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**COMPLIANCE ASSESSMENT -
SAFETY, HEALTH, AND THE ENVIRONMENT
(CASHE)
AND SAFETY CONDITION ASSESSMENT**

DRAFT FINAL REPORT

**DEPARTMENT OF INTERIOR
MAIN AND SOUTH INTERIOR BUILDINGS
WASHINGTON, DC**

**Site Assessment Period:
January 22 - 25, 2007**



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January 26, 2007

**CASHE
DRAFT FINAL REPORT**

**DEPARTMENT OF INTERIOR
MAIN AND SOUTH INTERIOR BUILDINGS**

This document contains information exempt from mandatory disclosure under the Freedom of Information Act. Distribution is limited to US Government agencies only.

Requests for this document must be referred to
the Department of Interior or the BLM CASHE Program Lead.

The Compliance Assessment - Safety, Health, and the Environment (CASHE) process was established to provide the Bureau of Land Management (BLM) with a proactive means of maintaining and sustaining compliance with Federal, State, and local environmental and hazardous materials safety regulations. The Department of Interior is utilizing the CASHE process in evaluating compliance at its facilities.

The draft final report generated during the CASHE site assessment period contains the preliminary findings identified during the assessment. The final report will include an executive summary, detailed discussion of each finding, recommendations, assessment background, and scope.

Aarcher submitted this draft final report to the Department of Interior for review and comment. Contact Ken Morin, CASHE Program Lead at BLM, or Bonnie Wisniewski, CASHE Program Manager at Aarcher, Inc., if there are any questions concerning the findings or deliverable reports.

Comments on this deliverable, including Point(s) of Contact and Status (see Section 2.0 for details), should be made directly on the report and mailed or faxed to Bonnie Wisniewski at Aarcher, Inc. by April 2, 2007.

Aarcher, Inc. performs ongoing compliance evaluations that include inspection and evaluation of portions of assessed facilities, and testing of selected equipment and electrical systems using hand-held equipment. Because these assessments are performed within limited timeframes and generally focused on areas and equipment identified by the client, only a limited sample of equipment, systems, buildings, and areas are evaluated or tested. This random testing is intended to provide an overall indication of problems or hazards and is not intended to provide a thorough examination or inventory of all hazards or compliance deficiencies. Therefore, Aarcher does not certify or guarantee that all hazards have been identified as a result of this effort or that issues identified are necessarily representative of the entire facility.

1.0 INTRODUCTION

This document contains all preliminary findings and recommendations identified during on-site assessments conducted at the Department of Interior (DOI) Main and South Interior Buildings. The findings in this document are subject to further review by the Compliance Assessment - Safety, Health, and the Environment (CASHE) Program Lead and Archer. In addition, Archer’s technical staff will conduct follow-up research. Therefore, preliminary findings may be altered or deleted, and additional findings may be identified prior to issuing the final report.

A. Protocol Coverage

The CASHE process was established to provide the Bureau of Land Management (BLM) with a proactive means of maintaining and sustaining compliance with Federal, State, and local environmental and hazardous materials safety regulations.

The Safety Condition Assessment (SCA) portion of the process evaluates facilities for compliance with Federal, State, and local safety regulations including, but not limited to, OSHA regulations and their State and local counterparts. SCAs also evaluate compliance with nationally recognized standards and codes including, but not limited to, the most recent versions of the following: National Electric Code (NEC), National Fire Prevention Association (NFPA), Life Safety Code, and Uniform Building Code.

This assessment addresses the protocols in the following list, 22 of which are included in the CASHE Protocol Manual. The CASHE Protocol Manual provides regulatory guidance and details regarding the CASHE assessments. The 22 protocols included in the manual (indicated with an “*” in the following exhibit) provide detailed discussions of regulatory requirements and their applicability to typical government facilities.

Environmental and Transportation Protocols	Occupational Safety and Health Act Protocols
<ul style="list-style-type: none"> ▪ Air * ▪ Clean Water Act ▪ Environmental Stewardship ▪ Hazardous Materials/Hazardous Waste Transporter * ▪ Hazardous Waste and Used Oil Generator * ▪ Hazardous Waste Minimization * ▪ Hazardous Waste Treatment, Storage, and Disposal Facility * ▪ Infectious Waste * ▪ Pesticides * ▪ Polychlorinated Biphenyls * ▪ Potable Water * ▪ Solid Waste * ▪ Spill Prevention, Control, and Countermeasures * ▪ Superfund Amendments and Reauthorization Act, Title III * ▪ Superfund/Emergency Planning * ▪ Toxic Substances Control Act * ▪ Underground Storage Tanks * ▪ Wastewater * 	<ul style="list-style-type: none"> ▪ Building Code ▪ Compressed GAS and Compressed Air Equipment ▪ Compressed Gas and Compressed Air Equipment ▪ Electrical ▪ Exit Routes, Emergency Action Plans, and Fire Prevention Plans * ▪ Fire Protection ▪ General Environmental Controls ▪ Hand and Portable Powered Tools ▪ Hazardous Materials * ▪ Ionizing Radiation ▪ Machines and Machine Guarding ▪ Material Handling and Storage * ▪ Medical and First Aid ▪ Motor Vehicle ▪ Nonionizing Radiation ▪ Occupational Health and Environmental Control ▪ Personal Protective Equipment ▪ Powered Platforms, Manlifts, and Vehicle-Mounted Work Platforms ▪ Toxic and Hazardous Substances (includes Hazard Communication * and Asbestos*) ▪ Walking-Working Surfaces ▪ Welding, Cutting, and Brazing *

B. Categories of Findings

Each of the findings in this document has been categorized according to the system described below. Safety and environmental findings are classified differently, as described below. These categories will be maintained throughout the CASHE reporting process. Tables summarizing the number of findings for the assessed facilities follow the definition of classifications.

Environmental Finding Classification

Environmental findings are each assigned a class, based on applicable regulations, as follows:

Class I: Out of Compliance – This classification is for direct violations of a Federal, State, or local regulation; a signed Federal Facility Compliance Agreement; an inspection report or Notice of Violation (NOV) issued by a regulatory authority; or Executive Orders.

Class IA: Significant: Requires immediate attention. Significant deficiencies pose, or have a high likelihood to pose, a direct and immediate threat to the environment.

Class IB: Major: Requires action, but not necessarily immediate action. Major deficiencies may pose a direct threat to human health, safety, the environment.

Class IC: Minor: Administrative in nature, even though they may result in a notice of violation. Class IC findings may also include temporary or occasional instances of non-compliance.

Class II: To be Out of Compliance – This classification is for actions needed for facilities to meet established or proposed standards with a compliance deadline in the immediate or near future.

Class III: Best Management Practice – This classification is for actions that are not in violation of any current or pending regulatory requirement, but pose a threat to the environment or the health and safety of personnel. These actions should be corrected to prevent future noncompliance, to reduce the threat of environmental contamination or health/safety problems, and to demonstrate DOI's leadership in protection of personnel and the environment.

Positive – This classification is for proactive actions that exceed regulatory requirements. This classification may also be used to identify practices that are required, but are unusual among DOI facilities.

Safety Finding Classification

Safety findings are each assigned a Risk Assessment Code (RAC) based on the BLM Manual Handbook 1112-I – Safety and Health Management.

RISK ASSESSMENT CODE MATRIX			HAZARD PROBABILITY				
			Frequent	Likely	Occasional	Seldom	Unlikely
			A	B	C	D	E
SEVERITY	Catastrophic	I	RAC 1		RAC 2		RAC 3
	Critical	II				RAC 3	
	Marginal	III	RAC 2	RAC 3			
	Negligible	IV	RAC 3			RAC 4	

SEVERITY	EFFECT
I. Catastrophic	Death or permanent disability, system loss, major property damage.
II. Critical	Permanent partial disability, temporary total disability in excess of 3 months, major system damage, significant property damage.
III. Marginal	Minor injury, lost workday accident, compensable injury/illness, minor system damage, minor property damage.
IV. Negligible	First aid or minor medical treatment, minor system damage.

HAZARD PROBABILITY	
[Note: Experience and exposure affect probability of occurrence]	
A. Frequent Individual employee or item All employees or items	Occurs often in career/equipment service life Continuously experienced
B. Likely Individual employee or item All employees or items	Occurs several times in career/equipment service life Occurs frequently
C. Occasional Individual employee or item All employees or items	Occurs sometime in career/equipment service life Occurs sporadically or expected several times in service life
D. Seldom Individual employee or item All employees or items	Possibility of occurrence in career/equipment service life Occurrence remote or expected sometime in service life
E. Unlikely Individual employee or item All employees or items	Assumed will not occur in career/equipment service life Occurrence possible, not probable; expected rarely

Positive – This classification is for proactive actions that exceed regulatory requirements. This classification may also be used to identify practices that are required, but are unusual among DOI facilities.

C. Findings Overview

Summaries of the number of findings identified for all assessed facilities are included in the following exhibit. These numbers are not intended to provide a summary of the overall compliance status of the assessed facilities; instead, the number of findings for a given facility generally correlates to facility size and to the types of operations conducted on site. To gain an accurate understanding of the compliance status of the assessed facilities, a careful review of the findings in Section 5.0 is necessary.

The exhibits are divided into two tables; one for environmental protocols and one for safety protocols. The exhibits further identify the number of findings, including number of repeat findings, by protocol and priority level or risk assessment code (see Section 2.0 for a definition of priority levels and risk assessment codes).

Interior Complex Finding Distribution

Environmental and Transportation Compliance Categories	Class I			Class II	Class III	Positive
	A	B	C			
Air		1				
Clean Water Act						
Environmental Stewardship		1		3		
Hazardous Materials/Waste Transporter			1			
Hazardous Waste and Used Oil Generator		5	1		1	
Hazardous Waste Minimization		2				
Hazardous Waste Treatment, Storage, and Disposal Facility						
Infectious Wastes						
Pesticides						
Polychlorinated Biphenyls		1				
Potable Water		2			1	
Solid Waste						
Spill Prevention, Control, and Countermeasures						
Superfund Amendments and Reauthorization Act, Title III						
Superfund/Emergency Planning						
Toxic Substances Control Act – Radon						
Underground Storage Tanks						
Wastewater						
Total	0	12	2	3	2	0
Number of Repeat Findings	N/A	N/A	N/A	N/A	N/A	N/A
Number of Recurring Issues	N/A	N/A	N/A	N/A	N/A	N/A

Interior Complex Finding Distribution (concluded)

Safety Compliance Categories	RAC 1	RAC 2	RAC 3	RAC 4	Positive
Building Code		1	1		
Compressed Gas and Compressed Air Equipment				1	
Electrical		2	4	1	
Exit Routes, Emergency Action Plans, and Fire Prevention Plans			9	1	
Fire Protection			3		
General Environmental Controls		1			
Hand and Portable Powered Tools		1			
Hazardous Materials			6	2	
Ionizing Radiation		1			
Machines and Machine Guarding		1	4		
Material Handling and Storage		3		1	
Medical and First Aid			1		
Motor Vehicle					
Nonionizing Radiation					
Occupational Health and Environmental Control		1			
Personal Protective Equipment			1	2	
Powered Platforms, Manlifts, and Vehicle-Mounted Work Platforms					
Toxic and Hazardous Substances			3	3	
Walking-Working Surfaces		2	6		
Welding, Cutting, and Brazing		2	2	1	
Total	0	15	40	12	
Repeat Findings	N/A	N/A	N/A	N/A	N/A
Recurring Findings	N/A	N/A	N/A	N/A	N/A

D. Assessment Coverage

Although the findings contained in this report were identified at the facilities listed below, they may be representative of findings at other facilities with similar activities. The following facilities are included in this CASHE assessment:

Main Interior Building (MIB)

- Basement Mechanical Equipment Rooms
- Basement Fan Rooms
- Emergency Generator
- Sump Room
- Rachael Carson Rooms
- John Muir Room
- Transformer Vaults
- Garage Exhaust
- IDRA Store
- Trash & Bailer
- Parking Areas
- Elevator Pits
- Custodial Areas
- Paint Storage Room
- Electric Room
- Valve Room
- Switchboard Room
- Auditorium
- Library
- Museum
- Server Room
- Print Plant
- Mail Services
- Loading Dock
- Wire Closets
- Public Areas
- Directors' Areas
- Secretary's Area
- Guard Locker Room
- Security Operational Areas
- Conference Rooms
- Mechanical Floor (M Floor) – All wings

South Interior Building (SIB)

- Mechanical Room
- Pump Room
- Snack Bar
- Guard Area
- Mechanical Room
- Custodial Room and Closets
- OSM Computer Room
- Auditorium
- OSM Director's Area
- Watch Office
- Attic
- Emergency Generator

E. Interior Complex Participants

The employees listed in Exhibit 2-1 assisted the CASHE Team in coordinating the audit, arranging interviews, providing documentation, and ensuring a successful CASHE. Not all employees were with the CASHE Team the entire week; however, the information provided by each participant and primary contact was key in preparing this report.

Name	Title/Position	Telephone Number
Ian Rosenblum	Industrial Hygienist National Business Center	(202) 208-5795

2.0 PRELIMINARY FINDINGS

The findings contained within this report were identified during the on-site assessment. The items listed below are provided for each finding.

Protocol – The name of the protocol that addresses the identified deficiency.

Finding Number – The unique code assigned to the findings (Protocol Abbreviation - Assessment Year - Sequential Number).

Repeat Finding – An indication (Yes or No) of whether the finding is a repeat of the finding from a previous CASHE. For facilities that have never been inspected, “N/A” (for not applicable) is entered.

Recurring Issue – An indication (Yes or No) of whether the finding is a recurring issue from a previous CASHE. For facilities that have never been inspected, “N/A” (for not applicable) is entered.

Finding – A concise description of the identified compliance deficiency.

Priority Level – The class of finding (IA, IB, IC, II, III, or Positive) is provided as described in Section 1A of this document. This field does not appear in OSHA protocol findings.

Safety RAC – The Risk Assessment Code (RAC) assigned to all OSHA protocol findings, as described in Section 1A of this document. This field does not appear in environmental and transportation protocol findings.

Discussion – A description of the conditions that existed during the assessment, detailed regulatory guidance, and guidance on implementing recommendations provided by the CASHE Team.

Recommendation – Corrective actions suggested by the CASHE Team based on the specific conditions at the facility, costs, and regulatory requirements. When practical, alternative recommendations are provided. For those findings where more than one recommendation is provided, the facility normally selects one and provides that selection to the CASHE Team with its comments on the report. Further discussion explaining the need for implementation of the finding may be provided in the final report.

Driving Reference(s) – The specific section of the regulation, Executive Order number, OSHA interpretation letter, or other documentation that drives the non-compliance. Most findings in this draft final report have the appropriate regulatory citation identified. However, due to time constraints, several findings do not have citations. In these cases, asterisks (i.e., ***) are entered in lieu of a regulatory citation. Class III findings are recommended as a best management practice, and regulatory citations are not always applicable.

Point(s) of Contact – This field is left blank as a space for the facility to provide the full name(s) of personnel who will be responsible or who will be primary contacts for implementing corrective actions.

Status of Corrective Action – This field is left blank as a space for the facility to provide a status and/or the scheduled date of completion for the finding. For example, Complete, MM/DD/YY; Funding Requested, MM/DD/YY; Preliminary planning stages, MM/DD/YY; where the date represents the date the finding is scheduled for completion.

3.0 REVIEW OF FINDINGS AND RECOMMENDATIONS

Each finding and its recommendation should be formally assigned by management to an individual or organizational unit for review and comment. **Comments, including Point(s) of Contact and Status, should be provided directly to the Archer CASHE Program Manager, Bonnie Wisniewski, by April 2, 2007.**

Bonnie Wisniewski
Archer, Inc.
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4.0 IMPLEMENTATION OF CORRECTIVE ACTIONS

The CASHE Team estimates that approximately 70% to 80% of the suggested corrective actions can be implemented without the expenditure of any funds. A Corrective Action Plan should be prepared for the implementation of the corrective actions. Each individual or organizational unit assigned responsibility for a corrective action should be tasked with preparing a brief statement of the methods to be used to implement the recommendation and an estimated completion date. Management should assign a person to consolidate these implementation statements and prepare a Corrective Action Plan.

Once approved, the plan can be used to track the process made towards implementation of all corrective actions. Ken Morin and Archer are available to provide assistance in the implementation of the corrective actions.

5.0 PRELIMINARY FINDINGS

**Main Interior Building
1849 C Street, N.W.
Washington DC 20240**

***Assessment Dates*
January 22 - 25, 2007**

**South Interior Building
1951 Constitution Avenue, NW
Washington DC 20240**

***Assessment Date*
January 22, 2007**

AIR

Finding Number: AIR-07-001

Finding: Excess equipment containing refrigerant is stored throughout the facility.

Repeat Finding: No

Recurring Issue: No

Priority Level: Class IB

Discussion: Refrigerators, air conditioner window units, and compressor units are stored in many mechanical areas of both SIB and MIB. Following are example storage locations:

- SIB Attic (out-of-service refrigerator)
- MIB M-Floor (3 West section) (five out-of-service window air conditioning units)
- MIB basement main compressor room (compressor removed from a refrigerator)
- MIB alterations shop (Room B142) (out-of-service refrigerator in the break room)
- MIB south mechanical room (Room B002) (out-of-service ice maker, two small refrigerators, and three window air conditioning units)
- Storage room under the MIB “A Ramp” (two out-of-service air conditioning units)
- Storage area under the MIB “B Ramp” (two out-of-service refrigerators)
- MIB sump room (11 out-of-service air conditioning units)

Venting Freon into the environment has been prohibited since June 14, 1993. The Clean Air Act also specifically prohibits the disposal of any appliance known to contain CFCs. Disposal is defined in the regulations as the discharge, deposit, dumping, or placing of any discarded appliance into or on any land or water; the disassembly of any appliance for discharge, deposit, dumping or placing of its discarded component parts into or on any land or water; or the disassembly of any appliance for reuse of its component parts. MIB personnel reportedly are trained and certified to perform refrigerant recovery.

The regulations also stipulate that no person may recover refrigerant unless that person has recovery equipment that complies with 40 CFR 82.158 and is certified in accordance with 40 CFR 82.162. The local landfill may have a certified CFC recovery operation on site.

Recommendation: Capture refrigerant from all out-of-service equipment and mark the equipment to not that the refrigerant has been removed.

Driving Reference(s): 40 CFR 82.152 – definition of disposal
40 CFR 82.154(a) - refrigerant release prohibition
40 CFR 82.154(f) - refrigerant recovery
40 CFR 82.162 – recovery equipment operator certification

Point(s) of Contact: _____

(First and Last names, no groups or committees)

Status of Corrective Action: _____

(e.g., Scheduled for completion by MM/DD/YY; Completed on MM/DD/YY; Funding requested, scheduled for completion by...; Preliminary planning, scheduled for completion by...)

Facility Name: Reserved for the final report

Facility Category: Reserved for the final report

ENVIRONMENTAL STEWARDSHIP - ES

Finding Number: ES-07-001

Finding: The National Business Center (NBC) print shop is not receiving paper with a 30 percent post-consumer recycled content and is using toxic cleaners on its equipment.

Repeat Finding: N/A

Recurring Issue: N/A

Priority Level: Class IB

Discussion: The NBC print shop orders all the paper used in printers, copiers, and fax machines in the Interior Complex. The most recent shipment of Xerox paper received (six pallets) has zero percent recycled content. Paper purchased by all Federal agencies, bureaus, and office must contain not less than 30% post-consumer recycled content. Print Shop personnel contacted Xerox during the audit and verified that they had ordered recycled content paper, but Xerox sent the wrong paper.

A toxic cleaner, Ancolite Glaze Cleaner, is used to remove the glaze from printing equipment in the shop. The cleaner is a flammable liquid, a mixture of toluene and acetone. Toluene and acetone are very toxic solvents. The product warning label states not to breathe the vapors and to wear a mask, protective eyewear, and gloves. The shop had a very strong solvent odor from an open container of the solvent. The Print Shop also has a container of E100 Rubber Rejuvenator a combustible solvent. Its label states that it is free of chlorinated hydrocarbons, toluene, xylene, and glycol ethers. Shop personnel state the E100 product works, but not as well as the Ancolite Glaze Cleaner.

EPA under its Comprehensive Procurement Guidelines (CPG) program has designated products with recycled content recommendation in eight categories:

- Construction Products (e.g., insulation, carpet, concrete, roofing materials)
- Landscaping Products (e.g., plastic landscaping timbers and posts)
- Nonpaper Office Products (e.g., binders, office furniture, toner cartridges)
- Paper and Paper Products (e.g., printer/copy paper, envelopes, bath tissue, paper towels)
- Park and Recreation Products (e.g., benches, picnic tables, fencing)
- Transportation Products (e.g., parking stops, traffic barricades, traffic cones)
- Vehicular Products (e.g., engine coolants, re-refined lubricating oils)
- Miscellaneous Products (e.g., bike racks, drums, absorbents)

It is positively noted that the NBC has required its janitorial contractor to purchase paper products and cleaners that meet the CPG requirements. In addition, it is using bio-diesel fuel in its emergency generator at the Main Interior Building and plans on doing so at the South Interior Building. The National Business Center's (NBC) efforts are a "roll-model" for all bureaus within the Department.

The CPG program is part of EPA's continuing effort to promote the use of materials recovered from solid waste. Buying recycled-content products ensures that the materials collected in recycling programs will be used again in the manufacture of new products. The CPG program is authorized by Congress under [Section 6002](#) of the Resource Conservation and Recovery Act (RCRA) and [Executive Order 13101](#). EPA is required to designate products that are or can be made with [recovered materials](#), and to recommend practices for buying these products. Once a product is designated, [procuring agencies](#) are required to purchase it with the highest recovered material content level practicable. In 1995, EPA issued the first

CPG which covered EPA's original 5 procurement guidelines and added 19 products. The first CPG update (CPG II), published in November of 1997, designated an additional 12 items. A second CPG update (CPG III), published in January 2000, designated an additional 18 items. A third CPG update (CPG IV), published in April 2004, designated an additional seven items and revised three existing item designations.

The CPG requirements of RCRA section 6002 apply to such procuring agencies only when procuring designated items where the price of the item exceeds \$10,000 or the quantity of the item purchased in the previous year exceeded \$10,000. The \$10,000 threshold applies to all purchases made by an entire agency rather than regional or local offices (e.g., Department of the Interior, Department of Defense, etc). Most Federal agencies exceed the \$10,000 threshold for all EPA designated items.

The complete list of designed products and their recycled content specification can be found at: <http://www.epa.gov/epaoswer/non-hw/procure/products.htm>. Suppliers of those products can be found at: <http://www.epa.gov/epaoswer/non-hw/procure/database.htm>. The GSA Advantage website allows for searches for products that are: CPG compliant, environmentally friendly, non-toxic, recycled content products, and items manufactured from minority firms and groups. Use the following link to access the GSA Advantage site: <http://www.gsaadvantage.gov/advgsa/advantage/search>

The CASHE Team did not attempt to identify all products purchased by the Department for which CPG or environmentally preferable products are required to be purchased. This finding is intended to educate the National Business Center of the requirement to purchase “green” products, the benefits that may be gained by purchasing them, and sources from which they may be purchased.

A new Executive Order 13423, “Strengthening Federal Environmental, Energy, and Transportation Management” signed by President Bush on January 24, 2007 requires Federal agencies to lead by example in advancing the nation’s energy security and environmental performance by achieving these goals:

- **VEHICLES:** Increase purchase of alternative fuel, hybrid, and plug-in hybrid vehicles when commercially available.
- **PETROLEUM CONSERVATION:** Reduce petroleum consumption in fleet vehicles by 2% annually through 2015.
- **ALTERNATIVE FUEL USE:** Increase alternative fuel consumption at least 10% annually.
- **ENERGY EFFICIENCY:** Reduce energy intensity 30% by 2015.
- **GREENHOUSE GASES:** Reduce greenhouse gas emissions through reduction of energy intensity by 3% annually or 30% by 2015.
- **RENEWABLE POWER:** At least 50% of current renewable energy purchases must come from new renewable sources (in service after January 1, 1999).
- **BUILDING PERFORMANCE:** Construct or renovate buildings in accordance with sustainability strategies, including resource conservation, reduction, and use; siting; and indoor environmental quality.
- **WATER CONSERVATION:** Reduce water consumption intensity by 2% annually through 2015.
- **PROCUREMENT:** Expand purchases of environmentally-sound goods and services, including biobased products.
- **POLLUTION PREVENTION:** Reduce use of chemicals and toxic materials and purchase lower risk chemicals and toxic materials from top priority list.
- **ELECTRONICS MANAGEMENT:** Annually, 95% of electronic products

purchased must meet Electronic Product Environmental Assessment Tool standards where applicable; enable Energy Star® features on 100% of computers and monitors; and reuse, donate, sell, or recycle 100% of electronic products using environmentally sound management practices.

- **ENVIRONMENTAL MANAGEMENT SYSTEMS:** By 2010, increase to at least 2,500 the number of Federal operations that implement environmental management systems, up from about 1,000 today.

The Executive Order consolidates and strengthens five executive orders and two memorandums of understanding and establishes new and updated goals, practices, and reporting requirements for environmental, energy, and transportation performance and accountability.

The new EO also requires the Office of Management and Budget (OMB) in conjunction with the Office of Federal Environmental Executive to track all Federal agencies progress in complying with its directives. The new scorecard issued in January 2006 by OMB in support of the President's Management Agenda (PMA) is called Environmental Stewardship. Senior managers through the Federal Government are familiar with the phrase "Going to Green" because all Federal agencies are rated quarterly on their progress related to the implementation of the PMA. The PMA has five major elements. The Environmental Stewardship scorecard is a component of the Budget and Performance Integration element. The Environmental Stewardship scorecard complements the new EO and is intended to facilitate achievement of environmental goals.

The OMB Environmental Stewardship scorecard requirement requires Agencies/Field Offices to purchase and use recycled content and "environmentally preferable" products and services. Specifically, each executive agency must incorporate waste prevention and recycling in daily operations and work to increase and expand markets for "recovered materials" through greater federal government preference and demand for such products. The scorecard requirements were developed to work with the aligning requirements from the new EO, in which agencies developed their strategic specific plans. The OFEE has developed a web site to use as reference (<http://www.ofee.gov/gp>) in the development of those plans.

