Stennis Hazardous Coatings
Contractor Requirements Summary

What Is A Hazardous Coating?

Any metal or concrete surface coating (including paint) that meets one or more of the following criteria:

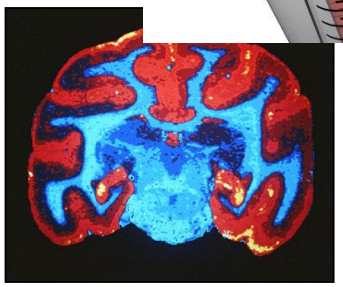
- ***LEAD*** ≥ 0.5%
- ***HEXAVALENT CHROMIUM*** (hex chrome) ≥ 0.10%
- ***CADMIUM*** ≥ 0.10%
- ***PCB*** ≥ 50 PPM coal tar/asbestos wrapped underground piping
- ***PRESUMED HAZARDOUS*** (no assessment performed)

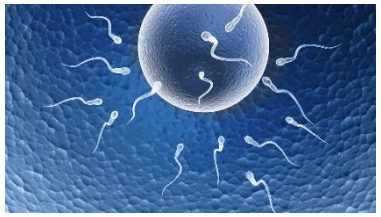
On-Site Sources of Exposure To Hazardous Coatings

- Performing hot work (welding, cutting, burning) on hazardous coatings
- Grinding surfaces with hazardous coating
- Working around flaking paint
- Paint abatement (intact or flaking paint)
- Application of new paint (chromate-containing paint)
- Demolition of metal or concrete structures
- Normal maintenance activity that disturbs hazardous coatings

Lead Health Effects

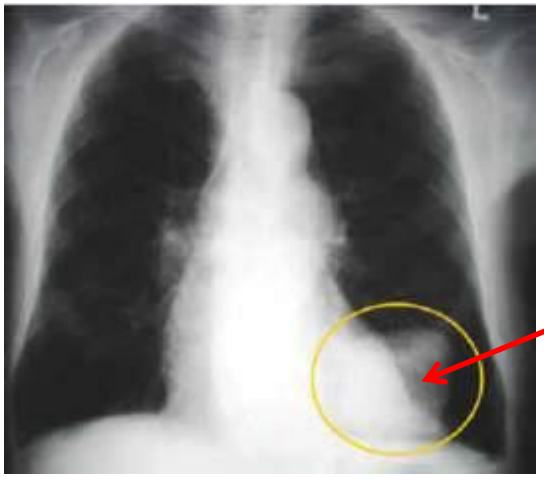
- Lead attaches to the red blood cells in the body.
- Lead exposure causes high blood pressure, may increase risk of heart attack, stroke and kidney disease.
- The nervous system is most affected by lead.
- Lead damages the brain and can kill brain cells.
- Lead poisoning can damage the fetus in pregnant female workers and impair fertility in both female and male workers.



