assessment within five working days.

PREVENTING LEAD ABSORPTION

Proper control of exposure to lead is the responsibility of both the employer and the employee. All of the control methods discussed below are essential to minimize additional sources of lead absorption from inhalation or ingestion of lead that may accumulate on you, your clothing, or your possessions. High personal standards of cleanliness are necessary. Strict compliance with these provisions can virtually eliminate several sources of lead exposure that significantly contribute to excessive lead absorption.

Respiratory Protection

Exposure to hazardous materials requires special precautions against absorption of toxic compounds. While engineering controls (e.g. ventilation systems) are the primary means of controlling materials such as lead dust, fumes, vapors, and mists, it is often necessary to rely on respiratory protection. The respirator will give you the proper amount of protection based on the nature of the hazard. Only use respirators tested and certified by the National Institute for Occupational Safety & Health (NIOSH). The cartridges that come with the mask are approved for the environment in which you will be working. Never use a cartridge respirator in an atmosphere containing less than 19.5% oxygen or an atmosphere immediately dangerous to life and health (IDLH). In addition, observe the requirements of the Respiratory Protection Program.

Protective Work Clothing & Equipment

Protective clothing and equipment must be worn when the exposure to lead and lead compounds is above the PEL. If work clothing is provided, it will be given to you in a clean and dry condition at least weekly, and daily if your airborne exposure to lead is greater than 200 ug/m³. Protective work clothing and equipment can include coveralls, tyvek coveralls, gloves, hats, shoes, shoe coverlets, face shield or vented goggles. All clothing and equipment will be repaired, replaced, cleaned, laundered, or disposed of as necessary by the company. Contaminated work clothing and equipment must be removed in the designated change room and placed in the provided closed containers to be cleaned or disposed of. At no time may lead be removed from protective clothing or equipment by any means which disperses lead into the workplace air.

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LEAD PROTECTION PROGRAM

Hygiene Facilities & Practices

Employees exposed to lead above the PEL must change, shower, and eat in designated areas. After changing and showering no clothing or equipment worn during the shift should be carried home, this includes shoes and underwear. The change area will be equipped with separate storage facilities for protective work clothing and equipment and for street clothing to prevent cross-contamination. The container for lead contaminated clothing will be labeled as follows: CAUTION: CLOTHING CONTAMINATED WITH LEAD. DO NOT REMOVE DUST BY BLOWING OR SHAKING. DISPOSE OF LEAD CONTAMINATED WASH WATER IN ACCORDANCE WITH APPLICABLE LOCAL, STATE, OR FEDERAL REGULATIONS. Lunchrooms may not be entered with protective clothing or equipment unless surface dust has been removed by vacuuming, down draft booth, or other accepted cleaning method. Finally, workers exposed above the PEL must wash both their hands and face prior to eating, drinking, smoking, or applying cosmetics.

Housekeeping & Cleaning Practices

All surfaces will be maintained as free as practicable of accumulation of dust. In addition, the use of compressed air to clean floors and other surfaces is restricted. When vacuuming methods are used, take special precaution when emptying the vacuum to minimize the re-entry of lead into the workplace atmosphere. Where vacuuming methods are not feasible, shoveling, dry or wet sweeping, and brushing are acceptable.

Administrative Controls & Practices

Based on the specific site lead assessment, the company will implement a job rotation schedule as one means of reducing an employees TWA exposure to lead. The schedule includes the name or identification number of each effected employee, the duration and exposure levels at each job or work station where effected employees are located, and any other information useful in assessing the reliability of the administrative controls used to reduce potential lead exposure.

MEDICAL SURVEILLANCE

The medical surveillance program is part of the comprehensive approach to the prevention of lead related disease. Its purpose is to supplement the lead program that is aimed at minimizing airborne concentrations of lead and sources of ingestion. Only medical surveillance can determine if the provisions of the lead program have effectively

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protected an employee. Periodic medical surveillance of individual employees will help detect those failures in the lead program and engineering techniques.

Biological Monitoring

The initial phase of the medical surveillance program includes blood-lead and zinc level tests. Biological monitoring will be made available to all employees who are exposed in excess of the action level for more than thirty days a year:

- At least every six months.
- If the last blood sampling and analysis indicated a blood lead level at or above 40 ug/100g of whole blood, monitoring will continue every two months.
- Monitoring will continue until two consecutive blood samples and analysis indicate a blood lead level below 40 ug/100g of whole blood.

Written notification of test results will be given to employees within five days indicating blood lead levels and be given medical removal protection benefits when blood sampling and analysis indicate a blood lead level at or above 40 ug/100g of whole blood.

Medical Examinations and Consultations

The second phase of medical surveillance is medical examinations and consultations for employees who meet the following conditions:

- Employees who are exposed in excess of the action level for more than thirty days a year.
- At least annually for each employee for whom a blood-sampling test conducted at any time during the preceding 12 months indicated a blood level at or above 40 ug/100g.
- Prior to the assignment for the first time to an area in which airborne concentrations of lead are at or above the action level.
- As soon as possible, upon notification by an employee, that he/she has developed signs and symptoms commonly associated with lead intoxication, or desire medical advice concerning the effects of current or past exposure to lead

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and the ability to procreate a healthy child.

- As medically appropriate for each employee either removed from exposure to lead due to risk of sustaining material impairment to health, or otherwise limited pursuant to a final medical determination

A licensed physician will perform all medical examinations and a laboratory licensed by the Center for Disease Control will perform consultations, sampling and analysis tests.

MEDICAL REMOVAL PROTECTION

Excessive lead absorption subjects employees to increased risk of disease. Medical Removal Protection (MRP) is a means of protecting employees when, for whatever reasons, such as engineering controls, work practices, and respirators, have failed to provide the needed protection. MRP involves the temporary removal of an employee from his or her regular job to a place of lower exposure without loss of earnings, seniority, or benefits.

POSTING WARNING SIGNS

A warning sign must be illuminated, kept clean, and posted in work areas where the exposure to lead exceeds the PEL. The sign must read WARNING-LEAD WORK AREA-POISON-NO SMOKING OR EATING

EMPLOYEE INFORMATION & TRAINING

Information and training will be given to all employees who may be exposed to lead above the action level, or who may suffer skin or eye irritation from lead. The training program will inform employees of the following:

- Specific hazards associated with their work environment
- Personal protective equipment
- Lead exposure
- Dangers of lead
- Health hazards associated with lead overexposure
- Employee rights under the lead standard

Documentation of employee information and training is kept on file at the corporate office. Training will be given annual or as needed.

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RECORD KEEPING

The following records will be kept on file at the corporate office or job sites, if applicable:

Exposure monitoring for airborne lead

- Name and job classification of employees measured
- Details of the sampling and analytic techniques
- Results of the sampling
- Type of respiratory equipment worn
- Records will be kept on file for 40 years or for at least 20 years after termination of employment, whichever is longer

Biological Monitoring & Medical Evaluations

- Names of employees and social security numbers
- Physicians written opinion
- Copy of exam results
- Records will be kept on file for 40 years or for at least 20 years after termination of employment, whichever is longer

Temporary Removal

- Name and social security number
- Date of removal and return
- How the removal was or is being accomplished
- Whether or not the removal was an elevated blood lead level
- Kept for duration of employment

Job Rotation Schedules

- Name and identification number of each effected employee
- Duration and exposure levels at each job or work station where each affected employee is located
- Any other information useful in assessing the effectiveness and reliability of the rotation schedule

ADS SERVICES, INC. LEAD PROTECTION PROGRAM

Lead Assessment Form

- Description of the facility and potential lead exposure areas
- Job description of employees working in the potential lead exposure area
- Any specific operating and maintenance procedures
- Any engineering controls necessary or in place to prevent potential exposure to lead
- All air and emissions monitoring results of the area are copied for company records
- Any specific protective clothing and respiratory protection required
- Any job specific rotation schedules
- Necessary hygiene facilities and practices
- Mandatory housekeeping and cleaning practices
- All mechanical ventilation will be evaluated for effective performance
- Identification of safe work practice controls

Acknowledgment of Training Form

- Documentation of employee training

Note: This program must be updated every six months.

APPENDIX III

**HEXAVALENT CHROMIUM COMPLIANCE
PROGRAM**

Hexavalent Chromium (CrVI) Compliance Program

Purpose:

The purpose of the program is to ensure that ADS employees working with any type of paint that contains chromium compounds or any metal that contains Chromium compounds are properly protected from exposure to Hexavalent Chromium.

Applicability:

- Chromate pigments in dyes, paints, inks, and plastics;
- Chromates added as anticorrosive agents to paints, primers, and other surface coatings;
- Chromic acid electroplated onto metal parts to provide a decorative or protective coating.
- Stainless Steel Welding
- Melting chromium metal,
- Certain Heating refractory bricks in kilns.
Wood treated with CCA

Based on the hazardous materials survey performed the following Chromium levels were identified:

Table 1 Chromium Level			
Sample Number	Location	Concentration of Chromium	% of Chromium in Paint
ST-1	Level 19 S. Side of Soft Core Wall	63 ppm	0.006
ST-5	Level 19 Structural Steel	400 ppm	0.040
ST-14	Level 17 Coating on top of Corvette Adjacent to Softcore	130 ppm	0.013
ST-22	Level 11 Softocre Wall	460 ppm	0.046
ST-33	Support Beam under Flame Bucket	57 ppm	0.006
ST-35	Structure Under Flame Bucket	250 ppm	0.025
ST-50	Inside of Flame Bucket	11,000 ppm	1.1%
ST-66	Main Deluge Pipe	710 ppm	0.071
ST-69	Level 16 Exterior Wall of Corvette	28 ppm	0.003

Based on these data the level of Chromium in the paint is very low. Initial air sampling collected for Hexavalent Chromium indicated very low level of exposure well below the action level See Appendix 1. OHC will perform periodic for CrVI if at any time the exposure level exceeds the action level then ADS will be required to implement the elements of this program.

Operations at Risk:

Welders-

- welding on Stainless Steel,
- welding on Metals containing CrVI
- welding on surfaces coated with CrVI
- welding on mild steel in confined spaces only

Paint Removal Activities-

during removal and surface preparation of old coatings from structures using blasting techniques or mechanical means.

Regulatory Standard:

Action Level- 2.5 ug/m³ TWA

Permissible Exposure Level- 5.0 ug/m³ TWA

Employee Monitoring :

Historical Data

Objective Data

Initial Monitoring-

Periodic Monitoring-

Below Action Level- no further monitoring

Above Action Level- every 6 months

Above PEL- every 3 months

Additional Monitoring- required if there are workplace changes that may result in additional exposure

Monitoring is representative of all similar projects. According to OSHA similar projects means the conditions must be identical to the project that sampling was conducted including but not limited to; type of work performed, type of welding used, similar conditions of work, type of welding rod used, content of Chrome in the substrate, and similar experience of personnel performing the work.

Employee Notification of Test Results (all employees affected). Must include corrective actions.

Employees Exposed Above the PEL: 5 working days- construction industry

Regulated Areas- any area above the PEL

Require demarcation of regulated area. No eating, drinking or chew tobacco or gum in regulated area. (not required for construction or shipyard).

Protective Clothing and Equipment:

Employer must provide appropriate protective clothing whenever skin or eye contact with Cr(VI) is likely to present a hazard to employees.

Change Rooms:

Where employees must change out of their street clothes to use protective clothing and equipment required by the standard, change rooms must be provided.

Washing Facilities:

Readily accessible washing facilities capable of removing Cr(VI) from the skin must be provided where skin contact with Cr(VI) occurs.

Method of Compliance:

- Engineering controls
- Work practice control
- Respiratory protection

- Protective clothing if there is potential for skin contact
- Eye protection if there is potential for eye contact
- Employee rotation is not permitted

Hygiene Area & Practices:

Employer must provide adequate hygiene facilities

- Change rooms-if employees must change out street clothing to protective clothing
- Washing facilities- where skin contact with CrVI occur (must wash hand and face at the end of shift and prior to eating, drinking, smoking, chewing tobacco or gum and applying cosmetics)
- Eating and drinking areas- must be as free as practical of CrVI

Prohibited Activities:

Employees cannot eat, drink, smoke, chew tobacco or gum, or apply cosmetics in regulated areas, or in areas where skin or eye contact with Cr(VI) occurs.

Disposal of Contaminated Materials:

Waste, scrap, debris, and any other materials contaminated with Cr(VI) that are consigned for disposal must be disposed of in sealed, impermeable bags or other closed, impermeable containers. Hazardous waste characterization must be performed on the waste prior to disposal.

Medical Surveillance:

Medical surveillance must be provided to employees who are:

- Exposed to Cr(VI) at or above the action level for 30 or more days a year;
- Experiencing signs or symptoms of the adverse health effects associated with Cr(VI) exposure (e.g., blistering lesions, redness or itchiness of exposed skin, shortness of breath or wheezing that worsens at work, nose bleeds, a whistling sound while inhaling or exhaling); or
- Exposed in an emergency (i.e., an uncontrolled release of CrVI)

Frequency of Medical Examination:

- Within 30 days after initial assignment to a job
- Annually;
- Within 30 days after a PLHCP's written medical opinion recommends an additional examination;
- Whenever an employee shows signs or symptoms of the adverse health effects associated with Cr(VI) exposure;
- Within 30 days after exposure during an emergency which results in an uncontrolled release of Cr(VI); or
- At the termination of employment, unless the last examination provided was less than six months prior to the date of termination.

Content of Medical Examination:

A medical examination provided under the standard consists of:

- A medical and work history which focuses on: the employee's past, present, and anticipated future exposure to Cr(VI); any history of respiratory system dysfunction; any history of asthma, dermatitis, skin ulceration, or nasal septum perforation; and smoking status and history;
- A physical examination of the skin and respiratory tract; and
- Any additional tests that the examining PLHCP considers to be appropriate for that individual.

Information Provided to the PLHCP:

The employer must ensure that the PLHCP has a copy of the Cr(VI) standard, and must provide the PLHCP with:

- A description of the affected employee's former, current, and anticipated duties as they relate to Cr(VI) exposure;
- Information on the employee's former, current, and anticipated Cr(VI) exposure levels;
- A description of any personal protective equipment used or to be used by the employee, including when and for how long the employee has used that equipment; and
- Information from records of employment-related medical examinations previously provided to the affected employee.

Written Medical Opinion:

The employer must obtain a written medical opinion from the PLHCP for each medical examination performed. The written medical opinion must be obtained within 30 days of the examination, and must contain:

- The PLHCP's opinion as to whether the employee has any detected medical condition(s) that would place the employee at increased risk of material impairment to health from further exposure to Cr(VI);
- Any recommended limitations on the employee's exposure to Cr(VI) or on the use of personal protective equipment such as respirators; and
- A statement that the PLHCP has explained to the employee the results of the medical examination, including any medical conditions related to Cr(VI) exposure that require further evaluation or treatment, and any special provisions for use of protective clothing or equipment.

Communication of Hazard to Employees:

Initial training only

Comply with Hazard Communication Standard

Employees must be able to demonstrate knowledge of the standard and the purpose and description of medical screening program

Make copy of the standard available to employees at no cost

Recordkeeping:

Air Monitoring Data- 30 years

Medical Records- 30 years after termination of employment



EMSL Analytical, Inc.

200 Route 130 North, Cinnaminson, NJ 08077

Phone: (856) 303-2500 Fax: (856) 850-4571 Email: Env_Chemistry@emsl.com

Attn: (b)(6)

5/30/2014

**OHC Environmental Engineering, Inc.
5420 Bay Center Drive
Suite 100
Tampa, FL 33609**

Phone: (813) 626-8156
Fax: (813) 623-6702

The following analytical report covers the analysis performed on samples submitted to EMSL Analytical, Inc. on 5/28/2014. The results are tabulated on the attached data pages for the following client designated project:

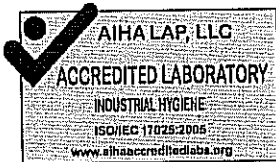
Stennis / 140063

The reference number for these samples is EMSL Order #011402578. Please use this reference when calling about these samples. If you have any questions, please do not hesitate to contact me at (856) 303-2500.

Reviewed and Approved By:

(b)(6)

(b)(6) Laboratory Director



Accreditation #100194 NELAC Certification: NJ 03036,
NY 10872

The samples associated with this report were received in good condition unless otherwise noted. This report relates only to those items tested as received by the laboratory. The QC data associated with the sample results meet the recovery and precision requirements established by the AIHA, unless specifically indicated. The final results are not field blank corrected. The laboratory is not responsible for final results calculated using air volumes that have been provided by non-laboratory personnel. This report may not be reproduced except in full and without written approval by EMSL Analytical, Inc.



EMSL Analytical, Inc.

200 Route 130 North, Cinnaminson, NJ 08077
 Phone/Fax: (856) 303-2500 / (856) 858-4571
<http://www.EMSL.com> Env_Chemistry@emsl.com

EMSL Order:	011402578
CustomerID:	OCCU56
CustomerPO:	(b)(4)
ProjectID:	

Attn: (b)(6)	Phone: (813) 626-8156
OHC Environmental Engineering, Inc.	Fax: (813) 623-6702
5420 Bay Center Drive	Received: 05/28/14 10:20 AM
Suite 100	
Tampa, FL 33609	
Project: Stennis / 140063	

Analytical Results

Client Sample Description		OH3798-D	Collected:	5/22/2014	Lab ID:	0001			
		LV3 (b)(6) Grinding							
Method	Parameter	Result	RL	Units	Prep Date	Analyst	Analysis Date	Analyst	
ID-215	Hexavalent Chromium	0.19	0.013	µg/m³	5/29/2014	WF	5/30/2014	WF	
Client Sample Description		A2	Collected:	5/22/2014	Lab ID:	0002			
		LV3 - S. of WA							
Method	Parameter	Result	RL	Units	Prep Date	Analyst	Analysis Date	Analyst	
ID-215	Hexavalent Chromium	0.039	0.0043	µg/m³	5/29/2014	WF	5/30/2014	WF	
Client Sample Description		OHFBDH	Collected:	5/22/2014	Lab ID:	0003			
		LV3							
Method	Parameter	Result	RL	Units	Prep Date	Analyst	Analysis Date	Analyst	
ID-215	Hexavalent Chromium	ND	0.010	ug/filter	5/29/2014	WF	5/30/2014	WF	

Definitions:

ND - Indicates that the analyte was not detected at the reporting limit
 RL - Reporting Limit



EMSL ANALYTICAL, INC.
LABORATORY PRODUCTS TRAINING

Industrial Hygiene Chain of Custody

EMSL Order Number (Lab Use Only):

(b)(4)

EMSL ANALYTICAL, INC.
200 ROUTE 130 NORTH
CIRRAMONSON, NJ 08077
PHONE: (800) 220-3675
FAX: (856) 856-3502

Order ID: (b)(6)

Report To Contact Name: (b)(6)			Bill To Company: SAME		
Company Name: OHC Env. Eng.			Attention To:		
Street: 5420 Bay center Dr.			Street:		
City: Tampa	State/Province: FL	Zip/Postal Code: 33609	City:	State/Province:	Zip/Postal Code:
Phone: (b)(6)			Phone:		
Project Name: Stennis / (b)(4)			U.S. State where Samples Collected:		
Number of Samples in Shipment:		Date of Shipment: 5-22-14	Purchase Order: (b)(4)		Sampled By (Signature): (b)(6)
Please Provide results: <input type="checkbox"/> Fax <input checked="" type="checkbox"/> Email <input type="checkbox"/> Mail			Email Results To: (b)(6) and (b)(6)		

Turnaround Time - Please Check: Please Note Standard TAT is 2 Week.						Media Type: 0.8 MCE + 5.0 μ PVC
2 Week	1 Week	4 Day	3 Day	2 Day	1 Day	Other (Call Lab)
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
						Manufacturer/Part #:
						Lot #:

Sample ID	Media	Analyte / Method	Volume (L)	Sample Date/Time min	Location	Comments
OH 37980	5.0 μ PVC	Hexavalent Chromium	750 L	5-22-14 / 375	LV3	(b)(6) / Grinding
OH 7171-0	0.8 μ MCE	Lead / Flame AA	750 L	5-22-14 / 337	LV3	(b)(6) / Vacuum
A# A2	5.0 μ PVC	Hexavalent Chromium	230 L	5-22-14 / 420	LV3 - S. of WA	South of WA
A# A1	0.8 μ MCE	Lead / Flame AA	230 L	5-22-14 / 420	LV3 - S. of WA	South of WA
BHFBD	0.8 μ MCE	Lead / Flame AA	N/A	5-22-14	LV3	
OHFBDH	5.0 μ PVC	Hexavalent Chromium	N/A	5-22-14	LV3	

Note: Most NIOSH and OSHA methods require field blanks. It is the IH field sampler's responsibility to submit the proper number of field blanks and duplicates.

Released By: (b)(6)	Date: 5-27-14	(b)(6)	Date: 5/28/14 1015 25
---------------------	---------------	--------	-----------------------

Comments:

Per (b)(6) grinding on paint 5/28/14 1145 (b)(6)

Page 1 of 1

APPENDIX IV
OHC CERTIFICATIONS

ABIH[®]

american board of industrial hygiene[®]

organized to improve the practice of industrial hygiene
proclaims that

(b)(6)

having met all requirements of
education, experience and examination, and
ongoing maintenance,
is hereby certified in the

COMPREHENSIVE PRACTICE of INDUSTRIAL HYGIENE

and has the right to use the designations

CERTIFIED INDUSTRIAL HYGIENIST

CIH

Certificate Number 3956 CP
Awarded: June 30, 1988
Expiration Date: June 1, 2016



(b)(6)

(b)(6)

CERTIFICATE OF COMPLETION

Center for Continuing Education

(b)(6)

(b)(6)

has attended and satisfactorily completed course exam with a passing score of 70% or better

Lead Inspector Initial

U.S. EPA 40 CFR Part 745



MISSISSIPPI STATE
UNIVERSITY

EXTENSION SERVICE

SE152SELP20201-2

CERTIFICATE NUMBER

February 11, 2018

EXPIRATION DATE

(b)(6)

February 11, 2015

EXAMINATION DATE

(b)(6)

February 09-11, 2015

COURSE DATE(S)



APPENDIX V

ADS STATE OF MISSISSIPPI LICENSE



STATE OF MISSISSIPPI
GOVERNOR
MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY
EXECUTIVE DIRECTOR

February 9, 2015

Krane Development
dba ADS Services Inc.
5451 North 59th Street
Tampa, Florida 33610

Re: Certificate of Licensure
Lead Based Abatement Firm Certification

Your application for certification as a Lead Based Abatement Firm has been approved by the Lead Certification Branch in accordance with the Mississippi Regulations for Lead-Based Funt Activities, Miss. Code Annotated Sections 49-17-501 through 49-17-531. Your Mississippi Certification number is PBF-00000515 which is reflected on your enclosed Mississippi Certification identification card or certificate.

Your Mississippi Certification is valid through Feb 8th, 2016. In order to maintain certification as a Lead Based Abatement Firm, you must renew your license on or before the expiration date stated on your card or certificate and pay the renewal fee. If you should continue to perform lead-based paint activities after the expiration date, you will be in violation of the Mississippi Regulations for Lead-Based Paint Activities and may be cited for non-compliance.

It is your responsibility to ensure that you have met all the requirements for renewal of your lead certification.

If you have any questions, please feel free to contact

(b)(6)

Sincerely,

(b)(6)

(b)(6)

P.E., Chief

Asbestos & Lead Certification Branch

Enclosure

67291 LIC20150001

OFFICE OF POLLUTION CONTROL
POST OFFICE BOX 2261 • JACKSON, MISSISSIPPI 39225-2261 • TEL: (601) 961-5171 • FAX: (601) 354-6612 • www.deq.state.ms.us
AN EQUAL OPPORTUNITY EMPLOYER

State of Mississippi

*Department of Environmental Quality
Office of Pollution Control*

Certificate of Licensure

In accordance with the Lead-Based Paint Activity Accreditation and Certification Act,
Mississippi Code Annotated Sections 49-17-501 through 49-17-531

Be it known that

Krane Development

dba ADS Services Inc.

Having submitted acceptable evidence of qualifications and other
appropriate information, is hereby granted this

Lead Based Abatement Firm

Certification

(b)(6)

*Certificate No.: PBF-00000515
Expiration Date: Feb 8th, 2016*

Chief, Asbestos & Lead Certification Branch

APPENDIX VI

**ADS EMPLOYEE STATE OF MISSISSIPPI
LICENSE**



STATE OF MISSISSIPPI

(b)(6)

GOVERNOR

MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY

(b)(6)

EXECUTIVE DIRECTOR

March 10, 2015

(b)(6)

ADS Services, Inc.
5451 North 59th Street
Tampa, Florida 33610

Re: Certificate of Licensure
Lead Worker Certification

Your application for certification as a Lead Worker has been approved by the Lead Certification Branch in accordance with the Mississippi Regulations for Lead-Based Paint Activities, Miss. Code Annotated Sections 49-17-501 through 49-17-531. Your Mississippi Certification number is PBW-00007040 which is reflected on your enclosed Mississippi Certification identification card or certificate.