In addition, the Department of the Interior (DOI) has developed The Strategic Plan for Greening the Department of the Interior Through Waste Prevention, Recycling, and Federal Acquisition. DOI has established in the plan green procurement goals for the purchase of products that have the highest percentage of recovered materials practicable as required by EO 13101. Strategies are outlined to promote environmental considerations into all levels of procurement and are applicable to any facility employee having the authority to make purchases. DOI has focused this effort particularly on products designated by the Environmental Protection Agency (EPA) in the CPG.

One of the benefits of purchasing environmentally preferable products is compliance with OSHA regulations. Employee storage of the flammable and combustible liquids, even when closed, in the Print Shop in an office cabinet is a safety violation. OSHA regulations require that all flammable and combustible liquids in an office occupancy be stored in a flammable storage cabinet. Flammable storage cabinets isolate flammable liquids and protect both personnel and property in the event of fire. Therefore, all the containers of flammable and combustible liquids used in the Print Shop are required to be stored in flammable storage cabinets.

The NBC industrial hygienist reported to the CASHE Team that return air duct in the Print Shop had to be blocked because of employee complaints about the solvent odor. Finding "green" cleaners to replace the flammable and combustible solvents currently in use will eliminate fire safety and employee health concerns.

The importance of purchasing of green products must be understood by all NBC employees. Reviewing acquisitions for green product purchasing must be performed annually to ensure success in the OMB scorecard. As new materials are brought in, personnel changes occur, and operations change, the green purchasing process must be considered to reflect product updates and personnel training opportunities.

Recommendation(s): **A)** Educate employees on the CPG program, the recycled content products available under program, availability of green cleaning products, and the importance of and requirement to purchase environmentally preferable products; **B)** Assign the procurement staff with the responsibility of reviewing purchases and their compliance with the CPG; **C)** Evaluate and switch to green cleaners for maintenance of equipment in the print shop; and **D)** Prior to acceptable of future paper product deliveries ensure it has at least 30% post-consumer recycled content.

Driving Reference(s): Executive Order 13423 Strengthening Federal Environmental, Energy, and Transportation Management signed January 24, 2007
FAR – Part 23 (Subpart 23.7) Use of recovered materials
RCRA 6002 – Affirmative Procurement
EPA Facilities Manual, Volume 2

Point(s) of Contact: _____

(First and Last names, no groups or committees)

Status of Corrective Action: _____

(e.g., Scheduled for completion by MM/DD/YY; Completed on MM/DD/YY; Funding requested, scheduled for completion by...; Preliminary planning, scheduled for completion by...)

Facility Name: Reserved for the final report

Facility Category: Reserved for the final report

ENVIRONMENTAL STEWARDSHIP - ES

Finding Number: ES-07-002

Finding: A written Environmental Management System (EMS) has not been developed for the Office of the Secretary, National Business Center (NBC).

Repeat Finding: N/A

Recurring Issue: N/A

Priority Level: Class II

Discussion: While the NBC has some the Environmental Management System (EMS) elements, there is no comprehensive EMS program in place. The CASHE Team identified a few of the necessary requirements that an EMS requires, such as the purchasing of environmentally preferable products and energy efficient electronic equipment, installation of energy savings devices (e.g., occupancy sensors) and recycling of paper and cardboard.

It is Departmental policy that bureaus and facilities implement EMS at all appropriate facilities based on facility size, complexity, and the environmental aspects of facility operations.

According to the written Environmental Management System from the Department Manual (DM) 515 section 4.4 the NBC EMS must include the following:

- 1) Senior management review, approval and support of the EMS;
- 2) Compliance with applicable federal, state, and local environmental requirements;
- 3) Timely correction of problems as a result of environmental or EMS audit findings and budget requests for the same;
- 4) Promotion of sound environmental practices such as pollution prevention and waste reduction, environmental auditing, and the use of environmentally preferable products;
- 5) Promotion of continuous improvement in environmental performance, including areas not subject to regulation, through goal-setting, performance measurement and training;
- 6) Communication of environmental performance in policies, programs, and services both internally and externally; and
- 7) Periodic monitoring and tracking of EMS performance.

The new EO signed by President Bush on January 24, 2007 clarifies that EMS is not just a facility based system. It requires, the head of each agency to “implement within the agency environmental management systems (EMS) at **all appropriate organizational levels** to ensure (i) use of EMS as the primary management approach for addressing environmental aspects of internal agency operations and activities, including environmental aspects of energy and transportation functions, (ii) establishment of agency objectives and targets to ensure implementation of this order, and (iii) collection, analysis, and reporting of information to measure performance in the implementation of this order”.

The new EO also requires the Office of Management and Budget (OMB) in conjunction with the Office of Federal Environmental Executive to track all Federal agencies progress in complying with its directives. The new scorecard issued in January 2006 by OMB in support of the President’s Management Agenda (PMA) is called Environmental Stewardship. Senior managers through the Federal Government are familiar with the phrase “Going to Green” because all Federal agencies are rated quarterly on their progress related to the implementation of the PMA. The PMA has five major elements. The Environmental Stewardship scorecard is a component of the Budget and Performance Integration

element. The Environmental Stewardship scorecard complements the new EO and is intended to facilitate achievement of environmental goals. In addition, the Office of Management and Budget (OMB) in conjunction with the Council on Environmental Quality (CEQ) sent a letter to the heads of all federal agencies emphasizing the importance of developing an Environmental Management System (EMS).

The President's Management Agenda calls for the government to be results-oriented and market based. EMS when implemented will result in the NBC having reduced impact on the environment. The EMS must address all agencies and their facilities. Reviewing the EMS annually will ensure it addresses changing operations.

Recommendation: **A)** Develop and implement an EMS that includes all required information and train employees on its content; and **B)** Review the EMS annually to ensure it remains current and addresses all operations; and **C)** Revise the plan as necessary to ensure continual improvement.

Driving Reference(s): Executive Order Order 13423, Strengthening Federal Environmental, Energy, and Transportation Management signed January 24, 2007, Section 3(b)
Office of Business and Management (OMB) Environmental Scorecard
Departmental Manual 515 DM 4 (October 02, 2002) – Section 4.4
OMB Memorandum on EMS to the Heads of Departments and Agencies dated
April 11, 2006

Point(s) of Contact: _____
(First and Last names, no groups or committees)

Status of Corrective Action: _____
(e.g., Scheduled for completion by MM/DD/YY; Completed on MM/DD/YY; Funding requested, scheduled for completion by...; Preliminary planning, scheduled for completion by...)

Facility Name: Reserved for the final report
Facility Category: Reserved for the final report

ENVIRONMENTAL STEWARDSHIP - ES

Finding Number: ES-07-003

Finding: A written Green Purchasing Plan (GPP) has not been developed for the National Business Center (NBC).

Repeat Finding: N/A

Recurring Issue: N/A

Priority Level: Class II

Discussion: While the NBC is purchasing biodiesel for its generators and requires in janitorial contractor to purchase recycled content paper products and green cleaning supplies, there is no comprehensive program or plan in place to expand the green purchasing requirements mandated by a new Office of Management and Budget (OMB) scorecard that is used to grade Federal agencies' performance related to "greening the government." Additional details on the Environmental Stewardship scorecard are provided later in this discussion.

The plan is to be prepared to ensure that the agency has a strategy in place to implement the President's Management Agenda, and comply with a new Executive Order (EO) 13423 signed by President Bush on January 24, 2007, "Strengthening Federal Environmental, Energy, and Transportation Management." In addition, the Department of the Interior's own Strategic Plan for Greening the Department of the Interior Though Waste Prevention, Recycling, and Federal Acquisition requi.

Preparation of a GPP requirement is intended to provide direction for acquiring recycled content products and "environmentally preferable" products and services. The intended outcome is the consideration of "green" products becomes part of all employees' normal purchasing practice, along with product safety, price, performance, and availability.

Consideration of environmental goals should begin early in any acquisition process and recognize the importance of pollution prevention. Specifically, each executive agency must incorporate waste prevention and recycling in daily operations and work to increase and expand markets for "recovered materials" through greater federal government preference and demand for such products. The consideration of life cycle costs associated with a product (e.g., maintenance, energy, disposal costs) is one way of incorporating environmental goals into the acquisition process.

The Federal government spends a significant amount of money each year on goods and services and is considered one of the largest purchasers in the world. As a result of its huge purchasing power the Federal Government can stimulate the marketplace to produce "green" products.

The Environmental Protection Agency has prepared guidance for development of a GPP. This guidance has five guiding principles and is designed to help executive agencies meet the Environmental Stewardship scorecard objectives on the purchase of environmentally preferable or "green" products and services. This guidance provides a broad framework of items to consider for environmentally preferable purchasing and plan development. The EPA has extensive information on their web site (www.epa.gov/epp/pubs/guidance/finalguidance.htm) to use for further guidance.

All Federal agencies are required by the new EO to use of sustainable environmental practices, including acquisition of biobased, environmentally preferable, energy-efficient, water-efficient, and recycled-

content products, and use of paper of at least 30 percent post-consumer fiber content. In addition, OMB issued, in January 2006, a new Environmental Stewardship scorecard in support of the President's Management Agenda (PMA). Senior managers through the Federal Government are familiar with the phrase "Going to Green" because all Federal agencies are rated quarterly on their progress related to the implementation of the PMA. The PMA has five major elements. The Environmental Stewardship scorecard is a component of the Budget and Performance Integration element. The recently issued Environmental Stewardship scorecard complements the EO and is intended to facilitate achievement of environmental goals.

The PMA is managed through the Presidential Management Council (PMC) and OMB. The President's Council on Environmental Quality (CEQ) and OMB work with Federal agencies to clearly define goals for environmental success as they align with the PMA. The development of standards for success is to measure an agency's level of completion as it relates to their goals. The OMB oversees the scorecards and assesses the agency's progress against the deliverables. OMB works with agencies to select specific programs and determine their objectives as they relate to the PMA. Additional information on the PMA may be obtained at www.whitehouse.gov.

The PMA calls for the government to be results-oriented and market based. Therefore, through each agency/facility actively implementing a GPP, the government will have a reduced impact on the environment. Reviewing the plan annually will ensure it addresses changing facility operations.

The Environmental Stewardship scorecard has five standards for success. One of those standards requires that all Federal Departments have a comprehensive written green purchasing plan (GPP). The CASHE Team was provided a rough draft copy of a GPP prepared by Govworks. In reviewing the document most of the required elements for a GPP are addressed. The draft GPP refers to an Affirmative Procurement Coordinator responsible for its implementation and annual review of the goals in the plan. The NBC does not have anyone designated with this responsibility. Also, the draft GPP does not address credit card purchases. The final GPP will need to emphasize that all product purchase decisions need to be green decisions. This concept is similar to the traditional considerations of cost and safety of a product prior to purchasing. The purchasing of recycled material and environmentally preferable products must apply to all aspects of an agency's mission including, but not limited to its business practices, operations acquisitions, maintenance practices, and construction activities.

The Environmental Stewardship scorecard specifically requires the GPP to address procurement of the following "green" products:

- Recycled content products (i.e., copy paper containing at least 30 percent of postconsumer material);
- Energy- and water-efficient products (e.g., electronic office products - fax and copy machines that have sleep modes or shutdown power saving devices; water-efficient products – water-efficient full-sized washing machines use 18-25 gallons of water per load compared to the 40 gallons used by a traditional machine, water efficient dishwashers and waterless urinals are other examples).
- Alternative fuel vehicles/alternative fuels (e.g., fuel grade ethanol, hi performance biodiesel, and additives to boost octane of petro-diesel);
- Environmentally preferable products (e.g., janitorial products – glass cleaners, floor cleaning products, and disinfectants; landscaping products - fertilizers, mulching products, and composite landscape timbers; building construction products – bricks and tiles, furnishings made from recycled material, gypsum wallboard, and wallpaper paste; and maintenance products – 100 percent soy-based motor oil, bio-degradable lubricating and hydraulic oils, 2-cycle engine oil, and multipurpose machinery grease).

In addition, all agencies must:

- Demonstrate compliance with the OMB scorecards in representative acquisitions (e.g., construction, operation and maintenance, and office supplies);
- Perform annual audits of procurement activities; and
- Develop corrective actions plans to address issues found during audits.

The Office of the Federal Environmental Executive (<http://www.ofee.gov/gp/gplinks.html>) web site has guidance on how to develop a green purchasing program and an example of the green purchasing procurement strategy from the Department of Defense (DoD).

Recommendation (s): **A)** Review the draft GPP prepared by Govworks; **B)** Designate an Affirmative Procurement Coordinator; **C)** Modify the GPP prepared by Govworks to address NBC issues and include all credit card holders in the plan; **D)** Train employees on its content and implement the plan; and **E)** Review the program annually to ensure it remains current and addresses all operations at all facilities.

Driving Reference (s): Office of Business and Management (OMB) Environmental Scorecard Executive Order 13423, Strengthening Federal Environmental, Energy, and Transportation Management, Section 2(d) Strategic Plan for Greening the Department of the Interior Through Waste Prevention, Recycling and Federal Acquisition Resource Conservation Recovery Act (RCRA) section 6002

Point(s) of Contact: _____
(First and Last names, no groups or committees)

Status of Corrective Action: _____
(e.g., Scheduled for completion by MM/DD/YY; Completed on MM/DD/YY; Funding requested, scheduled for completion by...; Preliminary planning, scheduled for completion by...)

Facility Name: Reserved for the final report

Facility Category: Reserved for the final report

ENVIRONMENTAL STEWARDSHIP - ES

Finding Number: ES-07-004

Finding: The National Business Center (NBC) does not have a sustainability program for electronic stewardship.

Repeat Finding: No

Recurring Issue: No

Priority Level: Class II

Discussion: Agencies are required to have a program or plan in place for the sustainable purchase, operation, and disposal of electronics. The Office of Management and Budget (OMB) in conjunction with the EPA have issued in January 2006 a new Environmental Stewardship scorecard in support of the President's Management Agenda (PMA). One of the elements in this scorecard requires development and implementation of an electronic sustainability program. The following elements are required for an electronic sustainability program:

- 1) procedures for purchasing electronic equipment
- 2) promoting the purchase, operation, and use of electronic products
- 3) using end-of-life strategies consistent with the MOU on Electronics Stewardship of Federal Electronic Assets (November 15, 2004).

The recently issued Environmental Stewardship scorecard complements the new EO signed by President Bush on January 24, 2007. The federal government is the largest purchaser of electronics in the world. Electronic devices such as computers, faxes, scanners, copiers, cameras, VCR's and cellular phone have an impact on the environment as a result of being manufactured, used, and discarded. As a matter of fact, of the 1.8 million federal employees that have an office personal computer, the three year computer lifecycle equates to the discarding of approximately 10,000 computers each week. More information can be found by go to the following websites <http://www.ofee.gov/es/es.htm> and <http://www.productstewardship.net>. Both sites provide guidance and helpful tools with evaluating office electronic equipment and meeting environmental requirements.

Recommendation (s): **A)** Develop an electronic sustainability design program; **B)** Communicate and train employees on its content; and **C)** Review the program to ensure it remains current and addresses all NBC operations; and **D)** Implement the program at all NBC facilities.

Driving Reference(s): MOU – Improving the Environmental Management of Federal Electronic Assets.
Federal Electronics Challenge
MOU – Promoting Sustainable Environmental Stewardship of Federal Electronic Assets
Executive Order 13423, Strengthening Federal Environmental, Energy, and Transportation Management, Section 2(d)

Point(s) of Contact: _____

(First and Last names, no groups or committees)

Status of Corrective Action: _____

(e.g., Scheduled for completion by MM/DD/YY; Completed on MM/DD/YY; Funding requested, scheduled for completion by...; Preliminary planning, scheduled for completion by...)

Facility Name: Reserved for the final report

Facility Category: Reserved for the final report

HAZARDOUS MATERIALS/WASTE TRANSPORTER - HMTRAN

Finding Number: HMTRAN-07-001

Finding: No NBC facilities personnel have received DOT training required to sign hazardous waste shipping manifests.

Repeat Finding: No

Recurring Issue: No

Priority Level: Class IC

Discussion: Significant quantities of excess hazardous materials and hazardous waste have accumulated at the MIB and SIB. This waste can only be removed from the facility by a licensed hazardous waste transporter, and a uniform hazardous waste manifest must be prepared. The NBC representative that signs this manifest(s) must be trained as described below. No NBC employee in the MIB or SIB has received this training.

Federal DOT regulation 49 CFR Part 172 applies to “each person who offers a hazardous material for transportation” and to transporters of hazardous materials [49 CFR 172.3(a)]. Anyone who signs a hazardous waste manifest “offers” a hazardous material for transportation. DOT regulations require that all HAZMAT employees initially be trained on the topics specified in 49 CFR 172.704(a) and (b), and be provided refresher training every 3 years. Employees hired on or before July 2, 1993 were to receive the initial training prior to October 1, 1993. Employees hired after July 2, 1993 are to receive training within 90 days of hire. The DOT has a training center in Oklahoma City that offers a 3-day course on hazardous waste manifest preparation.

Each employee is to receive training on DOT hazard communication and transportation standards specific to job function (e.g., preparing or reviewing manifests). Each employee is to receive safety training, including emergency response information as discussed in 49 CFR 172, Subpart G; self-protection training; and training in accident prevention while handling packages of hazardous materials.

Records of current training, including the last 3 years, must be retained by the employer for as long as the HAZMAT employee is employed, and for 90 days after the employees termination date. These records must include the following: **1)** the employee’s name; **2)** the most recent training completion date; **3)** a description, copy, or the location of training materials used to meet the DOT training requirements; **4)** the name and address of the person providing the training; and **5)** certification that the employee has been properly trained and tested in accordance with 49 CFR 172, Subpart H.

Recommendation: **A)** Designate a person(s) who will prepare or review/approve hazardous waste manifests; **B)** Ensure that the designated person(s) attend training that addresses DOT requirements for shipping hazardous materials; **C)** Budget for and schedule refresher training every 3 years; and **D)** Maintain records documenting this training.

Driving Reference(s): 49 CFR 172.704(c)(1) - initial training
49 CFR 172.704(c)(2) - refresher training
49 CFR 172.704(d) - record keeping

Point(s) of Contact: _____

(First and Last names, no groups or committees)

Status of Corrective Action: _____

(e.g., Scheduled for completion by MM/DD/YY; Completed on MM/DD/YY; Funding requested, scheduled for completion by...; Preliminary planning, scheduled for completion by...)

Facility Name: Reserved for the final report

Facility Category: Reserved for the final report

HAZARDOUS WASTE GENERATOR - HWGEN

Finding Number: HWGEN-07-001

Finding: There is no system in place for the proper disposal of hazardous waste generated at the Main and South Interior Buildings.

Repeat Finding: No

Recurring Issue: No

Priority Level: Class IB

Discussion: Hazardous waste is generated in the MIB and SIB as a result of painting, equipment and systems repairs, cleaning, equipment maintenance, and other operations. For example, approximately 10 gallons of thinners and strippers are stored in the MIB paint room. This materials will eventually become hazardous wastes when use for brush cleaning or stripping.

Although both the MIB and the SIB have been issued hazardous waste generator identification numbers, no hazardous waste has been disposed of as such in several years. Because no system for the proper disposal of hazardous waste or unneeded hazardous materials is provided to employees, the only options available to employees are to abandon these items in various mechanical spaces or discard them illegally.

Recommendation: **A)** Designate someone as the lead for management and disposal of hazardous waste and excess hazardous materials (“HAZMAT Coordinator”); **B)** Provide the designated HAZMAT Coordinator with training in shipping (so he/she can sign manifests) and hazardous waste regulations; **C)** Establish an area at the MIB and SIB (under the control of the HAZMAT Coordinator) for centralized storage and management of hazardous waste and excess hazardous materials; and **D)** Instruct all employees and contractors in procedures for turning in excess hazardous materials and hazardous wastes.

Driving Reference(s): 40 CFR 261.5(g)(3)(iv) – CESQG hazardous waste treatment/disposal
EPA letter of October 9, 1986 to Ms. Peck MDNR
29 CFR 1910.106(e)(2)(iv)(a) - open containers

Point(s) of Contact: _____
(First and Last names, no groups or committees)

Status of Corrective Action: _____
(e.g., Scheduled for completion by MM/DD/YY; Completed on MM/DD/YY; Funding requested, scheduled for completion by...; Preliminary planning, scheduled for completion by...)

Facility Name: Reserved for the final report

Facility Category: Reserved for the final report

HAZARDOUS WASTE GENERATOR - HWGEN

Finding Number: HWGEN-07-002

Finding: Hazardous waste is treated without a permit in the Main Interior Building.

Repeat Finding: No

Recurring Issue: No

Priority Level: Class IB

Discussion: Two 1-gallon containers of Apexior™ “Number 3,” a flammable liquid, is allowed to dry in open containers discarded in a trash can. These containers contain approximately two inches of fluid. Most empty containers may be discarded as regular trash; however, container not completely empty must be managed as potentially hazardous waste. In the MIB alterations shop (B142), a 1 gallon of combustible oil-based paint, nearly full, was allowed to dry in the container along with paint rollers. In the MIB valve room (Room B628), a 1-gallon container is stored open with thinner and brushes, allowing the thinner to evaporate.

EPA and the District of Columbia consider evaporating hazardous waste the unpermitted “treatment” of hazardous waste, unless specifically authorized. Specifically, the RCRA definition of treatment includes changing the physical, chemical, or biological character or composition of any hazardous waste to render it safer, nonhazardous, less hazardous, or reduced in volume [40 CFR 260.10]. Before conducting onsite treatment of hazardous waste, regardless of generator status, all facilities are required to obtain a RCRA Part B permit or be “permitted, licensed, or registered by the State.” Neither the MIB nor SIB is permitted by EPA or the State to treat hazardous waste.

Both the MIB and SIB are normally classified as conditionally exempt small quantity generators (CESQGs). The requirement for CESQGs to receive authorization to treat or dispose of hazardous waste on site is discussed in a letter EPA wrote to the Michigan Department of Natural Resources (MDNR) in response to its question on whether a CESQG needs a permit to treat its waste on site. The EPA letter clarified that CESQGs must be permitted, licensed, or registered by a state agency to treat or dispose of hazardous waste on site. EPA stated that it would consider an exchange of letters between the regulator and the CESQG to be an appropriate means of permitting onsite treatment or disposal of CESQG hazardous waste. The letter clarified that offsite facilities must also be permitted, licensed, or registered to treat or dispose of CESQG hazardous waste. EPA required that state governments provide a mechanism to evaluate the risk posed to the environment when considering authorizing CESQGs to treat or dispose of hazardous waste on site.

In addition to EPA prohibitions on evaporating hazardous waste, OSHA prohibits evaporating flammable and combustible liquids because the vapors pose fire and health hazards. Containers of flammable and combustible liquids must be kept in closed containers when not in use.

The CASHE Team often observes used paint thinner evaporating at Federal facilities. Paint thinner can be reused several times. After brushes or paint guns are cleaned, the used thinner can be poured back into its original properly labeled container. When the used paint thinner has too much paint residue in it to be effective, the container of spent thinner should be turned in to the HAZMAT Coordinator for proper disposal.

Recommendation: A) Instruct all employees to turn in hazardous waste and excess hazardous

materials to a designated HAZMAT Coordinator for proper disposal; and **B)** Establish a method of ensuring that excess hazardous materials owned by contractors is removed from the facility .

Driving Reference(s): 40 CFR 261.5(g)(3)(iv) – CESQG hazardous waste treatment and disposal
EPA letter of October 9, 1986 to Ms. Peck MDNR
29 CFR 1910.106(e)(2)(iv)(a) - open containers

Point(s) of Contact: _____
(First and Last names, no groups or committees)

Status of Corrective Action: _____
(e.g., Scheduled for completion by MM/DD/YY; Completed on MM/DD/YY; Funding requested, scheduled for completion by...; Preliminary planning, scheduled for completion by...)

Facility Name: Reserved for the final report
Facility Category: Reserved for the final report

HAZARDOUS WASTE GENERATOR - HWGEN

Finding Number: HWGEN-07-003

Finding: No handling procedures have been established for waste uninterrupted power supply (UPS) units generated from use with personal computers.

Repeat Finding: No

Recurring Issue: No

Priority Level: Class III

Discussion: The CACHE Team identified four UPS units in the MIB M-Floor (1 East Section) that are no longer usable and will be excessed. Computer UPS battery back-up units (lead-acid batteries) are a universal hazardous waste subject to reduced regulation if recycled. If not recycled, spent batteries must be disposed of as hazardous waste.

Small quantity handlers may accumulate universal waste for up to one year from the date of generation, unless the handler can document that the waste is accumulated solely for the purpose of facilitating recovery, treatment, or disposal. Universal hazardous waste, such as lead-acid batteries, must be labeled to indicate when the waste was generated (e.g., label the accumulation container with the date the first battery was placed in the container, or label the battery with the date it was determined to be waste). Additional methods (e.g., inventory systems) can also be used to demonstrate that universal hazardous waste has been stored for less than 1 year.

Information regarding vendors and free recycling services can be obtained from the Rechargeable Battery Recycling Corporation (RBRC), a nonprofit organization. Many vendors (e.g., Radio Shack, Wal-Mart, Sears) participate in this recycling program and will accept spent batteries. The RBRC also accepts and recycles nickel metal hydride, lithium ion, and small sealed lead rechargeable batteries. The RBRC has established a toll-free number (1-800-8BATTERY) and a website (www.rbrc.com) that can be used to find a local vendor who will accept spent batteries.

Recommendation: **A)** Assign a person in the MIB and SIB with the responsibility of accepting spent batteries; **B)** Instruct all employees on procedure for turning in spent lead-acid batteries; and **C)** Post the accumulation start date on the box used to collect batteries or on each battery as it is added to the box and ensure that they are not accumulated for more than 1 year before they are turned in to a recycler.

Driving Reference(s): 40 CFR 261.5(g)(3)(vii) - universal waste handling for CESQGs
40 CFR 273 - universal waste management
40 CFR 273.15 – storage limits for universal waste

Point(s) of Contact: _____
(First and Last names, no groups or committees)

Status of Corrective Action: _____
(e.g., Scheduled for completion by MM/DD/YY; Completed on MM/DD/YY; Funding requested, scheduled for completion by...; Preliminary planning, scheduled for completion by...)