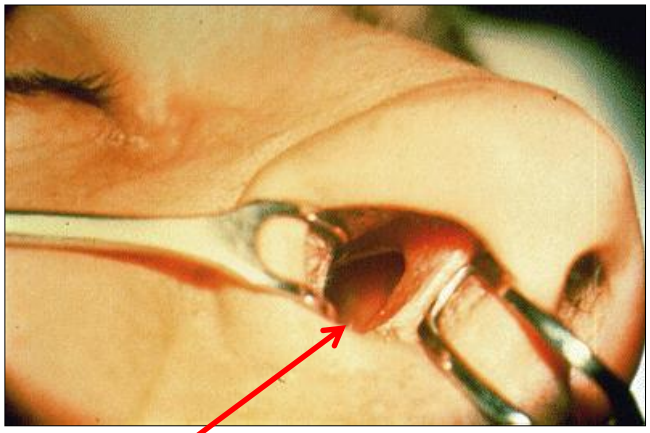


Hexavalent Chromium Health Effects

- Lung cancer
- Nasal septum ulcers or perforations
- Bronchitis or asthma



X-ray showing lung cancer



Perforation of the nasal septum from hex chrome exposure

Cadmium Health Effects

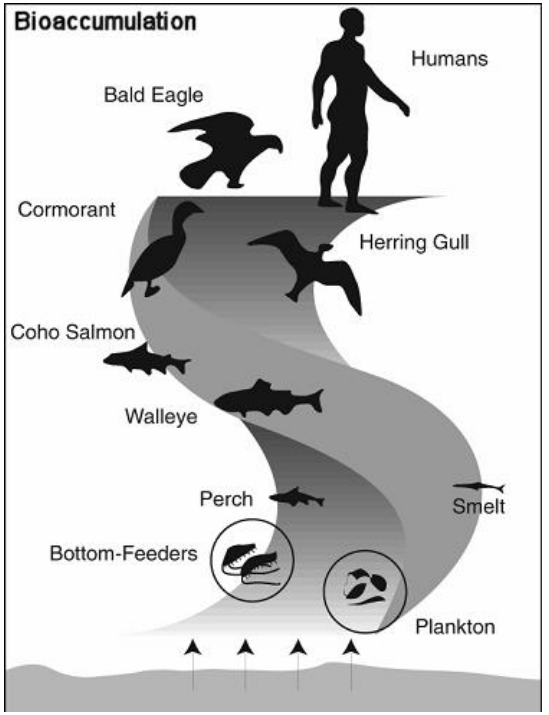
- Acute exposures to high concentrations of cadmium dust and fumes can produce
  - Lung irritation
  - Pulmonary edema
  - In some cases, death

- Long-term exposure to low levels of cadmium in air can result in
  - Emphysema
  - Kidney damage

PCB Health Effects

- PCBs have been shown to cause cancer in laboratory animals.

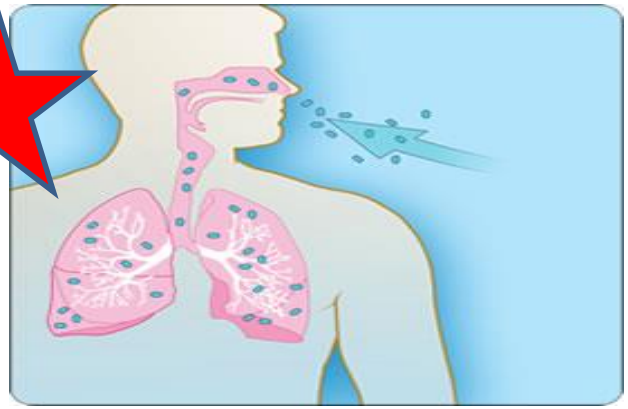
- PCBs bio-accumulates in the environment



- PCBs have also been shown to cause a number of serious non-cancer health effects in animals, including:
  - Immune system
  - Reproductive system
  - Nervous system
  - Endocrine system, liver
  - Skin disorders, chloracne