Your Mississippi Certification is valid through Mar 9th, 2016. In order to maintain certification as a Lead Worker, you must renew your license on or before the expiration date stated on your card or certificate and pay the renewal fee. If you should continue to perform lead-based paint activities after the expiration date, you will be in violation of the Mississippi Regulations for Lead-Based Paint Activities and may be cited for non-compliance.

It is your responsibility to ensure that you have met all the requirements for renewal of your lead certification.

If you have any questions, please feel free to contact

(b)(6)

Sincerely,

(b)(6)

(b)(6)

P.E., Chief
Asbestos & Lead Certification Branch

Enclosure

67459 LIC20150001

OFFICE OF POLLUTION CONTROL

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STATE OF MISSISSIPPI

(b)(6)

GOVERNOR

MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY

(b)(6)

EXECUTIVE DIRECTOR

March 10, 2015

(b)(6)

ADS Services, Inc.
5451 North 59th Street
Tampa, Florida 33610

Re: Certificate of Licensure
Lead Worker Certification

Your application for certification as a Lead Worker has been approved by the Lead Certification Branch in accordance with the Mississippi Regulations for Lead-Based Paint Activities, Miss. Code Annotated Sections 49-17-501 through 49-17-531. Your Mississippi Certification number is PBW-00007039 which is reflected on your enclosed Mississippi Certification identification card or certificate.

Your Mississippi Certification is valid through Mar 9th, 2016. In order to maintain certification as a Lead Worker, you must renew your license on or before the expiration date stated on your card or certificate and pay the renewal fee. If you should continue to perform lead-based paint activities after the expiration date, you will be in violation of the Mississippi Regulations for Lead-Based Paint Activities and may be cited for non-compliance.

It is your responsibility to ensure that you have met all the requirements for renewal of your lead certification.

If you have any questions, please feel free to contact (b)(6)

Sincerely,

(b)(6)

(b)(6)

Chief
Asbestos & Lead Certification Branch

Enclosure

67457 LIC20150001

OFFICE OF POLLUTION CONTROL

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AN EQUAL OPPORTUNITY EMPLOYER



STATE OF MISSISSIPPI

(b)(6)

GOVERNOR

MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY

(b)(6)

EXECUTIVE DIRECTOR

March 10, 2015

(b)(6)

ADS Services, Inc.
5451 North 59th Street
Tampa, Florida 33610

Re: Certificate of Licensure
Lead Worker Certification

Your application for certification as a Lead Worker has been approved by the Lead Certification Branch in accordance with the Mississippi Regulations for Lead-Based Paint Activities, Miss. Code Annotated Sections 49-17-501 through 49-17-531. Your Mississippi Certification number is PBW-00007041 which is reflected on your enclosed Mississippi Certification identification card or certificate.

Your Mississippi Certification is valid through Mar 9th, 2016. In order to maintain certification as a Lead Worker, you must renew your license on or before the expiration date stated on your card or certificate and pay the renewal fee. If you should continue to perform lead-based paint activities after the expiration date, you will be in violation of the Mississippi Regulations for Lead-Based Paint Activities and may be cited for non-compliance.

It is your responsibility to ensure that you have met all the requirements for renewal of your lead certification.

If you have any questions, please feel free to contact

(b)(6)

Sincerely,

(b)(6)

(b)(6)

P.E., Chief

Asbestos & Lead Certification Branch

Enclosure

67460 LIC20150001

OFFICE OF POLLUTION CONTROL

POST OFFICE BOX 2261 • JACKSON, MISSISSIPPI 39225-2261 • TEL: (601) 961-5171 • FAX: (601) 354-6612 • www.deq.state.ms.us

AN EQUAL OPPORTUNITY EMPLOYER



STATE OF MISSISSIPPI

(b)(6)
GOVERNOR

MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY

(b)(6) EXECUTIVE DIRECTOR

March 10, 2015

(b)(6)

ADS Services, Inc.
5451 North 59th Street
Tampa, Florida 33610

Re: Certificate of Licensure
Lead Worker Certification

Your application for certification as a Lead Worker has been approved by the Lead Certification Branch in accordance with the Mississippi Regulations for Lead-Based Paint Activities, Miss. Code Annotated Sections 49-17-501 through 49-17-531. Your Mississippi Certification number is PBW-00007042 which is reflected on your enclosed Mississippi Certification identification card or certificate.

Your Mississippi Certification is valid through Mar 9th, 2016. In order to maintain certification as a Lead Worker, you must renew your license on or before the expiration date stated on your card or certificate and pay the renewal fee. If you should continue to perform lead-based paint activities after the expiration date, you will be in violation of the Mississippi Regulations for Lead-Based Paint Activities and may be cited for non-compliance.

It is your responsibility to ensure that you have met all the requirements for renewal of your lead certification.

If you have any questions, please feel free to contact (b)(6)

Sincerely,

(b)(6)

(b)(6) P.E., Chief

Asbestos & Lead Certification Branch

Enclosure

67461 LIC20150001

OFFICE OF POLLUTION CONTROL

POST OFFICE BOX 2261 • JACKSON, MISSISSIPPI 39225-2261 • TEL: (601) 961-5171 • FAX: (601) 354-6612 • www.deq.state.ms.us
AN EQUAL OPPORTUNITY EMPLOYER



STATE OF MISSISSIPPI

(b)(6)

GOVERNOR

MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY

(b)(6)

EXECUTIVE DIRECTOR

March 10, 2015

(b)(6)

ADS Services, Inc.
5451 North 59th Street
Tampa, Florida 33610

Re: Certificate of Licensure
Lead Worker Certification

Your application for certification as a Lead Worker has been approved by the Lead Certification Branch in accordance with the Mississippi Regulations for Lead-Based Paint Activities, Miss. Code Annotated Sections 49-17-501 through 49-17-531. Your Mississippi Certification number is PBW-00007038 which is reflected on your enclosed Mississippi Certification identification card or certificate.

Your Mississippi Certification is valid through Mar 9th, 2016. In order to maintain certification as a Lead Worker, you must renew your license on or before the expiration date stated on your card or certificate and pay the renewal fee. If you should continue to perform lead-based paint activities after the expiration date, you will be in violation of the Mississippi Regulations for Lead-Based Paint Activities and may be cited for non-compliance.

It is your responsibility to ensure that you have met all the requirements for renewal of your lead certification.

If you have any questions, please feel free to contact

(b)(6)

Sincerely,

(b)(6)

(b)(6)

P.E., Chief
Asbestos & Lead Certification Branch

Enclosure

67456 LIC20150001

OFFICE OF POLLUTION CONTROL

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STATE OF MISSISSIPPI

(b)(6)
GOVERNOR

MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY

(b)(6) EXECUTIVE DIRECTOR

March 10, 2015

(b)(6)

ADS Services, Inc.
5451 North 59th Street
Tampa, Florida 33610

Re: Certificate of Licensure
Lead Worker Certification

Your application for certification as a Lead Worker has been approved by the Lead Certification Branch in accordance with the Mississippi Regulations for Lead-Based Paint Activities, Miss. Code Annotated Sections 49-17-501 through 49-17-531. Your Mississippi Certification number is PBW-00007035 which is reflected on your enclosed Mississippi Certification identification card or certificate.

Your Mississippi Certification is valid through Mar 9th, 2016. In order to maintain certification as a Lead Worker, you must renew your license on or before the expiration date stated on your card or certificate and pay the renewal fee. If you should continue to perform lead-based paint activities after the expiration date, you will be in violation of the Mississippi Regulations for Lead-Based Paint Activities and may be cited for non-compliance.

It is your responsibility to ensure that you have met all the requirements for renewal of your lead certification.

If you have any questions, please feel free to contact (b)(6)

Sincerely,

(b)(6)

(b)(6)

P.E., CHIEF

Asbestos & Lead Certification Branch

Enclosure

67453 LIC20150001

OFFICE OF POLLUTION CONTROL

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STATE OF MISSISSIPPI

(b)(6)

GOVERNOR

MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY

(b)(6)

EXECUTIVE DIRECTOR

March 10, 2015

(b)(6)

ADS Services, Inc.
5451 North 59th Street
Tampa, Florida 33610

Re: Certificate of Licensure
Lead Worker Certification

Your application for certification as a Lead Worker has been approved by the Lead Certification Branch in accordance with the Mississippi Regulations for Lead-Based Paint Activities, Miss. Code Annotated Sections 49-17-501 through 49-17-531. Your Mississippi Certification number is PBW-00007043 which is reflected on your enclosed Mississippi Certification identification card or certificate.

Your Mississippi Certification is valid through Mar 9th, 2016. In order to maintain certification as a Lead Worker, you must renew your license on or before the expiration date stated on your card or certificate and pay the renewal fee. If you should continue to perform lead-based paint activities after the expiration date, you will be in violation of the Mississippi Regulations for Lead-Based Paint Activities and may be cited for non-compliance.

It is your responsibility to ensure that you have met all the requirements for renewal of your lead certification.

If you have any questions, please feel free to contact

(b)(6)

(b)(6)

(b)(6)

Asbestos & Lead Certification Branch

Enclosure

67462 LIC20150001

OFFICE OF POLLUTION CONTROL

POST OFFICE BOX 2261 • JACKSON, MISSISSIPPI 39225-2261 • TEL: (601) 961-5171 • FAX: (601) 354-6612 • www.deq.state.ms.us
AN EQUAL OPPORTUNITY EMPLOYER



STATE OF MISSISSIPPI
(b)(6)
GOVERNOR
MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY
(b)(6) EXECUTIVE DIRECTOR

March 10, 2015

(b)(6)

ADS Services
5451 North 59th Street
Tampa, Florida 33610

Re: Certificate of Licensure
Lead Worker Certification

Your application for certification as a Lead Worker has been approved by the Lead Certification Branch in accordance with the Mississippi Regulations for Lead-Based Paint Activities, Miss. Code Annotated Sections 49-17-501 through 49-17-531. Your Mississippi Certification number is PBW-00007036 which is reflected on your enclosed Mississippi Certification identification card or certificate.

Your Mississippi Certification is valid through Mar 9th, 2016. In order to maintain certification as a Lead Worker, you must renew your license on or before the expiration date stated on your card or certificate and pay the renewal fee. If you should continue to perform lead-based paint activities after the expiration date, you will be in violation of the Mississippi Regulations for Lead-Based Paint Activities and may be cited for non-compliance.

It is your responsibility to ensure that you have met all the requirements for renewal of your lead certification.

If you have any questions, please feel free to contact (b)(6)

Sincerely,

(b)(6)

(b)(6), P.E., Chief
Asbestos & Lead Certification Branch

Enclosure

67455 LIC20150001



STATE OF MISSISSIPPI

(b)(6)

GOVERNOR

MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY

(b)(6)

EXECUTIVE DIRECTOR

February 9, 2015

(b)(6)

Krane Development
dba ADS Services, Inc.
5451 North 59th Street
Tampa, Florida 33610

Re: Certificate of Licensure
Lead Worker Certification

Your application for certification as a Lead Worker has been approved by the Lead Certification Branch in accordance with the Mississippi Regulations for Lead-Based Paint Activities, Miss. Code Annotated Sections 49-17-501 through 49-17-531. Your Mississippi Certification number is PBW-00006974 which is reflected on your enclosed Mississippi Certification identification card or certificate.

Your Mississippi Certification is valid through Feb 8th, 2016. In order to maintain certification as a Lead Worker, you must renew your license on or before the expiration date stated on your card or certificate and pay the renewal fee. If you should continue to perform lead-based paint activities after the expiration date, you will be in violation of the Mississippi Regulations for Lead-Based Paint Activities and may be cited for non-compliance.

It is your responsibility to ensure that you have met all the requirements for renewal of your lead certification.

If you have any questions, please feel free to contact

(b)(6)

Sincerely,

(b)(6)

(b)(6)

P.E., Chief

Asbestos & Lead Certification Branch

Enclosure

67296 LIC20150001

OFFICE OF POLLUTION CONTROL

POST OFFICE BOX 2261 • JACKSON, MISSISSIPPI 39225-2261 • TEL: (601) 961-5171 • FAX: (601) 354-6612 • www.deq.state.ms.us

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STATE OF MISSISSIPPI
(b)(6)
GOVERNOR
MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY
(b)(6) EXECUTIVE DIRECTOR

February 9, 2015

(b)(6)
Krane Development
dba ADS Services, Inc.
5451 North 59th Street
Tampa, Florida 33610

Re: Certificate of Licensure
Lead Worker Certification

Your application for certification as a Lead Worker has been approved by the Lead Certification Branch in accordance with the Mississippi Regulations for Lead-Based Paint Activities, Miss. Code Annotated Sections 49-17-501 through 49-17-531. Your Mississippi Certification number is PBW-00006972 which is reflected on your enclosed Mississippi Certification identification card or certificate.

Your Mississippi Certification is valid through Feb 8th, 2016. In order to maintain certification as a Lead Worker, you must renew your license on or before the expiration date stated on your card or certificate and pay the renewal fee. If you should continue to perform lead-based paint activities after the expiration date, you will be in violation of the Mississippi Regulations for Lead-Based Paint Activities and may be cited for non-compliance.

It is your responsibility to ensure that you have met all the requirements for renewal of your lead certification.

If you have any questions, please feel free to contact

(b)(6)

Sincerely,

(b)(6)

(b)(6)

P.E., Chief
Asbestos & Lead Certification Branch

Enclosure

67294 LIC20150001



STATE OF MISSISSIPPI

(b)(6)

GOVERNOR

MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY

(b)(6)

EXECUTIVE DIRECTOR

February 9, 2015

(b)(6)

Krane Development
dba ADS Services, Inc.
5451 North 59th Street
Tampa, Florida 33610

Re: Certificate of Licensure
Lead Worker Certification

Your application for certification as a Lead Worker has been approved by the Lead Certification Branch in accordance with the Mississippi Regulations for Lead-Based Paint Activities, Miss. Code Annotated Sections 49-17-501 through 49-17-531. Your Mississippi Certification number is PBW-00006973 which is reflected on your enclosed Mississippi Certification identification card or certificate.

Your Mississippi Certification is valid through Feb 8th, 2016. In order to maintain certification as a Lead Worker, you must renew your license on or before the expiration date stated on your card or certificate and pay the renewal fee. If you should continue to perform lead-based paint activities after the expiration date, you will be in violation of the Mississippi Regulations for Lead-Based Paint Activities and may be cited for non-compliance.

It is your responsibility to ensure that you have met all the requirements for renewal of your lead certification.

If you have any questions, please feel free to contact

(b)(6)

(b)(6)

(b)(6)

, P.E., Chief
Asbestos & Lead Certification Branch

Enclosure

67295 LIC20150001

OFFICE OF POLLUTION CONTROL

POST OFFICE BOX 2261 • JACKSON, MISSISSIPPI 39225-2261 • TEL: (601) 961-5171 • FAX: (601) 354-6612 • www.deq.state.ms.us
AN EQUAL OPPORTUNITY EMPLOYER



STATE OF MISSISSIPPI

(b)(6)
GOVERNOR

MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY

(b)(6) EXECUTIVE DIRECTOR

February 9, 2015

(b)(6)
Krane Development
dba ADS Services, Inc.
5451 North 59th Street
Tampa, Florida 33610

Re: Certificate of Licensure
Lead Worker Certification

Your application for certification as a Lead Worker has been approved by the Lead Certification Branch in accordance with the Mississippi Regulations for Lead-Based Paint Activities, Miss. Code Annotated Sections 49-17-501 through 49-17-531. Your Mississippi Certification number is PBW-00006976 which is reflected on your enclosed Mississippi Certification identification card or certificate.

Your Mississippi Certification is valid through Feb 8th, 2016. In order to maintain certification as a Lead Worker, you must renew your license on or before the expiration date stated on your card or certificate and pay the renewal fee. If you should continue to perform lead-based paint activities after the expiration date, you will be in violation of the Mississippi Regulations for Lead-Based Paint Activities and may be cited for non-compliance.

It is your responsibility to ensure that you have met all the requirements for renewal of your lead certification.

If you have any questions, please feel free to contact

(b)(6)

Sincerely,

(b)(6)

(b)(6) P.E., Chief
Asbestos & Lead Certification Branch

Enclosure

67298 LIC20150001

OFFICE OF POLLUTION CONTROL

POST OFFICE BOX 2261 • JACKSON, MISSISSIPPI 39225-2261 • TEL: (601) 961-5171 • FAX: (601) 354-6612 • www.deq.state.ms.us
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STATE OF MISSISSIPPI

(b)(6)

GOVERNOR

MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY

(b)(6)

EXECUTIVE DIRECTOR

February 9, 2015

(b)(6)

ADS Services, Inc.
5451 North 59th Street
Tampa, Florida 33610

Re: Certificate of Licensure
Lead Supervisor Certification

Your application for certification as a Lead Supervisor has been approved by the Lead Certification Branch in accordance with the Mississippi Regulations for Lead-Based Paint Activities, Miss. Code Annotated Sections 49-17-501 through 49-17-531. Your Mississippi Certification number is PBS-00006971 which is reflected on your enclosed Mississippi Certification identification card or certificate.

Your Mississippi Certification is valid through Feb 8th, 2016. In order to maintain certification as a Lead Supervisor, you must renew your license on or before the expiration date stated on your card or certificate and pay the renewal fee. If you should continue to perform lead-based paint activities after the expiration date, you will be in violation of the Mississippi Regulations for Lead-Based Paint Activities and may be cited for non-compliance.

It is your responsibility to ensure that you have met all the requirements for renewal of your lead certification.

If you have any questions, please feel free to contact (b)(6)

Sincerely,

(b)(6)

(b)(6) P.E., Chief
Asbestos & Lead Certification Branch

Enclosure

67293 LIC20150001

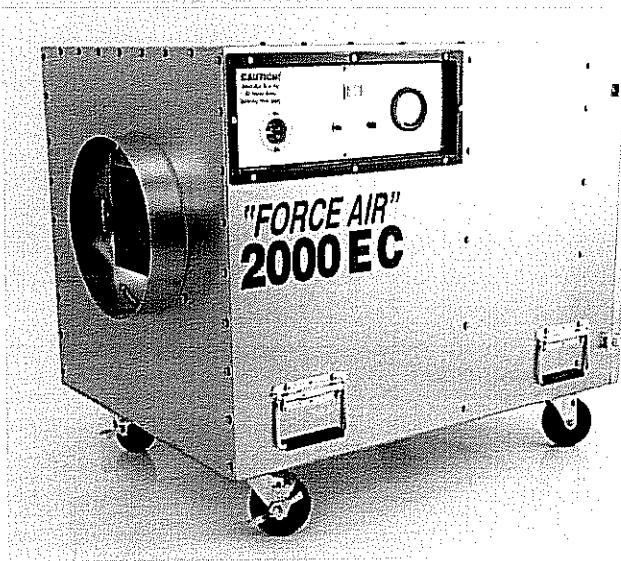
OFFICE OF POLLUTION CONTROL

POST OFFICE BOX 2261 • JACKSON, MISSISSIPPI 39225-2261 • TEL: (601) 961-5171 • FAX: (601) 354-6612 • www.deq.state.ms.us
AN EQUAL OPPORTUNITY EMPLOYER

APPENDIX VII
SPECIALTY BLASTING EQUIPMENT

FA2000EC

Category: Air Filtration Equipment



For manual and/or parts please [click here.](#)

Portable HEPA Air Filter - Negative I BROCHURE

FA2000EC is our most powerful purification and pressure control unit with portability in a rugged no-nonsense durable unit built and serviced in H Containment Systems, Inc. (ACSI). units are in service around the globe the most powerful units available, a changing the air in a typical 12 x 12 hour. The true HEPA filter removes: micron in size with 99.97% efficiency replaceable primary and secondary of the HEPA filter. Easily replaced various sources. Four heavy-duty 4: spring-loaded handles make transferring case made of corrosion resistant heavy Iron Grip neoprene material, and the closes with a link lock latch. A unique motor and dynamically balanced bl in fashion using rubberized bushings c and minimize noise. Carefully engineered shift, rubbing or drag. The FA2000 filters and ready for use and a 1-year

Features

Heavy duty aluminum cabinet is corrosion resistant

Modular control panel, control panel removal

Sealed control box eliminates leakage

Locks on HEPA filter assures a perfect filter

Four heavy duty swivel casters, for mobility

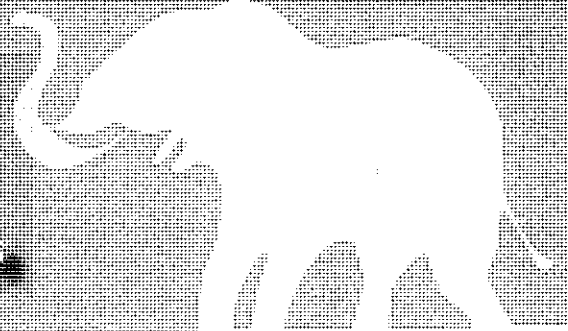
Rugged carrying handles provide



PRE-SEPARATION SYSTEMS

Separate Particles Before They Reach Your Filter

95% Efficient With Submicron Particles



TAKE YOUR HEC TO A WHOLE NEW LEVEL



- 95(+)% EFFICIENT WITH SUBMICRON PARTICLES
- INCREASES COLLECTION CAPACITY AND FILTER LIFE

- AVAILABLE IN 5 DIFFERENT SYSTEMS – EACH WITH UNIQUE FEATURES FOR ENHANCED DISPOSAL CAPABILITIES



We vacuum everything.

www.ruwac.com

Call: 413-532-4030



PRE-SEPARATION SYSTEMS

HEC

The High Efficiency Cyclone (HEC) in itself is your solution to increasing your Ruwac vacuum's collection capacity while sparing you from costly filter changes. Now with these 4 unique HEC Separation Systems, the clean-up process is made much easier thanks to an array of benefits such as tipping drums, bagging systems and lifting assemblies. All systems are compatible with the following 8", 12" or 14" HEC units.



HEC8	HEC12	HEC14
8" Diameter	12" Diameter	14" Diameter
100 - 250 CFM Range	250 - 350 CFM Range	375 - 525 CFM Range
2" Inlet	2.75" Inlet	4" Inlet

HEC-S

- INCLUDES STANDARD, REINFORCED REMOVABLE DRUM
- ATTACHES TO ANY DRUM, ALLOWING FOR MULTIPLE FILLING CYCLES AND REUSE OF OLD DRUMS
- 3" CASTERS WITH HEAVY DUTY CADDY FOR ULTIMATE MOBILITY



HEC-XT

- TIPPING DRUM FOR FAST EMPTYING ELIMINATES ANY HEAVY LIFTING
- FORK LIFT POCKETS FOR ULTIMATE MOBILITY EVEN UNDER HEAVY LOADS
- EQUALIZER KIT ALLOWS PLASTIC BAGS TO BE USED FOR COLLECTION WITHIN DRUM



HEC-BG

- 8' AIRTIGHT BLASTGATE DIRECT DISCHARGE OFFERS EASY CONTAINER-FREE DISPOSAL WHILE MINIMIZING CONTACT WITH CONTENTS
- FORK LIFT POCKETS FOR ULTIMATE MOBILITY EVEN UNDER HEAVY LOADS



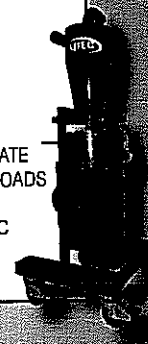
HEC-DB

- UNIVERSAL DIRECT BAGGING SYSTEM ALLOWS FOR DUSTLESS CLEAN-UP AND MINIMIZES CONTACT WITH CONTENTS
- EXTERNAL GRAVITY DROP FOR CONTINUOUS DISCHARGE AND VACUUM OPERATION
- OVERSIZED INTERNAL DROP OUT CHAMBER WITH VELOCITY BREAK
- 6" HEAVY DUTY CASTERS AND COUNTER-BALANCED BASE FOR ULTIMATE MOBILITY

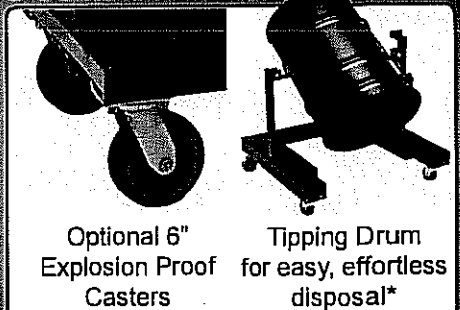


HEC-XLT

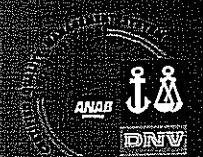
- LIFTING ASSEMBLY MECHANICALLY RAISES CYCLONE FROM DRUM FOR EASY EMPTYING
- TIPPING DRUM FOR FAST EMPTYING ELIMINATES ANY HEAVY LIFTING
- FORK LIFT POCKETS FOR ULTIMATE MOBILITY EVEN UNDER HEAVY LOADS
- EQUALIZER KIT ALLOWS PLASTIC BAGS TO BE USED FOR COLLECTION WITHIN DRUM



Features

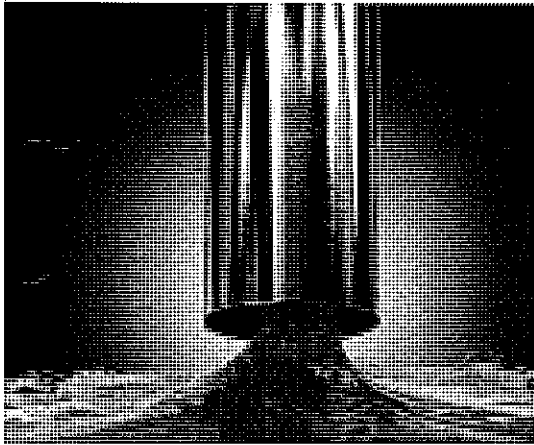
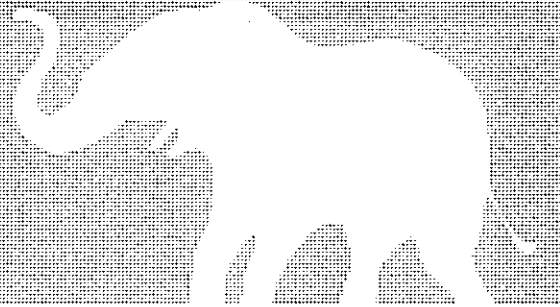


HEC-XT and HEC-XLT models only



AV Series Compressed Air Vacuum

EXPECT MORE OUT OF
A VACUUM.