Facility Name: Reserved for the final report

Facility Category: Reserved for the final report

HAZARDOUS WASTE GENERATOR - HWGEN

Finding Number: HWGEN-07-004

Finding: Spent fluorescent lamp tubes are accumulated improperly throughout the MIB and SIB.

Repeat Finding: No

Recurring Issue: No

Priority Level: Class IB

Discussion: Fluorescent lamp tubes are generated throughout all areas of the Main and South Interior Buildings. A fluorescent lamp crusher was purchased more than one year ago, but has not been placed into service, due to changing District of Columbia regulations applicable to its use. As a result, hundreds of spent fluorescent lamp tubes have accumulated in several areas of the audited facilities. This waste is not labeled as Universal Waste and many spent lamp tubes are not protected from damage. Smaller collections of spent lamp tubes exist in most mechanical spaces. Following are selected examples of spent fluorescent lamp tube storage locations:

- SIB Attic Floor (seven fluorescent tubes are stored leaning against a wall near the cooling tower access room and one in the telecommunications room, unprotected, unlabeled)
- MIB M-Floor (1 East section) (approximately 85 boxes of four-foot lamp tubes, some unprotected, unlabeled)
- MIB F-12-2 air handling room (approximately 20 boxes of spent lamp tubes, labeled only "RECYCLE")
- MIB Room B015 (approximately 15 boxes of spent lamp tubes, unlabeled)

EPA classifies materials containing more than 0.2 mg/L of mercury as hazardous waste, as measured by the Toxicity Characterization Leachate Procedure (TCLP) test. Mercury is used in fluorescent lamp tubes to excite the phosphor crystals that coat the inside of the tube. The phosphor absorbs the mercury over time; therefore, manufacturers must include enough mercury to ensure that the lamp does not burn out prematurely. The most common fluorescent lamp tube used, the T-12, contains 23 milligrams of mercury, and is a hazardous waste when no longer in use.

EPA classifies fluorescent lamp tubes as universal waste. Universal wastes generated by Small and Large Quantity Generators are exempt from full regulation by EPA's hazardous waste regulations and not counted toward hazardous waste generator status thresholds, if they are recycled and managed in full compliance with the alternative universal waste requirements. Therefore, all facilities should manage spent fluorescent lamp tubes as universal waste to reduce the total quantity of hazardous waste used in determining its generator status and potentially prevent the facility from becoming subject to more stringent regulations.

The CASHE Team contacted a representative of the District of Columbia environmental regulatory agency. Crushing spent fluorescent lamp tubes is permitted using appropriate equipment and adhering to all employee exposure safety precautions. However, crushed fluorescent lamps can no longer be managed under the more flexible universal waste standards. MIB personnel must evaluate whether the benefits of the alternative universal waste management standards or the convenience of in-house lamp crushing. (Note: The District representative noted that the restrictions on managing crushed lamps as universal waste may be changing in the future.)

As addressed in a separate finding, the MIB and SIB are believed to normally be classified a conditionally exempt small quantity generators (CESQGs); however, the quantities of excess hazardous materials and accumulated hazardous wastes at these facilities may temporarily cause them to be re-categorized as Small Quantity Generators or Large Quantity Generators.

There is a common misperception that CESQG facilities can indiscriminately dispose of hazardous waste to landfills. Local landfills may not be permitted to accept fluorescent tubes from sources other than a household (i.e., from CESQGs). DOI facilities that are CESQGs must contact receiving landfills to determine if the landfills are permitted (and willing) to receive waste fluorescent tubes from CESQGs.

Spent fluorescent lamp tubes should be stored in their original box, and the box should be stored in a protected location. Spent fluorescent tubes should be placed back in the original box because the packaging provides protection from breakage. Each lamp or a container or package in which such lamps are contained must be labeled or marked clearly with one of the following phrases: "UNIVERSAL WASTE – LAMPS(S)," or "WASTE LAMP(S)," or "USED LAMP(S)".

As a safety concern, when fluorescent lamp tubes are broken, most of the mercury turns from a gas into a liquid; however, some of the aerosolized mercury may be released into the atmosphere. Mercury is a poison that affects the central nervous system and may cause dermatitis, tremors, and mental disturbances. Personnel conducting the cleanup of a broken fluorescent lamp need to wear appropriate respiratory protection because mercury vapors are toxic. Because the MIB does not have personnel qualified to perform mercury cleanup operations, this task may have to be contracted. Cleanup materials from a mercury spill must be managed as hazardous waste.

Several Executive Orders require Department facilities to implement pollution prevention practices. The 1990 Pollution Prevention Act defines pollution prevention as any practice that reduces the amount of any hazardous substance, pollutant, or contaminant entering waste streams or otherwise reaching the environment. Therefore, regardless of hazardous waste generator status, recycling and/or substitution of low-mercury lamp tubes is recommended.

Low-mercury fluorescent lamp tubes pose much less of a safety or health concern. A chemical buffer is used to slow the phosphor's absorption of the mercury, which decreases the amount of mercury needed without decreasing the life of the tube. Hazardous waste characterization testing of these tubes shows that they do not exceed hazardous waste toxicity limits, and are therefore, not a hazardous waste.

There are several companies that sell pre-addressed, postage-paid shipping tubes for spent fluorescent tubes. Once full, the tubes are sent to a recycling facility. Shipping tubes are available in sizes to accommodate different length tubes. Sylvania is one company that provides this service (www.sylvania.com). Its RECYCLEPAK program ships supplies to and from the generating facility, and processes all documentation, including certificates of recycling.

Recommendation: **A)** Collect all unboxed fluorescent lamp tubes and place them in boxes to protect them from breaking; **B)** Label all boxes of spent fluorescent lamp tubes as "UNIVERSAL WASTE – LAMPS(S)," "WASTE LAMP(S)," or "USED LAMP(S)"; **C)** Contract for the removal and recycling of all accumulated spent lamp tubes; **D)** Consider contracting for recycling services; **E)** Begin the transition to low-mercury tubes; and **F)** Educate all personnel who perform maintenance activities on the proper storage and disposal of spent fluorescent lamp tubes.

Driving Reference(s): 40 CFR 273.8(a)(2) – CESQG waste handling
40 CFR 273.11 – treatment (crushing) prohibited

40 CFR 273.13 – universal waste management
40 CFR 273.14(e) – labeling of waste lamps
40 CFR 273.16 – employee training
40 CFR 273.17 – response to releases
Executive Order 12856 - pollution prevention program requirement

Point(s) of Contact: _____
(First and Last names, no groups or committees)

Status of Corrective Action: _____
(e.g., Scheduled for completion by MM/DD/YY; Completed on MM/DD/YY; Funding requested, scheduled for completion by...; Preliminary planning, scheduled for completion by...)

Facility Name: Reserved for the final report
Facility Category: Reserved for the final report

HAZARDOUS WASTE GENERATOR - HWGEN**Finding Number: HWGEN-07-005**

Finding: Significant quantities of uncharacterized potentially hazardous waste has accumulated throughout the MIB and SIB.

Repeat Finding: No

Recurring Issue: No

Priority Level: Class IB

Discussion: Several containers in various mechanical spaces are unlabeled and their contents are unknown. Following are examples of locations where uncharacterized wastes or unknown hazardous materials are stored:

- SIB Attic (5-gallon plastic bucket containing a solidified white material);
- SIB Attic (19th Street Cage) (two 1-gallon unlabeled containers in a shopping cart behind a flammable storage cabinet);
- SIB basement mechanical room near the elevator control room (one 5-gallon AidCo™ container leaking a viscous green liquid);
- SIB basement mechanical room near the south wall (one 5-gallon plastic container leaking a viscous green liquid);
- SIB basement mechanical room near the refrigerator (one 5-gallon plastic container stored open with approximately 2-gallons of unknown green liquid)
- MIB main compressor room (out-of-service parts washer containing unknown solvent)
- MIB main compressor room near tank T-1-5 (approximately twenty 30-gallon and 55-gallon drums (misabeled as refrigerants) and approximately 23 5-gallon plastic containers)
- MIB room labeled “F-12-2” in the parking garage (full 55-gallon open top drum with unknown contents)(drum is adjacent to the fluorescent lamp crushing unit)
- MIB parking garage (sump in floor near column S11 contains grease, oil, and water)

All waste streams (i.e., refuse that has the potential to exhibit hazardous characteristics), including aerosol cans, contaminated precipitation (i.e., water) and waste paint, must be characterized in accordance with 40 CFR 262.11 prior to disposal. Proper characterization of all waste streams, either through testing or “user knowledge” (e.g., gathering information from MSDSs), is necessary to determine the facility’s generator status, to identify proper waste management and disposal techniques, and to meet Federal and State regulations. At no time should unknown or partially characterized materials be transported to MIB.

A hazardous waste inspector could consider all of the containers hazardous waste because no one is certain what is in the containers and, even if the contents are known, they are not stored as if they have any value.

Recommendation: **A)** Determine the hazardous constituents of all waste by using knowledge of the waste or by testing the waste prior to disposal; **B)** Initiate the disposal of the waste according to the waste determination; and **C)** Inform facility personnel to contact the DOI HAZMAT Coordinator whenever waste is generated to initiate proper disposal of hazardous waste.

Driving Reference(s): 40 CFR 261.5(g)(1) - waste determination

40 CFR 262.11 - waste determination

Point(s) of Contact: _____
(First and Last names, no groups or committees)

Status of Corrective Action: _____
(e.g., Scheduled for completion by MM/DD/YY; Completed on MM/DD/YY; Funding requested, scheduled for completion by...; Preliminary planning, scheduled for completion by...)

Facility Name: Reserved for the final report
Facility Category: Reserved for the final report

HAZARDOUS WASTE GENERATOR - HWGEN

Finding Number: HWGEN-07-006

Finding: Used oil is accumulated in two unlabeled 5-gallon containers in the MIB elevator pit #3 (Room B028).

Repeat Finding: No

Recurring Issue: No

Priority Level: Class IC

Discussion: Used oil is generated during elevator maintenance and repair. The used oil is removed from the MIB by the elevator contractor. While in the building, however, the containers must be properly labeled.

All used oil that is intended for recycling must be accumulated and stored in containers that are labeled "USED OIL" and not "WASTE OIL." The term "WASTE OIL" is reserved for generators that intend to dispose of oil, not offer it for recycling. Any oil intended for disposal must be handled as hazardous waste. Because the Department promotes recycling and transfers all used oil to recyclers, all used oil accumulation containers must be labeled "USED OIL."

Recommendation: Label all used oil accumulation containers "USED OIL."

Driving Reference(s): 40 CFR 279.22(c)(1) - used oil labeling

Point(s) of Contact: _____
(First and Last names, no groups or committees)

Status of Corrective Action: _____
(e.g., Scheduled for completion by MM/DD/YY; Completed on MM/DD/YY; Funding requested, scheduled for completion by...; Preliminary planning, scheduled for completion by...)

Facility Name: Reserved for the final report

Facility Category: Reserved for the final report

HAZARDOUS WASTE GENERATOR - HWGEN

Finding Number: HWGEN-07-007

Finding: Expired epinephrine is discarded improperly in the MIB Health Services (Room 7045).

Repeat Finding: No

Recurring Issue: No

Priority Level: Class IB

Discussion: Small vials of epinephrine are stored in the Health Services clinic. Expired vials are added to the sharps containers for incineration. Because unused epinephrine is a P-listed hazardous waste, it must be managed as a hazardous waste.

Hazardous waste should not be mixed with nonhazardous waste. Materials that are, or contain, listed hazardous wastes (e.g., acetone, formaldehyde, and toluene) are subject to the mixture rule. "Listed" means these solvents are identified by name in 40 CFR 261.30, Subpart D, Lists of Hazardous Wastes and are subject to the mixture rule. The mixture rule states that any solid waste becomes a hazardous waste when mixed with a listed hazardous waste. For example, a nonhazardous waste material with a drop of a listed waste, such as epinephrine, is a hazardous waste. The hazardous waste identification number for epinephrine is P042.

Recommendation: Develop a standardized procedure for the disposal of waste unused epinephrine.

Driving Reference(s): 40 CFR 262.34 – hazardous waste accumulation
40 CFR 261.3(b)(2) – mixture rule

Point(s) of Contact: _____
(First and Last names, no groups or committees)

Status of Corrective Action: _____
(e.g., Scheduled for completion by MM/DD/YY; Completed on MM/DD/YY; Funding requested, scheduled for completion by...; Preliminary planning, scheduled for completion by...)

Facility Name: Reserved for the final report

Facility Category: Reserved for the final report

HAZARDOUS WASTE MINIMIZATION - HWMIN

Finding Number: HWMIN-07-001

Finding: Excess and expired shelf-life hazardous materials are stored throughout the MIB and SIB.

Repeat Finding: No

Recurring Issue: No

Priority Level: Class IB

Discussion: The CASHE Team identified hundreds of gallons of excess hazardous materials throughout the MIB and SIB. Following are selected example locations:

- Flammable storage cabinet outdoors in the SIB parking area (one 1-quart can of enamel paint and two 5-gallon containers of latex paint)(products will freeze and become unusable);
- Cooling tower access room in the SIB Attic (one 1-gallon container of galvanizing compound and one 1-quart container of Conquest™ rust converter);
- Storage shelves in the SIB Attic (three 1-quart containers of 3M™ primer);
- SIB Attic (19th Street Cage) flammable storage cabinet (three 1-gallon containers of Lenmar™ component coating [the label indicates the use of respiratory protection when using this material, there is no respiratory protection program in place at either facility], 20 1-gallon containers of enamel paint, five containers stored open, and several containers dried solid);
- Along the west wall of the SIB basement mechanical room (R75 refrigerant in a 20-pound tank [all systems at this facility currently use R123 refrigerant], an unknown amount and type of refrigerant in a small gas cylinder, one 1-gallon container labeled “Z.R.C. COLD GALVONIZING COMPOUND,” one 5-gallon container of lubricating hydraulic fluid, one 5-gallon container of water-based stain killer, and two 1-gallon containers of DuraClad™ oil-based (alkaline) black paint);
- Near elevator control room in the SIB basement mechanical room (one 5-gallon container of AidCo™ coil brightener corrosive, one 15-gallon metal container labeled “USED OIL,” one 20-gallon metal container labeled “USED OIL,” one 5-gallon container of paint thinner, one 5-gallon container of mineral spirits stored open, two 20-gallon containers of R113 refrigerant [all systems at this facility currently use R123 refrigerant], one 5-gallon container of enamel paint [label indicates a manufacturers date of May 1989], two 20-gallon containers of R11 refrigerant [all systems at this facility currently use R123 refrigerant], one 1-gallon container of Duron™ DuraClad metal primer labeled “FOR PROFESSIONAL USE” and “NOT FOR RESIDENTIAL USE”);
- Along the south wall of the SIB basement mechanical room (one 100-pound container of R113 refrigerant [all systems at this facility currently use R123 refrigerant], two 5-gallon containers of hydrochloric acid, five 5-gallon containers of mineral refrigerant oil labeled “FOR USE WITH CFC 11,” one 30-gallon container labeled “FREON 11,” two 5-gallon containers of Mobile™ oil labeled “HEAVY MEDIUM,” and one 5-gallon container of York™ oil);
- MIB M-Floor (2 West Section) (approximately ten 1-pint to 1-quart containers of glues, lubricants, and adhesives); in the MIB M Floor (2 West Section) (one 5-gallon container of yellow paint labeled “FOR PROFESSIONAL USE ONLY”);
- MIB main compressor room (eight 1-gallon containers of degreasing solvent [the solvent contains methylene chloride and perchloroethylene], nine 55-gallon drums of refrigerants, oils, and antifreeze, one 5-gallon container of corrosive sodium hydroxide, and one leaking 5-gallon

- container of oil);
- MIB main compressor room compressed gas cage (R-12 refrigerant cylinders);
- MIB main compressor room flammable storage cabinet (one 5-gallon container of floor paint [the label indicates a manufacturers date of 1982, and a flash-point of 100° F], one 5-gallon container of enamel paint, and 18 1-gallon cans of combustible paint);
- SIB cooling towers (GE Betz™ “Continuum AEC225” and “Spectrus NX114” stored outdoors in freezing temperatures – MSDS for this material states “protect from freezing”)
- Flammable storage cabinet in the MIB main compressor room (near air handling unit F-32-1)(5 gallons floor sealer dated June 1987; 5 gallons combustible enamel dated May 1989; and 25 1-gallon containers of combustible aluminum and latex paint)
- Storage room under MIB “A Ramp” (55-gallon white drum, 55-gallon black drum, 5 gallons of combustible bituminous coating, two 5-gallon containers of corrosive coil cleaner, 5 gallons of orange degreaser, and 5 gallons of 20% sodium hydroxide)
- MIB parking garage (approximately 10-pound propane cylinder labeled “GSA” and dated August 1969)
- MIB valve room (Room B628) (approximately 120 1-gallon cans of paint)
- Flammable storage cabinet in the MIB parking garage (near column G-19) (approximately 20 containers of excess adhesives, paints, and aerosols believed to be from the alterations shop)
- MIB parking garage cages (outdated and unused carbon dioxide fire extinguisher on a wheeled cart)
- Elevator pit #3 at the MIB (B028) (six 5-gallon containers of lubricants)
- MIB north elevator room (20 gallons of old oil)

The CASHE Team recommends the MIB and SIB sponsor a “Hazardous Materials Amnesty Day” as a day designated for the collection and removal of excess hazardous materials. On this day, personnel turn in materials that will not be used in the near future (e.g., within 1 year). Other personnel with immediate needs can claim collected materials. The remaining excess materials are donated to other facilities, State agencies, private companies, schools, or other legitimate users. The MIB and SIB HAZMAT Coordinator must consider hazardous materials that are not usable or that cannot be donated readily as waste, and must characterize and disposed of the waste appropriately.

If the MIB or SIB generate more than 100 kg (220 pounds) of hazardous waste in a single month (e.g., through disposal of accumulated excess materials), the facility will become temporarily regulated as a Small Quantity Generator (SQG) or Large Quantity Generator (LQG) and must follow all applicable accumulation, transportation, and disposal regulations.

Improper storage of hazardous materials is a major cause of hazardous waste generation. In order to reduce the amount of hazardous waste generated, facilities must ensure that materials are not exposed to extreme temperatures. Containers of flammable and combustible liquids, along with other heat-sensitive materials, should be protected from exposure to heat. Excessive heat can cause these materials to vaporize and the pressure exerted can cause containers to bulge. This type of damage to the container can cause flammable or combustible vapors and liquids to escape from the containers, posing a serious safety problem. Storing materials such as paint and batteries in unheated areas can cause these materials to freeze and/or crack rendering them unusable, and therefore, waste.

Materials that are considered “abandoned” are classified as solid waste under Federal regulations (40 CFR 261.2). For example, a RCRA inspector would consider unlabeled containers of hazardous materials, with contents unknown, exposed to the elements in a wareyard, as abandoned wastes because they are not being treated as if they have value. Solid waste that exhibits any of the hazardous characteristics described in 40 CFR 261 Subpart C or listed in Subpart D is classified as hazardous waste.

Therefore, expired hazardous materials, such as lead paint, become regulated as hazardous waste when they become abandoned. Generation of such hazardous waste should be avoided.

Hazardous materials that are purchased in bulk often expire or become unusable, the facility should discontinue such purchases. Bulk containers also tend to become labeling problems because the labels fall off or fade out before the contents are completely used. If facility personnel cannot identify the contents of a bulk container, the MIB and SIB must perform costly analysis to determine whether it can use the product or how to dispose of it properly.

Several Executive Orders require Department of Interior facilities to implement pollution prevention practices. The 1990 Pollution Prevention Act defines pollution prevention as any practice that reduces the amount of any hazardous substance, pollutant, or contaminant entering waste streams or otherwise reaching the environment. Executive Order 12856 required Federal facilities to develop pollution prevention programs. Federal regulations require SQGs to sign a statement on hazardous waste manifests certifying that the hazardous waste generator has “made a good faith effort” to minimize the amount of hazardous waste generated.

Common hazardous waste pollution prevention techniques include **1)** source reduction through process or equipment modifications that reduce or eliminate the generation of hazardous waste; **2)** source reduction through material substitution; **3)** improving inventory control to reduce the amount of material expiring on the shelf; and **4)** recycling/reuse.

Recommendation: **A)** Establish an annual “Hazardous Materials Amnesty Day,” organized by the MIB and SIB HAZMAT Coordinator; **B)** Inform all personnel to promptly return excess materials to the vendor for credit whenever possible (e.g., when planned projects are canceled); **C)** Attempt to donate excess hazardous materials to other Federal facilities, State agencies, schools, or other legitimate users who have an immediate use for the material; and **D)** Dispose of excess materials for which a legitimate user could not be found as a hazardous waste; and **E)** Provide the HAZMAT Coordinator with a storage area (e.g., a flammable storage cabinet in the flammable storage room) where excess hazardous materials can be safely stored awaiting redistribution or disposal.

Driving Reference(s): Executive Order 12856 - pollution prevention program requirement
40 CFR 262 - Appendix Manifest Certification

Point(s) of Contact: _____
(First and Last names, no groups or committees)

Status of Corrective Action: _____
(e.g., Scheduled for completion by MM/DD/YY; Completed on MM/DD/YY; Funding requested, scheduled for completion by...; Preliminary planning, scheduled for completion by...)

Facility Name: Reserved for the final report

Facility Category: Reserved for the final report

HAZARDOUS WASTE MINIMIZATION - HWMIN

Finding Number: HWMIN-07-002

Finding: Replacement mercury thermometers and switches are installed throughout Main and South Interior Buildings.

Repeat Finding: No

Recurring Issue: No

Priority Level: Class IB

Discussion: Mercury is commonly used in thermometers and switches, and is not released unless this equipment is damaged or disposed. The availability of alcohol-based thermometers and electronic switches presents an opportunity to eliminate this potential source of mercury releases in the workplace. No initiative to replace existing mercury-containing equipment or policy regarding the installation of new mercury-containing equipment has been established for the Department, and any damaged thermometers or switches in mechanical areas are replaced with new equipment that contains mercury. New mercury switches are in storage in the MIB main compressor room storage room.

Several Executive Orders require Department facilities to implement pollution prevention and greening practices. As defined by the 1990 Pollution Prevention Act, pollution prevention is any practice that reduces the amount of any hazardous substance, pollutant, or contaminant entering waste streams or otherwise reaching the environment. Executive Order 12856 required Federal facilities to develop pollution prevention programs. Federal regulations require SQGs and LQGs to sign a statement on hazardous waste manifests certifying that the hazardous waste generator has “made a good faith effort” to minimize the amount of hazardous waste generated.

Executive Order 13148 directed EPA to convene and chair an Interagency Environmental Leadership Workgroup to develop a list of fifteen priority chemicals. Federal facilities were to reduce the use of these chemicals by at least 50% by December 31, 2006. To date, the workgroup has identified the following five of the fifteen priority chemicals: mercury, cadmium, lead, naphthalene, and polychlorinated biphenyls (PCBs). Each of these chemicals is also a Priority Chemical (PC).

The National Partnership for Environmental Priorities Program (NPEP) has tools for identifying mercury-containing items, inventorying them, properly disposing of them, and replacing them with environmentally preferable items. The link to the "Mercury Challenge" website is <http://www.epa.gov/epaoswer/hazwaste/minimize/mercchall.htm>.

All Federal agencies are required by EO 13101 “Greening the Government Through Waste Prevention, Recycling, and Federal Acquisition” to purchase a wide variety of “green” products. The Office of Management and Budget (OMB) in conjunction with the EPA issued in January 2006 a new Environmental Stewardship scorecard in support of the President’s Management Agenda (PMA). Senior managers through the Federal Government are familiar with the phrase “Going to Green” because all Federal agencies are rated quarterly on their progress related to the implementation of the PMA. The PMA has five major elements. The Environmental Stewardship scorecard is a component of the Budget and Performance Integration element. The recently issued Environmental Stewardship scorecard complements EO 13101 and is intended to facilitate achievement of environmental goals.

Recommendation: A) Ensure that all new and replacement thermometers and switches installed in

Department facilities are mercury-free; and **B)** Ensure that only mercury-free equipment is installed in modernized spaces.

Driving Reference(s): Executive Order 12856 - pollution prevention program requirement
40 CFR 262 - Appendix Manifest Certification
EO 13101 - Greening the Government Through Waste Prevention, Recycling,
and Federal Acquisition
EO 13148 – Environmental Management Systems

Point(s) of Contact: _____
(First and Last names, no groups or committees)

Status of Corrective Action: _____
(e.g., Scheduled for completion by MM/DD/YY; Completed on MM/DD/YY; Funding requested, scheduled for completion by...; Preliminary planning, scheduled for completion by...)

Facility Name: Reserved for the final report
Facility Category: Reserved for the final report

POLYCHLORINATED BIPHENYLS - PCB

Finding Number: PCB-07-001

Finding: The light ballasts and capacitors containing PCBs were found in main and south compressor rooms in the Main and South Interior Buildings.

Repeat Finding: No

Recurring Issue: No

Priority Level: Class IB

Discussion: Fluorescent light ballasts are equipped with a small capacitor that may contain a high concentration of PCBs (i.e., greater than 90% PCBs). Federal regulations prohibit ballasts manufactured after 1979 from containing PCBs and require that those ballasts manufactured after 1979 be labeled “NO PCBs.” In the experience of the BLM CASHE Program Lead, every older ballasts not labeled “NO PCBs” that he has had tested, contained PCBs. Therefore, all ballasts that are not labeled “NO PCBs” should be assumed to contain PCBs to avoid the expense of testing. The analytical cost for testing a substance to determine if it contains PCBs is approximately \$100.

Boxes of failed ballasts removed from lighting fixtures were found in the MIB mezzanine and MIB alterations shop. The CASHE Team did a cursory scan of failed ballasts stored in several boxes in the MIB M Floor and did not find any PCB containing ones. A quick scan of the box of failed ballasts in the MIB alterations shop identified at least three PCB containing ballasts. A spare parts room near the entrance of the MIB main compressor Room had approximately 19 capacitors on a shelf. Many of the capacitors were dated prior to 1979. None of them are labeled “NO PCBs” and are therefore assumed to contain PCBs

Small PCB capacitors that are not leaking (total volume of less than 1,639 cm³/100 cubic inches) may be disposed of as any other solid waste subject to the CERCLA reportable quantity (RQ) limit of one pound, and State and local regulations [40 CFR 761.60(b)(2)(ii)]. CERCLA requires anyone who releases a hazardous substance to the environment above its RQ must report that release to the National Response Center (NRC).