Hazardous Coating Exposure Routes

- The primary route of exposure to hazardous coatings at SSC is by inhalation

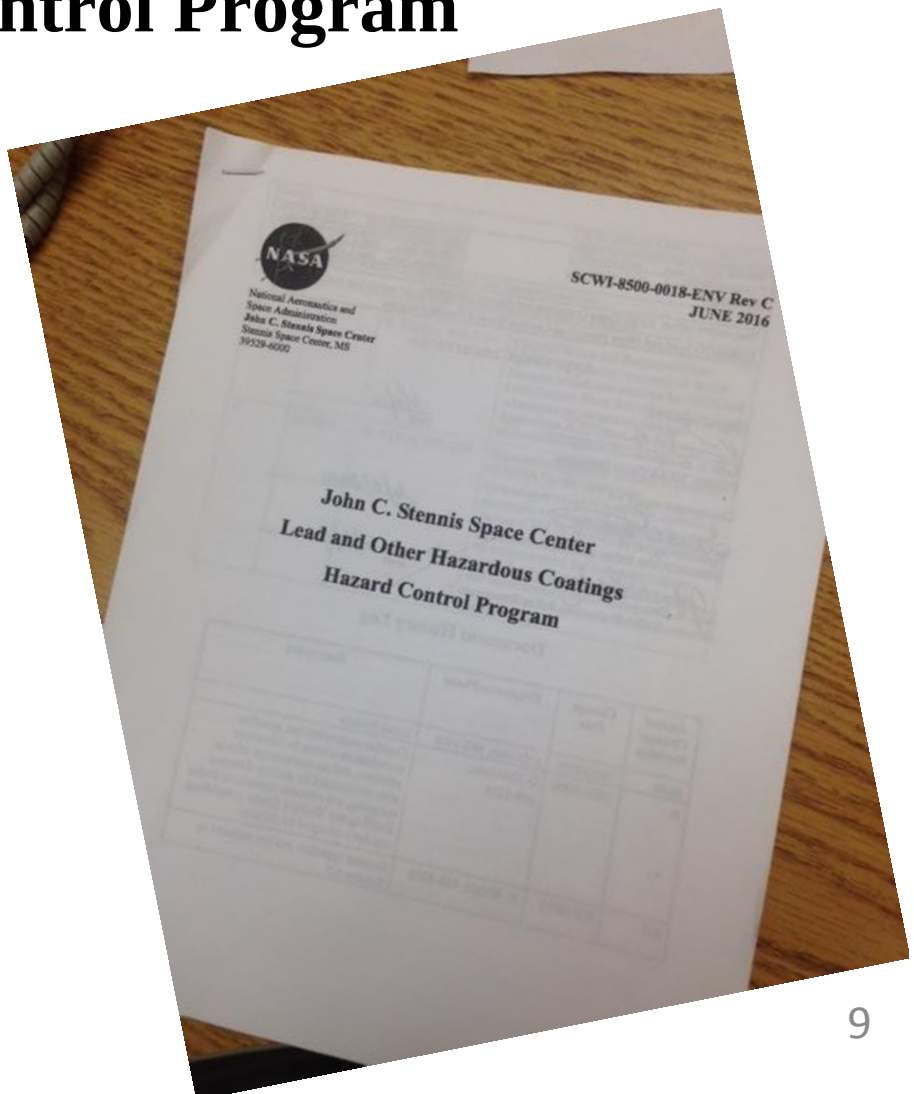


- Another route is by ingesting contaminated residue from your hands or clothing (for example, when eating, chewing gum, or use of tobacco products)

- PCBs may also enter the body by skin absorption

SCWI-8500-0018-ENV
Lead Paint and Other Hazardous Coatings
Hazard Control Program

Requirements for ALL hazardous coating disturbance activities



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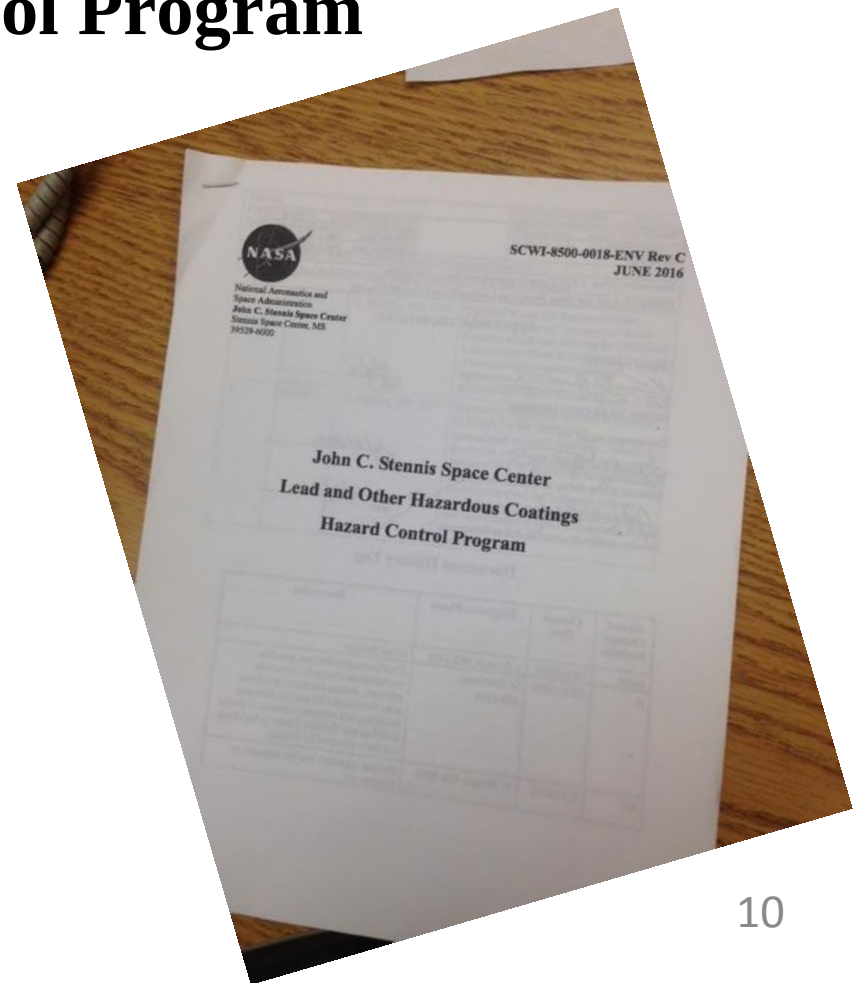
Lead Paint and Other Hazardous Coatings Hazard Control Program