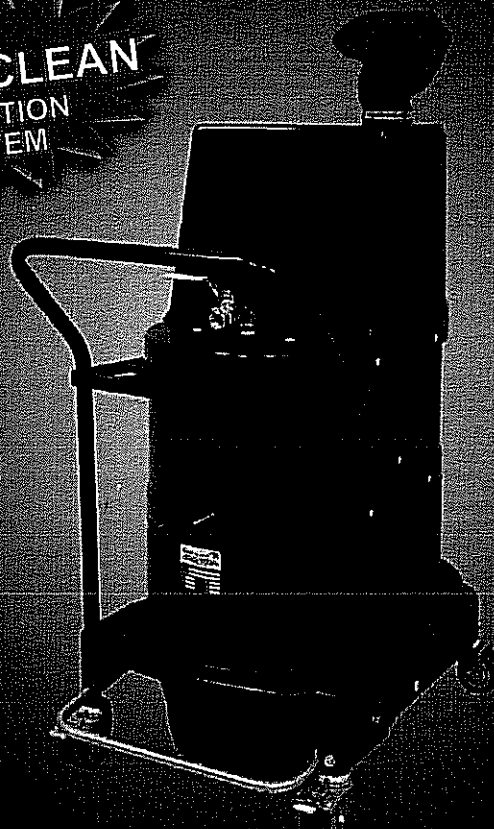


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- Driveways/Aluminum Surfaces
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- Powder Coating Industry
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SYSTEM**

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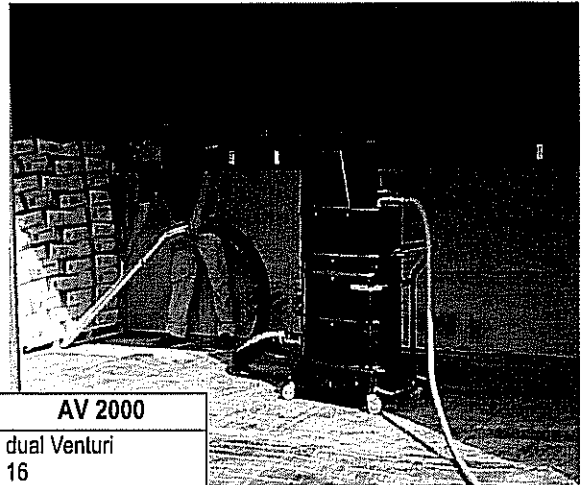
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AV Series Compressed Air Vacuums

- The AV series is equipped with a MicroClean filtration system. Available in 13 or 20 square feet, our filters are 99.9% efficient at 0.3 microns. What's more - our filter cleaning technology allows longer vacuum cycles and less maintenance during our valuable time in order to increase your productivity.
- Our motor housing is extremely durable. It will never dent or rust. The compressor and composite fiberglass housing is carbon impregnated, making it not only chemically resistant, but elastic resistant up to 10³ times.
- To empty, simply use the foot lever actuated 5 gallon drop down dust pan. Located in the rear next to the heavy duty ball locking discharge outlet, this simple feature makes emptying collected waste simple and quick.
- All Ruwac vacuums are upgradeable to noncombustible HEPA (High Efficiency Particulate Air) Filters should your application require one. Our HEPA filters are 99.99% efficient at 0.3 microns and individually EOP tested and certified.
- We take pride in our customer service. That's why we offer a Lifetime Warranty on every Air Vacuum we manufacture. If you're not satisfied, neither are we.

Designed to deliver power and performance in applications where electricity isn't an option.

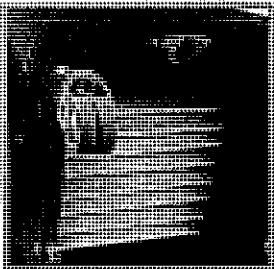


Explosion-proof models available for Gas Ex and Dust Ex applications.

Please contact us for more information.



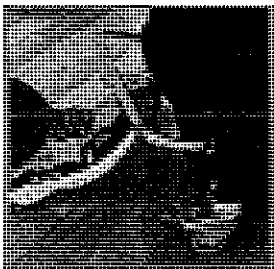
FEATURES



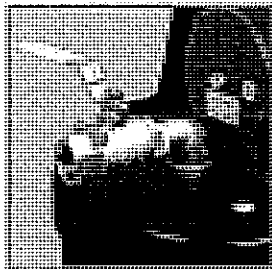
Newly redesigned filtration system allows for less downtime.

Technical Data	AV 1000	AV 2000
Motor Type	single Venturi	dual Venturi
Vacuum Pressure (Hg")	10	16
Air Movement (CFM)	150	275
Filter Area (ft ²)	13 ft ²	28 ft ²
Filter Efficiency	99.9% @0.5 microns	99.9% @0.5 microns
Required Operating Pressure (PSI)	71	100
Required Air Consumption (CFM)	65	100
Required Air Line Size (in.)	1/2"	1"
Weight (lbs.)	100	120
L x W x H (in.)	32 x 20 x 41"	32 x 20 x 54"

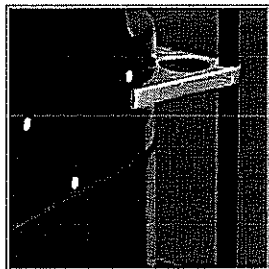
Specifications are subject to change without notice.



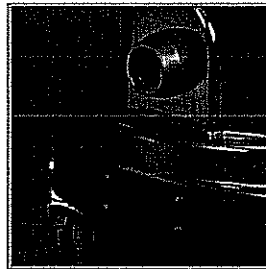
Foot lever actuated drop down dust pan allows for easy waste removal.



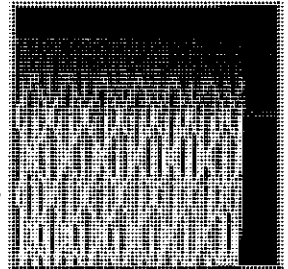
Stainless steel ball valve allows you to regulate vacuum suction.



Compression cast composite housing is modular to accommodate additional filters.



Low inlet inhibits machine from tipping over during use.



All models are HEPA - ready, should your application require absolute filtration.

Distributed by:

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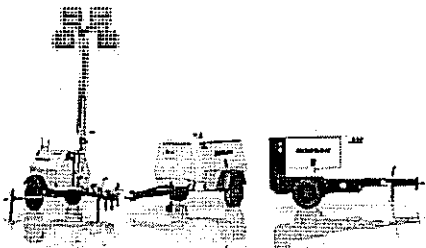
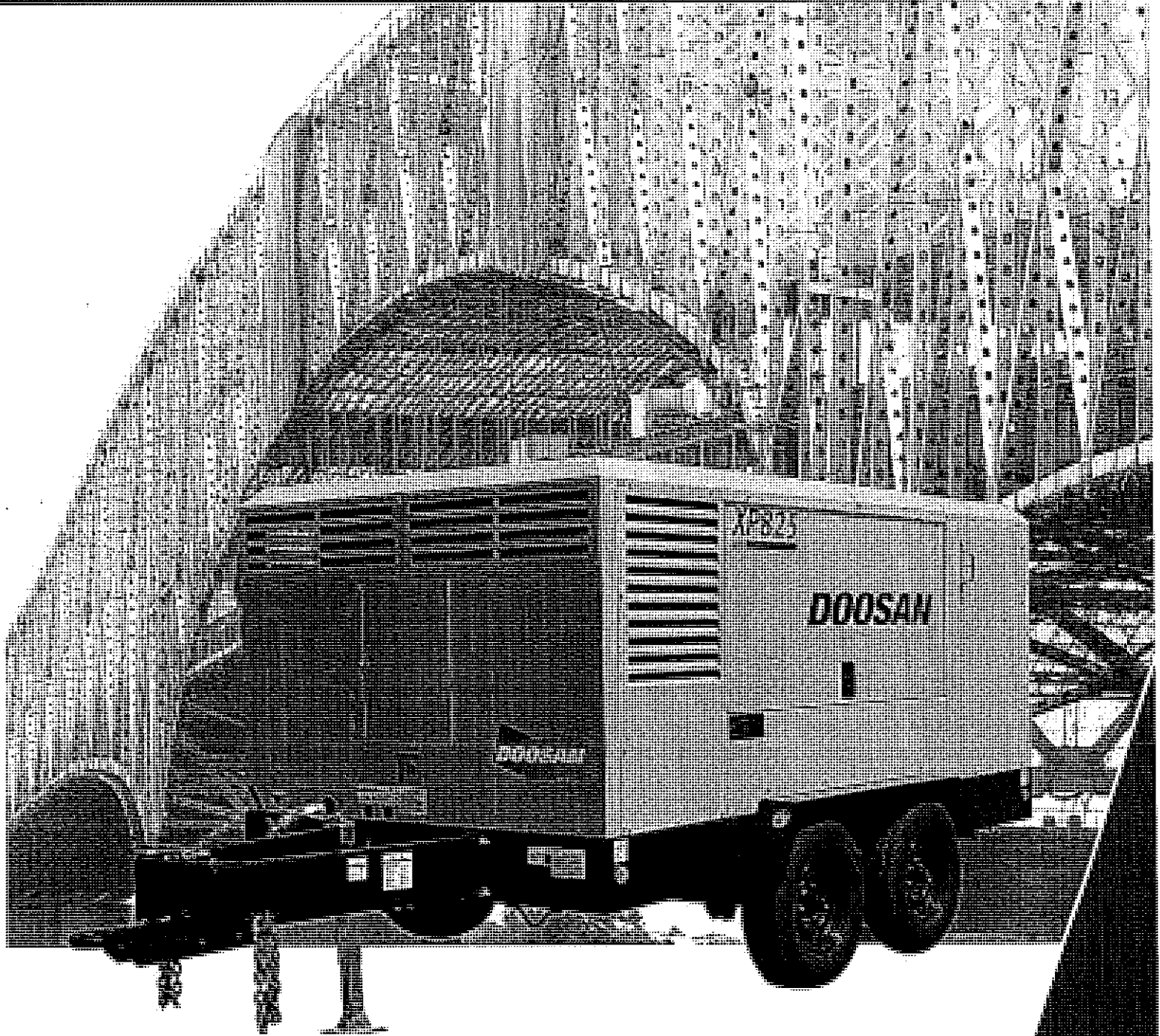
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750 – 1600 cfm | Low Pressure Air Compressors



Portable Power

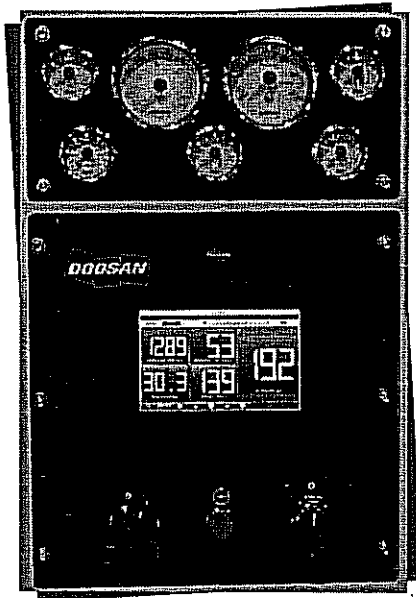
The tradition of rugged reliability continues

The 750–1600 cfm T4F compressors from Doosan Portable Power continue in the tradition of producing the most rugged and reliable portable power products. Our portable air compressors are built for long-term use and provide maximum productivity. These are expertly crafted with galvanneal sheet metal enclosures for ultimate corrosion resistance. Our compressors, now Tier 4 compliant, produce the lowest total cost of ownership of any portable air compressors on the market. With a worldwide service and support network that is there when you need it, Doosan Portable Power air compressors are the right choice to get the job done.

Performance features

all models

- Full colored digital display
- LED backlit instrument panel
- On board E-reader with pre-loaded manual set
- WiFi connection for remote control panel viewing on mobile device
- 1-year/2,000-hour package warranty
- 2-year/4,000-hour warranty aircend standard
- Easy maintenance of coolers, filters, and fluids
- Microprocessor-controlled engine with optimal compressor performance and diagnostics
- Easy maintenance of coolers, filters and fluids
- 500-hour engine oil/1,000-hour aircend oil service
- Automatic safety shutdowns for high discharge air temperature, low engine oil pressure, high engine coolant temperature and low fuel level
- Galvanneal sheet metal enclosure for ultimate corrosion protection
- Easy maintenance of coolers, filters and fluids
- Construction-grade pedestal jack stand
- Slam latch handles with padlock provisions
- Wifi monitoring system



HP750-XP825

Performance features

- Fuel/water separator as primary filtration
- Heavy-duty 14-gauge fenders
- Heavy-duty A-frame detachable drawbar with adjustable-height pintle eye
- External lifting eye for single point lifting

HP750-XP825

Available options (factory installed)

- Aftercooler plus water separator with 20 degree F approach temperature
- Remote drains for single-point fluid maintenance
- Cold start kit includes engine block, engine oil pan and battery heaters
- Dual pressure regulation: HP units available with 100/150 psi; XP units available with 100/125 psi
- Hydraulic surge brakes with three-position hitch (subject to local DOT regulations)
- IQ System® aftercooler plus particulate and coalescing filters with patented condensate disposal system for cleaner, Instrument Quality air
- Less running gear includes isolation mounts for truck, trailer or permanent pad installation, as well as central drains
- Multiple air outlets: (1) 2" and (2) 1-1/4" valves
- Wifi monitoring system

Applications:

- General construction
- Mining
- Abrasive blasting

Available options

all models

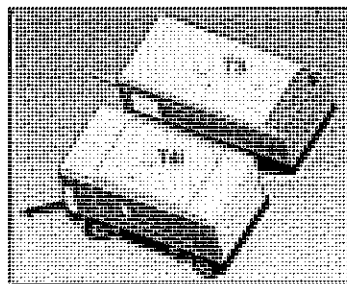
- Aftercooler with water separator with 20 degree F approach temperature
- Cold start kit includes engine block, engine oil pan and battery heaters
- IQ System® aftercooler plus particulate and coalescing filters with a patented condensate disposal system for cleaner, Instrument Quality air
- Wifi monitoring system

Model	HP750WCU	XP825WCU	HP915WCU	XP1000WCU	HP1600WCU
COMPRESSOR					
Free-Air Delivery – cfm (m ³ /min)	750 (21.2)	825 (23.4)	915 (25.9)	1000 (28.3)	1600 (45.3)
Rated Operating Pressure – psi (bar)	150 (10.3)	125 (8.6)	150 (10.3)	125 (8.6)	150 (10.3)
Pressure Range – psi (bar)	80 – 175 (5.5 – 12.1)	80 – 150 (5.5 – 10.3)	80 – 175 (5.5 – 12.1)	80 – 150 (5.5 – 10.3)	80 – 150 (5.5 – 10.3)
Air Discharge Outlet NPT Size – In (mm)	2-inch NPT	2-inch NPT	2 (50.8)	2 (50.8)	3 (76.2)
Air Discharge Outlet Quantity	1	1	1	1	1 (2 w/lt IQ)
ENGINE					
Engine Make/Model	Cummins/QSB6.7	Cummins/QSB6.7	Cummins/QSL9	Cummins/QSL9	Cummins/QSX15
Emissions Tier Level	Tier 4 Final (T4F)	Tier 4 Final (T4F)	Tier 4 Final (T4F)	Tier 4 Final (T4F)	Tier 4 Final (T4F)
# of Cylinders	6	6	6	6	6
Displacement – cu in (L)	408 (6.7)	408 (6.7)	543 (8.9)	543 (8.9)	912 (14.9)
Rated Speed – rpm	2000	2000	1800	1800	1800
Idle Speed – rpm	1300	1300	1200	1200	1200
Bhp @ Rated Speed (kW)	270 (201)	270 (201)	305 (228)	305 (228)	580 (433)
Electrical – volts	24 V	24 V	24 V	24 V	24 V
Altitude Capability – ft (m)	12000 (3658)	12000 (3658)	6536 (1992)	6536 (1992)	10000 (3048)
Fuel Consumption @ 100% Load – gph (L/hr)	11.4 (43)	11.4 (43)	15.1 (57.2)	15.4 (57.2)	22.3 (84)
Runtime @ 100% Load – hrs	8.75	8.75	8.5	8.5	8.0
Fuel Tank Capacity – gal (L)	100 (379)	100 (379)	128 (485)	128 (485)	198 (749)
DEF Consumption @ 100% Load – gph (L/hr)	0.4 (1.5)	0.4 (1.5)	0.63 (2.4)	0.63 (2.4)	0.88 (3.3)
DEF Runtime @ 100% Load – hrs	20.5	20.5	15.9	15.9	17.7
DEF Tank Capacity – gal (L)	8.2 (31)	8.2 (31)	10 (37.9)	10 (37.9)	15.6 (59)
DIMENSIONS WITH RUNNING GEAR					
Overall Length – in (mm)	204 (5182)	204 (5182)	226 (5748)	226 (5748)	293 (7442)
Overall Width – in (mm)	91 (2311)	91 (2311)	83 (2098)	83 (2098)	90 (2290)
Overall Height – in (mm) excluding exh pipe	89 (2261)	89 (2261)	98 (2482)	98 (2482)	103 (2616)
Track Width – in (mm)			68 (1732)	68 (1732)	71 (1803)
Shipping Weight w/o fuel – lb (kg)	9000 (4100)	9000 (4100)	10499 (4761)	10499 (4761)	17874 (8106)
Working Weight w/ fuel – lb (kg)	9600 (4350)	9600 (4350)	115003 (5217)	115003 (5217)	19565 (8873)
DIMENSIONS WITHOUT RUNNING GEAR					
Overall Length – in (mm)	152 (3871)	152 (3871)	171 (4343)	171 (4343)	227 (5766)
Overall Width – in (mm)	81 (2057)	81 (2057)	83 (2108)	83 (2108)	90 (2290)
Overall Height – in (mm)	79 (2007)	79 (2007)	91 (2322)	91 (2322)	98 (2497)
Shipping Weight w/o fuel – lb (kg) est.	8200 (3720)	8200 (3720)	8716 (3954)	8716 (3954)	16899 (7664)
Working Weight w/ fuel – lb (kg) est.	8800 (4000)	8800 (4000)	10820 (4908)	10820 (4908)	18600 (8435)

HP915 – XP1000

Performance features

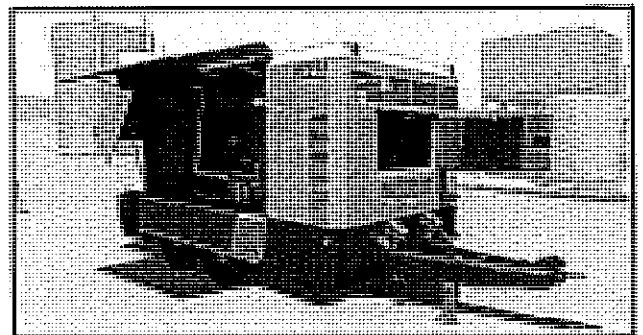
- Best in class service access
- Super compact design
- Central fluid drains
- Drop down side access doors
- Access ladder
- Reduced machine length by over 1 foot from previous models



HP915 – XP1000

Available options (factory installed)

- Aftercooler plus water separator with 20 degree F approach temperature
- Cold start kit includes engine block, engine oil pan and battery heaters
- Dual pressure regulation: HP units available with 100/150 psi; XP units available with 100/125 psi
- IQ System® aftercooler plus particulate and coalescing filters with patented condensate disposal system for cleaner, Instrument Quality air
- Less running gear includes isolation mounts for truck, trailer or permanent pad installation, as well as central drains
- Wifi monitoring system



The tradition of rugged reliability continues

1600 cfm compressors from Doosan Portable Power continue to be in a class of their own. They have easy-to-maintain coolers that ensure high performance in demanding conditions, heavy-duty tandem-axle running gear for highway towing with an exclusive extended-life slipper spring system and a cool-box design that prolongs component life while eliminating long cool-down periods. Our portable compressors are built for long-term use and maximum productivity. All Doosan Portable Power products have galvanneal sheet metal enclosures for ultimate corrosion resistance. Our compressors, now Tier 4 compliant, have the lowest total cost of ownership when compared to other units on the market with a worldwide service and support network that is there with you during every stage of the compressor's life cycle.

HP1600

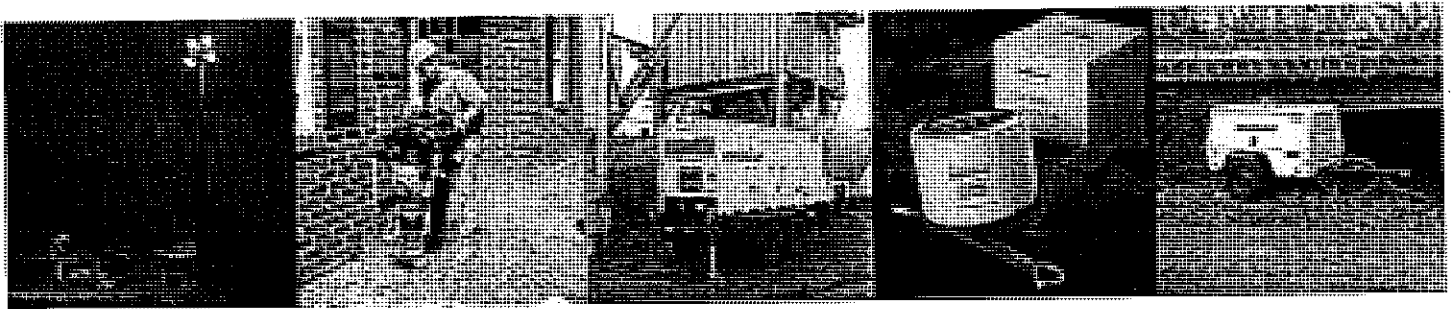
Performance features

- Heavy-duty A-frame detachable drawbar with adjustable pintle eye
- 1/2" safety chains with grade 70 hooks
- Fuel/water separator as primary filtration
- Large, powerful 1,400 CCA batteries
- Secured lifting eye with interior release pin

HP1600

Available options (factory installed)

- Automatic engine/oil replenishment system
- Automatic start/stop controller with remote start
- Emergency stop
- Less running gear includes isolation mounts for truck, trailer or permanent pad installation
- Low ambient system included with aftercooler blowdown, airflow control and orifice heaters for any temperature operation
- Wifi monitoring system



Experience Doosan Portable Power and our industry-leading support and service. Whatever the job, we have the solution. From our comprehensive range of air compressors, lighting systems and generators to our rugged and reliable light compaction equipment, we have a solution to fit your needs. Running a successful business takes more than powerful equipment. That's why Doosan Portable Power partners with an experienced global dealer network to stand beside you every step of the way. Doosan Portable Power — more than 100 years of providing excellence.

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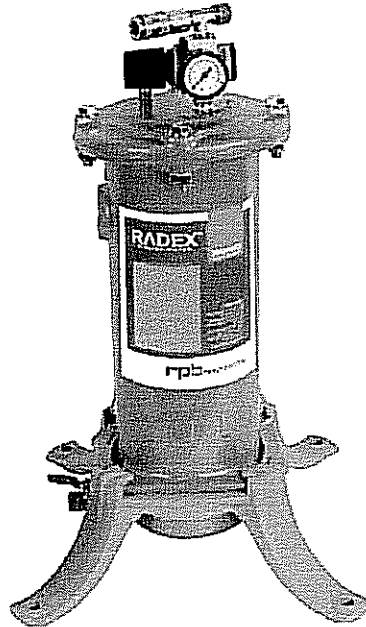
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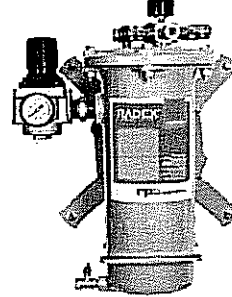


Surface Finishing
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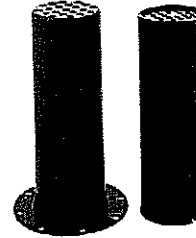
RADEX BREATHING AIR FILTER



Standard Radex used with Stand in
Floor Mount Position



Radex used with Wall Mount,
and optional inlet regulator and
6 outlet manifold



Spare Cartridges :

On Left -
Spare Cartridge for Radex
(also fits Bullard style)

On Right - Spare Filter for
Clemco Type Filters

The Radex Breathing Air Filter is a 6 stage cartridge filter which can remove oil / water mists and particulate pollutants down to 0.5 micron from the compressed air stream.