Disposal of fluorescent light ballasts or capacitors that contain PCBs and are not leaking is not regulated by TSCA, but is regulated under CERCLA. Building owners who dispose of PCB-containing ballasts in a dumpster or local landfill may be held liable under CERCLA for releasing PCBs to the environment. The disposal of approximately 12 to 16 ballasts is equivalent to a release of 1 pound (the RQ for PCBs) or more of PCBs and is subject to reporting to the National Response Center (NRC). Dumping and disposing of hazardous substances are considered releases under CERCLA [40 CFR 302.3].

Fifteen states prohibit the disposal of PCB ballasts in sanitary landfills, even if they are not leaking. Fifteen other states have special provisions for disposing of PCB ballasts. The CASHE Team will research whether the District has any special requirements for the storage and disposal of PCB ballasts that are not leaking (e.g., how many be stored on site and for how long). This information will be provided in the Final CASHE Report. In accordance with TSCA regulations, leaking ballasts must be handled and disposed of in the same manner as other PCB waste.

Due to the age of the MIB and SIB, additional PCB light ballasts and capacitors will continue to be removed/found by maintenance personnel and the modernization contractor. Whether the Main Interior

Building modernization contractor segregates PCB light ballasts from non-PCB ones was not determined by the CASHE Team. There are numerous companies across the country that specialize in the recycling of metal from light ballasts and the proper disposal of their PCBs, if any.

In addition to environmental benefits, replacing the existing PCB light ballasts will have economic benefits. Replacing old PCB light ballasts with electronic ballasts using T-8 25 watt lamps instead of T-12 40 watt lamp tubes will reduce energy consumption by 25 percent. Energy conservation audits at BLM facilities indicate that the payback period for relamping projects (e.g., installation of electronic ballasts using T-8 lamps) is less than five years.

Recommendation: **A)** Determine if the modernization contractor is segregating PCB light ballasts from the fluorescent lamp fixtures it is remove and properly disposing of them; **B)** If the modernization contractor is not segregating PCB light ballast require that this be done and either pay the contractor for their disposal or issue your own contract for their proper disposal; **C)** Identify old equipped that is scheduled for removal under the modernization contract and remove PCB capacitors prior for proper disposal prior to equipment removal; **D)** Inform all appropriate modernization and in-house personnel of management and disposal procedures (e.g., where to accumulate/store waste ballasts or capacitors awaiting proper disposal); **E)** Mark all ballasts and capacitors with the date they were removed from service and store them in appropriate packagings to contain any potential leakage and mark the packagings with the PCB warning label [Note: Additional storage and disposal requirements will be provided in the final report if necessary.]; and **F)** Properly dispose of all PCB ballasts and capacitors.

Driving Reference(s): 40 CFR 761.40(c)(1) - M_L marking requirement
40 CFR 761.60(b)(2)(ii) - fluorescent light ballasts

Point(s) of Contact: _____
(First and Last names, no groups or committees)

Status of Corrective Action: _____
(e.g., Scheduled for completion by MM/DD/YY; Completed on MM/DD/YY; Funding requested, scheduled for completion by...; Preliminary planning, scheduled for completion by...)

Facility Name: Reserved for the final report
Facility Category: Reserved for the final report

POTABLE WATER - PW

Finding Number: PW-07-001

Finding: A formal preventative maintenance schedule and record are not maintained for the water treatment systems in the Interior Complex.

Repeat Finding: No

Recurring Issue: No

Priority Level: Class III

Discussion: Water treatment devices were found in the following locations:

- Water filter on line to ice machine in the SIB break room
- Water filter on line to ice machine in MIB John Muir Conference Room
- A series of water filters with ultraviolet radiation (UV) disinfection located in the MIB M-Floor (1 West section). They system was installed in November 2004, and there is no indication that it has been serviced since that time.

Note: The CASHE Team is aware that there are additional water treatment systems (e.g., Secretary's kitchen) in use throughout the MIB and SIB. This finding is also applicable to those treatment systems.

The most commonly used water filters are manufactured by Everpure and Aquapure. A water treatment system must be serviced on a routine schedule to ensure that the unit does not become a breeding habitat for heterotrophic bacteria. Most water filter systems use carbon which is an excellent breeding ground for bacteria after it becomes clogged with sediment. EPA regulations on point-of-use treatment systems prohibit the installation of point-of-use treatment systems for bacteriological contamination because routine maintenance of those systems is not typically performed and, therefore, long-term reliability is questionable at best. The point-of-entry regulations specifically require that the design of those systems address the possibility of increased heterotrophic bacteria in water treated by carbon filters. Note: The treatment systems in use are considered point-of-use treatment systems so technically the point-of-entry regulations are not applicable, but they are referenced as a best management practice.

Water filter manufacturers typically recommend maintenance schedules for equipment and filters typically have labels that specify replacement frequency. The recommended maintenance schedules must be adhered to keep the filters from clogging, maintain the treatment efficiency of the system, and ensure that the treatment system does not become a source of microbiological contaminants. The CASHE Team researched the web site for the Everpure "Insurince" water filter which is specifically designed for ice machines (filter model #9612-21). The cartridge has a place to write the installation date. Below that date the filter itself states, "Replace cartridge no later than one year after cartridge installation date above." However, the "operating tips" provided on the technical sheets for this filter state, "Change cartridge on a regular 6 month preventative maintenance schedule." The Aquapure web site also recommends filter changes every six months.

A filtration and ultraviolet radiation (UV) disinfection water treatment system is installed in the mezzanine above the Secretary's wing. This treatment system consists of a 10 micron carbon filter, five micron sediment filter, and a UV lamp for disinfection. The unit is marked, "Change UV Lamp every 12 months." The Pura web site recommends one a year or more frequent filter cartridge changes.

The District of Columbia's drinking water provided is microbiologically safe because it is disinfected. However, chlorine disinfectant dissipates over time, particularly if the water is stored for a period of time (e.g., a holiday weekend). There is the potential for the treatment system to become microbiologically contaminated if not maintained properly because the filters accumulate sediment that may harbor bacteria. If the chlorine residual in the treatment system drops below 0.2 mg/L, bacteria in the sediment could reproduce in the filters resulting in the contamination of water that passes through them.

Inspection and maintenance tags are posted on fire extinguishers, vehicle windshields (oil change stickers), and a wide range of equipment to remind personnel to service the equipment. Posting a maintenance record/schedule on the cabinet doors under the sink where the treatment system is located will help ensure that the treatment system is adequately maintained as it will be easily seen by employees accessing the storage beneath the sink. The Everpure filter has a space on which to write the installed date.

Recommendations: **A)** Contact the water treatment systems manufacturers to obtain their recommendations on replacement of filter cartridges and other components; **B)** Establish a formal maintenance record/schedule based on manufacturers' recommendations for each water treatment system in use and post it inside the cabinet where each treatment system is located; and **C)** Mark the installation date on all filters.

Driving Reference(s): 40 CFR 141.100(d)(2) – increase in heterotrophic bacteria from carbon filters
Safe Drinking Water Act Amendments of 1996, Section 1412(b)(4)(E) –
prohibition of point-of-use treatment for bacteriological contaminants

Point(s) of Contact: _____
(First and Last names, no groups or committees)

Status of Corrective Action: _____
(e.g., Scheduled for completion by MM/DD/YY; Completed on MM/DD/YY; Funding requested, scheduled for completion by...; Preliminary planning, scheduled for completion by...)

Facility Name: Reserved for the final report
Facility Category: Reserved for the final report

POTABLE WATER - PW

Finding Number: PW-07-002

Finding: Backflow preventors installed on water lines in the Interior Complex are not tested annually.

Repeat Finding: No

Recurring Issue: No

Priority Level: Class IB

Discussion: Backflow preventors were found throughout the MIB and SIB by the CASHE Team. Following are locations where backflow devices were observed:

- SIB fire pump room on fire protection supply and lawn irrigation system
- SIB basement mechanical Room (reduced pressure backflow preventor in the upper piping, without a drain to collect water that is release when backflow is sensed)
- Chilled water piping in wings in MIB modernized wings
- Chilled water piping along the back wall of the MIB main compressor room (three locations reduced pressure backflow preventors)
- MIB main compressor building (three reduce pressure backflow preventors)

None of the backflow preventors had tags on them indicating when they were last inspected, although several have tags indicating when they were installed. As an example, the reduced pressure backflow preventors in the Main Compressor Room had tags noting they were installed on February 20, 2002.

There are probably other backflow preventors in MIB and SIB in addition to those identified by the CASHE Team. Backflow preventors could not be found on water lines supplying fire protection water. Backflow preventors are required on the water that supplies the fire protection sprinkler systems because its piping is not approved for potable water and the water is stagnant in the piping.

When a water line breaks, the rapid pressure change causes water to be drawn from other parts of the distribution system. For example, backflow of stagnant water from the sprinkler system into the drinking water lines can occur during a line break. The District of Columbia has enacted regulatory requirements to prevent the backflow of contaminants that may be hazardous to human health into drinking water supplies.

The District requires that backflow preventors be tested annually by a certified tester. The required annual fire sprinkler system inspection and testing could be combined with the backflow preventor (see the related Fire Protection finding for details on the fire sprinkler system testing). Records of the installation and testing of backflow prevention devices must generally be kept for at least 3 years.

Aarcher has contacted Mr. Lee (202.787.2395) with the District of Columbia Water and Sewer Authority (DCWASA) about the installation and maintenance of backflow preventors. Mr. Lee stated that backflow prevention devices are required for separating interior domestic potable water sources from fire protection services and other cross connections. He also confirmed that the DCWASA Office of Backflow Prevention Devices does not have a “grandfather clause,” that exempts older buildings from this requirement.

When a water line breaks, the rapid pressure change causes water to be drawn from other parts of the distribution system. For example, backflow of stagnant water from the sprinkler system into the drinking water lines can occur during a line break.

Cross connections (e.g., between the fire protection sprinkler system or lawn irrigation systems and drinking water) typically require testable backflow prevention devices, such as double-check valve assemblies, that are professionally installed.

Recommendation: **A)** Determine if the fire protection water supply piping in the MIB has a backflow preventor on it and if not include their installation in the modernization contract; **B)** Inventory all backflow preventors in the MIB and SIB; **C)** Establish an annual preventative maintenance requirement to contract for their annual testing of all backflow preventors and repair of those that fail; and **D)** Require that a tag be placed on each backflow preventor to document its successful testing.

Driving Reference(s): Title 21 DCMR 5401.1- District of Columbia Water and Sanitation regulations

Point(s) of Contact: _____

(First and Last names, no groups or committees)

Status of Corrective Action: _____

(e.g., Scheduled for completion by MM/DD/YY; Completed on MM/DD/YY; Funding requested, scheduled for completion by...; Preliminary planning, scheduled for completion by...)

Facility Name: Reserved for the final report

Facility Category: Reserved for the final report

POTABLE WATER - PW

Finding Number: PW-07-003

Finding: Hose bibs are not equipped with vacuum breakers to prevent contaminated water from being drawn into the drinking water piping.

Repeat Finding: No

Recurring Issue: No

Priority Level: Class IB

Discussion: Hose bids throughout the MIB and SIB are not equipped with vacuum breakers. As an example, several hose bibs in the SIB mechanical room are not equipped with vacuum breakers. One of the hose bibs had a garden hose connected to it. Hose bibs in the MIB modernization wings have vacuum breakers incorporated as an integral part of the tap. The CASHE Team has been told that the SIB is not included in the current modernization effort.

When a water line breaks, the rapid pressure change causes water to be drawn from other parts of the distribution system. Backflow of contaminated water into the drinking water lines can occur during a line break if, for example, a hose is submerged in a bucket of dirty water. The State has enacted regulatory requirements to prevent the backflow of contaminants that may be hazardous to human health into drinking water supplies.

Vacuum breakers can be purchased that screw into the threads of yard hydrants and hose bibs. A flap inside the device prevents potentially contaminated water from back flowing into the water system. This flap retains water which can freeze, causing outdoor hydrants or hose bibs to crack. Arrowhead Brass Products makes a vacuum breaker with a self-draining feature that provides freeze protection and should not interfere with the draining feature on frost-free hydrants. The Arrowhead Brass Products vacuum breaker (#59ABP) is available at local plumbing or hardware stores. Information is also available at www.arrowheadbrass.com by following the links to products and vacuum breakers. This vacuum breaker costs approximately \$13.00.

Recommendation: Purchase, stock, and install vacuum breakers for installation by maintenance personnel in the mechanical rooms of the Main and South Interior Buildings.

Driving Reference(s): Title 21 DCMR 5401.1- District of Columbia Water and Sanitation regulations

Point(s) of Contact: _____
(First and Last names, no groups or committees)

Status of Corrective Action: _____
(e.g., Scheduled for completion by MM/DD/YY; Completed on MM/DD/YY; Funding requested, scheduled for completion by...; Preliminary planning, scheduled for completion by...)

Facility Name: Reserved for the final report

Facility Category: Reserved for the final report

BUILDING CODE - BCODE

Finding Number: BCODE-07-001

Finding: The Interior Complex has fire-resistant walls with unprotected openings, reducing their fire resistance performance.

Repeat Finding: N/A

Recurring Issue: N/A

Safety RAC: 2

Discussion: Specific DOI areas have rated fire walls. The SIB Server Room and adjacent 155A telcom storage room has openings in their walls (also called penetrations) for conduit and wiring to pass through. The utility space between SIB Rooms 120 and 121 has utility wall penetrations approximately 10 feet high. A ceiling opening that penetrates several floors is present in the MIB M-Floor near column 3-N-38. In addition, the MIB M-Floor 6 west transformer room has wall penetrations for electrical wiring and a ceiling opening near 1 east column 3-N-38 is present.

NFPA prohibits penetrations in fire resistant walls that would allow fire or smoke to pass through. Penetrations for cables, cable trays, conduits, pipes, tubes, combustion vents and exhaust vents, wires, and similar items to accommodate electrical, mechanical, plumbing, and communications systems that pass through a wall, floor, or floor/ceiling assembly constructed as a fire barrier shall be protected by a firestop system or device. The firestop system or device shall be tested to meet national recognized performance criteria, such as ASTM E 814, Standard Test Method for Fire Tests of Through Penetration Fire Stops, or UL 1479, Standard for Fire Tests of Through-Penetration Firestops.

A variety of rated products are available to seal openings in fire resistant walls and ceilings. Small openings can be sealed with fire resistant spray foams. Hilti (CP 620 Fire Foam is one of their products) and 3M (3M FireDam Spray 100 is one of their products) are two manufacturers of approved foams. The conduit openings can be sealed with a material designed for that purpose, such as 3M Fire Barrier Moldable Putty. Larger openings will require installation of gypsum board or other approved materials providing an equivalent fire rating.

Recommendation (s): **A)** Inspect all wall, ceiling, and floor penetrations through the the buildings' two-hour rated stairwells, identify all improperly sealed penetrations, and seal those penetrations and conduit openings with materials that provide an equivalent fire resistance rating; and **B)** Inspect all electrical, telephone, and mechanical rooms and all janitor closets, identify all improperly sealed penetrations, and seal them with approved materials that provide an equivalent fire rating.

Driving Reference(s): 29 CFR 1910.37 - fire protection ratings
NFPA (2006) 101-8.3.5 – penetrations and openings in fire barriers
IBC (2003) 712.3.1 – fire-resistance-rated walls through penetrations

Point(s) of Contact: _____

(First and Last names, no groups or committees)

Status of Corrective Action: _____

(e.g., Scheduled for completion by MM/DD/YY; Completed on MM/DD/YY; Funding requested, scheduled for completion by...; Preliminary planning, scheduled for completion by...)

Facility Name: Reserved for the final report

Facility Category: Reserved for the final report

BUILDING CODE - BCODE

Finding Number: BCODE-07-002

Finding: A hot water tank in the SIB mechanical room does not have a discharge pipe on its temperature and pressure emergency relief valve.

Repeat Finding: N/A

Recurring Issue: N/A

Safety RAC: 3

Discussion: A 120-gallon hot water tank in the SIB mechanical room is not equipped with a discharge pipe on the temperature and pressure relief valve. The purpose of a discharge pipe is to direct pressurized hot water in a downward direction to the floor. An improperly sized or positioned discharge pipe creates a hazard in that hot water could spray out of the valve and burn a person, and should be directed to the floor.

The Uniform Building Code requires that temperature and pressure relief valves have discharge pipes that extend downward to within 18 inches from the floor. The discharge pipe must be of the proper inside diameter so that it does not restrict water flow, no valves may be installed, and the end of the pipe needs to be smooth (no threads).

Recommendation: Install a discharge pipe on the hot water tank's temperature and pressure relief valves so it extends to within 18 inches of the floor and is positioned in a downward direction.

Driving Reference(s): UMC (2003) - 1008.0 – safety relief valve discharge

Point(s) of Contact: _____
(First and Last names, no groups or committees)

Status of Corrective Action: _____
(e.g., Scheduled for completion by MM/DD/YY; Completed on MM/DD/YY; Funding requested, scheduled for completion by...; Preliminary planning, scheduled for completion by...)

Facility Name: Reserved for the final report

Facility Category: Reserved for the final report

COMPRESSED GAS AND COMPRESSED AIR EQUIPMENT - CAIR

Finding Number: CAIR-07-001

Finding: Air compressors are not routinely drained to prevent the accumulation of oil and water.

Repeat Finding: No

Recurring Issue: No

Safety RAC: 4

Discussion: Portable air compressors are used throughout MIB and SIB. No documentation of routine draining of the receiver tanks is available for any compressor. Following are example locations where improperly maintained air compressors were identified:

- SIB basement mechanical room (label on tank suggests weekly draining)(1 cup of rusty water drained from compressor during the audit)
- MIB welding shop
- MIB compressor room (small compressor on floor near column J24)
- MIB compressor room (compressor near column G24 fitted with an automatic drain but not tested periodically)
- MIB alterations shop (two air compressors)
- Storage room near the MIB "C Ramp" (approximately 3 cups of rusty and oily water drained from compressor during the audit)
- MIB Print Plant

OSHA regulations require air compressor tanks to be completely drained periodically at such intervals as to prevent the accumulation of excessive amounts of liquid in the receiver. Personnel at other facilities inspected by the CASHE Team either drain compressors at the time of other monthly maintenance duties (e.g., monthly fire extinguishers inspections) or leave the valve open when the compressor is not in use.

Where automatic drains are installed, they must be tested (normally by simply pressing a button) periodically to ensure they are functioning. Automatic drains pose the risk of failing without warning, thereby allowing the accumulation of water in the receiver tank.

Recommendation: **A)** Locate all air compressors at the SIB and MIB and drain them each month (at a minimum), or leave the petcock valve open when not in use; and **B)** Test automatic drains monthly.

Driving Reference(s): 29 CFR 1910.169(b)(2) – drains and traps

Point(s) of Contact: _____
(First and Last names, no groups or committees)

Status of Corrective Action: _____
(e.g., Scheduled for completion by MM/DD/YY; Completed on MM/DD/YY; Funding requested, scheduled for completion by...; Preliminary planning, scheduled for completion by...)

Facility Name: Reserved for the final report

Facility Category: Reserved for the final report

ELECTRICAL - ELEC

Finding Number: ELEC-07-001

Finding: Extension cords are used improperly throughout the Main and South Interior Buildings.

Repeat Finding: No

Recurring Issue: No

Safety RAC: 3

Discussion: The CASHE Team identified misused extension cords in numerous locations in both the MIB and SIB. Following are selected example locations:

- MIB Room 5160 (executive conference room)(extension cord running to a power strip is taped to the floor for permanent use);
- MIB Room 1547 (extension cord is used to power a permanently stationed electric typewriter and a power strip at a desk);
- SIB Room 334 and Room 355-D (piggy-backed extension cords in);
- SIB Room 264 (extension cord used to provide permanent power to a toaster, pencil sharpener, and fan);
- MIB “SPP Room” on the M Floor (extension cords used to provide permanent power to the communications rack)
- MIB South Penthouse roof terrace (extension cord routed through the wall to power a spotlight)
- MIB South penthouse upper penthouse (very long fabricated extension cord needs to be replaced with permanent wiring with outlets wherever needed)
- MIB library (extension cords and piggy-based power strips to provide power to computers throughout the reading room where too few outlets are available)

Extension cords are permissible for temporary use only. OSHA regulations require that fixed equipment be plugged directly into a permanent electrical receptacle when in use. Extension cords and outlet multipliers draw excess amperage from receptacles, creating an over-current, which, in turn, creates heat in cords and receptacles. Piggy-backed extension cords multiply both the amperage draw and production of heat. This is a fire and electrocution hazard.

Metal quadplex and duplex receptacle cords in use at the MIB are prohibited by the National Electrical Code (NEC). The receptacles are actually boxes intended for permanent use in the construction of a wall, they are metal, and provide no surge protection, and do not have built in breakers. For example, quadplex receptacle cords are used at the MIB alterations shop (Room B142).

Recommendation: Survey MIB and SIB to identify all locations where permanently wired electrical receptacles are required to eliminate the need for extension cords and piggy-backed power strips.

Driving Reference(s): 29 CFR 1910.305(g)(1)(iii)(A) – flexible cords and cables

Point(s) of Contact: _____
(First and Last names, no groups or committees)

Status of Corrective Action: _____

(e.g., Scheduled for completion by MM/DD/YY; Completed on MM/DD/YY; Funding requested, scheduled for completion by...; Preliminary planning, scheduled for completion by...)

Facility Name: Reserved for the final report

Facility Category: Reserved for the final report

ELECTRICAL - ELEC

Finding Number: ELEC-07-002

Finding: Electrical receptacles in wet locations throughout the SIB and MIB are not equipped with ground fault circuit interrupters (GFCIs) or the circuits are not functional.

Repeat Finding: No

Recurring Issue: No

Safety RAC: 3

Discussion: Examples of the receptacles requiring GFCIs are several SIB restrooms including Room 207 and 205, and several restrooms in the MIB (Room 307 and Room 306).

OSHA requires that electrical receptacles installed in wet or damp locations be suitable for that location. The National Electrical Code (NEC) requires GFCIs in bathrooms, kitchen counter areas, and outdoor areas, including rooftops. In addition, the NEC requires accessible receptacles installed in garages and accessory buildings, where electrical hand tools or portable lighting equipment are to be used, to have GFCI protection.

A GFCI opens the circuit preventing electricity from continuing to power a device if it senses an increase in amperage draw. GFCIs prevent people from being electrocuted.

Recommendation: Equip all receptacles in wet locations with GFCI receptacles or GFCI circuits.

Driving Reference(s): 29 CFR 1910.305(j)(2)(ii) – receptacle in wet or damp location
NEC 210.8(B) – GFCI protection other than dwelling units

Point(s) of Contact: _____
(First and Last names, no groups or committees)

Status of Corrective Action: _____
(e.g., Scheduled for completion by MM/DD/YY; Completed on MM/DD/YY; Funding requested, scheduled for completion by...; Preliminary planning, scheduled for completion by...)

Facility Name: Reserved for the final report

Facility Category: Reserved for the final report

ELECTRICAL - ELEC

Finding Number: ELEC-07-003

Finding: Damaged electrical equipment is located throughout the MIB and SIB. According to DOI personnel the equipment is damaged beyond the point of repair and will be excessed.

Repeat Finding: No

Recurring Issue: Yes

Safety RAC: 3

Discussion: The damaged cords include the following:

- Power cord for a wet/dry vacuum in the SIB Attic (severely damaged);
- Large portable fan in the SIB Attic (severely damaged cord);
- Large industrial grinder in the SIB basement mechanical room;
- Insulation on the power cord for a wet/dry vacuum in the SIB basement mechanical room is damaged and missing the grounding prong; and
- Electrical plug for a space heater in the MIB M-Floor (1 East Section) is damaged.

OSHA regulations require that plug-connected equipment be inspected for external defects (e.g., damage to the outer jacket or insulation) and evidence of internal damage (e.g., pinched or crushed outer jacket). If equipment has a defective or damaged cord, it must be removed from service until repairs are made and tests performed that render the equipment safe.

Recommendation: Excess all damaged and unrepairable electrical equipment.

Driving Reference(s): 29 CFR 1910.334(a)(2) - frayed electrical cords
29 CFR 1910.215(a)(4) - tool rests
29 CFR 1910.215(b)(9) - tongue guards
29 CFR 1910.39 – fire prevention plan
29 CFR 1910.39(c)(3) – maintenance of heat-producing equipment
29 CFR 1910.304(f)(4) – grounding path
29 CFR 1910.304(f)(v)(c)(3) – hand-held motor-operated tools
29 CFR 1910.243(a)(5) – grounding portable power tools
NEC 250.114 – equipment connected by cord and plug

Point(s) of Contact: _____

(First and Last names, no groups or committees)

Status of Corrective Action: _____

(e.g., Scheduled for completion by MM/DD/YY; Completed on MM/DD/YY; Funding requested, scheduled for completion by...; Preliminary planning, scheduled for completion by...)

Facility Name: Reserved for the final report

Facility Category: Reserved for the final report

ELECTRICAL - ELEC

Finding Number: ELEC-07-004

Finding: Exposed energized electrical equipment is present throughout the Interior Complex.