The full contractor requirements are in actual Work Instruction



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Lead Paint and Other Hazardous Coatings Hazard Control Program

- Applies to any activity involving the disturbance (including removal) on metal or concrete surfaces.
- Also, the application of hazardous coating on any surface.

Effective Date of SSC Hazardous Coatings SCWI

Applies to contracts sent out for bid after June 3, 2016

Requirements for All Hazardous Coating Disturbance Activities

- Presumption of Hazardous Coating
- Hazardous Coating Assessment
- Containment and Debris Collection System
- Containment Verification
- Compliance with Applicable Regulations
- Contractor Qualifications
- Solid and Hazardous Waste Management
- E&IH Specification & Project Review
- Project and Contractor Transmittal E&IH Review
- Hazardous Coating Work Plans
- Clearance
- Training
- Hazardous Coating Application Requirements
- Other requirements (see SCWI)

Presumption of Hazardous Coating

- All coatings on metal or concrete surfaces must be presumed to be hazardous coatings, unless a hazardous coating assessment has determined that the coating is not a hazardous coating.

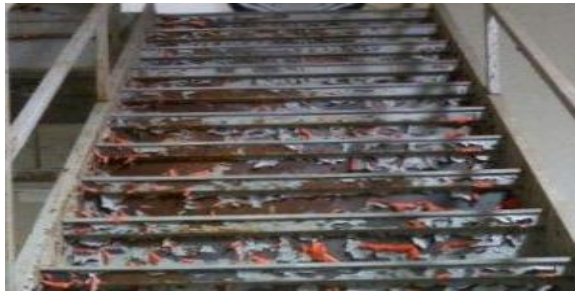
- There must also be a presumption that any coal tar/asphalt coating on underground piping contains PCBs, unless determined to be less than 50 ppm PCBs.

It IS, until we prove it AIN'T!

Hazardous Coating Assessment

- Prior to disturbing ANY intact or flaking coating on a metal or concrete surface, the coating must the assessed for lead, hexavalent chromium, and cadmium content.

- Any underground piping, with asphalt wrap/coating, must be assessed for PCBs.



Hazardous Coating Assessment

- Assessments may only be conducted by qualified lead inspectors (e.g., S3 IH).
- Assessment may be made from lab analysis, historical records or project records.
- Assessments must be in writing

Assessment Report

Yes- Lead: 0.6%

No- Cr6: 0.000001%

No- Cadmium:0.00%

S3 IH

Compliance with Applicable Requirements & Solid and Hazardous Waste Management Plan

- Activities must be performed in strict compliance with all applicable Federal, State, NASA, and other requirements.
- EPA, MDEQ, OSHA
- All hazardous coatings debris and contaminated material (PPE, etc.) must be collected and containerized
- Contractors must contact S3 Construction Manager for waste management instructions.

EPA United States Environmental Protection Agency

OSHA®

MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY

Air Water Soil People

Qualifications – Contractors

- All hazardous coatings work must be performed by qualified companies and employees.

- Must be performed by experienced lead abatement contractors with qualified supervisors and employees.

- At Stennis, there is an allowance for qualified S3 employees to perform “small scale jobs”

Environmental & Industrial Hygiene Review

- All hazardous coating disturbance activities require Environmental and Industrial Hygiene Review.