FEATURES :

- Removes moisture, particulates, and odour from the compressed air stream.
- Date Sticker - ensures you can schedule filter cartridge replacement.
- Safety Valve safeguards the filter / respirators from over pressure.
- Outlet Pressure Regulator.
- Can be mounted in a wall or floor position via twist and lock mount.
- Drain Tap - Allows easy draining of collected condensates.
- Can be supplied with a variety of inlet / outlet options such as claw coupling.

SPECIFICATION :

- Capacity - 1-2 helmets in standard form (conversion up to 6 helmets available)
- Safety Valve - 125 psi
- Standard : Inlet : 1" bsp female / Outlet : CEJN / Rectus style QR coupling

The ideal companion to the NOVA 2000 Blast Helmet or Speriair Air Fed Mask.

Notes :

Does not remove toxic gases such as carbon monoxide.

This product only provides correct performance when used in accordance with manufacturer's instructions



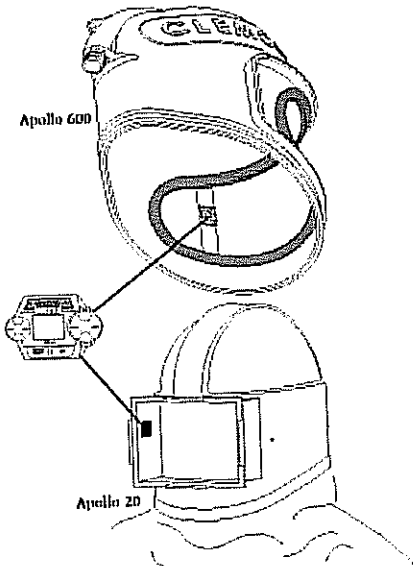
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You are viewing:

Operator Safety Systems > Carbon Monoxide Monitor/Alarm



CMS-3 Carbon Monoxide Monitor/Alarm

The CMS-3 monitor detects carbon monoxide in the breathing-air supply and triggers audible, visual, and vibratory alarms when CO is detected in concentrations of at least 10 parts per million. The alarms alert the operator to an unsafe condition.

Requirements for Operation

- Battery installed in the CMS-3
- 25 ppm calibration gas, calibration cup and connector
- Grade D or ambient-air breathing-air supply for the abrasive blast operator
- Thorough familiarity with the CMS-3 instructions

Description of Operation

OSHA requires Grade D quality breathing air and NIOSH-approved Type CE continuous-flow supplied-air respirators for abrasive blast operators. OSHA regulations call for a maximum exposure limit to carbon monoxide of 10 parts per million (ppm). When the presence of carbon monoxide is detected at this level, the CMS-3 emits an audible alarm, a visible flash, and the unit vibrates. When an alarm occurs, the user should remove the respirator immediately when it is safe to do so. To prolong battery life, turn unit off when not in use; turn unit on and re-install at beginning of work shift.

CMS-3 Features

- Digital liquid crystal display (LCD)
- Audible, visual, and vibrating alarms
- Low battery alarm
- Sensor fail alarm
- Replaceable sensor and battery

Advantages

- Blast operator can work independently. No need to rely upon others to warn operator or take action when monitor alarms. No need for remote alarm; each user is individually protected for instant awareness of a hazardous condition.
- Unit is small, lightweight, and conveniently worn inside blast respirator. Requires no external connections or hoses.
- Unit can be calibrated in minutes, is easily installed, and easily removed.
- Long-life, economical easy-to-replace sensor with estimated sensor life of 2 years.
- Unit uses small commonly-available lithium easy-to-replace battery with estimated life of 3000 hours.
- Microprocessor controlled with digital read-out for accurate readings.

Specifications

OSHA rules dictate that maximum exposure limit to CO for abrasive blasters breathing Grade D air is 10 parts per million.

- Sampling by diffusion

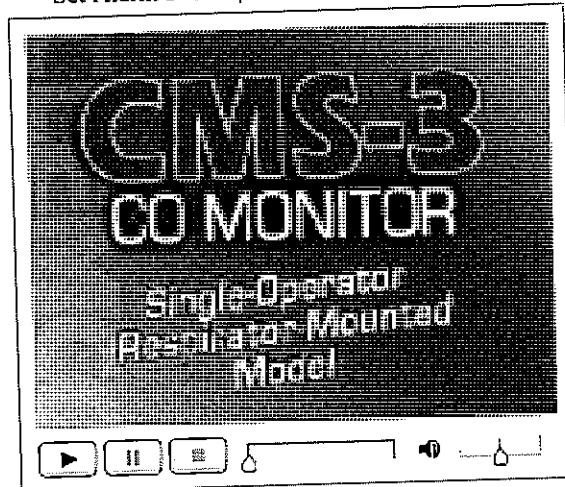
- Operating temperature and humidity range: -4 to 104 degrees F (-20 to 40 degrees C); up to 85 percent relative humidity (non-condensing) factory set at 10 ppm
- Accuracy rating: plus or minus 2 ppm
- Powered by 3-volt coin-type lithium battery (CR2450)
- Continuous operation: approximately 1 year of normal use (3000 hours)
- Unit net weight 1.6 ounces (0.1 lb)
- Dimensions: 2.5" w x 1.7" h x 0.9" d
- Unit calibrated with 25 ppm test gas; optional impurity-free gas available for fresh-air setting audible, vibratory, and visual alarms
- Low-battery warning given by visual flashing indicator
- Dead battery indicated by audible alarm
- System failure warning given by audible alarm
- Attachment to respirator: VELCRO®
- Warranty: 2 years material and workmanship

Available Literature:
25580 - CMS-3 Technical Data Sheet

Operation Manual:
24658 - CMS-3 In-Helmet Carbon Monoxide Monitor

CMS-3 Video:

• [Introduction](#) | [Description](#) | [Start Up](#) | [Operation](#)
[Set Alarm Points](#) | [Calibration](#) | [Maintenance](#)



CMS-3
IN-HELMET CARBON MONOXIDE MONITOR
O. M. 24658

MC FILE NUMBER: 2370-0111
DATE OF ISSUE: January 2011
REVISION: A, 07/11

! WARNING

Do not proceed with these instructions* until you have READ the orange cover of this MANUAL and YOU UNDERSTAND its contents.

These WARNINGS are included for the health and safety of the operator and those in the immediate vicinity.

***If you are using a Clemco Distributor Maintenance and Part Guide, refer to the orange warnings insert preceding the Index before continuing with the enclosed instructions.**

Electronic files include a Preface containing the same important information as the orange cover.

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Washington, MO 63090
Phone (636) 239-4300
Fax (800) 726-7559
Email: info@clemcoindustries.com
www.clemcoindustries.com



▲ WARNING

- Read and follow ALL instructions before using this equipment.
- Failure to comply with ALL instructions can result in serious injury or death.
- In the event that the user, or any assistants of the user of this equipment cannot read or cannot completely understand the warnings and information contained in these instructions, the employer of the user and his assistants must thoroughly educate and train them on the proper operation and safety procedures of this equipment.

NOTICE TO PURCHASERS AND USERS OF OUR PRODUCTS AND THIS INFORMATIONAL MATERIAL

The products described in this material, and the information relating to those products, is intended for knowledgeable, experienced users of abrasive blasting equipment.

No representation is intended or made as to the suitability of the products described herein for any particular purpose or application. No representations are intended or made as to the efficiency, production rate, or the useful life of the products described herein. Any estimate regarding production rates or production finishes are the responsibility of the user and must be derived solely from the user's experience and expertise, and must not be based on information in this material.

The products described in this material may be combined by the user in a variety of ways for purposes determined solely by the user. No representations are intended or made as to the suitability or engineering balance of the combination of products determined by the user in his selection, nor as to the compliance with regulations or standard practice of such combinations of components or products.

Abrasive Blast Equipment is only a component of the range of equipment used in an abrasive blasting job. Other products may include an air compressor, abrasive, scaffolding, hydraulic work platforms or booms, paint spray equipment, dehumidification equipment, air filters and receivers, lights, ventilation equipment, parts handling equipment, specialized respirators, or equipment that while offered by Clemco may have been supplied by others. Each manufacturer and supplier of the other products used in the abrasive blasting job must be contacted for information, training, instruction and warnings with regard to the proper and safe use of their equipment in the particular application for which the equipment is being used. The information provided by Clemco is intended to provide instruction only on Clemco products. All operators must be trained in the proper, safe, use of this equipment. It is the responsibility of the users to familiarize themselves with, and comply with, all appropriate laws, regulations, and safe practices that apply to the use of these products. Consult with your employer about training programs and materials that are available.

Our company is proud to provide a variety of products to the abrasive blasting industry, and we have confidence that the professionals in our industry will utilize their knowledge and expertise in the safe efficient use of these products.

GENERAL INSTRUCTIONS

Described herein are some, BUT NOT ALL, of the major requirements for safe and productive use of blast machines, remote control systems, operator respirator assemblies, and related accessories. Completely read ALL instruction manuals prior to using equipment.

The user's work environment may include certain HAZARDS related to the abrasive blasting operation. Proper protection for the blaster, as well as anyone else that may be EXPOSED to the hazards generated by the blasting process, is the responsibility of the user and/or the employer. Operators MUST consult with their employer about what hazards may be present in the work environment including, but not limited to, exposure to dust that may contain TOXIC MATERIALS due to the presence of silica, cyanide, arsenic or other toxins in the abrasive, or materials present in the surface to be blasted such as lead or heavy metals in coatings. The environment may also include fumes that may be present from adjacent coatings application, contaminated water, engine exhaust, chemicals, and asbestos. The work area may include PHYSICAL HAZARDS such as an uneven work surface, poor visibility, excess noise, and electrical hazards. The operator MUST consult with his employer on the identification of potential hazards, and the appropriate measures that MUST be taken to protect the blaster and others that might be exposed to these hazards.

ALL machines, components and accessories MUST be installed, tested, operated and maintained only by trained, knowledgeable, experienced users.

DO NOT modify or substitute any Clemco parts with other types or brands of equipment. Unauthorized modification and parts substitution on supplied air respirators is a violation of OSHA regulations and voids the NIOSH approval.

OPERATIONAL INSTRUCTIONS

OPERATOR SAFETY EQUIPMENT

▲ WARNING

- Blast operators and others working in the vicinity of abrasive blasting must always wear properly-maintained, NIOSH-approved, respiratory protection appropriate for the job site hazards.
- DO NOT USE abrasives containing more than one percent crystalline (free) silica. Ref. NIOSH Alert #92-102
- Inhalation of toxic dust (crystalline silica, asbestos, lead paint and other toxins) can lead to serious or fatal disease (silicosis, asbestosis, lead or other poisoning).

- ALWAYS wear NIOSH-approved supplied-air respirators as required by OSHA, in the presence of any dust including, but not limited to, handling or loading abrasive; blasting or working in the vicinity of blast jobs; and cleanup of expended abrasive. Prior to removing respirator, an air monitoring

PREFACE

instrument should be used to determine when surrounding atmosphere is clear of dust and safe to breathe.

- NIOSH-approved, supplied-air respirators are to be worn **ONLY** in atmospheres:
 - NOT IMMEDIATELY dangerous to life or health and,
 - from which a user can escape **WITHOUT** using the respirator.
- Clemco supplied-air respirators **DO NOT REMOVE OR PROTECT AGAINST CARBON MONOXIDE (CO) OR ANY OTHER TOXIC GAS**. Carbon monoxide and toxic gas removal and/or monitoring device must be used in conjunction with respirator to insure safe breathing air.
- Air supplied to respirator **MUST BE AT LEAST GRADE D QUALITY** as described in Compressed Gas Association Commodity Specification G-7.1, and as specified by OSHA Regulation 1910.139 (d).
- **ALWAYS** locate compressors to prevent contaminated air (such as CO from engine exhaust) from entering the air intake system. A suitable in-line air purifying sorbent bed and filter or CO Monitor should be installed to assure breathing air quality.
- **ALWAYS** use a NIOSH-approved breathing air hose to connect an appropriate air filter to the respirator. Use of a non-approved air hose can subject the operator to illness caused by the release of chemical agents used in the manufacture of non-approved breathing air hose.
- **ALWAYS** check to make sure air filter and respirator system hoses are **NOT CONNECTED** to in-plant lines that contain nitrogen, acetylene or any other non-breathable gas. **NEVER** use oxygen with air line respirators. **NEVER** modify air line connections to accommodate air filter/respirator breathing hose **WITHOUT FIRST** testing content of the air line. **FAILURE TO TEST THE AIR LINE MAY RESULT IN DEATH TO THE RESPIRATOR USER.**
- Respirator lenses are designed to protect against rebounding abrasive. They do not protect against flying objects, glare, liquids, radiation or high speed heavy materials. Substitute lenses from sources other than the original respirator manufacturer will void NIOSH-approval of this respirator.

BLAST MACHINES AND REMOTE CONTROLS

WARNING

- **ALWAYS** equip abrasive blast machines with remote controls.
- Abrasive blast machine operators must wear NIOSH-approved supplied-air respirators (ref: OSHA regulations 1910.94, 1910.132, 1910.139 and 1910.244).

- **NEVER** modify OR substitute remote control parts. Parts from different manufacturers are **NOT** compatible with Clemco

equipment. If controls are altered, involuntary activation, which may cause serious injury, can occur.

- Inspect the air control orifice **DAILY** for cleanliness. **NEVER** use welding hose in place of twinline control hose. The internal diameter and rubber composition are **UNSAFE** for remote control use.
- **UNLESS OTHERWISE SPECIFIED**, maximum working pressure of blast machines and related components **MUST NOT** exceed National Board approved 125 psig (8.5 BAR).
- **NEVER** weld on blast machine. Welding may affect dimensional integrity of steel wall and **WILL VOID** National Board approval.
- Point nozzle **ONLY** at structure being blasted. High velocity abrasive particles **WILL** inflict serious injury. Keep unprotected workers **OUT** of blast area.
- **NEVER** attempt to manually move blast machine when it contains abrasive. **EMPTY** machines, up to 6 cu. ft.(270kg) capacity, are designed to be moved:
 - on flat, smooth surfaces by **AT LEAST** two people;
 - with the Clemco "Mule"; or
 - with other specially designed machine moving devices.
- Larger empty blast machines or **ANY** blast machine containing abrasive **MUST** be transported by mechanical lifting equipment.

AIR HOSE, BLAST HOSE, COUPLINGS, AND NOZZLE HOLDERS

- Air hose, air hose fittings and connectors at compressors and blast machines **MUST** be **FOUR** times the size of the nozzle orifice. Air hose lengths **MUST** be kept as short as possible **AND** in a straight line. Inspect **DAILY** and repair leakage **IMMEDIATELY**.
- Blast hose inside diameter **MUST** be **THREE** to **FOUR** times the size of the nozzle orifice. **AVOID** sharp bends that wear out hose rapidly. Use **SHORTEST** hose lengths possible to reduce pressure loss. Check blast hose **DAILY** for soft spots. Repair or replace **IMMEDIATELY**.
- **ALWAYS** cut loose hose ends square when installing hose couplings and nozzle holders to allow uniform fit of hose to coupling shoulder. **NEVER** install couplings or nozzle holders that **DO NOT** provide a **TIGHT** fit on hose. **ALWAYS** use manufacturers recommended coupling screws.
- Replace coupling gaskets **FREQUENTLY** to prevent leakage. Abrasive leakage can result in dangerous coupling failure. **ALL** gaskets **MUST** be checked **SEVERAL** times during a working day for wear, distortion and softness.
- Install safety pins at **EVERY** coupling connection to prevent accidental disengagement during hose movement.
- **ALWAYS** attach safety cables at **ALL** air hose **AND** blast hose coupling connections. Cables relieve tension on hose and control whipping action in the event of a coupling blow-out.

PREFACE

MAINTENANCE

- ALWAYS shut off compressor and depressurize blast machine BEFORE doing ANY maintenance.
- Always check and clean ALL filters, screens and alarm systems when doing any maintenance.
- ALWAYS cage springs BEFORE disassembling valves IF spring-loaded abrasive control valves are used.
- ALWAYS completely follow owner's manual instructions and maintain equipment at RECOMMENDED intervals.

ADDITIONAL ASSISTANCE

- Training and Educational Programs. Clemco Industries Corp. offers a booklet, Blast-Off 2, developed to educate personnel on abrasive blast equipment function and surface preparation techniques. Readers will learn safe and productive use of machines, components and various accessories, including selection of abrasive materials for specific surface profiles and degrees of cleanliness.
- The Society for Protective Coatings (SSPC) offers a video training series on protective coatings including one entitled "Surface Preparation." For loan or purchase information, contact SSPC at the address shown below.

TECHNICAL DATA AND RESEARCH COMMITTEES

- The following associations offer information, materials and videos relating to abrasive blasting and safe operating practices.

The Society for Protective Coatings (SSPC)

40 24th Street, Pittsburgh PA 15222-4643
Phone: (412) 281-2331 • FAX (412) 281-9992
Email: research@sspc.org • Website: www.sspc.org

National Association of Corrosion Engineers (NACE)

1440 South Creek Drive, Houston TX 77084
Phone: (281) 228-6200 • FAX (281) 228-6300
Email: msd@mail.nace.org • Website: www.nace.org

American Society for Testing and Materials (ASTM)

100 Barr Harbor Dr., West Conshohocken, PA 19428
Phone (610) 832-9500 • FAX (610) 832-9555
Email: service@astm.org • Website: www.astm.org

NOTICE

This equipment is not intended to be used in an area that might be considered a hazardous location as described in the National Electric Code NFPA 70 1996, article 500.

WARRANTY

The following is in lieu of all warranties express, implied or statutory and in no event shall seller or its agents, successors, nominees or assignees, or either, be liable for special or consequential damage arising out of a breach of warranty. This warranty does not apply to any damage or defect resulting from negligent or improper assembly or use of any item by the buyer or its agent or from alteration or attempted repair by any person other than an authorized agent of seller. All used, repaired, modified or altered items are purchased "as is" and with all faults. In no event shall seller be liable for consequential or incidental damages. The sole and exclusive remedy of buyer for breach of warranty by seller shall be repair or replacement of defective parts or, at seller's option, refund

of the purchase price, as set forth below:

1. Seller makes no warranty with respect to products used other than in accordance hereunder.
2. On products seller manufactures, seller warrants that all products are to be free from defects in workmanship and materials for a period of one year from date of shipment to buyer, but no warranty is made that the products are fit for a particular purpose.
3. On products which seller buys and resells pursuant to this order, seller warrants that the products shall carry the then standard warranties of the manufacturers thereof, a copy of which shall be made available to customer upon request.
4. The use of any sample or model in connection with this order is for illustrative purposes only and is not to be construed as a warranty that the product will conform to the sample or model.
5. Seller makes no warranty that the products are delivered free of the rightful claim of any third party by way of patent infringement or the like.
6. This warranty is conditioned upon seller's receipt within ten (10) days after a buyer's discovery of a defect, of a written notice stating in what specific material respects the product failed to meet this warranty. If such notice is timely given, seller will, at its option, either modify the product or part to correct the defect, replace the product or part with complying products or parts, or refund the amount paid for the defective product, any one of which will constitute the sole liability of seller and a full settlement of all claims. No allowance will be made for alterations or repairs made by other than those authorized by seller without the prior written consent of seller. Buyer shall afford seller prompt and reasonable opportunity to inspect the products for which any claim is made as above stated.

Except as expressly set forth above, all warranties, express, implied or statutory, including implied warranty of merchantability, are hereby disclaimed.

DAILY SET-UP CHECK LIST

WARNING

- ALL piping, fittings and hoses MUST be checked DAILY for tightness and leakage.
- ALL equipment and components MUST be thoroughly checked for wear.
- ALL worn or suspicious parts MUST be replaced.
- ALL blast operators MUST be properly trained to operate equipment.
- ALL blast operators MUST be properly outfitted with abrasive resistant clothing, safety shoes, leather gloves and ear protection.
- BEFORE blasting ALWAYS use the following check list.

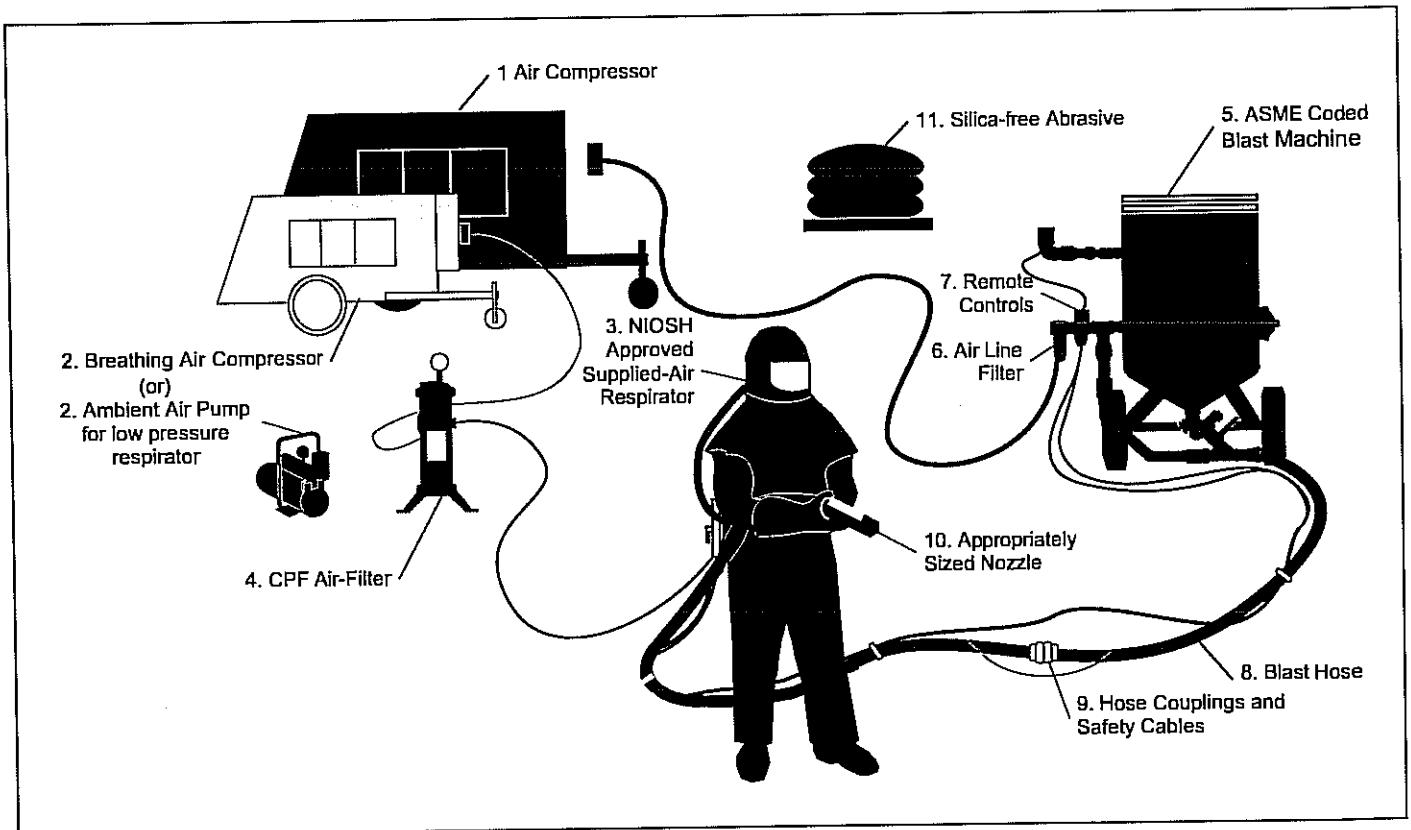
1. PROPERLY MAINTAINED AIR COMPRESSOR sized to provide sufficient volume (cfm) for nozzle and other tools PLUS a 50% reserve to allow for nozzle wear. Use large compressor outlet and large air hose (4 times the nozzle orifice size). FOLLOW MANUFACTURERS MAINTENANCE INSTRUCTIONS.

2. BREATHING AIR COMPRESSOR (oil-less air pump) capable of providing Grade D Quality air located in a dust free, contaminant free area. If oil-lubricated air compressor is used to supply respirator, it should have high temperature monitor and CO monitor or both. If CO monitor is not used, air MUST be tested FREQUENTLY to ensure proper air quality.