Repeat Finding: N/A

Recurring Issue: N/A

Safety RAC: 2

Discussion: Openings in electrical equipment and exposed wiring is present throughout the MIB and SIB. Following are example locations where exposed wiring were identified:

- SIB Attic area near door to cooling tower (junction box is missing its cover)
- SIB telecom attic room (air conditioner electrical disconnect and electrical trough above it has knockout openings)
- SIB, throughout the attic storage areas (portable electrical equipment that has been put into storage needs to be inspected by an electrical qualified person before being used again)
- SIB elevator room (electrical control panel has energized parts)
- SIB mechanical room, hot water tank area (The electrical trough's cover above the hot water tank's electrical disconnect does not close and have knockout openings)
- SIB mechanical room, north wall pit (circuit breakers are missing in panel BLR, openings exist around the panel BC main 240 volt circuit breaker, and panel C-6-24 has a knockout opening on top and no inside cover)
- SIB closet next to Room 50 (Panel C-6-22 does not have a cover inside the outer cover, exposing energized parts)
- MIB M-Floor 6 west (GE 2300 volt transformers have exposed energized conductors)
- MIB M-Floor 6 east wire closet (circuit breaker panel is missing its cover)
- MIB M-Floor new SPP room (rack-mounted junction box is missing its cover)
- MIB M-Floor old SPP room (circuit breaker panel cover is not secured, a junction box cover is loose, and a large electrical panel has 2 knockout openings)
- MIB M-Floor 3 west (electrical panel W-P-3 has openings where the circuit breakers are missing)
- MIB M-Floor 1 west (junction box near column MM-37 is missing its cover, a box near hot water tank H-3-2 is missing its cover, and a single receptacle box has a knockout opening)
- MIB M-Floor 1 east (circuit breaker panel has openings and a junction box is missing its cover)
- MIB B002 mechanical room (circuit breaker missing in panel and electrical disconnect with knockout opening near AHU F-27-1,)
- MIB Yates Auditorium (row O, seat 108 conduit along floor broken exposing energized conductors, row O seat 113 no cover on junction box, several aisle light floor junction boxes not secured or missing covers, behind stage a LB fitting is missing its cover, production room electrical cabinet cover missing and a junction box cover missing)
- MIB Museum (a wood receptacle box inside the Hoover Dam display case is not approved, a 2-wire plug is missing its insulated cover, and an electrical connection is not located inside a junction box)
- MIB Print Plant (a metal-sheathed cable to a junction box is wrapped around a sprinkler pipe)

The NEC requires that aboveground wiring must be installed in rigid metal conduit, in intermediate metal conduit, in electrical metallic tubing, in rigid nonmetallic conduit, in cable trays, as busways, as cablebus,

or as open runs of metal-clad cable suitable for the use and purpose. In locations accessible to qualified persons only, open runs of Type MV cables, bare conductors, and bare buss bars are also permitted.

The exposed wiring creates electrical shock, arc flash and fire hazards. OSHA and the National Electrical Code (NEC) require that all pull boxes, junction boxes, and conduit bodies be provided with covers approved for that purpose and suitable for the conditions of use. OSHA also requires that unused openings (“knockouts”) in panels, cabinets, boxes, and other electrical devices be effectively closed. Blank closures are available for any openings within the boxes.

Recommendation: **A)** Repair the electrical equipment; and **B)** Ensure all electrical work is performed by qualified individuals following electrical safe work practices specified in NFPA 70E – Standard for Electrical Safety in the Workplace.

Driving Reference(s): 29 CFR 1910.305(b)(2) - electrical wiring covers
29 CFR 1910.305(b)(1) – cabinets, boxes, and fittings
NFPA 70E (2004) 215 – unprotected openings in electrical equipment

Point(s) of Contact: _____
(First and Last names, no groups or committees)

Status of Corrective Action: _____
(e.g., Scheduled for completion by MM/DD/YY; Completed on MM/DD/YY; Funding requested, scheduled for completion by...; Preliminary planning, scheduled for completion by...)

Facility Name: Reserved for the final report
Facility Category: Reserved for the final report

ELECTRICAL - ELEC

Finding Number: ELEC-07-005

Finding: An electrical safe work practices program has not been instituted.

Repeat Finding: N/A

Recurring Issue: N/A

Safety RAC: 2

Discussion: An electrical safe work practice program has not been instituted. NBC authorized employees work in close proximity to exposed energized equipment. For example, some employees are authorized to work in MIB Elevator Machine Room #3 where exposed equipment is energized to 240 volts and M-Floor 6 west transformer room where exposed conductors are energized to 2400 volts. Contact with the energized equipment would result in electrocution. Arc flash hazards are also present, which would result in fire or explosion. The purpose of the program is to institute electrical safety-related work practices and procedures for employees who work on or near exposed energized electrical conductors or circuit parts.

OSHA has specific electrical safety requirements that protect personnel from shock and arc flash hazards. The requirements address safety procedures and work practices, rated tools, personal protective equipment, and training for qualified and unqualified personnel. The requirements prohibit working on or near exposed energized equipment except when not feasible.

The OSHA regulations were adopted from the NFPA electrical safety in the workplace standard. The NFPA standard provides excellent guidance to develop the electrical safety program.

Recommendation: Institute an electrical safe work practices program.

Driving Reference(s): 29 CFR 1910.332 – electrical safety training
29 CFR 1910.333 – selection and use of work practices
29 CFR 1910.334 – use of equipment
29 CFR 1910.335 – safeguards for personnel protection
NFPA 70E (2004) – electrical safety in the workplace

Point(s) of Contact: _____
(First and Last names, no groups or committees)

Status of Corrective Action: _____
(e.g., Scheduled for completion by MM/DD/YY; Completed on MM/DD/YY; Funding requested, scheduled for completion by...; Preliminary planning, scheduled for completion by...)

Facility Name: Reserved for the final report

Facility Category: Reserved for the final report

ELECTRICAL - ELEC

Finding Number: ELEC-07-006

Finding: Electrical disconnects are not labeled, or are not labeled adequately, throughout the Interior Complex.

Repeat Finding: N/A

Recurring Issue: N/A

Safety RAC: 4

Discussion: Circuit breakers in areas that have not been modernized are generally not adequately labeled to identify the specific equipment that they energize. Following are selected locations of where disconnect labeling is inadequate:

- SIB Attic (not all circuit breakers labeled in Panel 4C)
- MIB M-Floor new SPP room (circuit breakers in an unlabeled panel are not labeled)
- MIB B002 Mechanical Room (circuit breakers not labeled in panel near F-27-1 AHU)

For example, several circuit breakers in one panel are labeled “space” and are energized.

OSHA requires disconnecting means be legibly marked and arranged so the purpose is evident.

Recommendation: Label circuit breakers to identify the specific equipment or work areas that they energize.

Point(s) of Contact: _____
(First and Last names, no groups or committees)

Driving Reference(s): 29 CFR 1910.303(f) – identification of disconnection means and circuits
NFPA 70 (2005 NEC) 230.70(B) –disconnecting means marking

Status of Corrective Action: _____
(e.g., Scheduled for completion by MM/DD/YY; Completed on MM/DD/YY; Funding requested, scheduled for completion by...; Preliminary planning, scheduled for completion by...)

Facility Name: Reserved for the final report

Facility Category: Reserved for the final report

ELECTRICAL - ELEC

Finding Number: ELEC-07-007

Finding: The ground prong has been removed from the plugs on equipment stored in the MIB and SIB.

Repeat Finding: No

Recurring Issue: No

Safety RAC: 3

Discussion: The MIB and SIB contain several un-renovated spaces with outlet lacking a ground. As a result, facilities personnel and contractors have removed the grounding prong from many pieces of electrical equipment used in these locations. Examples include the MIB welding shop (extension cord); SIB auditorium (fan power cord); and MIB mechanical room (Room B002) (two electric drain cleaner “snakes”).

OSHA regulations require that the path to ground from circuits, equipment, and enclosures be permanent and continuous. Fixed equipment with metal parts must be grounded if there is any potential personnel can touch the metal on the equipment. OSHA does allow distance “guarding” instead of grounding for special circumstances where employees will not be put at risk of shock or electrocution; however, as a practical matter, the CASHE Team recommends that all applicable equipment be properly grounded.

OSHA requires that portable power tools with metal parts be grounded (i.e., a grounding prong in the outlet plug or double insulation). Power tools with double insulation do not have a grounding prong in the outlet plug because the double insulation is the ground. Double-insulated power tools are labeled as such. All other power tools and electrical equipment with metal parts must have a grounding prong in the outlet plug.

The National Electrical Code (NEC) requires exposed non-current-carrying metal parts of cord-and-plug connected equipment to be grounded. The NEC allows for portable tools and appliances to be protected by an approved system of double insulation; however, they must be listed by a qualified electrical testing laboratory (e.g., UL-listed) and must be distinctively marked as double-insulated.

Recommendation: **A)** Remove all severely damaged equipment from service; or **B)** Repair or replace the power cords or equipment.

Driving Reference(s): 29 CFR 1910.304(f)(4) – grounding path
29 CFR 1910.304(f)(5)(iv) – fixed equipment grounding
29 CFR 1910.304(f)(v)(c)(3) – hand-held motor-operated tools
29 CFR 1910.243(a)(5) – grounding portable power tools
NEC 250.114 – equipment connected by cord and plug

Point(s) of Contact: _____

(First and Last names, no groups or committees)

Status of Corrective Action: _____

(e.g., Scheduled for completion by MM/DD/YY; Completed on MM/DD/YY; Funding requested, scheduled for completion by...; Preliminary planning, scheduled for completion by...)

Facility Name: Reserved for the final report

Facility Category: Reserved for the final report

EXIT ROUTES, EMERGENCY ACTION PLANS, AND FIRE PREVENTION PLANS - EXIT

Finding Number: EXIT-07-001

Finding: Heat-producing equipment in Room 1221-MIB is not maintained to prevent fire.

Repeat Finding: No

Recurring Issue: No

Safety RAC: 3

Discussion: Three newly purchased HeatRunner™ space heaters are not equipped with an automatic shut-off device to prevent it from becoming overheated when tipped over. The restricted air flow and heat on the carpet poses a fire risk.

OSHA regulations require that accumulation of combustible materials (e.g., paper, cardboard) be controlled and that heat-producing equipment be maintained to prevent fire.

Recommendation: Require that all space heaters be UL- or FM-approved and be equipped with automatic shutoff devices.

Driving Reference(s): 29 CFR 1910.39 – fire prevention plan
29 CFR 1910.39(c)(3) – maintenance of heat-producing equipment

Point(s) of Contact: _____
(First and Last names, no groups or committees)

Status of Corrective Action: _____
(e.g., Scheduled for completion by MM/DD/YY; Completed on MM/DD/YY; Funding requested, scheduled for completion by...; Preliminary planning, scheduled for completion by...)

Facility Name: Reserved for the final report

Facility Category: Reserved for the final report

EXIT ROUTES, EMERGENCY ACTION PLANS, AND FIRE PREVENTION PLANS - EXIT

Finding Number: EXIT-07-002

Finding: The MIB C St outdoor stairs do not have adequate intermediate handrails.

Repeat Finding: No

Recurring Issue: No

Safety RAC: 3

Discussion: The stairs at the main entrance to the MIB have only one intermediate handrail.

The NFPA requires that for existing exit stairs railings be no more than 88-inches apart. The purpose for this distance is that a person will be no more than 44-inches from a railing. For new stairs, the maximum distance is 60-inches.

Recommendation: Install additional intermediate handrails.

Driving Reference(s): NFPA 101 (2006) 7.2.2.4.1 – handrails

Point(s) of Contact: _____
(First and Last names, no groups or committees)

Status of Corrective Action: _____
(e.g., Scheduled for completion by MM/DD/YY; Completed on MM/DD/YY; Funding requested, scheduled for completion by...; Preliminary planning, scheduled for completion by...)

Facility Name: Reserved for the final report

Facility Category: Reserved for the final report

EXIT ROUTES, EMERGENCY ACTION PLANS, AND FIRE PREVENTION PLANS - EXIT

Finding Number: EXIT-07-003

Finding: Emergency lighting is not adequately tested to ensure that it works properly throughout the Interior Complex.

Repeat Finding: N/A

Recurring Issue: N/A

Safety RAC: 3

Discussion: Emergency lighting is present in the MIB and SIB. A random number of these lights were tested during the audit by pushing the “TEST” button on the lights. The following lights did not operate when tested:

- SIB Main Stairwell (third floor)
- SIB Inner Stairwell, East and West side (at the top floor)
- SIB Stairwell #3 (second floor)
- MIB Mechanical Floor (near pillar 3-E-37)
- MIB South Mechanical (Room 3002)
- MIB Elevator Pit #3 (labeled E-19-334)

Emergency lighting is also provided by selected fluorescent lamp fixtures mounted in the buildings’ ceilings that have individual battery backup power. The standby generator for the computer center also provides power to the emergency fluorescent lighting, but the generator was not installed or permitted by the West Metro Fire Department for the purpose of providing power to emergency lighting so that employees may safely exit a building during an emergency.

OSHA requires that each exit route be adequately illuminated so personnel can see along the exit route. The exit route begins at the employees’ work stations. OSHA references the NFPA Life Safety Code for acceptable compliance criteria. The Life Safety Code requires that emergency illumination be provided for not less than 1.5 hours in the event of failure of normal lighting. Emergency lighting systems shall be arranged to provide initial illumination that is not less than an average of 1 ft-candle and, at any point, not less than 0.1 ft-candle, measured along the path of egress at floor level.

Emergency power lighting systems are required by NFPA to be tested monthly for 30 seconds and annually for 1.5 hours. The 30 second testing period is necessary to ensure that the batteries will provide power for an extended period. As an example, “dead” batteries in a flashlight that hasn’t been used for a long time will power the bulb for a couple of seconds, but the bulb quickly fades and goes out.

A walk through of the buildings must be performed to determine if the emergency lighting systems (e.g., wall mounted “frog eyes” and selected ceiling mounted fluorescent lamp fixtures) are functioning. NFPA requires written records of the visual inspections and tests be kept by the building owner for inspection by the local authority having jurisdiction (i.e., DC Fire Department).

Emergency generators providing power to emergency lighting systems shall be installed, tested, and maintained in accordance with NFPA 110, Standard for Emergency and Standby Power Systems.

Recommendation (s): **A)** Measure emergency lighting levels in all exit routes to determine if emergency lighting is adequate in all occupied work areas; **B)** Improve emergency lighting levels as necessary to meet the required foot-candles of illumination; **C)** Identify and mark the emergency lighting fixtures to facilitate their visual identification during the required periodic testing; **D)** Test the emergency lighting systems (e.g., wall mounted “frog eye” battery powered emergency lighting and the selected fluorescent lamp fixtures) following NFPA criteria discussed in this finding; and **E)** Repair all battery powered emergency lighting systems that do not function.

Driving Reference(s): 29 CFR 1910.37(b)(1) – exit lighting
NFPA 101 (2006) –7.9.3 – period testing of emergency lighting equipment
NFPA 110 (2005) – Standard for Emergency and Standby Power Systems

Point(s) of Contact: _____
(First and Last names, no groups or committees)

Status of Corrective Action: _____
(e.g., Scheduled for completion by MM/DD/YY; Completed on MM/DD/YY; Funding requested, scheduled for completion by...; Preliminary planning, scheduled for completion by...)

Facility Name: Reserved for the final report
Facility Category: Reserved for the final report

EXIT ROUTES, EMERGENCY ACTION PLANS, AND FIRE PREVENTION PLANS - EXIT

Finding Number: EXIT-07-004

Finding: Emergency action plan training has not been performed for all emergency actions specified in the plan.

Repeat Finding: No

Recurring Issue: No

Safety RAC: 3

Discussion: Emergency action plan training is required for all employees on initial hire and annually thereafter. If employees have specific responsibilities during an emergency, these employees need training on these specific actions. Employees expected to use fire extinguishers need annual fire extinguisher training. Employees designated to operate the stair chairs, Wardens, and other specific tasks are not receiving annual training.

OSHA requires the employer to designate and train a sufficient number of employees to assist in the safe and orderly evacuation of employees before implementing the emergency action plan. In addition, the employer is required to review the plan with each employee under the following conditions: **1)** when the plan is initially developed or an employee is assigned a new position; **2)** when an employee's responsibilities or designated actions under the plan change; and **3)** when the plan is modified.

If fire extinguishers are provided and are intended for employee use, 29 CFR 1910.157 applies in its entirety, including fire extinguisher training. Training records of employees' initial and annual refresher training must be kept.

Recommendation: **A)** Update the Plan as necessary to reflect the actual emergency actions; **B)** Designate and train a sufficient number of employees to assist in the safe and orderly evacuation of employees; **C)** Educate all employees on the plan's contents; and **D)** Train selected employees on fire extinguisher use annually and maintain training records.

Driving Reference(s): 29 CFR 1910.38 - emergency action plan
29 CFR 1910.39 - fire prevention plan
29 CFR 1910.157(a) - scope and application of portable fire extinguishers

Point(s) of Contact: _____
(First and Last names, no groups or committees)

Status of Corrective Action: _____
(e.g., Scheduled for completion by MM/DD/YY; Completed on MM/DD/YY; Funding requested, scheduled for completion by...; Preliminary planning, scheduled for completion by...)

Facility Name: Reserved for the final report
Facility Category: Reserved for the final report

EXIT ROUTES, EMERGENCY ACTION PLANS, AND FIRE PREVENTION PLANS – EXIT

Finding Number: EXIT-07-005

Finding: Exit pathways are not being maintained.

Repeat Finding: No

Recurring Issue: No

Safety RAC: 3

Discussion: Hallways (aisles) in the MIB and SIB are part of the exit routes. An empty glass display case on the third floor near SIB Room 322 is 3 feet wide. It decreases the width of the aisle from 10 feet to 7 feet, thereby partially blocking it. Furniture in several locations is partially blocking the aisles. The OSM second floor hallway has a sofa that reduces the 75 inch wide hallway to 45 inches. The outdoor exit stairs from the SIB auditorium had snow and ice on them during the audit.

OSHA defines an exit route as a continuous and unobstructed path of exit travel from any point within a workplace to a place of safety. An exit route consists of the following three elements: **1**) the exit (that portion of an exit route which is separated from other areas to provide a protected way of travel to the exit discharge; for example, a 2-hour fire-rated enclosed stairwell); **2**) the exit access (that portion of an exit route leading to the exit; such as a corridor leading to a stairwell); and **3**) the exit discharge (that portion of an exit route that leads directly outdoors; to a refuge area; or to a street, walkway, public way, or open space with access to the outdoors; such as the door on the first floor that leads from the stairwell to the outdoors).

OSHA requires that exit routes remain unobstructed. Materials and equipment may not be placed, either permanently or temporarily, within an exit route.

Recommendation: A) Remove the furniture and display case that are partially blocking the aisles, and B) Ensure that snow and ice are removed from exit stairs during hours the building is occupied.

Driving Reference(s): 29 CFR 1910.37(a)(3) – unobstructed exit routes
NFPA 101.7.1.10.2.2 (2006) – obstructions in means of egress

Point(s) of Contact: _____
(First and Last names, no groups or committees)

Status of Corrective Action: _____
(e.g., Scheduled for completion by MM/DD/YY; Completed on MM/DD/YY; Funding requested, scheduled for completion by...; Preliminary planning, scheduled for completion by...)

Facility Name: Reserved for the final report

Facility Category: Reserved for the final report

EXIT ROUTES, EMERGENCY ACTION PLANS, AND FIRE PREVENTION PLANS - EXIT

Finding Number: EXIT-07-006

Finding: SIB fire-rated doors that are designed to be kept closed are wedged or jammed open.

Repeat Finding: No

Recurring Issue: No

Safety RAC: 3

Discussion: Four fire-rated doors in exit aisles on the SIB third floor are wedged or jammed open. These doors protect the involved work areas from the main stairwell vertical opening. These doors do not have automatic closing devices on them.

OSHA requires that openings into exits must be protected by self-closing fire doors that remain closed or automatically close in an emergency upon the activation of the fire alarm system.

NFPA specifies that doors required to be kept closed must not be secured in the open position except with approved closing devices. Examples of doors designed to normally be kept closed include those to a stair enclosure or horizontal exit. The SIB noted doors are protecting the aisles from the stairwell vertical openings.

Recommendation: Remove the furniture and display case that are blocking the aisles

Driving Reference(s): 29 CFR 1910.36(a)(3) – exit openings must be limited
NFPA 7.2.1.8.1 (2006) – doors, self closing devices

Point(s) of Contact: _____
(First and Last names, no groups or committees)

Status of Corrective Action: _____
(e.g., Scheduled for completion by MM/DD/YY; Completed on MM/DD/YY; Funding requested, scheduled for completion by...; Preliminary planning, scheduled for completion by...)

Facility Name: Reserved for the final report

Facility Category: Reserved for the final report

EXIT ROUTES, EMERGENCY ACTION PLANS, AND FIRE PREVENTION PLANS - EXIT

Finding Number: EXIT-07-007

Finding: The SIB auditorium west emergency exit door requires considerable force to open.

Repeat Finding: No

Recurring Issue: No

Safety RAC: 3

Discussion: The door states that it is an emergency exit door and that an alarm will sound. When tested, it required several shoulder pushes to get the door to open. This exit is necessary due to the high number of people that could be in the auditorium.

OSHA defines an exit route as a continuous and unobstructed path of exit travel from any point within a workplace to a place of safety. An exit route consists of the following three elements: **1**) the exit (that portion of an exit route which is separated from other areas to provide a protected way of travel to the exit discharge; for example, a 2-hour fire-rated enclosed stairwell); **2**) the exit access (that portion of an exit route leading to the exit; such as a corridor leading to a stairwell); and **3**) the exit discharge (that portion of an exit route that leads directly outdoors; to a refuge area; or to a street, walkway, public way, or open space with access to the outdoors; such as the door on the first floor that leads from the stairwell to the outdoors).

NFPA requires that the force to release the latch not exceed 15 foot-pounds, 30 foot-pounds to set the door in motion, and 15 foot-pounds to open the door. In addition, OSHA requires that employees must be able to open an exit route door from the inside at all times without keys, tools, or special knowledge.

Recommendation: Repair the door so that it easily opens.

Driving Reference(s): NFPA 101 (2006) -7.2.1.4.5 – forces to open exit doors

Point(s) of Contact: _____

(First and Last names, no groups or committees)

Status of Corrective Action: _____

(e.g., Scheduled for completion by MM/DD/YY; Completed on MM/DD/YY; Funding requested, scheduled for completion by...; Preliminary planning, scheduled for completion by...)

Facility Name: Reserved for the final report

Facility Category: Reserved for the final report

EXIT ROUTES, EMERGENCY ACTION PLANS, AND FIRE PREVENTION PLANS - EXIT

Finding Number: EXIT-07-008

Finding: Exit signs throughout the MIB and SIB are either not functioning properly, are not adequate, or are missing.

Repeat Finding: No

Recurring Issue: No

Safety RAC: 3

Discussion: For example, an exit route in the MIB Server Room is out of service due to modernization. The exit sign above the door has paper taped over it. It should have a “not an exit” sign on it.

Exit signs must be illuminated by a reliable light source giving a surface reflection of not less than 5 foot-candles. Internally illuminated exit signs are not required; however, if they are installed, they must have a give surface light value of at least 0.06 foot-lamberts.

OSHA does not require the installation of internally lighted exit signs; but does require that they be maintained if installed. Self-illuminating or photo-luminescent exit signs, that essentially glow in the dark and do not require a light bulb, are available. Photo-luminescent signs can be used provided a minimum of 5 foot-candles of external unfiltered fluorescent light is present on the sign face at all times during building occupancy. Photo-luminescent signs comply with all applicable regulations and codes and cost approximately \$55 each. The signs can be purchased from Emergency Guidance Systems (www.emergencyguidancesystems.com).

NOT AN EXIT signs are required to identify doors or aisles that are not part of the exit pathway.

Recommendation: **A)** Determine why the exit signs are not working (e.g., wiring, burnt out bulbs) and correct the problem; and **B)** Survey the entire MIB and SIB facilities to identify all locations where exit signs must be installed..

Driving Reference(s): 29 CFR 1910.37(b) – lighting and marking exits

Point(s) of Contact: _____
(First and Last names, no groups or committees)

Status of Corrective Action: _____
(e.g., Scheduled for completion by MM/DD/YY; Completed on MM/DD/YY; Funding requested, scheduled for completion by...; Preliminary planning, scheduled for completion by...)

Facility Name: Reserved for the final report

Facility Category: Reserved for the final report

EXIT ROUTES, EMERGENCY ACTION PLANS, AND FIRE PREVENTION PLANS - EXIT

Finding Number: EXIT-07-009

Finding: Landings from SIB and MIB exit doors are not properly constructed.

Repeat Finding: No

Recurring Issue: No

Safety RAC: 3

Discussion: The two SIB auditorium emergency exits to the outdoors stairs have an approximately 8-inch step down from the auditorium floor level that is 20 inches deep to the outdoor top of stairs landing. The shallow depth step down from the SIB auditorium and MIB Yates Auditorium poses a hazard under normal circumstances and especially in an emergency situation when people are rushing through the exits. Note that the SIB auditorium west emergency exit door did not open until considerable force was applied to it; this hazardous condition is noted in a separate finding.

The IBC and NFPA require a landing that is at least 36 inches deep and at least as wide as the exit door. The landing must be flush with the door threshold unless the doors swing inward.

OSHA requires all employers to comply with the requirements for appropriate exits in 29 CFR 1910.34 through 29 CFR 1910.39. These rules cover the minimum requirements for exit routes that employers must provide in a workplace so that employees may evacuate the workplace safely in an emergency.

Recommendation: Modify the exit door landings to meet the specified dimensions.

Driving Reference(s): NFPA 5000 (2003) 11.2.2.3.1.2 – landings for stairs
IBC (2003) 1008.1.5 – landings at doors
29 CFR 1910.34 – coverage and definitions

Point(s) of Contact: _____
(First and Last names, no groups or committees)

Status of Corrective Action: _____
(e.g., Scheduled for completion by MM/DD/YY; Completed on MM/DD/YY; Funding requested, scheduled for completion by...; Preliminary planning, scheduled for completion by...)

Facility Name: Reserved for the final report

Facility Category: Reserved for the final report

EXIT ROUTES, EMERGENCY ACTION PLANS, AND FIRE PREVENTION PLANS - EXIT

Finding Number: EXIT-07-010

Finding: The emergency action plan for the Interior Complex does not meet all required elements.

Repeat Finding: No

Recurring Issue: No

Safety RAC: 4

Discussion: Emergency action and fire prevention plans must be prepared and implemented if required by an OSHA standard or if the facility is not in full compliance with 29 CFR 1910.157, portable fire extinguishers. While the facility is not required to prepare plans based on an OSHA standard, it is not in full compliance with the portable fire extinguisher regulations. Emergency action plans must be kept in the workplace and made available for employee review.