- This is to assure compliance with all regulatory and NASA requirements with minimal negative impact on:
  - Workers
  - Nearby employees
  - Public
  - Environment

Environmental & Industrial Hygiene Review

- Require both NASA and S3 environmental and NASA and S3 industrial hygiene must review and approve hazardous coating projects .

- Review required for two project phases:
  - Design & project review prior project sent out for contractor bid
  - Review of contractor transmittals from contract winner

Environmental and IH Review Design Phase

- Review of proposed project
- Determine applicable requirements
- Determine containment system requirements
- Determine NASA and Contractor containment verification requirements
- Determine clearance criteria
- Develop contractor specifications

Environmental and IH Review
Contractor Transmittal Review

- Description of the coating removal method and process
- Contractor qualifications, licensing, and employee training
- Shop drawings of the containment and debris collection system design
- Detailed description of the containment and debris collection system per SSCP containment and debris collection system classification by NASA (e.g., 1A, 1W, 2A, 3W, etc.).

(Continued)

Environmental and IH Review Contractor Transmittal Review

- Detailed description of equipment used to:
  - produce negative pressure inside containment
  - record negative pressure - continuous manometer
  - produce breathing air (if applicable)

- Methods for maintaining and verifying containment and collection system effectiveness and integrity (inspections, negative pressure management, repair, etc.)

- A detailed hazard coating work plan (details in SCWI)

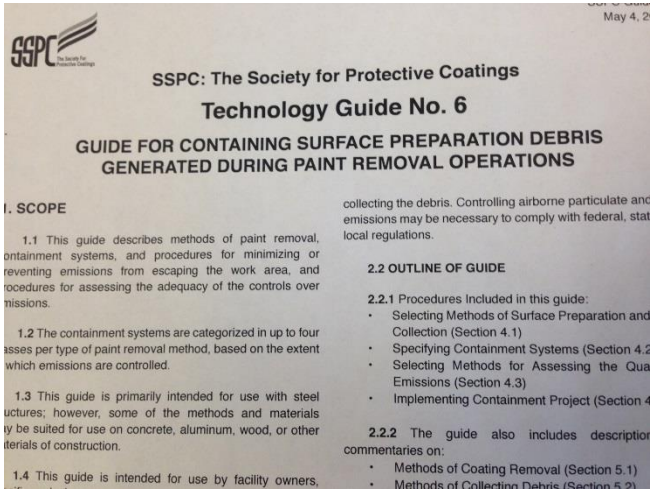
- Waste management plan, including solid waste collection, containerizing, recycling, and disposal

Containment & Debris Collection System

A containment & debris collection is a system used to minimize or prevent emissions of contaminated debris generated

Containment & Debris Collection System

- ALL hazardous coating disturbance activities **must** have a containment and debris collection system
- SSC has adopted containment and debris collection system requirements of SSPC Guide 6.
- SSPC Guide 6 describes methods of coating removal, containment and debris collection systems, and procedures for minimizing or preventing emissions from escaping the work area.



SSPC: The Society for Protective Coatings

Technology Guide No. 6

GUIDE FOR CONTAINING SURFACE PREPARATION DEBRIS GENERATED DURING PAINT REMOVAL OPERATIONS

1. SCOPE

1.1 This guide describes methods of paint removal, containment systems, and procedures for minimizing or preventing emissions from escaping the work area, and procedures for assessing the adequacy of the controls over emissions.

1.2 The containment systems are categorized in up to four classes per type of paint removal method, based on the extent to which emissions are controlled.

1.3 This guide is primarily intended for use with steel structures; however, some of the methods and materials may be suited for use on concrete, aluminum, wood, or other materials of construction.

1.4 This guide is intended for use by facility owners,

collecting the debris. Controlling airborne particulate and emissions may be necessary to comply with federal, state, local regulations.