PREFACE

- 3. Clean, properly maintained NIOSH-APPROVED SUPPLIED-AIR RESPIRATOR.** ALL components should ALWAYS be present. NEVER operate without inner lens in place. Thoroughly inspect ALL components DAILY for cleanliness and wear. ANY substitution of parts voids NIOSH approval i.e. cape, lenses, breathing hose, breathing air supply hose, air control valve, cool air or climate control devices.
- 4. OSHA required BREATHING AIR FILTER** for removal of moisture and particulate matter from breathing air supply. THIS DEVICE DOES NOT REMOVE OR DETECT CARBON MONOXIDE (CO). ALWAYS USE CO MONITOR ALARM.
- 5. ASME CODED BLAST MACHINE** sized to hold 1/2 hour abrasive supply. ALWAYS ground machine to eliminate static electricity hazard. Examine pop up valve for alignment. Blast machine MUST be fitted with a screen to keep out foreign objects and a cover to prevent entry of moisture overnight.
- 6. AIR LINE FILTER** installed AS CLOSE AS POSSIBLE to machine inlet. Sized to match inlet piping or larger air supply line. Clean filter DAILY. Drain OFTEN.
- 7. REMOTE CONTROLS** MUST be in PERFECT operating condition. ONLY use APPROVED spare parts, including twin-line hose. DAILY: test system operation and check button bumper and spring action of lever and lever lock. DO NOT USE WELDING HOSE.

- 8. BLAST HOSE** with ID 3 to 4 times the nozzle orifice. Lines MUST be run AS STRAIGHT AS POSSIBLE from machine to work area with NO sharp bends. Check DAILY for internal wear and external damage.
- 9. HOSE COUPLINGS, NOZZLE HOLDERS** fitted SNUGLY to hose end and installed using PROPER coupling screws. Coupling lugs MUST be snapped FIRMLY into locking position. Gasket MUST form positive seal with safety pins inserted through pin holes. Check gaskets and replace if ANY sign of wear, softness or distortion. ALWAYS install safety cables at every connection to prevent disengagement. Check nozzle holder for worn threads. NEVER MIX DIFFERENT BRANDS OF COMPONENTS. Check each of these components DAILY.
- 10. Inspect NOZZLE and GASKET DAILY** for wear. Replace nozzle when 1/16" larger than original size or if liner appears cracked. Check nozzle threads for wear.
- 11. Use abrasive** that is properly sized and free of harmful substances; such as, free silica, cyanide, arsenic or lead. Check material data sheet for presence of toxic or harmful substances.
- 12. Test surface** to be blasted for toxic substances. Take appropriate, and NIOSH required, protective measures for operator and bystanders which pertain to substances found on the surface to be blasted.



1.0 INTRODUCTION

1.1 Scope of Manual

1.1.1 These instructions cover operation, maintenance, troubleshooting and replacement parts for the CMS-3 Respirator-Mounted Carbon Monoxide (CO) Monitor.

1.1.2 The monitor is intended to detect the presence of CO inside Apollo supplied-air respirators, where the maximum CO exposure limit is 10 parts per million (ppm). This is the limit set to meet the requirement for Grade D quality breathing air. The monitor also has short-term exposure limit (STEL) and time-weighted average (TWA) features that enable its use as an ambient air monitor. Instructions on toggling through the STEL and TWA are explained in Section 3.3.

1.1.3 All respirator users and those responsible for maintenance and calibration of the monitor must read and understand this manual before using the respirator or operating with the monitor.

1.1.4 NIOSH (National Institute of Occupational Safety and Health) has approved the use of the CMS-3 with Clemco respirator models Apollo 20, 60, and 600.

1.2 Safety Alerts

1.2.1 Clemco uses safety alert signal words, based on ANSI Z535.4-1998, to alert the user of a potentially hazardous situation that may be encountered while operating this equipment. ANSI's definitions of the signal words are as follows:



This is the safety alert symbol. It is used to alert the user of this equipment of potential personal injury hazards.

Obey all safety messages that follow this symbol to avoid possible injury or death.

CAUTION

Caution used without the safety alert symbol indicates a potentially hazardous situation which, if not avoided, may result in property damage.

CAUTION

Caution indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.

WARNING

Warning indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

DANGER

Danger indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

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1.4 Specifications

Target Gas	Carbon Monoxide (CO)
Detection Range	0 to 500 ppm
Display Increment	1 ppm
CO Sensor	Electro Chemical
Alarm Point, Low	10 ppm
Alarm Point, High	10 ppm

1.5 Description of Operation

1.5.1 The CMS-3 respirator-mounted carbon monoxide monitor detects the presence of carbon monoxide (CO) inside a supplied-air respirator.

1.5.2 The current maximum exposure limit for carbon monoxide in Grade D compressed breathing air is 10 parts per million (ppm). If CO concentrations reach the exposure limit, three alarms occur. The audible alarm beeps twice per second, the alarm lights flash twice per second, and the unit vibrates. If an alarm occurs, remove the respirator as soon as it is safe to do so.

1.5.3 The CMS-3 offers a full range of features, including:

- Digital liquid crystal display (LCD)
 - Visual, audible, and vibrating alarms
 - Low battery alarm
 - Sensor fail alarm
 - Current time display
 - Over 3,000 hours of operation from 1 battery
 - CSA classified for Class I, Division I, Groups A, B, C, and D hazardous atmospheres
 - * Peak, STEL, and TWA indication
 - * STEL, TWA, and over range alarms
- *Refer to notation in Paragraph 1.5.4, regarding usage of STEL and TWA. Refer to Section 3.2 for information on the Peak Display.

WARNING

The CMS-3 detects carbon monoxide which can be dangerous or life threatening. When using the CMS-3, follow the instructions and warnings in this manual to assure proper and safe operation of the unit and to minimize the risk of personal injury. Carbon monoxide poisoning could result in death or serious injury.

1.5.4 TWA and STEL: TWA is an acronym for time-weighted average, and it is the average reading of CO during the last eight hours. STEL is an acronym for short-term exposure limit, and it is the average reading of CO during the last 15 minutes. Although some may find TWA and STEL information useful, it is not pertinent for supplied-air respirator use, because the maximum exposure limit for Grade D breathing air is 10 ppm.

1.6 Ancillary Equipment Requirements

1.6.1 In addition to the monitor, the following equipment is required to operate and maintain the CMS-3 Monitor.

- Calibration connector with tubing and calibration cup: Stock No. 25572.
- 25 PPM Test Gas: Stock No. 25573.

1.7 Components and Functions

The components include the case, sensor cap, sensor cover, charcoal filter disk, sensor, LCD, control buttons, printed circuit boards, alarm lights, audible alarm, vibrator, and lithium battery. Callouts shown in Figure 1 are items needed to perform routine functions.

1.7.1 Case: The digital LCD is visible through the top case. It displays gas concentrations, battery level, time, and other readings including TWA, STEL, and peak gas levels. Below the LCD are two black control buttons. The button on the left is labeled POWER/MODE. The button on the right is labeled AIR. To the left of the LCD is the audible alarm, which is located inside the case. To the right of the LCD is the sensor cap which retains the sensor. Above the LCD is a lens through which the alarm lights are visible. A battery cover is located on the back of the case and is held in place by two screws.

1.7.2 Sensor Cap and Sensor Cover: The sensor cap snaps onto the right side of the case and retains the sensor. It also retains the sensor cover which is a round hydrophobic disk membrane which protects the sensor from dirt and elements. A molded gasket installed on the sensor, seals the sensor, sensor cover, and sensor cap.

1.7.3 Charcoal Filter Disk: A charcoal filter disk is located in a recessed area of the sensor gasket beneath the sensor cover. The charcoal filter disk removes gases from the sampled air that will cause a response on the CO sensor, gases such as Hydrogen Sulfide (H₂S) and certain hydrocarbons. If false or elevated CO readings are noticed, especially in the presence of H₂S, change the charcoal filter disk. Refer to the maintenance Section 5.4.

1.7.4 Sensor: The sensor is protected by the white sensor cover which is held in place by the sensor cap and sensor gasket. The sensor cover allows air to diffuse past it to the sensor. A gas permeable membrane covers the sensor face and allows gas to diffuse into the sensor. The gas reacts in the sensor and produces a current proportional to the concentration of carbon monoxide. The current is amplified by the CMS-3's circuitry, converted to a measurement of gas concentration, and displayed on the LCD.

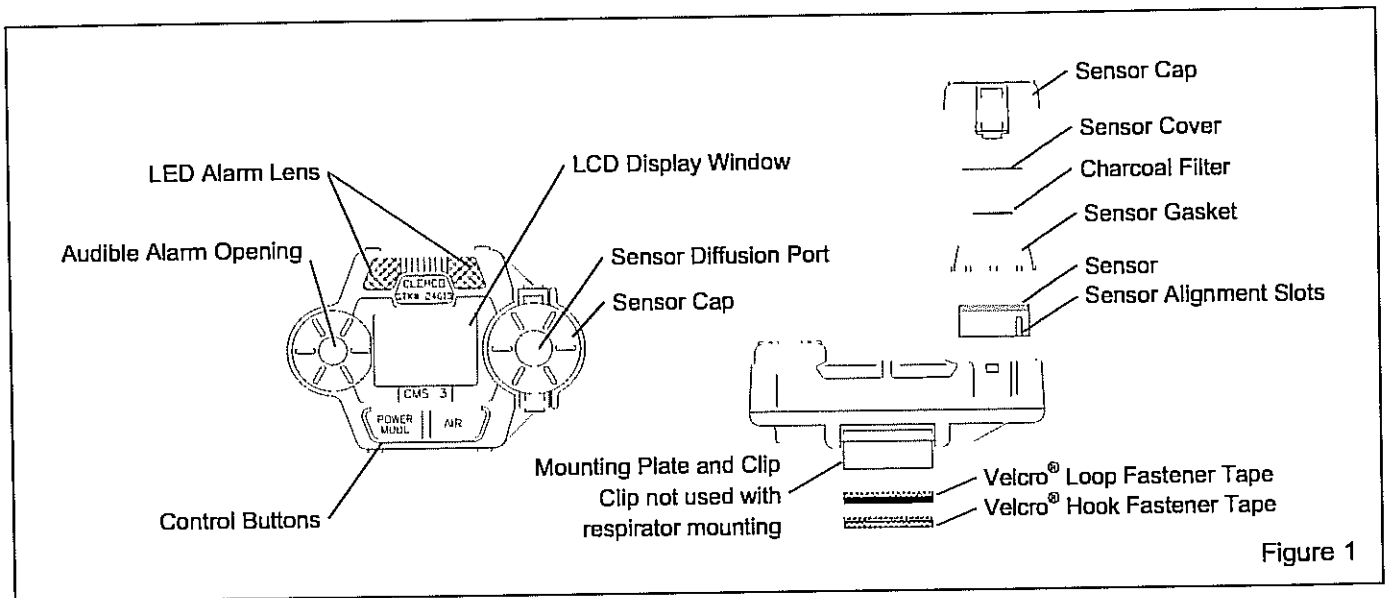


Figure 1

1.7.5 LCD: The LCD is visible through the top case. CO concentrations, the time, battery condition, and alarm indications are displayed on the LCD. Once the monitor is "ON", pressing the Power/Mode or Air control button, turns on the LCD backlight for 20 seconds.

1.7.6 Control Buttons: Below the LCD are the two control buttons. They are POWER/MODE and AIR. They turn on the power to the CMS-3 and turn it off. They control what is displayed on the LCD, including time, gas concentrations, peak, TWA, and STEL readings, as well as other messages. They also allow for a fresh air adjustment, change alarm points, change the time, and calibrate the instrument. The functions performed by the control buttons are summarized in the table in Figure 2.

1.7.7 Alarm Lights: Two LED alarm lights are located above the LCD. The red alarm lights show through the reflective lenses. The red LED's alert the user to CO gas, low battery, and sensor failure.

1.7.8 Audible Alarm: An opening on the left side of the top case allows the alarm's sound (a beep) to resonate from the case. The alarm sounds for CO gas, unit malfunctions, low battery, and as an indicator during normal use of various display options.

1.7.9 Vibrator Alarm: A vibrating motor mounted inside the case vibrates momentarily during the power-up sequence and for CO gas alarms.

Button	Function
POWER/MODE	<ul style="list-style-type: none"> • Turns the unit on and off • Turns the LCD back light on. (when unit is on) • Displays STEL and TWA readings. • Displays peak (high) readings • Resets the alarm circuit (gas alarms). • Enters Calibration Mode when used with the AIR button. • Enters Alarm Adjustment Mode when used with the AIR button. • Enters Time Adjustment Mode when used with the AIR button.
AIR	<ul style="list-style-type: none"> • Turns the LCD back light on. (when unit is on) • Adjusts LCD readings when the fresh air adjustment is performed. • Enters Calibration Mode when used with POWER/MODE button. • Enters Alarm Adjustment Mode with the POWER/MODE button. • Enters Time Adjustment Mode with the POWER/MODE button. • Increases settings when the unit is in Alarm Adjustment Mode, Time Adjustment Mode, or Calibration Mode.

Figure 2

1.7.10 Lithium Battery: A 3.0 volt coin type lithium battery powers the CMS-3. The battery will run the monitor for approximately 3,000 hours when no alarms have been activated during that time period. The battery icon on the LCD shows the charge remaining in the battery. When the CMS-3 detects low battery voltage, a low battery warning (the last remaining bar on the battery icon flashes) is activated. Source a new battery as soon as the low battery warning is activated. When the battery is too low for normal operation, a dead battery alarm (battery icon flashes, audible alarm beeps twice per second) is activated. Refer to Section 5.1 for instructions on replacing the battery.

2.0 INSTALLATION, START-UP and SHUT-OFF

2.1 Installation

This section explains the initial installation and of the CMS-3 inside the respirator.

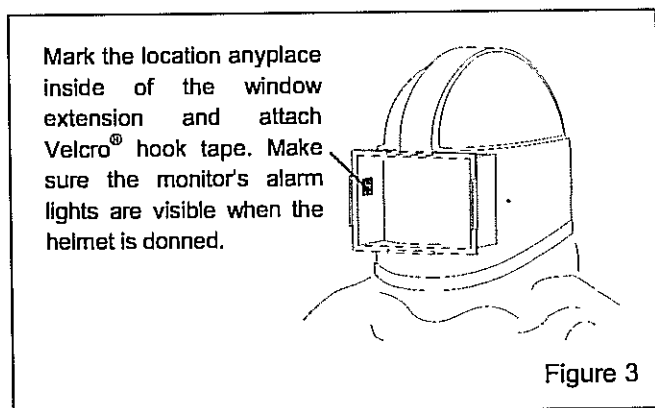
2.1.1 Installation in Apollo 20 Respirator

Refer to Section 2.1.2 for installing the monitor in Apollo 60 and Apollo 600 respirators.

2.1.1.1 Open the lens frame and remove the lenses.

2.1.1.2 Don the helmet and temporarily place the monitor on one of the side walls of the window extension, as shown in Figure 3.

2.1.1.3 Mark the location and remove the monitor and helmet.



2.1.1.4 Remove backing from the Velcro® hook tape and adhere it at the marked location (the loop tape adheres to the monitor). Attach the monitor so the control buttons face toward lenses and alarm lights toward the inside of the respirator. Don the helmet to make sure the monitor's alarm lights are visible from inside the helmet.

2.1.1.5 Remove the monitor and prepare it for operation.

2.1.1.6 Replace the lenses and lens frame assembly.

2.1.1.7 After the initial setup is done, remove and reattach the monitor from inside the helmet. **Remove the monitor when taking off the respirator at the end of the shift and to do any service or calibration, including turning the monitor on and off.** Do this to make sure the monitor is fully functional before placing it inside the helmet.

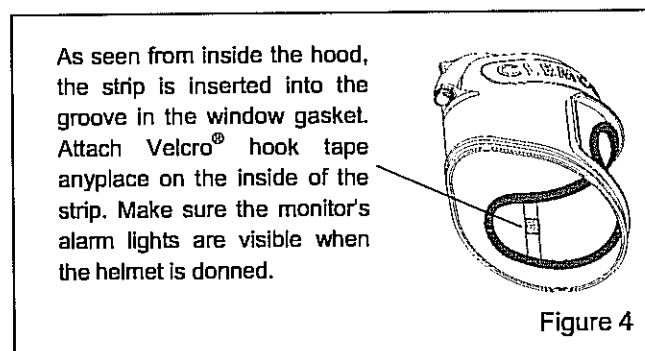
⚠ WARNING

Remove the monitor at the end of the shift, turn it off and store it in a clean environment. At the beginning of each shift, turn on the monitor and make sure it is fully functional before installing in the helmet. Failure to do so could result in CO poisoning and death.

2.1.2 Installing in Apollo 60 and Apollo 600 Respirators

Refer to Section 2.1.1 for mounting the monitor in Apollo 20 respirators.

2.1.2.1 Place the transparent mounting strip on the inside of the inner lens, and into the same window gasket groove as the inner lens, as shown in Figure 4. Position it so it is within peripheral vision toward the side of the window opening.



2.1.2.2 Remove backing from the Velcro® hook tape and adhere it anyplace on the mounting strip (the loop tape adheres to the monitor) making sure the alarm lights are visible from inside the helmet.

2.1.2.3 Attach the monitor to the strip, with the buttons facing toward the outer edge of the window opening and alarm lights toward the center of the window opening. Don the helmet to make sure the monitor alarm lights are visible from inside the helmet.

2.1.2.4 Remove the monitor and prepare it for operation.

2.1.2.5 After the initial setup is done, remove and reattach the monitor from inside the helmet. **Remove the monitor when taking off the respirator at the end of the shift and to do any service or calibration, including turning the monitor on and off.** Do this to make sure the monitor is fully functional before placing it inside the helmet.

WARNING

Remove the monitor at the end of the shift, turn it off and store it in a clean environment. At the beginning of each shift, turn on the monitor and make sure it is fully functional before installing in the helmet. Failure to do so could result in CO poisoning and death.

2.2 Turning On and Start-up Procedure

This section explains how to start up the CMS-3 and to prepare it for operation.

2.2.1 Press and hold the POWER/MODE button until the alarm beeps. The alarm sounds briefly, the vibrator vibrates briefly, all elements of display are activated, and the alarm lights and LCD backlight turn on for a few seconds.

2.2.2 The CMS-3 then displays CO (the target gas) and time before displaying the battery voltage.

WARNING

If the unit is in low battery warning, change the battery as soon as possible. Do not use the respirator if the dead battery warning is alarmed.

2.2.3 The alarm beeps again after the battery voltage is displayed. The CMS-3 is now in the Measuring Mode, which is the normal operating mode. The CO concentration (ppm) is displayed and the current time is shown at the bottom of the LCD. **NOTE:** When using the CMS-3 for the first time, check the current time and verify that it is correct for your time zone. If it is not, set the time as described in Section 3.7 "Setting the Time".

2.2.4 Performing a Fresh Air Adjustment

Before using the CMS-3, set the fresh air reading to ensure accurate gas readings in the monitoring environment. Refer to Section 4.1

2.2.4.1 Find a fresh air environment. This is an environment free of toxic or combustible gases and of normal oxygen content (20.9%).

2.2.4.2 With the unit on and in Measuring Mode, press and hold the AIR button for about three seconds to allow the CMS-3 to set the fresh air reading. While pressing the AIR button, the LCD displays "hold," a prompt to keep pressing the AIR button.

2.2.4.3 When the fresh air readings have been set, the LCD displays "Adj" for 2 seconds which prompts you to release the AIR button. The unit will set the reading to 0 ppm.

2.2.4.4 The unit then returns to normal operation and the display indicates the current gas concentration.

2.3 Turning Off the CMS-3

2.3.1 Remove the monitor when taking off the respirator at the end of the shift.

2.3.2 Press and hold the POWER/MODE button for about five seconds to turn off the unit. The alarm will beep while the POWER/MODE button is being pressed before the unit turns off.

2.3.3 Release the button when the LCD is blank. The unit is off.

2.3.4 Store the monitor in a clean dry area.

3.0 OPERATION

This section describes the normal operation of the CMS-3, and includes alarm indications. Ref. Figure 5

3.1 Measuring Mode

After having powered up the CMS-3 and performed a fresh air adjustment following the instructions of the previous section, "Turning ON and Start Up," the CMS-3 is in Measuring Mode. In Measuring Mode the monitor is in the normal operating mode, the battery level, time, and CO concentration are displayed on the LCD. The battery icon has four bars visible when the battery is full. As the battery charge decreases, the bars disappear. CO is displayed in parts per million (ppm). The time is shown in military format with the hour going from 0 to 24.

3.2 Displaying the Peak CO Concentration

3.2.1 The Peak Display shows the highest concentration of CO the monitor has detected from the time it was last turned on.

3.2.2 Make sure the CMS-3 is in Measuring Mode. The current gas concentration should be displayed on the LCD.

3.2.3 When the CMS-3 is in Measuring Mode (normal operating mode), Press and release the POWER/MODE button to enter Peak Display Mode. This activates the LCD backlight and display the Peak reading. A small Peak symbol is displayed in the upper left corner of the LCD. The time the spike occurred is shown in the time location.

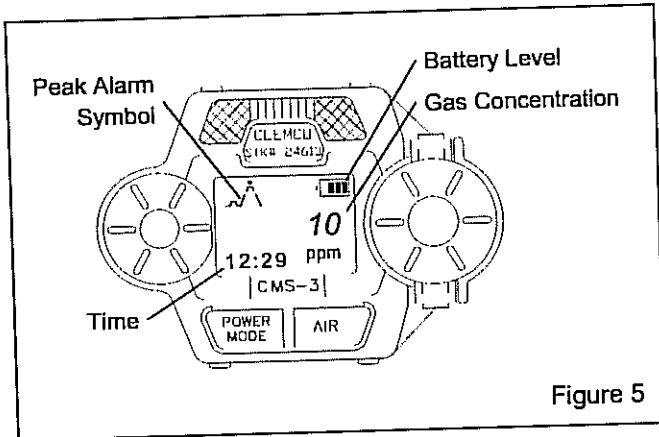


Figure 5

3.2.4 A Peak alarm display cannot be cleared until the monitor is turned off.

3.3 Displaying STEL, and TWA

Although some may find TWA and STEL information useful, it is not pertinent for supplied-air respirator use, because the maximum exposure limit for Grade D breathing air is 10 ppm.

3.3.1 STEL is an acronym for short-term exposure limit, and it is the average reading of CO during the last 15 minutes. TWA is an acronym for time-weighted average, and it is the average reading CO during the last eight hours. If eight (8) hours has not elapsed since the unit was turned on, the TWA is still calculated over eight hours, with the missing time assigned a zero (0) value for the readings. Similarly, if the unit has not been on for 15 minutes, the missing time is assigned a 0 value and the STEL is calculated over 15 minutes. The Peak, STEL, and TWA readings are cleared when the unit is turned off.

3.3.2 When the CMS-3 is in Measuring Mode (normal operating mode), Press and release the POWER/MODE button to enter Peak Display Mode. Press and release the POWER/MODE button again to enter STEL Display Mode. This will display the STEL reading. The word "STEL" is displayed in the middle of the LCD above the reading.

3.3.3 Press and release the POWER/MODE button again to enter TWA Display Mode. This will display the TWA reading. The word "TWA" is displayed in the middle of the LCD above the reading.

3.3.4 Press and release the POWER/MODE button once again to return to Measuring Mode.

NOTE: If you do not press a button for 20 seconds while displaying the Peak, STEL, or TWA readings, the unit will return to Measuring Mode automatically and the backlight will turn off.

3.4 Alarms

This section covers alarm indications. It also explains how to reset the CMS-3 after an alarm has occurred and how to respond to an alarm condition.

3.4.1 Alarm Indications

The audible alarm beeps, the unit vibrates, and the alarm lights flash when CO concentrations rises above the low alarm point. The CMS-3 also alarms when the high alarm point, the STEL alarm point, or the TWA alarm point is reached. It has a low battery warning, dead battery alarm, an over range alarm, sensor failure alarm, and a system failure alarm. The table in Figure 6 summarizes the types of alarms produced by the CMS-3.

3.4.2 Resetting CO Alarms

3.4.2.1 To reset a CO carbon monoxide gas alarm, after the CO reading falls below the low alarm point (10 ppm) press and release the POWER/MODE button once.

NOTE: Even though the gas concentration may have fallen below the alarm point, the alarm indications will continue until the alarm is reset using the MODE/POWER button as noted. A Peak alarm display cannot be cleared until the monitor is turned off. If a TWA or STEL alarm has been activated, it cannot be reset unless the monitor is turned off.

3.5 Responding to Alarms

This section describes response to gas, over range, battery, sensor failure, and system failure alarms.

3.5.1 Responding to CO Alarms

3.5.1.1 Follow an established procedure for responding to CO gas alarms. It should include but not be limited to removing the respirator as soon as it is safe to do so.

3.5.1.2 Reset the alarm by pressing and releasing the POWER/MODE button once, after the CO reading falls below the low alarm point.

3.5.2 Responding to an Over Range Alarm

An over range alarm could indicate CO gas are above the detection limit of 500 ppm. The CO concentration reading is replaced by blinking brackets (ПППП).

⚠ WARNING

An over range condition may indicate an extreme CO concentration. Remove the respirator as quickly as possible when it is safe to do so.

3.5.2.1 Follow an established procedure for responding to CO gas alarms. It should include but not be limited to removing the respirator as soon as it is safe to do so.

3.5.2.2 Reset the alarm using the MODE/POWER button once the alarm condition has cleared.

3.5.2.3 Calibrate the CMS-3 as described in Section 4.2.

3.5.2.4 Confirm the gas concentration with a different CMS-3 or with another gas detecting device.

3.5.2.5 If the over range condition continues, the sensor may need to be replaced.

3.5.2.6 If the over range condition continues after replacing the sensor, contact Clemco Customer Service at 636 239-4300 for further instructions.