OSHA's portable fire extinguisher regulations apply to the placement, use, maintenance, and testing of portable fire extinguishers provided for employee use. This standard requires both emergency action and fire prevention plans be prepared unless fire extinguisher training is provided to all employees.

If a facility is equipped with portable fire extinguishers and does not have a employee action plan and fire prevention plan prepared in accordance with the OSHA requirements, the facility must ensure that portable fire extinguishers are selected, distributed, used, inspected, and tested in accordance with all requirements in 29 CFR 1910.157 [sections (c) through (g)]. This includes providing initial and annual fire control training for all facility personnel.

If the facility has prepared and implemented the aforementioned plans and has provided portable fire extinguishers that are not intended for employee use, then the facility is only required to comply with 29 CFR 1910.157(e), inspection, maintenance, and testing; and 29 CFR 1910.157(f), hydrostatic testing.

OSHA requires a written emergency action plan if a facility accommodates more than ten employees at any given time. OSHA requires that the plan include the following emergency procedures and contacts: **1)** emergencies in addition to fires and bomb threats that are reasonably likely to occur at the facility (e.g., blizzards, chemical spills, earthquakes); **2)** procedures for reporting fires and other emergencies; **3)** procedures for emergency evacuation, including the type of evacuation (i.e., procedures for different types emergencies) and exit route assignments (i.e., a map or floor plan identifying escape routes); **4)** procedures to be followed by personnel who operate critical plant operations, if any, before they evacuate; **5)** procedures to account for all employees after evacuation is complete; **6)** procedures to be followed by employees performing rescue or medical duties, if any; and **7)** the name or job title of employees that may be contacted for further information regarding the emergency action plan, and the responsibilities of personnel under the plan.

OSHA requires the employer to designate and train a sufficient number of employees to assist in the safe and orderly evacuation of employees before implementing the emergency action plan. In addition, the employer is required to review the plan with each employee under the following conditions: **1)** when the plan is initially developed or an employee is assigned a new position; **2)** when an employee's responsibilities or designated actions under the plan change; and **3)** when the plan is modified.

Recommendation: Modify the MIB Occupant Emergency Plan to include the following:
1) emergencies in addition to fires and bomb threats that are reasonably likely to occur at the facility (e.g., earthquakes, terrorist activity); and **2)** procedures to be followed by personnel who operate critical facility operations, if any, before they evacuate.

Driving Reference(s): 29 CFR 1910.38 – emergency action plan
29 CFR 1910.157(a) - scope and application of portable fire extinguishers

Point(s) of Contact: _____
(First and Last names, no groups or committees)

Status of Corrective Action: _____
(e.g., Scheduled for completion by MM/DD/YY; Completed on MM/DD/YY; Funding requested, scheduled for completion by...; Preliminary planning, scheduled for completion by...)

Facility Name: Reserved for the final report
Facility Category: Reserved for the final report

FIRE PROTECTION - FIRE

Finding Number: FIRE-07-001

Finding: The fire protection sprinkler system has not been tested, inspected, and maintained at recommended frequencies.

Repeat Finding: No

Recurring Issue: No

Safety RAC: 3

Discussion: The sprinkler system in the SIB has not received an annual inspection since 2003. Recommended inspections, testing and preventive maintenance of these systems at recommended frequencies is not being performed. Records were not available during the audit to determine which specific tests have been conducted.

The following inspection, testing and maintenance frequency is recommended by NFPA:

Sprinkler System Inspection, Testing, and Maintenance Schedule		
Item	Activity	Frequency
Gauges (dry, preaction, and deluge systems)	Inspection	Weekly/monthly
Control valves	Inspection	Weekly/monthly
Alarm devices	Inspection	Quarterly
Gauges (wet pipe systems)	Inspection	Monthly
Hydraulic nameplate	Inspection	Quarterly
Buildings	Inspection	Annually (prior to freezing weather)
Hanger/seismic bracing	Inspection	Annually
Pipe and fittings	Inspection	Annually
Sprinklers	Inspection	Annually
Spare sprinklers	Inspection	Annually
Fire department connections	Inspection	Quarterly
Valves (all types)	Inspection	
Alarm devices	Test	Quarterly/semiannually
Main drain	Test	Annually
Antifreeze solution	Test	Annually
Gauges	Test	5 years
Sprinklers — extra-high temperature	Test	5 years
Sprinklers — fast response	Test	At 20 years and every 10 years thereafter
Sprinklers	Test	At 50 years and every 10 years thereafter
Valves (all types)	Maintenance	Annually or as needed
Obstruction investigation	Maintenance	5 years or as needed
Low point drains (dry pipe system)	Maintenance	Annually prior to freezing and as needed

This testing must be documented.

Recommendation: Have qualified personnel perform the recommended inspection, testing and maintenance of the fire protection sprinkler system.

Driving Reference(s): NFPA 25.5.1 (2002) – inspection, testing and maintenance of sprinkler systems
29 CFR 1910.159(c)(2) - automatic sprinkler system maintenance

Point(s) of Contact: _____
(First and Last names, no groups or committees)

Status of Corrective Action: _____
(e.g., Scheduled for completion by MM/DD/YY; Completed on MM/DD/YY; Funding requested, scheduled for completion by...; Preliminary planning, scheduled for completion by...)

Facility Name: Reserved for the final report

Facility Category: Reserved for the final report

FIRE PROTECTION - FIRE

Finding Number: FIRE-07-002

Finding: Fire extinguishers located throughout the MIB and SIB are missing annual and/or monthly inspection tags, are past due for inspection, are not consistently mounted and signed, and are not appropriate for the relevant fire hazard.

Repeat Finding: No

Recurring Issue: No

Safety RAC: 3

Discussion: The CASHE Team identified the fire extinguishers that are not selected, mounted, inspected, or maintained properly in numerous locations in both the MIB and SIB. Following are selected examples:

- MIB server room (1500W corridor) (no inspection tag)
- SIB Attic (signs missing throughout indicating the location of case-mounted fire extinguishers)
- SIB Room 134 (OSM computer room) (no monthly visual inspections)
- SIB basement mechanical room (fire extinguishers are not mounted or signed)
- SIB Attic (fire extinguisher with last annual inspection performed in November 2003)
- MIB janitor wash room (B017) (Class B/C fire extinguisher should be replaced with Class A/B/C due to presence of rags and boxes)
- MIB bailer room (Room B019) (Class B/C fire extinguisher should be replaced with Class A/B/C due to presence of paper and cardboard)
- MIB sump room (fire extinguisher blocked by a refrigerator and a microwave)

In some areas, installed fire extinguishers are inappropriate for the fire hazards posed in the area. For example, a Class A fire extinguisher is installed near SIB Room 354. The extinguisher gauge reads "RECHARGE," which indicates that monthly inspections are not performed. The extinguisher was last tested October 2003. A Class ABC fire extinguisher is stored in the same wall case as the Class A fire extinguisher. Because the Class A extinguisher is not properly maintained and is not suitable for as many fire types as the Class ABC extinguisher, the Class A fire extinguishers (throughout the SIB) should be removed from services.

In addition, fire extinguishers are not mounted or signed throughout newly renovated mechanical space (M-Floor) in the MIB.

OSHA requires that all fire extinguishers be inspected annually by certified personnel. The annual inspection date must be recorded and maintained for at least 1 year. This information is typically documented on a tag or sticker secured to the fire extinguisher.

OSHA also requires that fire extinguishers be visually inspected monthly by facility personnel (i.e., checking the recharge dial and that the pin is in place). This information is typically documented on the back of the annual tag or on an additional tag.

OSHA regulations also require that fire extinguishers be mounted and their locations signed. Mounting extinguishers off the ground prevents them from being covered by articles stored adjacent to them.

Signing of fire extinguisher locations is required to facilitate their rapid access in the event of a fire.

Recommendation: **A)** Contact a fire extinguisher inspection company and arrange for the inspection, recharge, and/or replacement of all fire extinguishers that are past due for inspection; **B)** Initiate internal monthly fire extinguisher inspections and document the monthly inspections on fire extinguisher tags; **C)** Mount and sign all extinguishers; and **D)** Remove all Class A fire extinguishers where Class ABC fire extinguishers are also provide.

Driving Reference(s): 29 CFR 1910.157(e)(2) - monthly fire extinguisher inspection
29 CFR 1910.157(e)(3) - annual fire extinguisher maintenance
29 CFR 1910.157(c)(1) - mounting and signing

Point(s) of Contact: _____
(First and Last names, no groups or committees)

Status of Corrective Action: _____
(e.g., Scheduled for completion by MM/DD/YY; Completed on MM/DD/YY; Funding requested, scheduled for completion by...; Preliminary planning, scheduled for completion by...)

Facility Name: Reserved for the final report
Facility Category: Reserved for the final report

FIRE PROTECTION - FIRE

Finding Number: FIRE-07-003

Finding: Stored items do not allow adequate clearance below sprinkler heads in selected SIB locations.

Repeat Finding: N/A

Recurring Issue: N/A

Safety RAC: 3

Discussion: Items in the SIB attic storage areas are stored too close to sprinkler heads.

In addition to the performance of the sprinkler being compromised, materials stored on the cart or a person's head may contact the sprinkler head, breaking it, initiating the flow of water and activating fire alarms. The sprinkler should be raised to a higher position to protect it from damage and so that it can more effectively cover a larger area. This will also protect it from being damaged by the carts and other objects.

OSHA states the minimum vertical clearance between sprinklers and material below must be no less than 18 inches along the horizontal plane from the sprinkler heads.

Recommendation: Move items away from the sprinkler heads to provide at least 18 inches of clearance.

Driving Reference(s): 29 CFR 1910.159(c)(10) – sprinkler spacing

Point(s) of Contact: _____
(First and Last names, no groups or committees)

Status of Corrective Action: _____
(e.g., Scheduled for completion by MM/DD/YY; Completed on MM/DD/YY; Funding requested, scheduled for completion by...; Preliminary planning, scheduled for completion by...)

Facility Name: Reserved for the final report

Facility Category: Reserved for the final report

GENERAL ENVIRONMENTAL CONTROLS - GEC

Finding Number: GEC-07-001

Finding: Department personnel enter confined spaces that have not been evaluated for hazards, and warning signs are not posted on all confined spaces.

Repeat Finding: No

Recurring Issue: No

Safety RAC: 2

Discussion: Confined spaces exist throughout both the MIB, including ventilation chambers, lift stations, air handling units, pits, and tanks. Following are examples of confined space:

- Sewage lift station in MIB basement (near column E4) – approximately 15 feet deep and 20 feet in diameter. The sewage tanks are labeled as confined spaces, but the pit itself is not. A sign should be posted at the ladder.
- Sewage lift station in the MIB sump room – approximately 15 feet deep and 20 feet in diameter. The sewage tanks are labeled as confined spaces, but the pit itself is not. A sign should be posted at the ladder.
- Elevator Pit #2 (Room B028) – approximately 18 feet deep shaft with ladder. Railings around opening is not stable (will not hold 200 pounds) and no warning signs posted

The sewage lift station pits are currently classified as a permit-required confined space. MIB personnel are not authorized to enter permit-required confined spaces because a confined space entry program has not been developed and implemented [29 CFR 1910.146(c)(4)].

A confined space is defined by OSHA as a space that has the following characteristics: **1)** is large enough that an employee can enter it; **2)** has limited or restricted entry or exit; and **3)** is not intended for continuous occupancy. The definition specifically identifies tanks, vaults, and pits as confined spaces. The fact that a vault is only 1½, 2, or 3 feet deep does not exempt it from this definition. Fatalities have occurred in confined spaces or ditches that are only a few feet deep. Poisonous gases displace oxygen from low lying areas, causing people to succumb to oxygen deficiency. In addition, the use or presence of chemicals (e.g., chlorine, PVC cement) increases the risk of being in a confined space. For example, when a maintenance worker is standing in a vault, his head may be above grade; however, as he bends over to add chlorine to a chlorinator, or to repair a pipe at floor level, the atmosphere could be dangerous.

OSHA requires that if the workplace contains permit spaces, the employer must inform exposed employees, by posting danger signs or by any other equally effective means, of the existence and location of and the danger posed by the permit spaces. OSHA states that a sign reading “DANGER-PERMIT-REQUIRED CONFINED SPACE, DO NOT ENTER” satisfies the requirement for a sign. The BLM Prineville District in Oregon was cited by OSHA for failure to identify and sign all of its confined spaces.

It is the preferred approach to first engineer confined spaces out of existence prior to developing an entry program. The second preference is to contract for confined space entry. If a confined space cannot be eliminated and it is necessary for MIB personnel to enter the space, it must only be done so in accordance with a written confined space entry program or written procedures that have been reviewed by the State Safety Manager.

This discussion explains OSHA's confined space standard and the requirements of a confined space entry program. This discussion explains how to eliminate confined spaces at MIB facilities, how to protect MIB employees from the hazards involved when entering a confined space that cannot be eliminated, and opportunities to avoid developing a confined space entry program.

Permit-required confined spaces (PCRS) are confined spaces with any "recognized serious safety or health hazard," including a "**potential** to contain a hazardous atmosphere" [29 CFR 1910.146(b)]. Hazardous atmospheres include atmospheres that may expose employees to the risk of death, incapacitation, impairment of ability to self-rescue, injury, or acute illness; and includes atmospheres with low oxygen concentrations or a concentration of substance above its permissible exposure limit (PEL). Oxygen deficient atmospheres contain oxygen concentrations below 19.5% [29 CFR 1910.146(b)].

Alternate procedures for entering permit-required spaces, where continuous forced air ventilation alone is sufficient to maintain the space safe for entry, are provided in 29 CFR 1910.146(c)(5). If monitoring of the confined space demonstrates that forced air ventilation alone is sufficient to maintain a space safe, the employer only needs to comply with the training provisions in 29 CFR 1910.146(g). [Note: As will be discussed, when forced air ventilation is sufficient to maintain safe entry and this is the procedure that is implemented by the MIB, the confined space is **not** considered a nonpermit-required confined space.]

Entering a permit space where forced air ventilation alone **cannot** control all hazards in the space requires that the employer prepare and implement a written permit space program that complies with all requirements of 29 CFR 1910.146, paragraphs (d) through (k). These requirements consist of the following: (d) permit-required confined space program; (e) permit system; (f) entry permit; (g) training; (h) duties of authorized entrants; (i) duties of attendants; (j) duties of entry supervisors; and (k) rescue and emergency services.

Preparing and implementing a written permit space program that meets all requirements of 29 CFR 1910.146(d) involves, but is not limited to, the following: **1)** prevent unauthorized entry; **2)** develop the means, procedures, and practices necessary for safe permit space entry operations; **3)** provide initial space evaluation testing, continuous air monitoring, ventilation, communications, lighting, barriers, and shields; **4)** provide equipment for the safe egress and ingress to and from the permit space; **5)** provide rescue and emergency equipment; **6)** provide an attendant; **7)** designate persons with active roles and define their duties; **8)** develop procedures for summoning emergency services for rescuing entrants, and for providing necessary emergency services to rescued entrants; **9)** develop a system for issuing and canceling entry permits; and **10)** review and revise the program when there is reason to believe that the program may not adequately protect employees.

To implement the alternate procedures, the following condition specified in 29 CFR 1910.146(c)(5)(i) must be met: **1)** the employer can demonstrate that the only hazard posed by the PRCS is an actual or potential hazardous atmosphere; **2)** the employer can demonstrate that continuous forced air ventilation alone is sufficient to maintain that PRCSs are safe for entry; **3)** the employer develops monitoring and inspection data that supports the claim that forced air ventilation is sufficient to eliminate the hazard; **4)** if an initial entry of the PRCS is necessary to obtain the data required to demonstrate that forced air ventilation is sufficient, the entry is performed in compliance with a written confined space entry program; **5)** this data must be made available to each employee who enters the permit space under the alternate procedures; and **6)** entry is performed in accordance with the requirements of 29 CFR 1910.146(c)(5)(ii).

Once the conditions outlined in the previous paragraph are met, the space may be entered under the

conditions specified in 29 CFR 1910.146(c)(5)(ii), including, but not limited to the following:

1) the internal atmosphere must be tested, with a calibrated direct-reading instrument for oxygen, flammable gas and vapors, and potential toxic air contaminants prior to entering; **2)** there is no hazardous atmosphere in the space; **3)** continuous forced air ventilation is initiated before the entrant enters the space, and continues running until after the entrant leaves the space; **4)** the continuous forced air ventilation is from a clean source and does not increase the hazards in the space; and **5)** the atmosphere is periodically tested. Pre-entry written certifications must be prepared to verify that the space is safe for entry.

If a hazardous atmosphere is detected during entry, the entrant(s) must leave immediately and the space must be evaluated to determine how the hazardous atmosphere developed. Measures must be implemented to abate the hazards **before any subsequent entry takes place** [29 CFR 1910.146(c)(5)(ii)(G)].

[**Note:** The standard does not specify how often periodic retesting of the atmosphere must be conducted, but clearly it must be performed before and during the entry, or the employer cannot ensure the ventilation is operating adequately. Monitoring prior to entry must be performed to support issuance of the pre-entry written certification for safe entry. The regulations also call for the entrant to leave a space immediately if a hazardous atmosphere is detected during entry. This requirement in the alternative procedures implies monitoring is on-going during entry.]

Section (c)(7) of the standard is an option afforded employers who have confined spaces that can be reclassified as non-PRCS because **no on-going measures are needed to keep the space free of a hazard** (e.g., forced air ventilation is not needed) [OSHA Standards Interpretation and Compliance Letter, July 2, 1993]. In other words, if a PRCS is entered under the conditions outlined in (c)(5), that is using forced air ventilation to control the hazardous atmosphere, the confined space is still technically considered a **permit-required** confined space because ventilation is considered an on-going measure to keep the space free of a hazard. Only under (c)(7), when all hazards are eliminated and no on-going measures are needed to keep the space free of an actual or potential hazard, can the confined space be reclassified as a **nonpermit**-required confined space.

If the monitoring of the confined space demonstrates that there are no hazardous atmospheres present while the space is occupied, and using forced air ventilation is not required in order to maintain the safe atmosphere, the confined space can be reclassified as non-PRCSs. All monitoring data and conditions must be documented and the records must be maintained by the employer.

The monitoring documentation must clearly state that the non-PRCS designation is only for the conditions and operations that were conducted during the monitoring. The documentation must also note that when **there is a change in the use or configuration of the confined spaces that increases the hazards to entrants (i.e., soldering a pipe), the space must be re-evaluated**. However, if the space is a vault or pit that cannot be effectively sealed to keep animals or organic material from entering the space, the atmosphere could be oxygen deficient due to decaying material. The decaying material could also generate other potentially dangerous gases, such as methane or hydrogen sulfide. Therefore, the CASHE Team's opinion is that periodic monitoring of spaces that are classified as non-PRCS is warranted.

Contracting for work in a permit-required confined space does not release the MIB of all responsibility. The confined-space regulations require an employer who arranges to have a contractor perform work in a permit-required confined space to inform the contractor of the following: **1)** the workplace contains permit spaces and that entry into those spaces is allowed only through a permit space program that complies with the regulations; **2)** the hazards identified in the space that make it a permit space and the

employer's experience with the space; and **3**) any precautions or procedures that the host employer has implemented for the protection of employees in or near the permit spaces where the contractor personnel will be working. The regulations require the employer to coordinate entry operations with the contractor when both employer and contractor personnel will be working in or near the permit spaces. A debriefing with the contractor at the conclusion of the entry operations and any hazards found or created in the permit space is also required.

Recommendation: **A)** Immediately label the lift station pits "DANGER – PERMIT-REQUIRED CONFINED SPACE, DO NOT ENTER;" and **B)** Perform atmospheric testing and determine and document the hazards in the elevate pit and develop entry procedures the pit.

Driving Reference(s): 29 CFR 1910.146(b) – definitions
29 CFR 1910.146(c)(1) – workplace evaluation for PRCS
29 CFR 1910.146(c)(2) - warning signs
29 CFR 1910.146(c)(5) - alternate entry procedures
29 CFR 1910.146(c)(6) - change in operations
29 CFR 1910.146(c)(7) – nonpermit-required confined spaces
29 CFR 1910.146(c)(8) –contractor entry into a PRCS
29 CFR 1910.146(d) - program requirements
OSHA Standards Interpretation and Compliance Letter, July 2, 1993

Point(s) of Contact: _____
(First and Last names, no groups or committees)

Status of Corrective Action: _____
(e.g., Scheduled for completion by MM/DD/YY; Completed on MM/DD/YY; Funding requested, scheduled for completion by...; Preliminary planning, scheduled for completion by...)

Facility Name: Reserved for the final report
Facility Category: Reserved for the final report

HAND AND PORTABLE POWERED TOOLS - TOOL

Finding Number: TOOL-07-001

Finding: Compressed air above 30 psi is used for cleaning in the MIB.

Repeat Finding: No

Recurring Issue: No

Safety RAC: 2

Discussion: Compressed air nozzles located in the MIB welding shop, alterations shop, print plant, and north elevator room are not marked to indicate compliance with the 30-psi limit for air used for cleaning.

OSHA regulations stipulate that compressed air must not be used for cleaning purposes except where reduced to 30 psi. In a 1985 interpretation letter, OSHA clarified that using compressed air at or greater than 30 psi is permissible if the outlet source (i.e., nozzle) is fitted with a relief device that drops the pressure to less than 30 psi if the flow is dead-ended.

Nozzles that meet the OSHA standard are often stamped with “MEETS OSHA - 30 PSI” or a similar statement. However, some manufacturers only mark the original packaging and the nozzle itself may not be so stamped. Guard Air is one manufacturer that makes long-tip air nozzles that also meet the 30 psi requirement.

Recommendation: Discard non-compliance nozzles and purchase air nozzles designed to deliver air below 30 psi when the nozzle is dead-ended, if needed to clean equipment.

Driving Reference(s): 29 CFR 1910.242(b) - compressed air used for cleaning
OSHA Interpretation Letter, December 6, 1985 – response to request for variance

Point(s) of Contact: _____
(First and Last names, no groups or committees)

Status of Corrective Action: _____
(e.g., Scheduled for completion by MM/DD/YY; Completed on MM/DD/YY; Funding requested, scheduled for completion by...; Preliminary planning, scheduled for completion by...)

Facility Name: Reserved for the final report

Facility Category: Reserved for the final report

HAZARDOUS MATERIALS - HAZMAT

Finding Number: HAZMAT-07-001

Finding: Two small oxygen cylinders are stored in a milk crate in SIB Room 336.

Repeat Finding: No

Recurring Issue: No

Safety RAC: 3

Discussion: The milk crate does not provide adequate security to prevent the cylinders from falling.

OSHA regulations require that all handling, storage, and use of compressed gas cylinders be conducted in accordance with the Compressed Gas Association's (CGA) Pamphlet P-1-2000 (available from CGA, telephone 703-788-2700). The CGA pamphlet states that all cylinders must be secured (e.g., chained) in an upright position to prevent them from falling, and that all cylinder valves be protected from damage.

Proper cylinder storage is typically accomplished by securing it around the shoulder (below the valve neck). The CGA requirement to securely store cylinders and protect cylinder valves from damage is interpreted by the CASHE Team as a prohibition against securing a cylinder around its neck or valve. Securing a cylinder around its neck can damage the valve or allow the cylinder to slip out from under the chain, strap, or ring holding it in place. In addition, securing a cylinder across its middle or lower, or too loosely, will allow the cylinder to tip if it is jolted.

Recommendation: Strap, chain, or construct a rack along the wall of the room to properly secure the oxygen cylinders in an upright position.

Driving Reference(s): 29 CFR 1910.101(b) – compressed gas storage
CGA P-1-2000 – cylinder storage

Point(s) of Contact: _____
(First and Last names, no groups or committees)

Status of Corrective Action: _____
(e.g., Scheduled for completion by MM/DD/YY; Completed on MM/DD/YY; Funding requested, scheduled for completion by...; Preliminary planning, scheduled for completion by...)

Facility Name: Reserved for the final report

Facility Category: Reserved for the final report

HAZARDOUS MATERIALS - HAZMAT**Finding Number:** HAZMAT-07-002**Finding:** Incompatible materials are stored with flammable liquids at assessed facilities.**Repeat Finding:** No**Recurring Issue:** No**Safety RAC:** 4

Discussion: One 1-gallon container of muriatic acid (corrosive) and a one 5-gallon container of "PEEL AWAY" (corrosive) are stored with one 1-quart container of toluene (flammable) and three 1-gallon containers of "LENMAR" coating (extremely flammable) in the flammable storage cabinet in the SIB Attic (19th Street Cage). In the MIB paint room (B078), flammable and combustible paints are stored with at least 2 gallons of bleach (oxidizer) and one gallon of muriatic acid (corrosives).

In addition, two 1-gallon containers of alkali-foam coil cleaner (corrosive) and one 1-gallon container of bleach (oxidizer) are stored with three extremely flammable aerosol cans in the "PP31" storage cage in the MIB M-Floor (2 West Section).

OSHA requires that flammable and combustible liquids be separated from sources of ignition and includes chemical reactions in its definition of sources of ignition. Spontaneous combustion can occur if flammable liquids are intermingled with corrosive materials or oxidizers. All incompatible materials must be separated (especially oxidizers with flammable liquids and corrosive materials with flammable liquids) to avoid container deterioration, fire, or the generation of harmful gas resulting from the accidental mixing of materials due to a spill or leaking container. Information regarding the compatibility of specific hazardous materials can be obtained from the manufacturer, an MSDS, or published compatibility guides (typically designed for DOT purposes).

Flammable storage cabinets isolate flammable liquids and protect both personnel and property in the event of fire. Corrosive cabinets are available and are recommended for large quantities of corrosive materials. Storing corrosive liquids in a corrosive cabinet is not required. Storing corrosive materials on shelves is sufficient.

Recommendation: Store all flammable liquids in flammable storage cabinet and corrosive materials and oxidizers separately.

Driving Reference(s): 29 CFR 1910.106(e)(6)(i) - sources of ignition

Point(s) of Contact: _____
(First and Last names, no groups or committees)

Status of Corrective Action: _____
(e.g., Scheduled for completion by MM/DD/YY; Completed on MM/DD/YY; Funding requested, scheduled for completion by...; Preliminary planning, scheduled for completion by...)