2.2 OUTLINE OF GUIDE

2.2.1 Procedures Included in this guide:

- Selecting Methods of Surface Preparation and Collection (Section 4.1)
- Specifying Containment Systems (Section 4.2
- Selecting Methods for Assessing the Qua Emissions (Section 4.3)
- Implementing Containment Project (Section 4

2.2.2 The guide also includes description commentaries on:

- Methods of Coating Removal (Section 5.1)
- Methods of Collecting Debris (Section 5.2)

Containment & Debris Collection System

Requirements for the design of containment & debris systems vary, depending on:

- Method of coating removal

- Risk of the debris exposing the public, nearby employees, and contaminating nearby environmental systems (air, soil, water) and critical assets

Containment & Debris Collection System

Requirements for the design of containment & debris systems can range from:

- A full negative pressure containment system with 3-stage decon & shower (dry abrasive blasting)
- Glove bag (small scale spot abatement)
- Grinder with properly designed shroud and HEPA vac. (small scale job on a flat surface)

Containment Verification

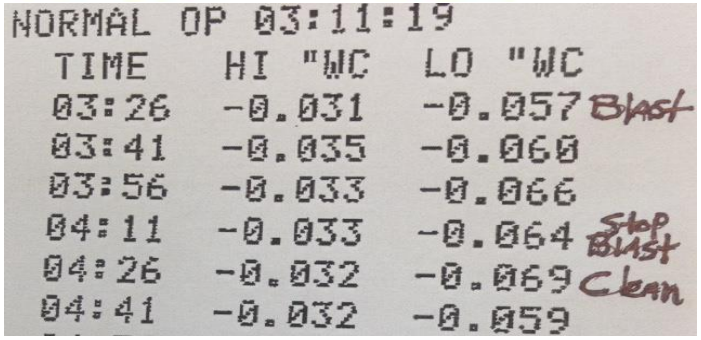
- Each hazardous coating activity must include a verification of containment integrity process.
- Both NASA and the Contractor each have containment verification responsibilities
- To verify that the methods, processes, plans, work practices and procedures are effective
- Management of the containment verification process is required from start of disturbance to finish of a job

OBJECTIVE:

Ensure nothing leaves containment

Contactor Containment Verification

- Use continuous-reading manometer to verify required -0.03” negative pressure of containment
- Record specific work activity on the continuous manometer tape
- Collect full shift air samples and settled dust surface wipe samples outside the containment



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Contactor Containment Verification

- Conduct visual inspections for physical condition of the containment and emissions of debris outside containment.
- Report immediately to S3 Construction Manager, loss of negative pressure, when outside sample results exceed NASA emission levels or when debris is observed outside containment.
- Maintain and provide NASA immediate access to containment verification documentation.

Clearance

- All hazardous coatings activities require adequate removal and cleanup of hazardous coatings debris

- The basic requirement is that there be **no** visible coating debris remaining inside containment or adjacent to outside of containment

Training

- Contractor supervisor must complete competent person training

- Contractor employees must complete OSHA-required training for lead, hexavalent chromium and cadmium, as applicable.

Hazardous Coating Application Requirements

- The application of coatings containing lead, cadmium or PCBs is prohibited at SSC.

- The application of coatings containing greater than 0.1% hexavalent chromium (Cr6) is **restricted** and requires completion and approval of Form SSC 862, SSC Hazardous Materials Approval Form.

- The proposed use of these coating require full justification

Summary of Contractor Hazardous Coating Contractor Responsibilities

- Comply with all applicable Federal, State, and NASA requirements.
- Presume that all painted metal and concrete surfaces contain hazardous coatings unless verified by NASA or representative.
- Perform applicable exposure assessments for hazardous coating constituents and implement hazard control measures to protect employees.
- When required by regulations or NASA, install and maintain containment and debris collection systems
- Implement the required contractor containment verification activities.

(Continued)

Summary of Hazardous Coating Contractor Responsibilities

- Establish and maintain regulated areas
- Notify S3 Construction Manager immediately:
  - Upon discovery of any previously unidentified suspect hazardous coating;
  - Upon discovery of emissions from a containment and/or debris collection system; or,
  - If hazardous coating has potentially been released from containment or regulated areas.
- Ensure that all contractor employees are trained and qualified in compliance with this Work Instruction and all State and Federal regulations.
- Provide a qualified Competent Person continually on site while hazardous coating disturbance and cleanup activities are occurring.

Note: Detailed responsibilities are in Hazardous Coating SCWI


ANY
QUESTIONS
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