Alarm Types and Indications		
Alarm Type	LCD Indications	Other Alarm Indications
<p>Low Alarm and High Alarm <i>Concentration of CO rises above the alarm point.</i> Note: Low and High Alarms are both set at the maximum exposure limit of 10 ppm.</p>	<ul style="list-style-type: none"> Gas reading flashes. Back light turns on. 	<ul style="list-style-type: none"> Audible alarm beeps twice per second. Unit vibrates twice per second. Alarm lights flash twice per second.
<p>TWA or STEL <i>Concentration of CO rises above the TWA or STEL alarm point.</i></p>	<ul style="list-style-type: none"> Back light turns on. TWA or STEL blinks to the left of the battery icon. If the unit is in both TWA alarm and STEL alarm, both TWA and STEL will be displayed. 	<ul style="list-style-type: none"> Audible alarm beeps once per second (Single Pulse). Unit vibrates once per second. Alarm lights flash once per second (Single Pulse).
<p>Over Range <i>An over range condition may indicate an extreme CO concentration.</i></p>	<ul style="list-style-type: none"> Gas reading replaced by blinking brackets (ПППП). Back light turns on. 	<ul style="list-style-type: none"> Audible alarm beeps once per second (Single Pulse). Unit vibrates once per second. Alarm lights flash once per second (Single Pulse).
<p>Low Battery Warning</p>	<ul style="list-style-type: none"> Last remaining bar on the right in battery icon flashes. 	<ul style="list-style-type: none"> None.
<p>Dead Battery Alarm</p>	<ul style="list-style-type: none"> Gas reading replaced by FAIL. Battery icon flashes. 	<ul style="list-style-type: none"> Audible alarm beeps twice per second (Double Pulse).
<p>Sensor Failure</p>	<ul style="list-style-type: none"> Gas reading replaced by FAIL. 	<ul style="list-style-type: none"> Audible alarm beeps twice per second (Double Pulse).
<p>System Failure</p>	<ul style="list-style-type: none"> Gas reading replaced by FAIL. Time replaced by SYS below FAIL 	<ul style="list-style-type: none"> Audible alarm beeps twice per second (Double Pulse).

Figure 6

3.5.3 Responding to Battery Alarms

WARNING

The CMS-3 is not operational during a dead battery alarm. Do not use the respirator until the battery is replaced.

3.5.3.1 The CMS-3 is fully functional in a low battery warning condition. However, only a couple of days of operation may remain depending on certain conditions such as alarm occurrences. Change the battery as soon as possible when a low battery warning occurs. Refer to Section 5.1 "Replacing the Lithium Battery."

NOTE: Alarms and the back light feature consume battery power and reduce the amount of operating time remaining.

3.5.4 Responding to a Sensor Failure Alarm

3.5.4.1 Perform a calibration as described in Section 4.2.

3.5.4.2 If the sensor failure alarm continues, replace the sensor as described in Section 5.2.

3.5.4.3 If the sensor failure alarm continues after replacing the sensor, contact Clemco Customer Service at 636 239-4300 for further instructions.

3.5.5 Responding to a System Failure Alarm

3.5.5.1 If a system failure occurs, turn off the unit and turn it on again.

3.5.5.2 If the unit is still in system failure, contact Clemco Customer Service at 636 239-4300 for further instructions.

3.6 Setting the Alarm Points

3.6.1 There is a low-alarm point, a high-alarm point, and STEL and TWA alarm points. The alarm points and their factory settings are summarized below:

- **Low Alarm (displayed (LO)):** is triggered when CO concentrations reach 10 ppm, which is the maximum exposure limit for Grade D compressed air. Remove the respirator as soon as it is safe to do so.
- **High Alarm (displayed (HI)):** Because the maximum exposure limit for grade D breathing air is 10 ppm of CO, the high alarm is also set to alarm when CO concentration reaches 10 ppm. This alarm is a rapid, twice per second beep and stresses the urgency to remove the respirator as soon as it is safe to do so.

- ***TWA Alarm:** TWA is an acronym for time-weighted average; it is the average reading of CO during the last eight hours.
- ***STEL Alarm:** STEL is an acronym for short-term exposure limit; it is the average reading of CO during the last 15 minutes.

* Although some may find TWA and STEL information useful, it is not pertinent for supplied-air respirator use, because the maximum exposure limit for Grade D breathing air is 10 ppm.

3.6.2 To begin, make sure the CMS-3 is turned off. The LCD should be blank.

3.6.3 Press and hold the AIR button, then press and hold the POWER/MODE button.

3.6.4 As soon as segments appear on the display (approximately one second), release the AIR button. When the unit "beeps," release the POWER/MODE button to put the CMS-3 into Alarm Point Adjustment Mode.

3.6.5 The LCD should display the Low (LO) Alarm setting (10 ppm), the battery level, and peak alarm symbol as Shown in Figure 5. *NOTE: If the LCD shows "CAL" in the lower left corner, the CMS-3 is in Calibration Mode. Press and hold the POWER/MODE button to turn off the unit. Repeat the process beginning with Paragraph 3.6.2.*

NOTE: You can only cycle through the alarm points in the sequence noted in paragraph 3.6.1 once before the monitor goes into its startup sequence followed by Measuring Mode (operating mode). To cycle through the alarm points again, press and hold the POWER/MODE button to turn off the unit. Then repeat the process beginning with Paragraph 3.6.2 to put the unit back into Alarm Point Adjustment Mode.

3.6.6 To change the alarm point, press and release the POWER/MODE button to cycle through the alarms. *NOTE: If you press and hold the POWER/MODE button the monitor may turn off.*

3.6.7 When an alarm point is displayed, use the AIR button to increase the alarm point. If you pass the desired setting, continue increasing the alarm point until it reaches the maximum setting (50 for low alarm, and 500 for high alarm) and it will "wrap around" to the minimum setting (0 for low alarm and 10 for high alarm).

3.6.8 If the alarm setting has been changed, press the POWER/MODE button to save the new setting. The next alarm point will be displayed.

3.6.9 When finished viewing or adjusting the alarm point settings, press and release the POWER button repeatedly until the ROM number for the unit appears on the LCD. (The ROM is the component that contains the software that runs the CMS-3.) The CMS-3 will then go into its startup sequence followed by Measuring Mode.

3.7 Setting the Clock

3.7.1 Make sure the CMS-3 is on and in Measuring Mode.

3.7.2 Press and hold the Air button, then press and hold the POWER/MODE button to put the monitor into Time Adjustment Mode. Release the buttons when the word "SET" appears on the LCD as noted in Figure 7. Below "SET", the time will be displayed and the hour in the time will be flashing.

3.7.3 Use the AIR button to increase the hour to the desired setting. If you pass the desired setting, continue to increase the hour until it reaches 23 and then wraps around to 0, then set to the desired setting.

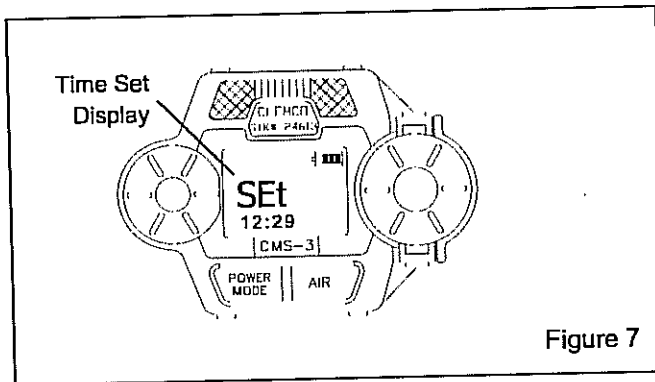


Figure 7

3.7.4 Press the POWER/MODE button to accept the hour setting. The minute starts flashing.

3.7.5 Use the Air button to increase the minute setting to the desired setting.

3.7.6 Press the POWER/MODE button to accept the minute setting and return to Measuring Mode.

4.0 CALIBRATION

This section covers the calibration of the CMS-3. Setting the fresh air reading is described first followed by setting the calibration value.

▲ WARNING

Use a 0.5 LPM (liters per minute) fixed flow calibration connector (Clemco Stock No. 25572) when calibrating. Use of a different flow rate may adversely affect the accuracy of the calibration.

4.1 Setting the Fresh Air Reading

Fresh-air settings must be done in a fresh air environment, free of toxic or combustible gases and of normal oxygen content (20.9%). The usual method is to set it in fresh ambient air. If fresh, ambient air cannot be assured, set the fresh air reading with impurity free test gas, as described in Section 4.1.2.

4.1.1 Setting the fresh air reading with ambient air

4.1.1.1 Turn on the CMS-3 by pressing and holding the POWER/MODE button for one second. Allow the unit to finish its warm-up sequence.

4.1.1.2 Press and hold the AIR button. While pressing the AIR button, the LCD displays "Hold," a prompt to keep pressing the AIR button.

4.1.1.3 When the fresh air reading has been set, the LCD displays "Adj," a prompt to release the AIR button. It will set the reading to 0 ppm.

4.1.2 Setting the fresh air reading with impurity free test gas

The following is required to set the fresh air setting with impurity free test gas.

- Impurity free test gas, Stock No. 11132
- Calibration connector with tubing and calibration cup.

4.1.2.1 Make sure the monitor is off.

4.1.2.2 Make sure the calibration connector valve is closed, and then attach the connector to the test gas cylinder.

4.1.2.3 Attach the calibration cup to the sensor cap, as shown in Figure 8. The cup opens up like a clothes pin to fit over the sensor cap and locks onto the cap.

4.1.2.4 Turn on the CMS-3 by pressing and holding the POWER/MODE button for one second. Allow the unit to finish its warm-up sequence.

4.1.2.5 Open the connector by sliding the regulator valve to the "OPEN" position.

4.1.2.6 Press and hold the AIR button. While pressing the AIR button, the LCD displays "Hold," a prompt to keep pressing the AIR button.

4.1.2.7 When the fresh air reading has been set, the LCD displays "Adj," a prompt to release the AIR button. It will set the reading to 0 ppm.

4.1.2.8 Close the connector by sliding the regulator valve to the "CLOSE" position.

4.1.2.9 Carefully remove the calibration cup from the unit, being careful not to misplace the gasket on the bottom of the cup.

4.1.2.10 Remove the calibration connector from the test gas cylinder. The test gas cylinder has a positive seal, whereas the calibration connector valve does not. If the connector is not removed from the test gas cylinder, over a period of time the cylinder will empty.

battery level in the upper right. It also displays the gas concentration that is to be used to calibrate the unit.

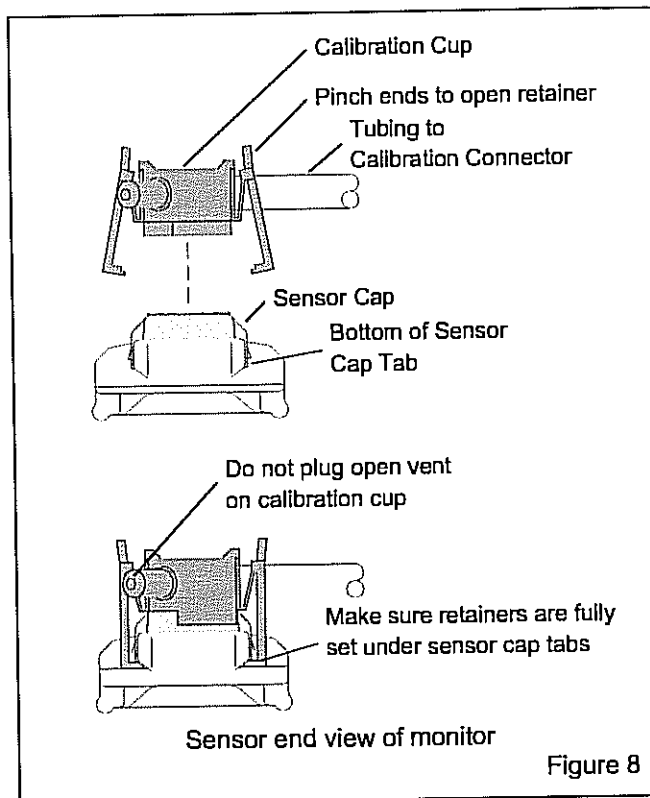


Figure 8

4.2 Calibration (setting the span adjustment)

Calibrate the CMS-3 in a non-hazardous environment, as used to set the fresh air reading.

The following is required to calibrate the CMS-3

- Test gas with 25 ppm concentration of CO, Stock No. 25573.
- Calibration connector with tubing and calibration cup.

4.2.1 Make sure the fresh air reading was set per Section 4.1.

4.2.2 Make sure the monitor is off.

4.2.3 Make sure the calibration connector valve is closed, and then attach the connector to the test gas cylinder.

4.2.4 Attach the calibration cup to the sensor cap, as shown in Figure 8. The cup opens up like a clothes pin to fit over the sensor cap and locks onto the cap.

4.2.5 Press and hold the AIR button, then press and hold the POWER/MODE button. Release both buttons when you hear a "beep." The unit is in calibration mode and the LCD displays "CAL" in the lower left and the

4.2.6 If necessary, use the AIR button to adjust the calibration value (the value shown on the display) to match the gas concentration in the calibration cylinder.

4.2.7 Press the POWER/MODE button to accept the calibration value and proceed to the calibration screen. The current gas reading is displayed and the "CAL" display blinks.

4.2.8 Open the connector by sliding the regulator valve to the "OPEN" position.

NOTE: To cancel the span adjustment process, press and hold the AIR button for about 3 seconds. The unit will cancel the adjustment and begin its startup sequence.

4.2.9 Let the gas flow for one minute and then press the POWER/MODE button. The unit will adjust the span based on the calibration value that was saved as described in Paragraphs 4.2.5 through 4.2.7.

4.2.10 Close the connector by sliding the regulator valve to the "CLOSE" position.

4.2.11 Carefully remove the calibration cup from the unit, being careful not to misplace the gasket on the bottom of the cup.

4.2.12 Remove the calibration connector from the test gas cylinder. The test gas cylinder has a positive seal, whereas the calibration connector valve does not. If the connector is not removed from the test gas cylinder, over a period of time the cylinder will empty.

4.2.13 As soon as the unit makes the calibration adjustment, it will begin its startup sequence and then enter the Measuring Mode. **NOTE:** If the gas reading is high enough when the unit enters Measuring Mode, an alarm condition will occur. Reset the alarm using the POWER/MODE button when the gas reading falls below the alarm point.

5.0 MAINTENANCE

⚠ WARNING

Service, calibration, and repair of the instruments should be performed by personnel properly trained for this work. Improper service could result in malfunction and loss of life.

NOTE: The printed circuit boards contain no user serviceable parts.

5.1 Replacing the Lithium Battery, Refer to Figure 9

Replace the lithium battery when the battery icon indicates that the unit is in low battery warning. When in low battery warning, only one battery level indication bar remains and it is flashing. Use a CR 2450 battery manufactured by Sony, Eveready, Maxell, Hitachi, or Toshiba.

5.1.1 Make sure the monitor is off.

5.1.2 From the back of the unit, unscrew the two screws that retain the battery cover far enough to pull the cover away from the bottom case. The screws are held captive in the battery cover if they are not unscrewed too far.

5.1.3 Carefully remove the old battery.

5.1.4 Carefully install the new battery, noting the polarity indications on the underside of the battery cover

and in the battery compartment. The negative (-) side of the battery goes in first.

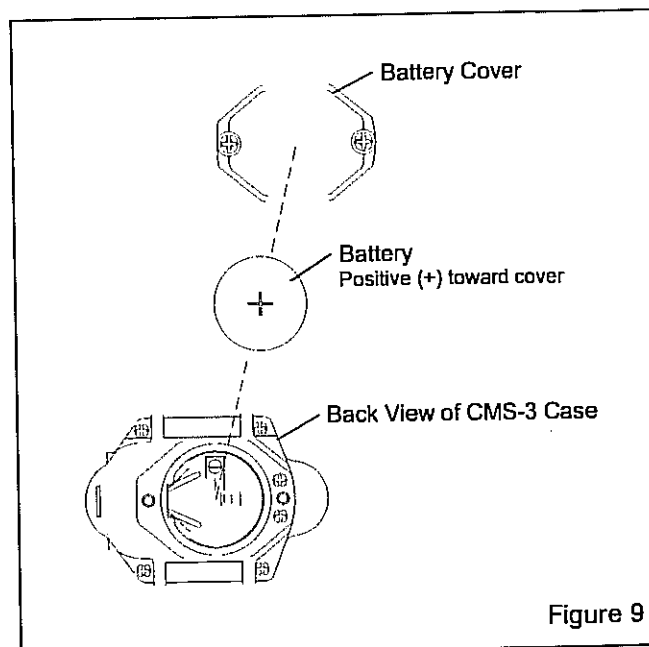


Figure 9

5.1.5 Reinstall the battery cover.

NOTE: All power to the unit is lost when the old battery is removed. The clock is reset to 0:00 when the new battery is installed. The clock must be set to the correct time after the battery is changed. Refer to Section 3.7 to reset the clock.

5.2 Replacing the Sensor, Ref Figures 10 and 11 *Replace the sensor in a clean, non-hazardous environment.*

5.2.1 Make sure the monitor is off.

5.2.2 The sensor cap snaps onto the case with two tabs. With a small flat blade screw driver, gently expand the two tabs to pry off the sensor cap.

5.2.3 Remove the sensor gasket, cover, and charcoal filter from the sensor.

5.2.4 Carefully remove the old sensor from the sensor socket. **NOTE:** The sensor is keyed and can only be inserted in the socket one way. Note the orientation of the old sensor, as shown in Figure 11 before removing it.

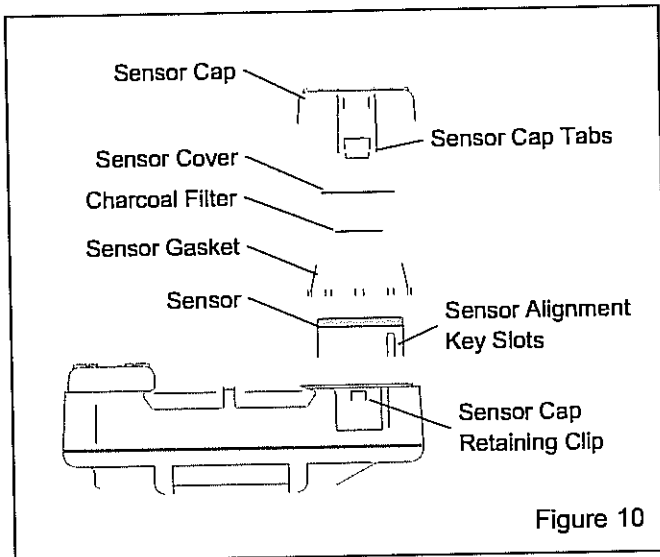


Figure 10

5.2.5 Carefully insert the replacement sensor in the socket. Make sure the sensor face with the colored ring is facing up, and that the sensor key slots are properly aligned with the key tabs in the socket as shown in Figure 11, before inserting.

CAUTION

Do not force the sensor into the socket; when correctly aligned the sensor easily fits into the socket. Forcing it could damage the sensor or the socket.

5.2.6 Reinstall the sensor gasket; install a new charcoal filter, and sensor cover into the recess in the sensor gasket.

5.2.7 Reinstall the sensor cap, making sure both tabs snap into place.

5.2.8 Calibrate the new sensor as described in Section 4.2.

5.3 Replacing the Sensor Cover

Replace the sensor cover in a non-hazardous environment.

5.3.1 Make sure the CMS-3 is off.

5.3.2 The sensor cap snaps onto the case with two tabs. With a small flat blade screw driver, gently expand the two tabs to pry off the sensor cap.

5.3.3 Remove the old sensor cover from its recess in the sensor gasket.

5.3.4 Install the new sensor cover into the recess in the sensor gasket.

5.3.5 Reinstall the sensor cap, making sure both tabs snap into place.

5.4 Replacing the Charcoal Filter Disk

Replace the charcoal filter disk in a non-hazardous environment.

5.4.1 Make sure the CMS-3 is off.

5.4.2 The sensor cap snaps onto the case with two tabs. With a small flat blade screw driver, gently expand the two tabs to pry off the sensor cap.

5.4.3 Remove the old sensor cover from its recess in the sensor gasket.

5.4.4 Remove the old charcoal filter from its recess in the sensor gasket.

5.4.5 Install the new charcoal filter into its recess in the sensor gasket.

5.4.6 Install a new sensor cover into its recess in the sensor gasket.

5.4.7 Reinstall the sensor cap, making sure both tabs snap into place.

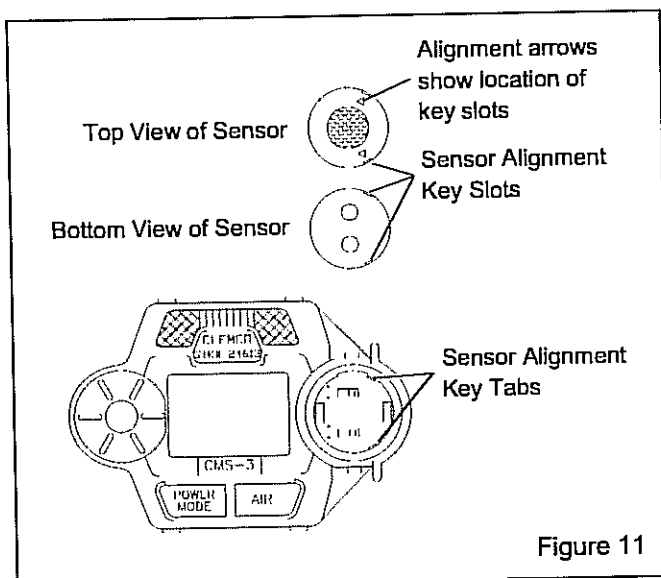


Figure 11

6.0 TROUBLESHOOTING

The troubleshooting table describes error messages, symptoms, probable causes, and recommended action for problems encountered with the CMS-3.

SYMPTOMS	PROBABLE CAUSES	RECOMMENDED ACTION
The LCD is blank.	The unit may be turned off.	1. To turn on the unit, press and hold the MODE/POWER button.
	The battery may need to be replaced.	1. If the unit does not turn on, replace the battery. 2. If the difficulties continue, contact an authorized Clemco distributor for further instructions.
The LCD shows abnormally high or low readings but other gas detection instruments do not.	The unit may need to be recalibrated.	1. Recalibrate the unit. Review Section 4.0.
	The sensor may need replacement.	1. Replace the sensor and calibrate the unit. 2. If the difficulties continue, contact an authorized Clemco distributor for further instructions.
"FAIL" displays during span or zero adjustment.	The calibration value may not match the cylinder gas concentration.	Make sure the calibration value matches the cylinder gas. Refer to Section 4.0.
	CMS-3 not correctly set up for calibration.	Make sure the CMS-3 has been properly set up for calibration per Section 4.0.
	The sample gas is not reaching the sensor because of a bad connection.	1. Check all calibration tubing for leaks or for any bad connections. 2. Make sure the calibration cup is correctly clipped to the sensor cap. Review Section 4.2.
	The calibration cylinder may be out of gas or is outdated.	Make sure the calibration cylinder contains an adequate supply of fresh test sample.
	The sensor may need replacement.	1. If the fail condition continues, replace the sensor. 2. If the difficulties continue, contact an authorized Clemco distributor for further instructions.
"FAIL SYS" is indicated on the LCD.	A microprocessor failure has occurred.	1. Turn off the unit and turn it on again. 2. If the difficulties continue, contact an authorized Clemco distributor for further instructions.

Figure 12

7.0 ACCESSORIES and REPLACEMENT PARTS

7.1 System and Accessories, Figure 13

Item	Description	Stock No.
(-)	CMS-3 CO Monitor Package Includes items shown with asterisk (*)	24612
1.	* CMS-3 CO monitor, instrument only	24613
2.	* Calibration connector assembly	24614
3.	Test gas, * 25 ppm CO	25573
	Impurity free	11132
4.	Calibration connector valve	25572
5.	Calibration cup	24615
6.	Tubing, 3/16 ID, 2-feet required	13074
7.	* Mounting strip assembly, used with Apollo 60 and 600 only Included with kit 25577 shown in Figure 14.	

7.2 Replacement Parts, Figure 14

NOTE: The printed circuit boards contain no user serviceable parts.