Facility Name: Reserved for the final report

Facility Category: Reserved for the final report

HAZARDOUS MATERIALS - HAZMAT

Finding Number: HAZMAT-07-003

Finding: Flammable and combustible liquids are dispensed from, stored in, or transported in containers that are not OSHA- or DOT-approved for those purposes at the MIB.

Repeat Finding: No

Recurring Issue: No

Safety RAC: 3

Discussion: Plastic gasoline containers and metal jerricans are stored in MIB Basement Room F-12-1 (one metal jerrican) and in MIB Room B028 (three 1-gallon and one 5-gallon plastic container).

OSHA regulates the workplace storage and dispensing of flammable and combustible liquids in 29 CFR 1910.106. The section of the regulation related to the design, construction, and capacity of containers used to store flammable and combustible liquids states:

“Only **approved** containers and portable tanks shall be used. **Metal containers** and portable tanks meeting the requirements of [the Department of Transportation], shall be deemed to be acceptable” [29 CFR 1910.106(d)(2)(i)].

“Approved” is defined in OSHA as “approved or listed by a nationally recognized testing laboratory” [29 CFR 1910.106(a)(35)]. A safety can is defined as “an approved container, of not more than 5 gallons capacity, having a spring-closing lid and spout cover and so designed that it will safely relieve internal pressure when subjected to fire exposure” [29 CFR 1910.106(a)(29)]. Jerricans are not safety cans because they do not have a self-closing lid and cannot adequately release explosive vapors when exposed to fire.

In 1986, DOT issued packaging specifications that are consistent with the United Nations Performance Oriented Packaging (POP) initiative. Packages that meet the POP standards are marked “UN” plus the specification number according to which the packagings were made. A metal jerrican that meets the UN POP will be marked UN 3A1. For metal jerricans, this marking is typically embossed on the bottom of the container.

Prior to the adoption of the POP standards, DOT-compliant packagings were marked “DOT,” plus the appropriate specification number. When DOT adopted the UN POP standards, use of “DOT”-labeled packagings was authorized until 1996 to allow transporters to use their stock of old packagings. Packagings, such as jerricans, marked “DOT” plus a specification number no longer meet UN POP standards and cannot be used to transport fuel or other hazardous materials. Packagings marked “USMC” do not meet UN POP standards and cannot be used to transport fuel or other hazardous materials.

While it is very clear that OSHA allows metal UN POP containers to be used for storing flammable and combustible liquids, the regulations do not clearly state whether those liquids can be stored in or dispensed from anything other than an approved container or a metal UN POP container. BLM IM Number 2000.087 calls for the replacement of all metal jerricans, regardless of whether they are a UN 3A1 container, by March 2003 because the closed jerrican does not relieve internal pressure when subjected to heat. A closed jerrican becomes a bomb when involved in a fire. In addition, jerrican cans are frequently found with dispensing nozzles left in the bung opening. These open nozzles allow fuel

vapor to escape into working space and pose a fire hazard.

Safety cans approved by a nationally recognized testing laboratory are OSHA-approved and must pass a leak test. This test exercises the self-closing lid 5,000 times, after which the lid must not leak more than four drops per minute in the inverted position. When tipped over, even when closed, most jerricans leak around the bung openings.

OSHA adopted the 1969 National Fire Prevention Association (NFPA) Standard 30 when it promulgated the Flammable and Combustible Liquid regulations. At that time, the NFPA did not recognize the use of plastic containers for storing flammable and combustible liquids. Since then, technological changes have led both the NFPA and DOT to allow the use of plastic containers for storing and transporting flammable and combustible liquids. However, now that NFPA does allow plastic, it has often been misinterpreted that OSHA allows indiscriminate storage of flammable and combustible liquids in plastic containers.

OSHA has issued a directive and several letters clarifying that UN POP plastic containers, plastic containers that are not UN POP, and containers that are not regulated, are permissible for storing flammable and combustible liquids under the following specific storage conditions: **1)** the storage area is provided with a fire detection and suppression system interconnected to an employee emergency alarm system; and **2)** the storage building or area (e.g., warehouse, flammable storage shed) in which plastic containers are stored is provided with diking or curbing that will contain the volume of stored liquids and the anticipated flow of fire extinguishing agent, or that the curbed area will drain to a remote impounding area having no employee exposure. [**Note:** There are actually five specific storage conditions identified in the OSHA directive; the two listed are those applicable to MIB situations.]

Common red plastic gasoline containers that can be purchased at local retailers are UL-listed, and therefore, could be used to store gasoline subject to OSHA's storage conditions. However, there are no areas at the facility that satisfy the OSHA requirements for fire detection and suppression systems and secondary containment. Another disadvantage of the UL-listed plastic containers is that they cannot be used to transport gasoline or diesel fuel because the container is not manufactured in accordance with UN POP standards.

OSHA reinforced its directives and letters related to the storage of flammable and combustible liquids in a March 25, 1999 letter to the Forest Service. The OSHA interpretation letter to the Forest Service states that storage of plastic or polyethylene containers in storage areas that do not meet the five storage conditions would be considered a serious hazard and violation of OSHA standards. The OSHA interpretation letter references BLM's issue paper on this subject, "OSHA and DOT Regulations Related to the Fire Program's use of Jerricans, Safety Cans, and Dolmars" (November 17, 1998), written for NIFC by the BLM CASHE Program Lead. Further, the letter states "OSHA is in agreement on the position stated in the BLM document with respect to recommendations for safe practices and procedures."

The proper container for a flammable or combustible liquid depends on the type and quantity of liquid stored. For example, a maximum of 5 gallons of a Class IB liquid (e.g., gasoline) may be stored in a safety can. A maximum of 1 quart may be stored in an Underwriters Laboratory (UL)- or Factory Mutual-approved container (e.g., a Sigg bottle).

Recommendation: **A)** Transfer fuel from the plastic gasoline containers and jerricans to metal, UN 3A1 jerricans or jerrican-style safety cans; and **B)** Destroy the unapproved containers and throw them in the trash.

Driving Reference(s): 29 CFR 1910.106(a)(35) - safety can definition
29 CFR 1910.106(d)(1)(ii)(b) - fuel tank exception

29 CFR 1910.106(d)(2) - approved containers
29 CFR 1910.106(e)(2)(d) - self-closing nozzles
29 CFR 1910.106(e)(2)(iv)(a) - open containers
49 CFR 173.6(b)(4) - transporting gasoline
Federal Register of January 8, 1997, page 1210 - safety cans
OSHA Directive 1-5.14A, October 24, 1980 - storage of plastic containers
OSHA Letter to Mr. Eugene M. Lyons, December 9, 1992 – storing plastic containers
OSHA Letter to Forest Service, March 25, 1999 – use of containers

Point(s) of Contact: _____

(First and Last names, no groups or committees)

Status of Corrective Action: _____

(e.g., Scheduled for completion by MM/DD/YY; Completed on MM/DD/YY; Funding requested, scheduled for completion by...; Preliminary planning, scheduled for completion by...)

Facility Name: Reserved for the final report

Facility Category: Reserved for the final report

HAZARDOUS MATERIALS - HAZMAT

Finding Number: HAZMAT-07-004

Finding: Flammable and combustible liquids are stored outside flammable storage cabinets.

Repeat Finding: No

Recurring Issue: No

Safety RAC: 3

Discussion: Gasoline is stored in MIB Basement Room F-12-1. Approximately 25 1-gallon containers of flammable and combustible paints and sealers, PVC cement, and zinc coating are stored in the MIB mechanical room (B002). In the paint room (MIB B078), flammable and combustible oil-based paints are stored on open shelves.

At the MIB elevator pit #3 (Room B028), flammable aerosols and alcohol is stored on open shelves because no flammable storage cabinet is available to the elevator contractors.

The presence of the offices in the building, not separated from areas where flammable and combustible liquids are stored by a fire wall, results in these storage locations being designated as office occupancy. OSHA regulations require that all flammable and combustible liquids in an office occupancy be stored in a flammable storage cabinet. These regulations also limit storage of flammable and combustible liquids in an office occupancy to those liquids needed to operate and maintain equipment used in the office. Gasoline is not considered a material needed to operate or maintain equipment used in the office.

OSHA requires that a flammable storage cabinet be double-walled, constructed of 18 gauge sheet metal, have 1.5 inches of air space between the walls, provide 2 inches of secondary containment, and be equipped with three-point door latches. In addition, the cabinet design must pass a fire test.

Recommendation: Procure flammable storage cabinets for all areas where flammable liquids are stored, and locate all flammable and combustible liquids in the cabinets.

Driving Reference(s): 29 CFR 1910.106(d)(5)(iii) - flammable liquid storage in office occupancies
29 CFR 1910.106(d)(3)(ii)(a) - cabinet design
40 CFR 261.21 – characteristic of ignitibility

Point(s) of Contact: _____
(First and Last names, no groups or committees)

Status of Corrective Action: _____
(e.g., Scheduled for completion by MM/DD/YY; Completed on MM/DD/YY; Funding requested, scheduled for completion by...; Preliminary planning, scheduled for completion by...)

Facility Name: Reserved for the final report

Facility Category: Reserved for the final report

HAZARDOUS MATERIALS - HAZMAT

Finding Number: HAZMAT-07-005

Finding: Vent caps are not properly installed on flammable storage cabinet in the SIB Attic (19th Street Cage).

Repeat Finding: No

Recurring Issue: No

Safety RAC: 4

Discussion: Vent caps are missing from the larger flammable storage cabinet outdoors adjacent to the garage. A plastic vent cap is used on one of the flammable storage cabinets in the MIB paint room.

Unless the cabinet is properly connected to a ventilation system, vent caps must be screwed into the bungs on the walls of the cabinet to prevent fire from entering the cabinet through the open vent.

OSHA requires that a flammable storage cabinet be double walled, constructed of 18 gauge sheet metal, have 1.5 inches of air space between the walls, provide 2 inches of secondary containment, and be equipped with three-point door latches. In addition, the cabinet design must pass a fire test.

Recommendation: Securely screw metal bung covers into the vents on all flammable storage cabinets.

Driving Reference(s): 29 CFR 1910.106(d)(3) - cabinet design

Point(s) of Contact: _____
(First and Last names, no groups or committees)

Status of Corrective Action: _____
(e.g., Scheduled for completion by MM/DD/YY; Completed on MM/DD/YY; Funding requested, scheduled for completion by...; Preliminary planning, scheduled for completion by...)

Facility Name: Reserved for the final report

Facility Category: Reserved for the final report

HAZARDOUS MATERIALS - HAZMAT

Finding Number: HAZMAT-07-006

Finding: The aboveground storage tank (AST) for the South Interior Building generator is not protected from vehicle traffic.

Repeat Finding: No

Recurring Issue: No

Safety RAC: 3

Discussion: The AST for the emergency generator is a UL-listed secondary containment tank for flammable liquids. It has all the required spill prevention and containment features. However, the tank is not protected from vehicular traffic. The tank is located beneath an exterior staircase adjacent to a parking lot. While the area in front of the tank is striped for no parking the CASHE Team observed a vehicle parking in front of it. A material storage area next to the fuel tank is protected from vehicular traffic.

Protection from Vehicular Damage

The NFPA states that guard posts or other approved barrier protection be provided for each protected aboveground tank subject to vehicle impact. Guard posts must be constructed of steel not less than 4 inches in diameter and concrete-filled, spaced not more than 4 feet between posts on center, set not less than 3 feet deep in a concrete footing of not less than a 15-inch diameter, set with the top of the posts not less than 3 feet aboveground, and located not less than 5 feet from the tank. Note: The bollards that protect the material storage area next to the diesel storage tank do not meet these requirements.

Recommendation: Install bollards in accordance with the requirements described above inside the expanded metal gate that is in front of the diesel tank.

Driving Reference(s): NFPA 30 4.3.7 – vehicle impact protection

Point(s) of Contact: _____
(First and Last names, no groups or committees)

Status of Corrective Action: _____
(e.g., Scheduled for completion by MM/DD/YY; Completed on MM/DD/YY; Funding requested, scheduled for completion by...; Preliminary planning, scheduled for completion by...)

Facility Name: Reserved for the final report

Facility Category: Reserved for the final report

HAZARDOUS MATERIALS - HAZMAT

Finding Number: HAZMAT-07-007

Finding: The normal vents for the South Interior Building diesel fuel supply tank and day tank do not discharge directly to the outside.

Repeat Finding: No

Recurring Issue: No

Safety RAC: 3

Discussion: The diesel fuel supply tank for the generator is located in an alcove beneath exterior stairs. The vent extends inside the alcove just below its ceiling about nine feet above the floor. The day tank is located inside the South Interior Building, in a room off of the main compressor room. The generator's day tank has two vents. The day tank has a normal vent and a fuel return vent. They each terminate at the top of the day tank approximately 4 feet off the floor. Diesel fumes are heavier than air and will accumulate in a space if it is not well ventilated. The interior room in which the day tank is located has a strong fuel smell.

Normal Vent

Normal vents are required to prevent the development of vacuum or pressure that may exceed the design pressure of a tank. OSHA regulations require that normal vents be sized in accordance with an accepted standard (e.g., API); or be as large as the filling or withdrawal connection, whichever is larger, but no less than 1.25-inch nominal inside diameter.

The normal vent must be equipped with piping that extends 12 feet above grade and a UL-listed flame arrester. Because gasoline and diesel fuel vapors are heavier than air, they accumulate in secondary containment or low areas where they could be ignited by a cigarette butt or other ignition source. The required height of the vent facilitates dispersion of vapors into the atmosphere. OSHA only requires 12-foot vents and flame arrestors on tanks containing flammable (i.e., Class I) liquids, such as gasoline. However, the NFPA requires normal vents and flame arrestors on tanks containing flammable and combustible (i.e., Class I, Class II, and Class III) liquids, which includes diesel fuel tanks. [**Note:** Flame arrestors are only required by OSHA on tanks with a capacity of 1,000 gallons or greater. Therefore a flame arrester is not required.]

Recommendation: Extend the vents for the diesel fuel supply and day tanks to the outside to at least 12 feet above grade.

Driving Reference(s): 29 CFR 1910.106(b)(2)(iv)(b) - normal venting
29 CFR 1910.106(b)(2)(iv)(f) - flame arrester
29 CFR 1910.106(b)(2)(vi)(b) - vent piping 12 feet above grade
NFPA 30 4.2.5.1 - normal venting

Point(s) of Contact: _____

(First and Last names, no groups or committees)

Status of Corrective Action: _____

(e.g., Scheduled for completion by MM/DD/YY; Completed on MM/DD/YY; Funding requested, scheduled for completion by...; Preliminary planning, scheduled for completion by...)

Facility Name: Reserved for the final report

Facility Category: Reserved for the final report

HAZARDOUS MATERIALS - HAZMAT

Finding Number: HAZMAT-07-008

Finding: Flammable and combustible liquids are stored in open containers.

Repeat Finding: No

Recurring Issue: No

Safety RAC: 3

Discussion: Most containers of flammable and combustible liquids are kept closed throughout the MIB and SIB; however, some open containers were discovered during the audit. Following are example locations where open containers of flammable and combustible liquids were discovered:

- SIB basement mechanical room (one 5-gallon container of paint thinner stored near the elevator control room)
- MIB main compressor room (one 5-gallon container of combustible liquid labeled “MKG ENVIRO CLEAN”)

OSHA regulations prohibit the storage of open containers of flammable or combustible liquids in the workplace. The volatile vapors pose a health hazard, as well as a fire hazard.

Recommendation: Close and seal all containers of flammable and combustible liquids, except when in use, to prevent release of flammable vapors.

Driving Reference(s): 29 CFR 1910.106(e)(2)(iv)(a) - open containers

Point(s) of Contact: _____
(First and Last names, no groups or committees)

Status of Corrective Action: _____
(e.g., Scheduled for completion by MM/DD/YY; Completed on MM/DD/YY; Funding requested, scheduled for completion by...; Preliminary planning, scheduled for completion by...)

Facility Name: Reserved for the final report

Facility Category: Reserved for the final report

MACHINERY AND MACHINE GUARDING - MGuard

Finding Number: MGuard-07-001

Finding: The tool rests and tongue guards on the grinders throughout the SIB and MIB are not properly adjusted.

Repeat Finding: No

Recurring Issue: No

Safety RAC: 3

Discussion: Following are example locations where improperly adjusted grinders or grinders lacking required safety features exist:

- SIB basement mechanical room (on the bench) (tongue guard adjusted to a 4-inch gap; grinder is also not bolted down and the power cord is damaged)
- MIB main compressor room (near column H2) (missing a tongue guard and tool rest)
- MIB shop next to room B331-MIB (tool rest adjusted to ¾ inch from grinding wheel)
- SIB basement mechanical room (large industrial grinder missing a tongue guard and tool rests not properly adjusted)
- MIB welding shop (tongue guard and tool rest both adjusted to a 1-inch gap)
- MIB alterations shop (Room B142)(tongue guards absent and tool rests adjusted to approximately 1 inch gap)
- MIB Room B002 (south mechanical room)(no tongue guard)

Tool rests must be adjusted to within one-eighth inch of the grinding wheel to prevent tools from getting wedged between the grinding wheel and the rest. Tongue guards, located at the top of the wheel, must be adjusted to within one-quarter inch of the wheel to protect the operator from sparks, grinding debris, or pieces of a disintegrated grinding wheel. In addition, the power cord for the grinder is frayed and is exposing the wiring, and the grinder is not bolted to the work bench. [**Note:** Tool rests and tongue guards are not required for wire brushes.]

Regardless of whether the grinder is used, its presence in a work area subjects it to OSHA requirements.

In addition, attached shields become dirty and scratched and may interfere with good vision, causing personnel to bypass them. OSHA requires that the employer provide eye protection from flying particles. This requirement includes side protection, meaning that an employee's prescription lenses are not adequate. Safety glasses are provided at the facility; however, the CASHE Team recommends posting signs that require users to wear eye protection as a best management practice.

Recommendation: A) Adjust the tongue guard and tool rests for all grinders to the proper settings; B) Replace or repair damaged power cord; C) Bolt grinder to work benches; or D) Replace the grinder with a new piece of equipment and ensure the safety features are maintain and adjusted appropriately.

Driving Reference(s): 29 CFR 1910.215(a)(4) - tool rests
29 CFR 1910.215(b)(9) - tongue guards
29 CFR 1910.133(a)(1) and (2) – eye protection

Point(s) of Contact: _____
(First and Last names, no groups or committees)

Status of Corrective Action: _____
(e.g., Scheduled for completion by MM/DD/YY; Completed on MM/DD/YY; Funding requested, scheduled for completion by...; Preliminary planning, scheduled for completion by...)

Facility Name: Reserved for the final report
Facility Category: Reserved for the final report

MACHINERY AND MACHINE GUARDING - MGuard

Finding Number: MGuard-07-002

Finding: Woodworking equipment at the MIB Alterations Shop is not equipped with all required safety devices.

Repeat Finding: No

Recurring Issue: No

Safety RAC: 2

Discussion: The band saw, joiner, portable table saw, and radial arm saw are not equipped with manual restart switches. In addition, the guard on the radial arm saw is not sufficient.

Regardless of whether the equipment is used, its presence in a work area subjects it to OSHA requirements.

In the event of the loss of power, manual restart switches prevent the equipment from automatically restarting once power is restored, potentially causing an injury. For example, if a power failure was to occur while the table saw was in operation and the wood being cut was left on the table, the wood could be kicked back at personnel when the power came back on. The manual restart switch would also prevent a serious injury should the blade begin spinning unexpectedly. One source for manual restart switches is JDS Products, Inc. (www.saf-start.com, 916-933-2699). The switches are approximately \$70.00 each.

OSHA requires that the upper hood on a radial saw completely enclose the upper portion of the blade down to a point that will include the end of the saw arbor. The upper hood must be constructed in a manner and of material that it will protect the operator from flying splinters, broken saw teeth, etc., and will deflect sawdust away from the operator. The sides of the lower exposed portion of the blade must be guarded to the full diameter of the blade by a device that will automatically adjust itself to the thickness of the stock and remain in contact with stock being cut to give maximum protection possible for the operation being performed.

Recommendation: Equip all woodworking equipment with the required safety devices

Driving Reference(s): 29 CFR 1910.213(b)(3) - manual restart
29 CFR 1910.213(h)(1) – radial saw blade hood

Point(s) of Contact: _____
(First and Last names, no groups or committees)

Status of Corrective Action: _____
(e.g., Scheduled for completion by MM/DD/YY; Completed on MM/DD/YY; Funding requested, scheduled for completion by...; Preliminary planning, scheduled for completion by...)

Facility Name: Reserved for the final report

Facility Category: Reserved for the final report

MACHINERY AND MACHINE GUARDING - MGuard

Finding Number: MGuard-07-003

Finding: Fan blades are not adequately guarded.

Repeat Finding: No

Safety RAC: 3

Discussion: Pedestal fans, exhaust fans, and ventilation fans in the following locations have fan blade guards that do not meet OSHA specifications:

- SIB Attic (U-1-11, U-1-12, U-1-9, U-1-8, U-1-5, and several AC Fan Auto Dampers have fans blades that are not adequately guarded)
- SIB mechanical room (exterior wall fan has large openings in its guard)
- MIB M-Floor 1 west (two wall fans do not have blade guards)

OSHA requires that all fan blades less than 7 feet from the work surface need be fully guarded to prevent access. Fan blades need guards with openings no greater than ½ inch.

Recommendation: Install guards on the fans that meet the ½ inch opening specification.

Driving Reference(s): 29 CFR 1910.212(a)(5) – fan blade guarding

Point(s) of Contact: _____
(First and Last names, no groups or committees)

Status of Corrective Action: _____
(e.g., Scheduled for completion by MM/DD/YY; Completed on MM/DD/YY; Funding requested, scheduled for completion by...; Preliminary planning, scheduled for completion by...)

Facility Name: Reserved for the final report

Facility Category: Reserved for the final report

MACHINERY AND MACHINE GUARDING - MGuard

Finding Number: MGuard-07-004

Finding: Belts, pulleys, and fans in mechanical spaces throughout the Interior Complex are not adequately guarded.

Repeat Finding: No

Recurring Issue: No

Safety RAC: 3

Discussion: Many air handling units, heaters, and shop equipment are equipped with belts, pulleys, and fans that are not fully enclosed with appropriately sized guards or shields. Following are example locations where guarding is inadequate:

- MIB welding shop (drill press cover missing exposing belts and air compressor belts completely unguarded)
- SIB Attic (air handling pulleys and belts that operate the fans are unguarded or partially guarded)
- MIB M-Floor (6 West Section) belts and pulleys on air handlers F-6-WA, F-5-EB, F-5-EB, F-5-EV, and F-5-WA are not completely enclosed with guards
- MIB M-Floor (1 West section) (two metals fans approximately 5 feet from floor are not guarded)
- MIB alterations shop (no cover on drill press and sponge laying directly on internal belts)
- SIB Attic (air handling belts A-11-3 and M-3-1)
- SIB elevator room (the lower cover on the elevator control cabinet is not in place, exposing belts and pulleys)
- MIB M-Floor 1 west (air handling belts A-11-10 and F-27-16)

OSHA specifically identifies rotating parts as a hazard and requires proper guarding to protect employees from hazards. OSHA regulations require belts, pulleys, gears, sprockets, and chains less than 7 feet from the floor be guarded at least 15 inches above the belt or that the belt and pulleys be fully enclosed.

OSHA requires that fans guards must not contain openings greater than ½ inch. The majority of the air handling unit belt and pulley guards are constructed of wire mesh that has openings approximately 1 inch by 1 inch, and due to the close proximity of these openings to the moving belts and pulleys, the openings are too large.

Recommendation: **A)** Obtain and replace all missing guards; or **B)** Fabricate expanded metal guards that fully encloses all the belts, pulleys, and fans.

Driving Reference(s): 29 CFR 1910.219(d)(1) - guarding pulleys
29 CFR 1910.219(e)(1) – horizontal belts
29 CFR 1910.219(e)(4) – vertical belts
29 CFR 1910.219(f) – gears, sprockets, and chains
29 CFR 1910.219(m) – standard guards
29 CFR 1910.219(o) – approved materials

Point(s) of Contact: _____
(First and Last names, no groups or committees)

Status of Corrective Action: _____

(e.g., Scheduled for completion by MM/DD/YY; Completed on MM/DD/YY; Funding requested, scheduled for completion by...; Preliminary planning, scheduled for completion by...)

Facility Name: Reserved for the final report

Facility Category: Reserved for the final report

MACHINERY AND MACHINE GUARDING - MGuard

Finding Number: MGuard-07-005

Finding: The radial arm saw in the MIB welding shop does not automatically retract.

Repeat Finding: No

Recurring Issue: No

Safety RAC: 3

Discussion: Regardless of whether the saw is used, its presence in a work area subjects it to OSHA requirements.

The radial arm saw may not be retracting because the coating on the retractor cable has peeled off the cable. OSHA regulations require that installation of a radial saw be in such a manner that the front end be slightly higher than the rear to cause the cutting head to retract gently to its starting position when released by the operator. OSHA interpretation letters (at www.osha.gov) state, "The employer may use devices, attachments, or other means to accomplish this requirement." Therefore, pullback mechanisms may be used in lieu of having the front end of the radial saw higher than the rear.

The automatic pullback mechanism retracts the radial saw when it is released by the operator and prevents the cutting head from moving towards the operator due to vibration. Wolfe Machinery Company (515-270-2766; <http://www.wolfemachinery.com>) has been identified as a source for these devices. The device is called a "spirator" and Wolfe Machinery Company claims that it is OSHA-approved for satisfying the requirement that the cutting head of the radial arm saw retract gently to its starting position when released by the operator.

Recommendation: A) If cleaning and maintenance does not allow the saw to retract, either adjust the radial arm saw so that the front end is slightly higher than the rear, allowing the cutting head to slide back; or B) Install a retrofit pullback mechanism.

Driving Reference(s): 29 CFR 1910.213(h)(4) - pullback mechanism
OSHA Interpretation Letter, March 31, 1991 - pullback mechanism
OSHA Interpretation Letter, October 19, 1994 - pullback mechanism

Point(s) of Contact: _____
(First and Last names, no groups or committees)

Status of Corrective Action: _____
(e.g., Scheduled for completion by MM/DD/YY; Completed on MM/DD/YY; Funding requested, scheduled for completion by...; Preliminary planning, scheduled for completion by...)