Item	Description	Stock No.
(-)	CMS-3 CO Monitor only	24613
1.	Sensor	24616
2.	Service kit, includes Items 3, 4 and 5	24617
3.	Kit, screws and seal and mounting strip	25577
	3a Cap, sensor	
	3b Gasket, sensor	
	3c Screw set, (8) case and (4) battery cover	
	3d O-ring, battery cover	
	3e Velcro® tape, loop side, 1" x 1-1/4"	
	3f Velcro® tape, hook side, 1" x 2" (qty of 2)	
	3g Mounting strip (qty of 2)	
4.	Discs, sensor cover, pack of 10	25563
5.	Filter, charcoal, pack of 5	25564
6.	Mounting plate	25575
7.	Battery, Lithium, purchase locally Model CR2450	

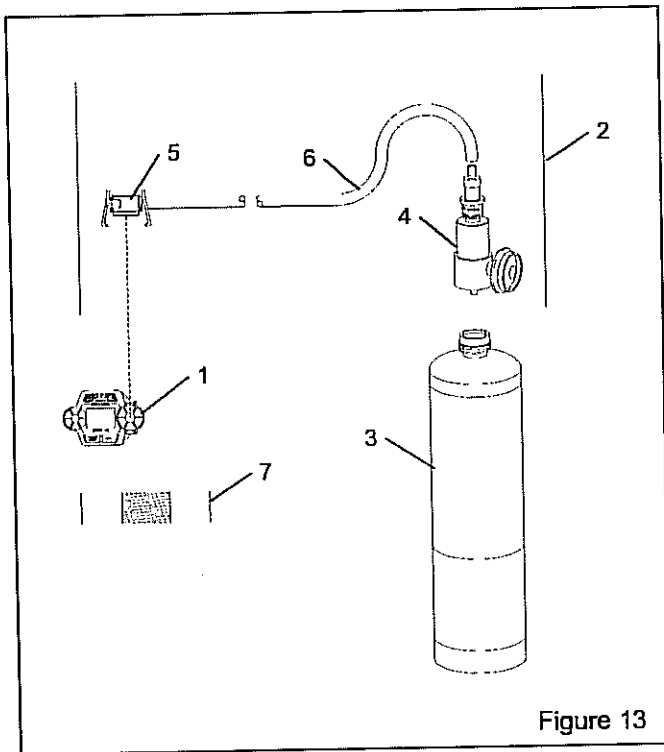


Figure 13

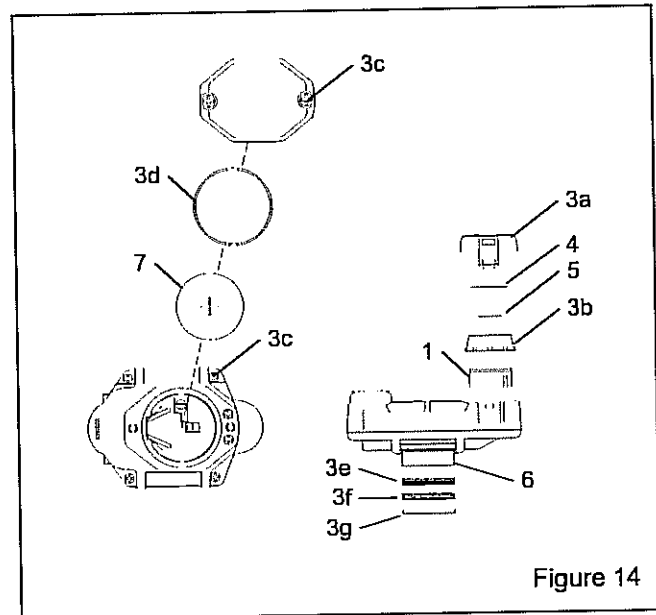


Figure 14



CLEMCO
The Performance
System

TECHNICAL DATA SHEET

Note: For safe, efficient blasting, read and follow the owner's manual and seek training for everyone who will use this equipment.

Purpose

The Apollo 60 HP meets ANSI standards for impact protection and OSHA standards for respiratory protection and noise limitations. The Apollo 60's full-helmet design protects the blast operator's head from rebounding abrasive and from construction-site impact hazards.

The heavy-duty cape protects the operator's neck, shoulders, and chest from rebounding abrasive.

Requirements for Operation

The following items are required or recommended for operation, but are not included with this respirator:

- Source of Grade D (or better quality) breathing-air providing 7 to 15 cfm at 65 to 100 psi (IFCAT or CCT is used, increase cfm to 20)
- A breathing-air filter (such as the Clemco CPF) to remove oil, moisture, particles, and odors
- Carbon monoxide monitor and alarm (such as the Clemco CMS-2)
- $\frac{3}{8}$ -inch respirator hose from the breathing-air filter to the helmet connection
- Protective clothing, gloves, and shoes suitable for a heavy construction site
- Primary hearing and eye protection

Description of Operation

The Apollo 60 includes a double-shell construction helmet supported by an adjustable suspension. The operator adjusts the suspension to fit, then installs it in the helmet. A chin strap holds the helmet firmly in place.

The wide, full-view window provides an expansive field of view. An inner fixed lens seals out dust and abrasive. Up to five lightweight, disposable outer lenses, held in place by a hinged frame, protect the inner lens from pitting. As the outermost disposable lens becomes pitted, it can be torn off to expose the next lens.

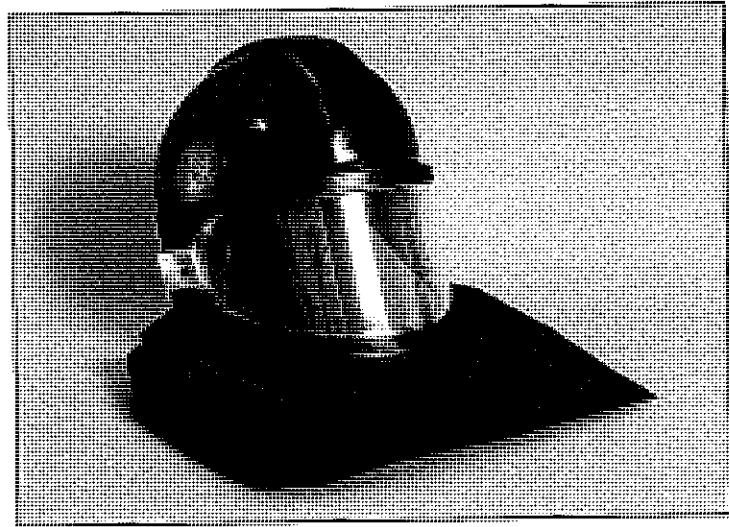
Description

The Apollo 60 HP is a Type CE, continuous-flow, supplied-air respirator for abrasive blasting, to be used with compressed air source. The high visibility red helmet has a full-view window, and a waist-length protective cape.

Apollo 60 HP Supplied-Air Respirators

Stock No.

10505, 10508, 10509, 10510,
10511, 10512, 10513, 10514,
10515, 20213, 20214, 21300



The helmet can be purchased with one of the following:

- Constant-Flow Connector - fixed air flow (no adjustment possible)
- Air Control Valve - to adjust flow rate of incoming air
- Cool Air Tube - to cool incoming air
- Climate Control Tube - to cool or warm incoming air as needed

With all but the Constant-Flow Connector, the operator can adjust the flow of air. None of the valves can be adjusted beyond preset minimum and maximum settings specified by OSHA.

A flexible breathing tube between the valve and the helmet allows free movement of the operator's head. This tube contains specially-formulated sound-deadening materials that help the respirator comply with 80 dBA maximum noise level while allowing free air flow. While blasting, the operator must wear ear plugs or other suitable hearing protection and safety glasses or goggles.

The air enters the helmet at the rear, travels through a sound-attenuating distribution system at the top, and circulates

about the operator's head and face. The incoming air maintains positive pressure inside the helmet, so exhaled air exits via the knit collar. Maintaining positive pressure inside the helmet helps keep out potentially harmful dust and abrasive.

Advantages

- Wide, full-view window
- Lightweight construction
- Nylon carrying strap
- Allows operator to wear supplementary hearing and primary eye protection

Approvals and Certification

The Apollo 60 helmet is a NIOSH-approved, type CE respirator (approval number TC-19C-130) and is recognized by OSHA as having an assigned protection factor (APF) against lead dust of 1000 times the permissible exposure limit (PEL). It also meets the American National Standards Institute (ANSI) requirement for hard hat protection.

NOTE: Prior to use, ensure that the Apollo, type CE, supplied-air respirator is appropriate for your specific blasting conditions and requirements.

Related Clemco Literature

Description	Stock No.
Contractor Series Catalog	21385
Abrasive Blasting Safety Practices	22090
Blast Off 2	09294
Safety Equipment Product Study	07764
Apollo 60 HP Owner's Manual	10533

Options and Accessories

CPF-20 air filter (for one or two operators)	03578
CPF-80 air filter (for up to four operators)	03527
Carbon monoxide alarm, CMS-2	22894
Heavy cotton/leather blast suit..... S (08920), M (08921), L (08922), XL (08923)	
Seasonal cotton/nylon blast suit.... M (22914), L (22915), XL (22916), XXL (22917)	
Leather gloves	02243
Low pressure conversion kit. Converts HP helmet to LP helmet	22079

Respirator Systems and Accessories

NOTE: Respirators do not include alternate respirator hose.
Alternate respirator hose must be ordered separately.

Apollo 60 HP with CFC	21300
w/Air Control Valve	10505
w/Cool Air Tube	10508
w/Climate Control Tube	10509
Apollo 60 HP with CFC and hose	20213
w/Air Control Valve & hose	10510
w/Cool Air Tube & hose	10511
w/Climate Control Tube & hose	10512
Apollo 60 HP with CFC, hose and CPF-20	20214
w/Air Control Valve, hose and CPF-20	10513
w/Cool Air Tube, hose and CPF-20	10514
w/Climate Control Tube, hose and CPF-20	10515

Packaging Respirator Only

Stock No.	Dimensions	Weight
21300	13 1/2" x 13" x 11"	7.5 lb
10505	(same)	7.5 lb
10508	(same)	8.4 lb
10509	(same)	8.9 lb
20213	Respirator and hose	15.5 lb
10510	(same)	15.5 lb
10511	(same)	16.4 lb
10512	(same)	16.9 lb
20214	Respirator, hose and CPF	35.5 lb
10513	(same)	35.5 lb
10514	(same)	36.4 lb
10515	(same)	36.9 lb

Respirator Hose (in separate poly bag)

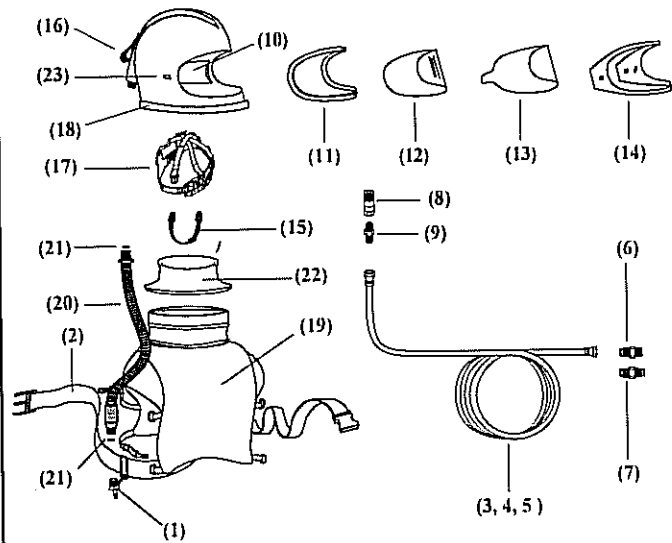
04397 (25 ft)	10" x 10" x 3"	2.8 lb
04415 (50 ft)	12" x 12" x 5"	5.8 lb
04398 (100 ft)	14" x 14" x 5"	11.6 lb

CPF (in separate box)

03578 (CPF-20)	21" x 12" x 9 1/2"	20 lb
03527 (CPF-80)	(same)	22 lb

Replacement Parts

Item	Description	Stock No.
1.	Constant-Flow Connector, without belt	21415
2.	Belt assembly, 2"	04430
3.	Respirator hose, 3/8" x 25' (includes 7 & 8)	04397
4.	Respirator hose, 3/8" x 50' (includes 7 & 8)	04415
5.	Respirator hose, 3/8" x 100' (includes 7 & 8)	04398
6.	Adaptor, 3/8" hose to 3/8" pipe	00022
7.	Union, 3/8" hose to 3/8" hose	01020
8.	Disconnect, 1/4" female	00025
9.	Adaptor, 3/8" hose to 1/4" pipe	01019
10.	Acoustical foam kit, sides	04369
11.	Gasket, window	04452
12.	Inner lens, .040" (5)	04367
13.	Outer lens, .0075", perforated (25)	04361
14.	Window frame kit	08741
15.	Chin strap	04460
16.	Handle strap	03623
17.	Suspension	10532
18.	Cape attachment strap	10534
19.	Cape, red, with black inner collar	04435
20.	Breathing tube assembly w/swivel ends	22811
21.	O-ring, 11/16" ID x 7/8" OD, 2 required	22815
22.	Inner collar kit	08740
23.	Window latch kit	04368



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NORTH

5400 and 7600 Series

Full Facepiece

Air Purifying

Respirators

***Operating and
Maintenance
Instruction Manual***

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1 INTRODUCTION

North Air-Purifying respirators are intended to be used for respiratory protection against hazardous vapors, gases and/or particulate matter, depending on the air-purifying elements used and the contaminant concentration and/or toxicity; **but only if** there is sufficient oxygen present in the contaminated atmosphere to support life. These respirators are approved by the National Institute of Occupational Safety and Health (NIOSH) and are suitable for use in workplaces regulated by the Occupational Safety and Health Administration (OSHA). If you have converted this respirator to a supplied air respirator, use the Instructions for Use that accompanied the Airline Accessory.

1.1 IMPORTANT INFORMATION

This Operating and Maintenance Instruction Manual contains important information and must be completely read and understood by all persons who may use or maintain this respirator.

This Respirator should be used or maintained **only** by persons who understand the instructions contained within this manual.

1.1.1 TERMINOLOGY

Warnings, cautions and notes used in this manual have the following significance:

NOTE

Procedures and techniques that are considered important enough to emphasize.

CAUTION

Procedures and techniques which, if not carefully followed, will result in damage to the equipment.

⚠ WARNING

Procedures and techniques which, if not carefully followed, will expose the user to the risk of serious injury, illness or death.

1.1.2 GENERAL WARNINGS

WARNINGS

1. Do not use this Operating and Maintenance Instruction Manual if you have converted this respirator to a supplied air respirator, use the Instructions for Use that accompanied the Airline Accessory.
2. Failure to properly select the appropriate respirator for all the contaminants and their concentrations against which protection is required, or a failure to follow North's instructions and warnings, may result in exposure to the hazardous materials, exposing the user to the risk of serious injury, illness or death.
3. Do not use this respirator for protection against air contaminants other than those listed on the air-purifying elements and on the NIOSH Approval Label which is supplied with each respirator and/or replacement air-purifying element.
4. Do not use this respirator under any of the following conditions:
 - While performing or observing abrasive blasting (sand-blasting) operations.
 - For fire fighting.
 - In oxygen-deficient atmospheres (any atmosphere having less than 19.5 % oxygen by volume at sea level).
 - In atmospheres where the concentrations of toxic contaminants are unknown, or are Immediately Dangerous to Life or Health (IDLH). An IDLH atmosphere is any atmosphere which has a concentration of any toxic, corrosive or asphyxiant substance that poses an immediate threat to life, which would cause irreversible debilitating effects on health, or which would interfere with the ability to escape from a dangerous atmosphere.
 - In atmospheres where the concentration of the contaminant exceeds the respirator's Maximum Use Concentration. That is where the concentration of the contaminant exceeds:
 - i. 100 times the contaminant's permissible exposure limit (the maximum permissible 8-hour time weighted average (TWA) concentration) established by applicable OSHA or other government regulations, or by NIOSH or ACGIH publications; or
 - ii. any lower Maximum Use Concentration for that contaminant (when using a full facepiece air purifying respirator) established by such OSHA or other government regulations (as in the case of asbestos) or NIOSH or ACGIH publications, or shown in the contaminant's Material Safety Data Sheet (MSDS), in a pesticide label, or in the current edition of the North Respirator Selection Guide.
 - In poorly ventilated areas, or confined spaces such as tanks, small rooms, tunnels or vessels, unless the confined space is well ventilated and the concentration of toxic contaminants is known to be, and will continue to be, below the Maximum Use Concentration recommended for the respirator.
 - In atmospheres containing oil unless a NIOSH "R" or "P" class filter is used.
- For protection against gas or vapor contaminants unless the air-purifying elements are equipped with End-of-Service-Life-Indicators for that contaminant; or a cartridge change schedule is implemented based on objective service data.
- For protection against gases or vapors which generate high heats of reaction with the sorbent material in the cartridge.
- For protection against gases or vapors which are not adsorbed by the sorbent material in the cartridge (e.g. Methanol).
5. Do not use any air purifying respirator when conditions prevent a good facepiece-to-face seal. Examples of such conditions are:
 - i. the growth of beards, bangs or sideburns which will pass between the facepiece sealing area and the face;
 - ii. the use of spectacles or other devices which interfere with the respirator;
 - iii. the use of head or face coverings which contain materials which will pass between the facepiece sealing area and the face; and
 - iv. missing teeth or dentures, facial deformities or deep scars.
6. Immediately leave the contaminated area if:
 - i. breathing becomes difficult;
 - ii. dizziness or other distress occurs;
 - iii. you smell, taste or sense irritation from the contaminants;
 - iv. the air purifying element is equipped with an End-of-Service-Life Indicator which has changed color to indicate expiration, or
 - v. the respirator becomes damaged.
7. Any air purifying respirator, when properly selected and fitted, will significantly reduce, *but will not completely eliminate*, the breathing of contaminant(s) by the respirator wearer. When working in atmospheres containing substances which are reported to cause cancer in amounts below their permissible exposure limit, will obtain better protection from a continuous flow or positive pressure air supplied respirator, or self-contained breathing apparatus (an SCBA).
8. This respirator does not provide protection to exposed areas of the body. If the contaminated atmosphere contains vapors, gases or airborne particulate matter which may either irritate or burn the skin, or can be absorbed by the body through penetration of the skin, the use of specialized hand and/or body coverings may also be required for protection.

1.1.3 USER REQUIREMENTS

To use this respirator you must know:

- 1) The contaminants and their concentrations. (Ask your Safety Director or Industrial Hygienist or follow the hazard determination steps as outlined in paragraph 7.2.2.1 of American National Standards Institute (ANSI) Standard Z88.2-1992, *American National Standard for Respiratory Protection*.)
- 2) That this is the respirator approved for use against those contaminants and at those concentrations. (Carefully read the NIOSH Approval Label Summary booklet included with this facepiece. Make sure the part numbers on the respirator components match the component numbers on the NIOSH Approval Label or on the configuration chart. If you have any doubts prior to using the respirator, consult an Industrial Hygienist, or North Safety Products Customer Service in the United States at 1-800-430-4111 or 1-401-943-4400.)
- 3) That the contaminated atmosphere is not Immediately Dangerous to Life or Health (IDLH). For the definition of IDLH see Warning #4 of the preceding list of General Warnings.
- 4) That this respirator fits you properly. (See Warning #5 of the preceding list of General Warnings.)
- 5) That you do not have any physical limitations or illness which would preclude you from using this respirator or be aggravated by an increase in breathing resistance. (Ask your Safety Director or physician.)

You should not enter any potentially contaminated atmosphere unless you have confirmed all of these factors.

1.1.4 TRAINING PROGRAM

These brief written instructions cannot substitute for a formal Respirator Training Program. Such training should include an opportunity for you to handle the respirator, learn how to inspect it, have it properly fitted, test its facepiece-to-face seal, wear it in normal air for a long familiarity period, and finally, to wear it in a test atmosphere. The Training Program should be based on ANSI Z88.2-1992, and should familiarize you with OSHA Regulation 29CFR Section 1910.134 and other regulations promulgated by various Regulatory Authorities.

1.1.5 FIT TESTING

A respirator should not be assigned to a person unless the person is given a qualitative or quantitative respirator fit test and the results of the test indicate that the facepiece of the respirator fits properly.

Both the 5400 Series and 7600 Series respirators are available in two sizes, medium/large and small. Most faces can be fit with the medium/large, however some persons with small faces may get a better fit with the small size.

Fit tests should be conducted at least annually or more frequently if there are factors such as weight change or dental surgery which may affect the fit of the respirator.

A fit test adapter is available for conducting quantitative fit tests. (See Accessories.)

Instructions for carrying out qualitative and quantitative respirator fit tests are given in OSHA 29 CFR §1910.134, and respirator manuals published by government agencies such as NIOSH, ERDA, and NRC.

1.1.6 PERIODIC SEAL CHECKS

Each time that the respirator is put on, before entering an area containing hazardous atmospheres, and periodically while wearing the respirator in the contaminated area, the respirator wearer should check the effectiveness of the seal of the facepiece to the wearer's face by carrying out a negative or positive pressure seal check. Instructions for carrying out user seal checks on this respirator are given in Section 3 of this manual.

1.2 RESPIRATOR DESCRIPTION

This device is an air-purifying respirator consisting of a full facepiece assembly and a pair of replaceable air-purifying elements which provide respiratory protection against hazardous vapors, gases and/or particulate matter, depending upon the type of air-purifying elements used.

When the respirator wearer inhales, the contaminated air is drawn through the air-purifying elements, which, depending upon their type and class, remove the hazardous vapors, gases and/or particulate matter from the air before it enters the lungs. During inhalation, the inhalation valves in the facepiece open and the exhalation valve closes to prevent contaminated air from entering the facepiece. During exhalation, the exhalation valve opens, and the inhalation valves close to prevent exhaled air from passing back through the air-purifying elements.

This respirator is approved by NIOSH to protect against, and reduce exposure to the type of air contaminants specified on the air-purifying elements and in the approval label supplied with the respirator or the air-purifying elements. Use of the Back Pack accessory allows the wearer to place the air-purifying elements on his back. See Section 10 for a list of approved accessories.

2 PRE-USE INSTRUCTIONS

⚠ WARNING

The respirator facepiece and air-purifying elements may be sold separately. Do not use this respirator unless the proper air-purifying elements are attached. See the NIOSH Approval label included in the air-purifying element packaging for a list of the approved components, or check with your Safety Director or Industrial Hygienist or North Safety Products Customer Service in the United States at 1-800-430-4110 or 1-401-943-4400.

2.1 FACEPIECE

Remove the facepiece assembly from its container and visually check the facepiece to make sure that the sealing flange is not distorted, that all components including the exhalation valve flap are in place, in good condition and secure.

⚠ WARNING

Apply an anti-fog compound to the inside of the lens if the respirator will be used at temperatures below 32°F (0°C). This will reduce fogging on the inside of the facepiece lens so the user can continue to see through it.

Do not use the 5400 Series facepieces without the oral/nasal cup installed. Use without the oral/nasal cup will result in a greater tendency for the lens to fog and increase the carbon dioxide level inside the facepiece resulting in worker fatigue.

2.2 FILTERS

If replaceable pad style filters are required, they should be assembled to the cartridges or filter holders before the cartridges or filter holders are attached to the facepiece. Follow the directions on the filter for proper orientation. Place the filters in the appropriate filter covers so that the entire outer edges of the filters are seated evenly and securely against the inner wall of the filter covers. (See Figure 1.)

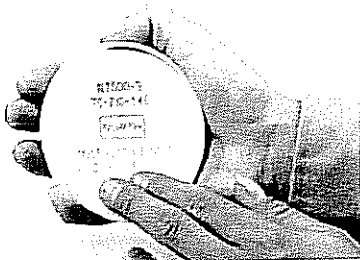


FIGURE 1
Assembling the Filter

Snap the filter covers, with the filters seated evenly and securely, to the cartridges. (See Figure 2.)

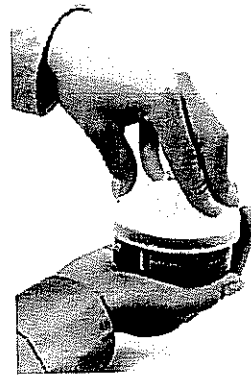


FIGURE 2
Attaching the Cover

2.3 ASSEMBLING THE RESPIRATOR

Assemble the respirator by screwing the two appropriate air-purifying elements onto the inhalation connectors mounted on the facepiece lens. Check to be sure that each air-purifying element is effectively sealed against the grommet on the facepiece lens (See Figure 3). Inspect to make certain that the respirator has not been damaged.

If using the Back Pack Accessory, assemble the respirator by screwing the breathing tubes to the inhalation connectors mounted on the facepiece lens. Screw the two appropriate air-purifying elements onto the inhalation connectors located on the Back Pack plate. Check to be sure that each air-purifying element is effectively sealed against the grommet on the Back Pack back plate. Inspect to make certain the respirator and Back Pack have not been damaged.



FIGURE 3
Attaching Air-Purifying Elements

2.4 CORRECTIVE LENSES

Contact lenses may be worn when using this respirator, provided the user is accustomed to wearing contact lenses. Spectacles may not be worn when using this respirator, however spectacle kits which can be used to hold individual corrective lenses are available. (See Accessories.)

⚠ WARNING

To avoid compromising the facepiece-to-face seal only North spectacle kits should be used.

3 TO PUT ON THE RESPIRATOR

The following should be performed in an area with uncontaminated air:

- 1) Visually check the unit to make certain that all major components are in place and in good condition. Make sure all components on facepiece are secure.
- 2) Adjust all the facepiece head straps to their full outward position. (See Figure 4.)

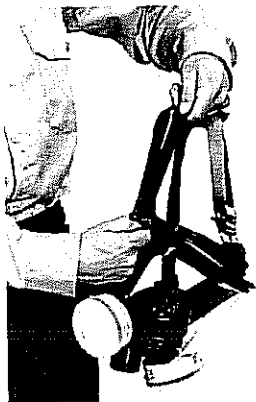


FIGURE 4
Adjusting the Head Straps

- 3) Put on the facepiece by grasping the head strap harness and with your thumbs through the straps, spread outward place the Back Pack breathing tubes (if so equipped) over your head. (See Figure 5 and 5A.)



FIGURE 5
Spreading the Head Strap

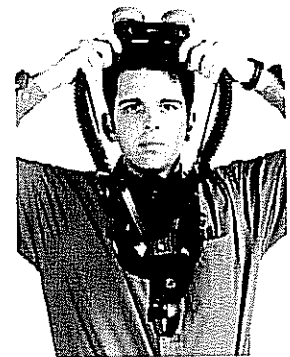


FIGURE 5A
Spreading the Head Strap with the Back Pack Accessory

- 4) Push the harness top up your forehead, brushing your hair upward from the seal area. Continue up and over your head until the harness is centered at the rear of your head, and your chin fits into the chin cup. (See Figure 6.)



FIGURE 6
Placing the Facepiece on Your Head

- 5) Make sure the facepiece is centered on your face and pull both lower head straps at the same time toward the rear. (See Figure 7.)



FIGURE 7
Tightening the Lower Head Straps

- 6) Tighten the two upper head straps. (See Figure 8.)



FIGURE 8
Tightening the Upper Head Straps

- 7) For the 7600 Series, tighten the forehead head strap. (See Figure 9.)



FIGURE 9
Tightening the Forehead Head Strap on the 7600 Series

- 8) Conduct a positive or negative seal check as follows:

To conduct a negative pressure seal check, place the palms of your hands over the openings in the cartridges or filter covers (if so equipped), or unscrew the air-purifying elements from the respirator and place the palms of your hands over the inhalation connectors, inhale and hold your breath for about 5 seconds. (See Figure 10.) If the facepiece collapses slightly and no air leaks between the facepiece and your face are detected, an effective seal has been obtained. If air leaks are detected, reposition the facepiece on your face and/or readjust the tension of the head harness and repeat the negative pressure check until an effective seal is obtained.

To conduct a negative pressure seal check with the Back Pack accessory, grasp each breathing tube and squeeze a tight fold in each, inhale and hold your breath for about 5 seconds. (See Figure 10A.) If air leaks are detected, reposition the facepiece on your face and/or readjust the tension of the head harness and repeat the negative pressure check until an effective seal has been obtained.

If the air-purifying elements were removed, once an effective facepiece-to-face seal is obtained, a co-worker or a representative of the Safety or Industrial Hygiene Department must assist you by screwing the air-purifying elements onto the inhalation connectors mounted on the facepiece. (This must be done without removing the facepiece from your face.) Check to be sure that each air-purifying element is effectively sealed against the grommet on the facepiece lens. (See Figure 10 and 10A.)

To conduct a positive pressure seal check, block the openings in the exhalation valve guard using the palm of your hand and simultaneously exhale. If the facepiece bulges slightly and no air leaks between the facepiece and your face are detected, an effective seal has been obtained. If air is detected to be leaking out between the facepiece and your face, reposition the facepiece on your face and/or readjust the tension of the head harness to eliminate the leakage. This check must be repeated until an effective seal of the facepiece to face is obtained. (See Figure 11.)



FIGURE 10
Negative Pressure Seal Check



FIGURE 10A
Negative Pressure Seal Check With Back Pack Accessory



FIGURE 11
Positive Pressure Seal Check

4 USE

▲ WARNING

If the air-purifying elements have End-Of-Service-Life Indicators (ESLI), you must be able to see the End-of-Service-Life Indicators without manipulation of the cartridges or facepiece while wearing the respirator.

Refer to specific user instructions supplied with cartridges for additional ESLI information.

Do not use the Back Pack accessory with air-purifying elements that have End-Of-Service-Life Indicators, because you will not be able to see the End-of-Service-Life Indicators while wearing the respirator.

If you cannot see the indicators, do not use the respirator because you will not know when the cartridge has expired. Should this occur, and you remain in the contaminated work area, you risk exposure to hazardous quantities of the air contaminant which can result in serious injury, illness or death.

You are now ready to enter the use environment for which the air purifying respirator is intended.

▲ WARNING

Immediately leave the work area and replace the respirator if:

- i. breathing becomes difficult;
- ii. dizziness or other distress occurs;
- iii. you smell, taste or sense irritation from the contaminants in the work area;
- iv. the air purifying element is equipped with an End-of-Service-Life Indicator which has changed color to indicate expiration, or
- v. the respirator becomes damaged.

Should any of these occur, and you remain in the contaminated work area, you risk exposure to hazardous quantities of the air contaminant which can result in serious injury, illness or death.

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The service life of this respirator will vary depending on the work environment.

4.1.1 CARTRIDGES

When you are using a gas or vapor cartridge respirator which does not have End-Of-Service-Life Indicators, you must establish a change out schedule that will result in cartridges being changed before the end of their useful life. North provides EZ GUIDE™ software for assisting the user in establishing a change out schedule.

If the respirator has End-Of-Service-Life Indicators, the cartridges must be changed when the color of either one of the indicators match the color standard indicated on the cartridge.

4.1.2 PARTICULATE FILTERS

When you are using a particulate filter respirator, or a gas or vapor respirator with filters attached, the filters should be replaced when breathing becomes difficult.

Any "R" class filter if used in an oil environment must be replaced after 8 hours of total use, or sooner, regardless of breathing resistance.

5 TO TAKE OFF THE RESPIRATOR

- 1) Go to an area with uncontaminated breathable air.
- 2) Loosen head bands and remove the facepiece.

6 TURNAROUND MAINTENANCE

NOTE

It is good hygiene practice to replace the air-purifying elements after a single day of use even if the service life of the air-purifying elements has not expired.

⚠ WARNING

Always replace air-purifying elements after water spray decontamination. Excessive moisture can damage the air-purifying elements and expose the user to the risk of serious injury, illness or death.

After each use, the respirator should be examined by trained personnel.

NOTE

The replacement of air-purifying elements must be done in a safe area containing uncontaminated breathable air.

6.1 AIR-PURIFYING ELEMENT REPLACEMENT

6.1.1 FILTERS

To replace pad style filters, detach the filter cover from the cartridge or filter holder, discard the old filters and replace them with new ones. Follow the directions printed on the filter for proper orientation. Check to ensure that the entire outer edge of the filters are seated evenly and securely against the inner wall of the filter covers. Snap the filter covers with the filters to the cartridges or filter holders. (See Figures 1 and 2.)

6.1.2 CARTRIDGES

To replace gas, particulate or combination cartridges, unscrew them from the inhalation connectors, which are mounted on the facepiece, and discard them. Screw on new air-purifying elements effectively to insure an effective seal between each air-purifying element and the grommet on the facepiece lens. (See Figure 3.)

6.2 INSPECTION

Visually inspect all components for damage or wear, especially rubber parts. Replace parts where needed.

If needed, clean and sanitize the facepiece assembly. (See Section 8: Periodic Maintenance.

7 STORAGE

Store in a clean dry area in the respirator storage bag provided with the facepiece.

CAUTION

Rubber and elastomeric parts must be stored in a manner which will prevent them from taking an abnormal set. Do not expose this device, during storage, to excessive heat (above 140°F/60°C), moisture, contaminating gaseous substances or airborne particulates. Excessive heat may distort the facepiece resulting in the inability to achieve a proper fit. Moisture and contaminated air can damage the air purifying elements. Either of these conditions will expose the wearer to the risk of serious injury, illness or death.

8 PERIODIC MAINTENANCE

As needed, remove, inspect and clean facepiece and breathing tube assembly.

⚠ WARNING

The NIOSH Approval and all North warranties for this respirator are nullified if other than North replacement parts are used.

CAUTION

All O-Rings and gaskets must be replaced at least once a year.

8.1 CLEANING AND SANITIZING

⚠ WARNING

Never allow air-purifying elements to come in contact with water or cleaning and sanitizing solutions. Excessive moisture can damage the air-purifying elements and expose the user to the risk of serious injury, illness or death.

- 1) Remove air-purifying elements from connectors.
- 2) Remove breathing tubes if so equipped
- 3) Inspect the head straps and clips for wear. Check all elastomer and rubber parts for pliability and signs of deterioration. (See Figure 12.)

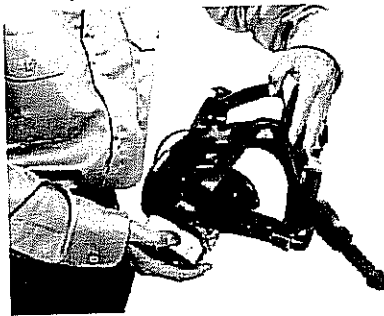


FIGURE 12
Inspecting the Facepiece

- 4a) For the 7600 Series, unscrew and remove the exhalation valve guard, valve and seat. (See Figure 13.)

For the 5400 Series, Remove the Oral/Nasal Cup by pulling it from the mask, push and twist the exhalation housing assembly counterclockwise and remove. (See Figures 15 and 13A.)

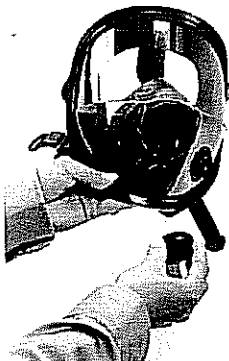


FIGURE 13
Removing the Exhalation Valve on the 7600 Series

- b) Remove the threaded plastic flange which held the exhalation valve seat from the inside of the oral/nasal cup. (See Figure 14.)

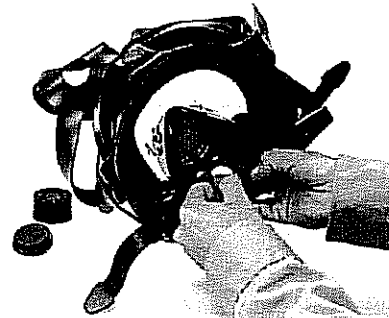


FIGURE 14
Removing the Plastic Flange on the 7600 Series

- c) Remove the oral/nasal cup assembly by pulling it from the mask. (See Figure 15.)

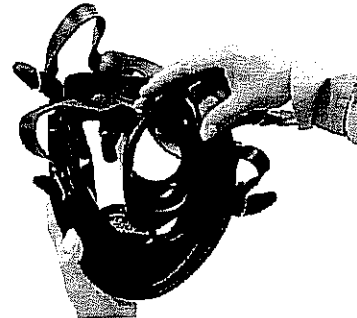


FIGURE 15
Removing the Oral/Nasal Cup

- d) Unscrew the nut retaining the speech diaphragm and remove the diaphragm and O-Ring. Inspect O-Ring for damage, replace if necessary. (See Figure 16.)

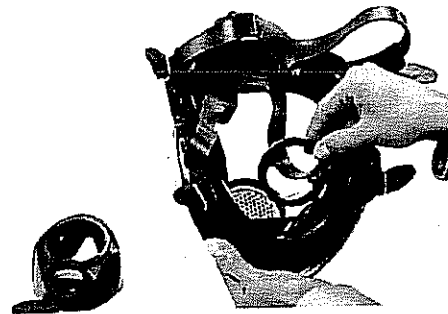


FIGURE 16
Removing the Speech Diaphragm on the 7600 Series

- e) Remove the speech diaphragm housing and O-Ring from the facepiece by unscrewing the nut on the outside. Inspect the O-Ring for damage, replace if necessary. (See Figure 17.)

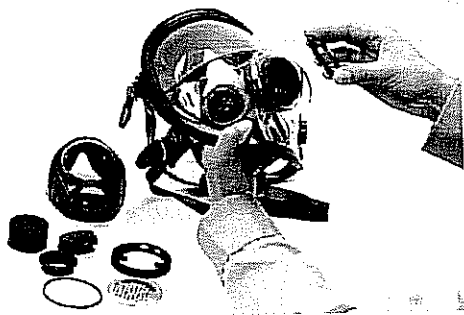


FIGURE 17
Removing the Speech Diaphragm Housing on the 7600 Series

- 5) For the 5400 Series, remove the Oral/Nasal cup by pulling it from the mask, push and twist the exhalation housing assembly counterclockwise and remove. (See Figures 15 and 18.)



FIGURE 18
Removing the Exhalation Housing on the 5400 Series

- 6) For both the 7600 and 5400 Series, remove the inhalation connectors and their grommets from the facepiece. Inspect the grommets for damage, replace if necessary. (See Figure 19.)

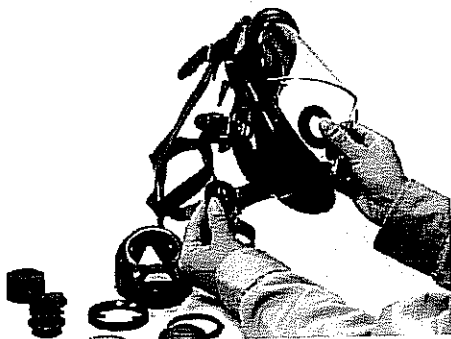


FIGURE 19
Removing the Inhalation Connector

- 7) Prepare a solution of cleaner/sanitizer (North Catalog number 80992) according to the cleaner/sanitizer instructions.
- 8) Wash the facepiece assembly in cleaning solution.

CAUTION

Do not use abrasive cleaners on the lens. Abrasives can remove the protective coating from the lens making it susceptible to scratching and chemical degradation.

- 9) Rinse the facepiece completely in clean warm water, then air dry in a clean area.
- 10) Visually inspect the exhalation valve for damage, replace if necessary.
- 11) Check the oral/nasal cup and its inhalation valves system for distortion, damage and completeness.
- 12) Reassemble the facepiece. Follow steps 2 through 8 above, in reverse order. Make sure all O-Rings are in place.
- 13) An anti-fog coating may be applied to the lens of the facepiece only after the lens area has dried (North Catalog Numbers 80944 or 80945). This is mandatory when the respirator will be used in temperatures below 32°F (0°C).

8.2 PREPARE FOR USE

- 1) Install a new pair of air-purifying elements.
- 2) Perform a seal check to make sure that components are functioning properly.

9 REPLACEMENT PARTS

9.1 7600 REPLACEMENT PARTS (See Figure 20)

COMPLETE ASSEMBLIES, 7600 SERIES

CATALOG NUMBER	DESCRIPTION
7600-8A	Complete Facepiece Assembly, Medium/Large
7600-8AS	Complete Facepiece Assembly, Small

COMPONENTS, 7600 SERIES

ITEM NUMBER	CATALOG NUMBER	DESCRIPTION	ITEM NUMBER	CATALOG NUMBER	DESCRIPTION
1	80840	Basic Facepiece, Medium/Large	14	80814	Valve Seat, Inhalation
1	80801	Basic Facepiece, Small	15	80855	Locking Ring
2 & 3	80798	Lens Clamp, Upper & Lower	16	80856	Speech Diaphragm
4	80843	Screw, Lens Clamp	17	80857	O-Ring, Speech Diaphragm
5	80844	Nut, Lens Clamp	18	80858	Housing, Speech Diaphragm
6	80845	Head strap (less hardware)	19	80861	O-Ring, Speech Diaphragm Housing
7	80846	Latch, Head strap			Housing
8	80847	Bail, Head strap	20	80862	Nut, Speech Diaphragm Housing
9	80848	Neckstrap Assembly	21	80863	Exhalation Valve Seat
10	80849	Lens	22	7700-18	Exhalation Valve
11	80852	Flange	23	80867	Exhalation Valve Guard
12	80815	Oral/Nasal Cup, Medium/Large	24	7700-16	Inhalation Connector
12	80800	Oral/Nasal Cup, Small	25	80871	Grommet
13	7700-17	Inhalation Valve			

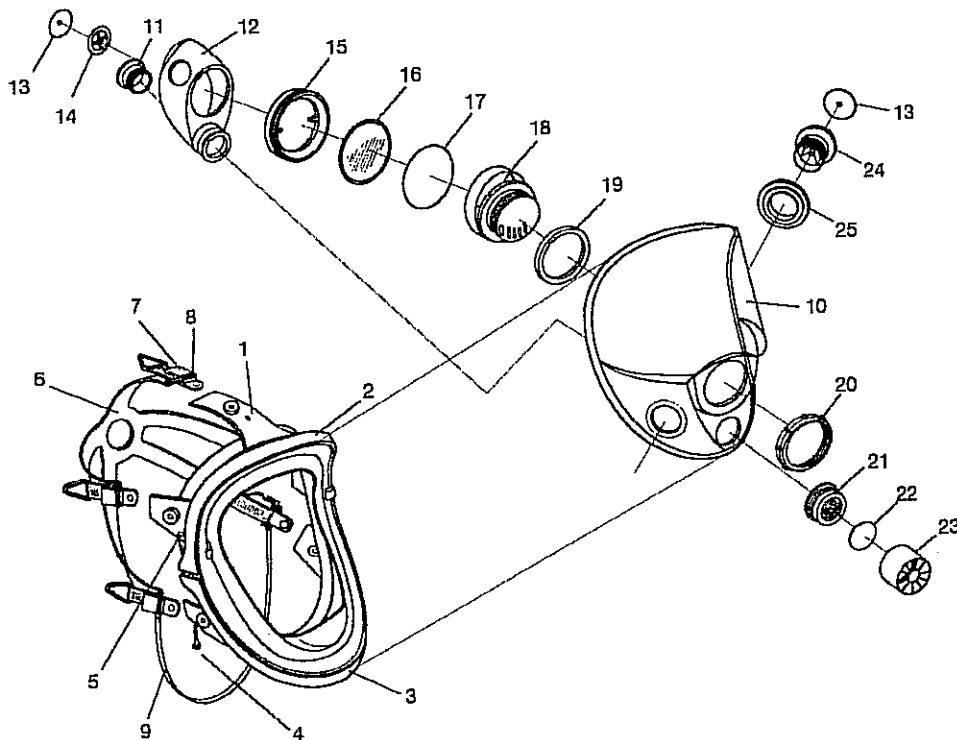


FIGURE 20
Replacement Parts for the 7600 Series

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9.2 5400 REPLACEMENT PARTS (See Figure 21.)

COMPLETE ASSEMBLIES, 5400 SERIES

CATALOG NUMBER	DESCRIPTION
54001S	5400 Series Negative Pressure Respirator, Small
54001	5400 Series Negative Pressure Respirator, M/L

COMPONENTS, 5400 SERIES

ITEM NUMBER	CATALOG NUMBER	DESCRIPTION	ITEM NUMBER	CATALOG NUMBER	DESCRIPTION
1	54002	Facepiece Seal, M/L	11	7700-18	Exhalation Valve
1	54002S	Facepiece Seal, Small	12	54007	Exhalation Housing
2 & 3	80798	Lens Clamp, Upper & Lower	13	54008	Cover, Exhalation Housing
4	80843	Screw, Lens Clamp	14	54003	Gasket (5 Pack)
5	80844	Nut, Lens Clamp	15	80871	Inhalation Connector
6	80757	Head strap Assembly	16	7700-16	Grommet
7	54005	Lens			
8	54006	Oral/Nasal Cup			
9	7700-17	Inhalation Valve			
10	80814	Valve Seal, Inhalation			

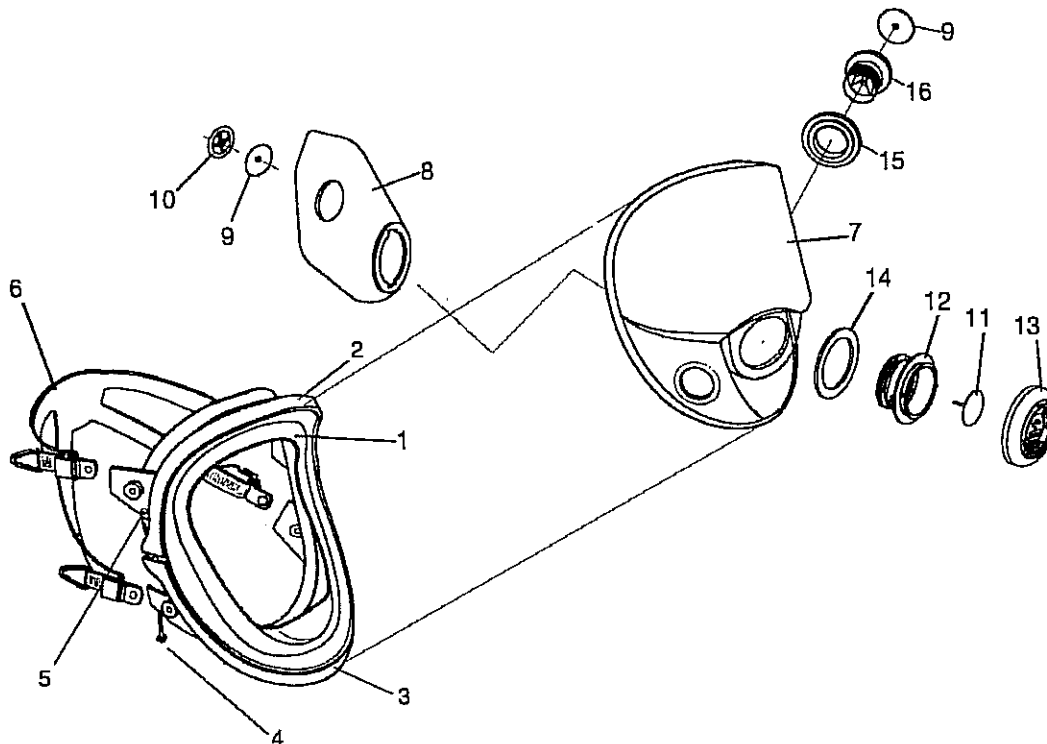


FIGURE 21
Replacement Parts for the 5400 Series

10 ACCESSORIES

7600 SERIES ACCESSORIES

CATALOG NUMBER	DESCRIPTION	CATALOG NUMBER	DESCRIPTION
7700-21	Fit Test Adapter	80944	Antifog Pad
7600-22	Spectacle Assembly (metal, less lenses)	80945	Antifog Cloth
N7500-27	Seal check / Filter Cover	80992	Cleaner / Sanitizer Powder
8404	Welding Shield Kit	EZ GUIDE™	EZ GUIDE™ CD/ROM
80100	Spectacle Assembly (plastic, less lenses)	BP1002	Back Pack Accessory
80836	Peel-off Window	CF2007	Interchangeable Breathing Tube (Continuous Flow Airline Adapter)
7600VA	Voice Amplifier		

5400 SERIES ACCESSORIES

CATALOG NUMBER	DESCRIPTION	CATALOG NUMBER	DESCRIPTION
7700-21	Fit Test Adapter	80945	Antifog Cloth
N7500-27	Seal check / Filter Cover	80992	Cleaner / Sanitizer Powder
80100	Spectacle Assembly (plastic, less lenses)	EZ GUIDE™	EZ GUIDE™ CD/ROM
80836	Peel-off Window	BP1002	Back Pack Accessory
80944	Antifog Pad	CF2007	Interchangeable Breathing Tube (Continuous Flow Airline Adapter)
8405	Welding Shield Kit		

11 KEY TO CAUTIONS AND LIMITATIONS CONTAINED IN NIOSH APPROVAL LABELS

- A** – Not for use in atmospheres containing less than 19.5 % Oxygen.
- B** – Not for use in atmospheres immediately dangerous to life or health.
- C** – Do not exceed maximum use concentrations established by regulatory standards.
- H** – Follow established cartridge or canister change schedules or observe ESLI to ensure that cartridge and canisters are replaced before breakthrough occurs.
- J** – Failure to properly use and maintain this product could result in injury or death.
- K** – The Occupational Safety and Health Administration regulations require gas-proof goggles to be worn with this respirator when used against formaldehyde.
- L** – Follow the manufacturer's User's Instructions for changing cartridges, canisters, and/or filters.
- M** – All approved respirators shall be selected, fitted, used, and maintained in accordance with MSHA, OSHA, and other applicable regulations.
- N** – Never substitute, modify, add or omit parts. Use only exact replacement parts in the configuration as specified by the manufacturer.
- O** – Refer to User's Instructions, and/or maintenance manuals for information on use and maintenance of these respirators.
- P** – NIOSH does not evaluate respirators for use as surgical masks.
- S** – Special or critical User's Instructions and/or specific use limitations apply. Refer to User's Instructions before donning.

11.1 S - SPECIAL USER'S INSTRUCTIONS

▲ WARNING

Apply an anti-fog compound to the inside of the lens if the respirator will be used at temperatures below 32°F (0°C). This will reduce fogging on the inside of the facepiece lens so the user can continue to see through it.

If the air-purifying elements have End-Of-Service-Life Indicators, you must be able to see the End-of-Service-Life Indicators without manipulation of the cartridges or facepiece while wearing the respirator.

Refer to specific user instructions supplied with cartridges for additional ESLI information.

Do not use the Back Pack accessory with air-purifying elements that have End-Of-Service-Life Indicators, because you will not be able to see the End-of-Service-Life Indicators while wearing the respirator.

If you cannot see the indicators, do not use the respirator because you will not know when the cartridge has expired. Should this occur, and you remain in the contaminated work area, you risk exposure to hazardous quantities of the air contaminant which can result in serious injury, illness or death.

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