Facility Name: Reserved for the final report

Facility Category: Reserved for the final report

MATERIALS HANDLING AND STORAGE - MHS

Finding Number: MHS-07-001

Finding: Materials are stored in the SIB and MIB in a manner that creates various hazards.

Repeat Finding: No

Recurring Issue: No

Safety RAC: 4

Discussion: Storage areas in the SIB attic have excessive materials in storage, creating fire, walking, sanitation and other hazards. Bird feces are excessive in areas, such as Bay 39. In the 19th Street attic cage area approximately twenty-five 50-pound sand bags are stored in a pile that may exceed the floor load rating which is not posted. In SIB Room 322 boxes are stored on top of filing cabinets, creating unstable storage and hazards to place and retrieve the boxes. A 5-gallon containers of bituminous coating and a 55-gallon drum of Coil Bright detergent are leaking in the storage room under the MIB A ramp.

OSHA regulations prohibit the storage of materials on the floor or roof of any structure that exceeds the load limit for the floor or roof. The regulations state that the floor area used for storage must have a load limit posted on it. The load limits are to be approved by a local building official. The floor of the storage areas above of Field Office change and property rooms is actually the ceiling of each of these rooms. Neither storage area has load limits posted.

OSHA also requires that the storage of materials does not create a hazard. Items stored in tiers must be stacked, blocked, interlocked, and limited in height so that they are stable and secure against sliding or collapse.

Recommendation: A) Organize the materials in a stable and secure manner; B) Clean and disinfect the areas soiled with bird feces; and C) Post the maximum floor load ratings in storage areas.

Driving Reference(s): 29 CFR 1910.176(b) – secure storage
29 CFR 1910.176(c) – housekeeping
29 CFR 1910.22(d)(1) – establishing and posting of load limits
29 CFR 1910.22(d)(2) – prohibition of storage above load limits

Point(s) of Contact: _____
(First and Last names, no groups or committees)

Status of Corrective Action: _____
(e.g., Scheduled for completion by MM/DD/YY; Completed on MM/DD/YY; Funding requested, scheduled for completion by...; Preliminary planning, scheduled for completion by...)

Facility Name: Reserved for the final report

Facility Category: Reserved for the final report

MATERIALS HANDLING AND STORAGE - MHS

Finding Number: MHS-07-002

Finding: No evidence was found to document that the underhung hoist trolley cranes and their components located in the MIB M-Floor and MIB main compressor room were tested to their rated load capacity prior to initial use.

Repeat Finding: No

Recurring Issue: No

Safety RAC: 2

Discussion: There is a 1-ton hoist hooked to a 3-ton trolley on an I-beam in the M-Floor. The I-beam is welded to metal plates that are bolted into a reinforced concrete beam. This hoist trolley appears to have been installed by the modernization contractor to lift long sections of steel pipe so they may be welded together. The load limits on the hoist trolleys in the main compressor room could not be read by the CASHE Team.

OSHA requires overhead and gantry cranes to meet the American National Standard Safety Code, ANSI B30.2.0 – 1967; however, underhung trolley/lifting devices, such as a hoist on a trolley, are excluded in the scope of the standard. While underhung trolley/lifting devices are excluded in the scope of OSHA overhead and gantry crane regulations, OSHA considers exposure of employees to the risk of injury due to possible failure of support components of underhung trolley/lifting devices to be a recognized hazard.

OSHA issued an interpretation letter on November 2, 1993 that says, “employees utilizing underhung trolley/lifting devices must conduct ‘rated load tests’ prior to initial use on all new, extensively repaired, and altered underhung trolley/lifting devices in the workplace. These tests are required to verify the loading capacity of the underhung trolley/lifting devices, as installed. The tests must be performed after the device is installed on the supporting structures (including I-beams) and connectors. Test loads must not be more than 125% of the manufacturer’s rated load unless otherwise recommended by the manufacturer. The resulting load rating for the hoist must not be more than 80% of the maximum load sustained during the test. These requirements would not be applicable in working situations where employees would never be exposed to potentially falling hoist components, loads or supporting elements.” Manufacturer recommended installation would also likely require the I-beam to have a safe working load equal to that of the hoist.

The general duty clause for Federal employees requires that the employer furnish a place of employment that is free from recognized hazards. The interpretation letter also states that OSHA’s policy is to consider rated load tests on hoists mandatory, that it considers the potential collapse of an underhung trolley/lifting device a serious hazard, and that it will cite violations under the general duty clause.

OSHA regulations require all new and altered cranes be operational and load tested prior to initial use. In addition, infrequently used cranes (e.g., a crane not used in 6 months) must be tested to determine whether a defect has developed since its last use.

The required operational tests on the crane include, but are not limited to, hoisting and lowering, trolley and bridge travel, limit switches, and locking and safety devices. The crane should have been tested up to 125% of its rated load capacity prior to its initial use.

Recommendation: **A)** Require the modernization contractor to discontinue operation of the crane until the provide documentation that it has been tested to its rated load capacity prior to use: **B)** Perform and document an operational and weight test of the hoist trolley cranes; **C)** Contract for operational and weight tests on the main compressor room hoist trolley cranes every 6 months if it is infrequently used; or **D)** Remove the main compressor room hoist trolley cranes due to their infrequent use to eliminate the need for complying with this and numerous other regulations.

Driving Reference(s): 29 CFR 1910.179(k)(2) - overhead and gantry crane load tests
29 CFR 1910.179(k)(1) - overhead and gantry crane operational tests

Point(s) of Contact: _____
(First and Last names, no groups or committees)

Status of Corrective Action: _____
(e.g., Scheduled for completion by MM/DD/YY; Completed on MM/DD/YY; Funding requested, scheduled for completion by...; Preliminary planning, scheduled for completion by...)

Facility Name: Reserved for the final report
Facility Category: Reserved for the final report

MATERIALS HANDLING AND STORAGE - MHS

Finding Number: MHS-07-003

Finding: The load limit is not indicated on the I-beams holding the hoist trolley in the MIB M-Floor on the two hoist trolleys in MIB main compressor room in the basement.

Repeat Finding: No

Recurring Issue: No

Safety RAC: 2

Discussion: There is a 1-ton hoist hooked to a 3-ton trolley on an I-beam in the M-Floor. The I-beam is welded to metal plates that are bolted into a reinforced concrete beam. This hoist trolley appears to have been installed by the modernization contractor to lift long sections of steel pipe so they may be welded together. The load limits on the hoist trolleys in the main compressor room could not be read by the CASHE Team.

OSHA requires overhead and gantry cranes to meet the American National Standard Safety Code, ANSI B30.2.0 – 1967; however, underhung trolley/lifting devices, such as a hoist on a trolley, are excluded in the scope of the standard. While underhung trolley/lifting devices are excluded in the scope of OSHA overhead and gantry crane regulations, OSHA considers exposure of employees to the risk of injury due to possible failure of support components of underhung trolley/lifting devices to be a recognized hazard.

OSHA issued an interpretation letter on November 2, 1993 that says, “employees utilizing underhung trolley/lifting devices must conduct ‘rated load tests’ prior to initial use on all new, extensively repaired, and altered underhung trolley/lifting devices in the workplace. These tests are required to verify the loading capacity of the underhung trolley/lifting devices, as installed. The tests must be performed after the device is installed on the supporting structures (including I-beams) and connectors. Test loads must not be more than 125% of the manufacturer’s rated load unless otherwise recommended by the manufacturer. The resulting load rating for the hoist must not be more than 80% of the maximum load sustained during the test. These requirements would not be applicable in working situations where employees would never be exposed to potentially falling hoist components, loads or supporting elements.” Manufacturer recommended installation would also likely require the I-beam to have a safe working load equal to that of the hoist.

The general duty clause for Federal employees requires that the employer furnish a place of employment that is free from recognized hazards. The interpretation letter also states that OSHA’s policy is to consider rated load tests on hoists mandatory, that it considers the potential collapse of an underhung trolley/lifting device a serious hazard, and that it will cite violations under the general duty clause.

Recommendation: **A)** Perform and document an operational and weight tests of the hoists and I-beams; and **B)** Post the applicable load limit on both sides of each crane’s I-beam.

Driving Reference(s): 29 CFR 1910.179(b)(2) - overhead and gantry cranes must meet ANSI OSHA Letter, November 2, 1993 – underhung trolley/lifting devices 29 CFR 1960.8(a) –general duty clause for Federal employees

Point(s) of Contact: _____
(First and Last names, no groups or committees)

Status of Corrective Action: _____
(e.g., Scheduled for completion by MM/DD/YY; Completed on MM/DD/YY; Funding requested, scheduled for completion by...; Preliminary planning, scheduled for completion by...)

Facility Name: Reserved for the final report
Facility Category: Reserved for the final report

MATERIALS HANDLING AND STORAGE - MHS

Finding Number: MHS-07-004

Finding: The required frequent and periodic inspection of hoist components is not performed on the underhung hoist trolley cranes in the MIB M-Floor and MIB main compressor room.

Repeat Finding: No

Recurring Issue: No

Safety RAC: 2

Discussion: The modernization contractor appears to have installed a crane in the M-Floor to lift steel pipe. The main compressor room has two cranes to lift equipment. The mezzanine hoist is hooked to the trolley. The safety hatch on the hook that connects the hoist to the underhung trolley does not snap shut. None of the load hook have a safety hatch.

The items that must be inspected and inspection frequency are specified in the OSHA regulations. Examples of frequent daily inspections include all control mechanisms, and deterioration or leakage in air or hydraulic systems. Items that must be inspected at least monthly include, but are not limited to, safety devices and hooks for cracks or twists.

The monthly inspection must be documented in a certification record. The record must include the date of the inspection, signature of the person who performed the inspection, and crane serial number or other crane identifier. The certification record is designed to ensure that all critical components are inspected frequently and that those inspections are documented. The certification record must be kept readily available. The regulations do not require that the person performing periodic or frequent inspections be trained or certified, but the requirement that the inspector's signature be on the certification record is intended to provide accountability in regards to the quality of the inspection. [**Note:** Many states do license crane/hoist inspectors, in a manner similar to elevator inspectors.]

The OSHA regulations require that all crane types have a complete *periodic* inspection **at least once a year**. The inspection includes, but is not limited to, a careful examination of structural members, loose or worn bolts or rivets, and excessive parts wear.

A crane or hoist that has not been in regular service for one to 6 months must be given a complete frequent inspection, prior to being put into service. A crane or hoist that has not been in regular service for a period of 6 months or longer must be given a complete periodic to being put into service.

If a deficiency is found, the regulations require that a determination as to whether it constitutes a safety hazard must be made. This type of determination is best made by trained personnel. The North American Crane Institute (NACI) offers training at locations throughout the country on crane and hoist inspections. The NACI offers its own certification examination at the end of each training course. The exam provides a means for the Department to determine whether its employees are competent to perform crane and hoist inspections. Contact the NACI at 800-654-5640 to obtain information on its training classes.

If a contractor is hired to perform the annual periodic inspection and load test, the contractor should have "errors and omissions" insurance for the inspection and load testing services. Firms with this type of insurance would be liable for property damage or personal injuries attributable to a defect in a crane or hoist they inspected. A firm carrying this type of insurance is treating crane and hoist inspections as a

professional service, not a side-line business.

Recommendation: **A)** Require the modernization contractor to perform and document inspection of their crane; **B)** Designate at least one Department employee to be responsible for the monthly certification inspection of each crane in the main compressor room, send that individual to formal training, and have that individual become certified as an inspector; **C)** Have the certified inspector provide training to all crane users on how to conduct the daily crane inspections; **D)** Issue a Department policy restricting use of the crane to the personnel trained on frequent inspection procedures; **E)** Establish a log to document frequent inspections; or **F)** Remove the crane in the main compressor room due to its infrequent use to eliminate the need for complying with this and numerous other regulations.

Driving Reference(s): 29 CFR 1910.179(j)(2) - overhead and gantry crane frequent inspection
29 CFR 1910.179(j)(3) - overhead and gantry crane periodic inspection
29 CFR 1910.179(j)(4) - overhead and gantry crane not in regular use

Point(s) of Contact: _____
(First and Last names, no groups or committees)

Status of Corrective Action: _____
(e.g., Scheduled for completion by MM/DD/YY; Completed on MM/DD/YY; Funding requested, scheduled for completion by...; Preliminary planning, scheduled for completion by...)

Facility Name: Reserved for the final report
Facility Category: Reserved for the final report

MEDICAL AND FIRST AID - MED

Finding Number: MED-07-001

Finding: Eyewash units throughout the Interior Complex are not properly maintained.

Safety RAC: 3

Discussion: The eyewash located in the SIB Attic cooling tower access room has no records of maintenance, flushing, is missing its spout caps, and improperly mounted to the wall (mounted approximately 4 feet off the ground). An eyewash unit and deluge shower in the MIB parking garage (near the area where floor cleaner batteries are charged) is not maintained and is blocked by pallets of potassium chloride and sand).

In addition, two eyewash units and a deluge shower located in the SIB basement mechanical room have no maintenance records or logs indicating a schedule for periodic flushing.

At the MIB, an eyewash/deluge shower is installed in the janitorial wash room (Room B017). This unit is not functional and is not maintained properly. Because neither the eyewash nor the deluge shower is required in this location, they should be removed.

OSHA requires that where the eyes or body of any person may be exposed to corrosive materials, suitable facilities for quick drenching or flushing of the eyes and body must be provided within the work area for immediate emergency use.

The American National Standards Institute (ANSI) standard Z358.1 states that a victim should be able to reach an eyewash station within 10 seconds, and estimates that the average person can cover approximately 55 feet in that time. That time and distance should not include stairs or a maze of obstacles.

Periodic flushing of eyewashes is necessary to prevent a build-up of parasites or bacteria that could potentially contaminate the eyewash user. A log posted near the eyewash to document flushing the eyewash will remind personnel of the need to perform this task.

Recommendation: **A)** Flush the eyewash to clean the lines of any parasites or bacteria at least monthly; **B)** Maintain a log to document this process; **C)** Keep the head caps in place when not in use; **C)** Purchase and install head caps on the eyewash heads; and **D)** Maintain a clear area in front of and around the eyewash (this maybe accomplished by placing yellow and black striping on the floor in front of the and on the counter around the eyewash to indicate the area is not to be used for storage).

Driving Reference(s): 29 CFR 1910.151(c) - emergency shower and eyewash
ANSI Z358.1 – distance to eyewash

Point(s) of Contact: _____

(First and Last names, no groups or committees)

Status of Corrective Action: _____

(e.g., Scheduled for completion by MM/DD/YY; Completed on MM/DD/YY; Funding requested, scheduled for completion by...; Preliminary planning, scheduled for completion by...)

Facility Name: Reserved for the final report

Facility Category: Reserved for the final report

OCCUPATIONAL HEALTH AND ENVIRONMENTAL CONTROL – OHEC

Finding Number: OHEC-07-001

Finding: Annual safety inspections of all work areas in the Interior Complex do not appear to be performed or documented.

Repeat Finding: No

Recurring Issue: No

Safety RAC: 2

Discussion: The large number of obvious serious safety violations found in the Main and South Interior Buildings leads the CASHE Team to conclude that annual safety inspections are not performed and/or not documented. OSHA regulations require each agency utilize as inspectors “personnel with equipment and competence to recognize hazards.” Inspections shall be conducted by inspectors qualified to recognize and evaluate hazards of the working environment and to suggest general abatement procedures. Safety and health specialists as defined in §1960.2(s), with experience and/or up-to-date training in occupational safety and health hazard recognition and evaluation are considered as meeting the qualifications of safety and health inspectors. For those working environments where there are less complex hazards, such safety and health specializations as cited above may not be required, but inspectors in such environments shall have sufficient documented training and/or experience in the safety and health hazards of the workplace involved to recognize and evaluate those particular hazards and to suggest general abatement procedures. All inspection personnel must be provided the equipment necessary to conduct a thorough inspection of the workplace involved.

In addition OSHA regulations require that all areas and operations of each workplace, including office operations, shall be inspected at least annually. More frequent inspections shall be conducted in all workplaces where there is an increased risk of accident, injury, or illness due to the nature of the work performed. Sufficient unannounced inspections and unannounced follow-up inspections should be conducted by the agency to ensure the identification and abatement of hazardous conditions.

The inspector shall, in writing, describe the findings which form the basis for the issuance of any Notice of Unsafe or Unhealthful Working Conditions. Each agency shall establish a procedure for the prompt issuance of a Notice of Unsafe or Unhealthful Working Conditions. Such notices shall be issued not later than 15 days after completion of the inspection for safety violations or not later than 30 days for health violations. If there are compelling reasons why such notice cannot be issued within the 15 days or 30 days indicated, the person in charge of the workplace shall be informed of the reasons for the delay.

Notices shall be in writing and shall describe with particularity the nature and degree of seriousness of the unsafe or unhealthful working condition, including a reference to the standard or other requirement involved. The notice shall fix a reasonable time for the abatement of the unsafe or unhealthful working condition; and a copy of the notice shall be sent to the official in charge of the workplace, the employee representative who participated in the closing conference, and/or the safety and health committee of the workplace, if any. This CASHE Report provides the basis for issuance of Notices of Unsafe or Unhealthful Working Conditions.

Recommendation: A) Perform in-house annual safety inspections of all work areas and operations and document the findings; B) Issue or reissue if appropriate policy on the performance of those inspections and the issuance of Notice of Unsafe or Unhealthful Working Conditions; C) Perform

independent occupational safety, health, and environmental inspection of the Main and South Interior Buildings on a recurring schedule.

Driving Reference(s): 29 CFR 1960.25(a) – qualification of safety inspectors
29 CFR 1960.25(c) – annual safety inspection of areas and operations
include office space
29 CFR 1960.26(c) – written inspection reports and issuance of Notice of Unsafe or Unhealthful Working conditions

Point(s) of Contact: _____
(First and Last names, no groups or committees)

Status of Corrective Action: _____
(e.g., Scheduled for completion by MM/DD/YY; Completed on MM/DD/YY; Funding requested, scheduled for completion by...; Preliminary planning, scheduled for completion by...)

Facility Name: Reserved for the final report
Facility Category: Reserved for the final report

PERSONAL PROTECTIVE EQUIPMENT - PPE

Finding Number: PPE-07-001

Finding: Personnel throughout the Interior Complex use dust masks and comfort masks without proper training or hazard evaluations.

Repeat Finding: No

Recurring Issue: No

Safety RAC: 4

Discussion: Following are examples of locations where comfort masks and dust masks are stored and used:

- SIB fire pump room (two non-NIOSH approved comfort masks hanging on a water line unprotected)
- MIB M-Floor (1 East Section) (two non-NIOSH approved comfort masks stored in a dusty area on a rolling work bench)
- MIB main compressor room workbench (NIOSH-approved dust masks in storage)
- MIB alterations shop break room (NIOSH-approved dust masks in storage)

According to facility personnel, the required instructions and warnings (Appendix D)(described below) are not provided to facility personnel.

OSHA requires all air purifying respirators (APRs) and APR cartridges be NIOSH-approved. Additionally, OSHA encourages voluntary users to select NIOSH-approved dust masks (also referred to as “filtering facepieces” by OSHA).

Voluntary use is when an employee chooses to wear a respirator, even though the use of the respirator is not required by the employer or any OSHA standard (e.g., the working environment exceeds a Permissible Exposure Limit (PEL)). For example, an employee may choose to wear a respirator for mowing, sweeping, or cutting wood.

Dust masks used at the MIB have more substantial filtering capabilities than comfort masks and they are NIOSH-approved. OSHA’s respiratory protection regulations issued on January 8, 1998 clarify that dust masks are considered negative-pressure particulate respirators, and state that employees’ voluntary use of dust masks is subject to reduced OSHA regulation.

Most boxes of comfort masks are labeled “NOT A RESPIRATOR” or “NOT OSHA- OR NIOSH-APPROVED,” because they have never been submitted to NIOSH. Therefore, comfort masks do not meet the testing standards for a respirator due to minimal filtering capability. Many comfort masks state on the packaging that they are not intended for industrial use or that they are for household use. The use of comfort masks should be restricted to household applications; MIB mechanical and facilities operations are considered industrial.

Determining Exposure Limits - OSHA requires employers to determine if the working environment exceeds a PEL before supplying dust masks for voluntary use by employees. If an employee is wearing a dust mask because they operate heavy equipment for several hours and are exposed to significant

quantities of dirt and dust, personal air monitoring of that employees breathing zone is appropriate. Personal air monitoring is not necessary if an employee wears a dust mask when sweeping the floor, mowing, or operating grinding equipment for minimal periods of time.

To determine if a working environment exceeds a PEL, a personal air monitor is typically placed on an employee while performing tasks that potentially warrants use of a respirator. Personal air monitors periodically pump air from near the employee's breathing zone through a filter. The filter is then analyzed for the contaminants of concern (e.g., dust, organic vapors) and compared to the applicable PEL. Air monitoring may need to be contracted to an industrial hygienist. The facilities industrial hygienist should be consulted if there is any question as to whether personal air monitoring is necessary to determine if dust masks use can be considered voluntary.

Should it be determined that air monitoring is not necessary and employees choose to voluntarily wear dust masks, the employer must ensure compliance with the requirements listed under *Voluntary Use of Dust Masks*. Should it be determined that employees who wear dust masks are being exposed to working environments above a PEL, the exposure cannot be eliminated by engineering controls, and APRs are required, a comprehensive RPP must be developed and implemented. The requirements of an RPP are detailed in a separate Personal Protective Equipment finding.

Voluntary Use of Dust Masks - If the only respirators that are voluntarily worn are dust masks and all contaminants of concern are below the PEL, employers are only subject to the following requirements: **1)** ensuring that dust masks are clean and stored properly so that using them does not present a health hazard to the user; **2)** ensuring that dust masks do not interfere with employees' ability to work safely; and **3)** providing a copy of Appendix D of 29 CFR 1910.134 to all employees who voluntarily wear dust masks.

OSHA's "Respiratory Protection Program Advisor" clarifies that employers must develop procedures for storing, reusing, and disposing of respirators and filter elements that have been designated as disposable. OSHA's "Questions and Answers on the Respiratory Protection Standard" dated August 3, 1998 clarifies that employees voluntarily wearing dust masks are not required to have a medical evaluation.

Recommendation: **A)** Discard all comfort masks and do not provide them to employees; **B)** Verify that the work environments for which employees ask for dust masks do not exceed OSHA PELs; and **C)** If the work environment exceeds a PEL, implement or install control measures (e.g., ventilation) to bring the contaminant levels below the applicable PEL; **D)** If the contaminant levels cannot be engineered out, designate a respiratory protection program administrator; **E)** Send the administrator to training; and **F)** Develop and implement a written program that addresses all criteria as required by OSHA; **G)** Schedule training, respirator fit testing, and medical monitoring annually; and **H)** Maintain records of fit tests, training, medical monitoring, and respirator inspections; **I)** If it is determined that employees are to be provided dust masks, provide a copy of Appendix D to all employees who voluntarily wear them; **J)** Issue an all-employee memorandum regarding policy on respirator and dust mask use, including a contact for employees regarding exposure concerns or information on wearing respiratory protection; and **K)** Ensure that dust and mist respirators are stored in covered plastic containers in an area that will protect them from dust and chemicals; or **L)** Eliminate the processes that exceeds the PEL.

Driving Reference(s): 29 CFR 1910.134(a)(1) - engineering control measures
29 CFR 1910.134(c)(2) - voluntary use of respirators
29 CFR 1910.134(c)(2)(ii) - voluntary use exception
29 CFR 1910.134(c)(3) - program administration
29 CFR 1910.134(e) - medical evaluation

- 29 CFR 1910.134(e)(7) - additional medical evaluations
- 29 CFR 1910.134(f)(2) - annual fit test
- 29 CFR 1910.134(k) - training

Point(s) of Contact: _____
(First and Last names, no groups or committees)

Status of Corrective Action: _____
(e.g., Scheduled for completion by MM/DD/YY; Completed on MM/DD/YY; Funding requested, scheduled for completion by...; Preliminary planning, scheduled for completion by...)

Facility Name: Reserved for the final report
Facility Category: Reserved for the final report

PERSONAL PROTECTIVE EQUIPMENT - PPE

Finding Number: PPE-07-002

Finding: A self-contained breathing apparatus (SCBA) is available to employees, although the equipment is not properly maintained and a complete respiratory protection program (RPP) is not maintained for DOI employees who wear this equipment.

Repeat Finding: No

Recurring Issue: No

Safety RAC: 4

Discussion: An excess SCBA is stored in the SIB basement mechanical room. The facility does not have a respiratory protection plan, any current need, or trained personnel qualified to use the equipment. In addition, there are no records for monthly inspections. DOI personnel indicate the SCBA is never used and will be excessed.

OSHA defines an atmosphere-supplying respirators as a respirator that supplies the user with breathing air from a source independent of the ambient atmosphere, and includes supplied-air respirators (SARs) and self-contained breathing apparatus (SCBA) units. Regulations for these respirators include requirements for the respiratory program, medical evaluations, training, fit testing, respirator storage, testing and inspection, air quality, and SCBA cylinders which are discussed below.

Respiratory Protection Program Requirements - OSHA regulations require that a comprehensive written RPP be established and implemented and a respiratory protection program administrator must be designated if employees are wearing respirators. The written program must include procedures governing the use and selection of respirators, as well as the care and storage of respirators. The program must also provide for surveillance of work area conditions, and it must be evaluated periodically to maintain program effectiveness. The individual designated as the respiratory protection program administrator oversees the training necessary to carry out the requirements detailed in the written RPP. The regulations require that the administrator “be a suitably trained program administrator.”

One of the potential hazards of wearing a SCBA, is that it physiologically stresses the person wearing it. This physiological stress occurs in the heart and lungs, and therefore, creates a potential health hazard. Persons should not be assigned to tasks requiring the use of a respirator unless they are in suitable physical condition as evaluated by a physician.

Medical Evaluation Requirements - OSHA requires the employer to provide a medical evaluation to determine the employee’s ability to use a respirator before the employee is fit tested or required to use the respirator in the workplace. The employer must identify a physician or other licensed health care professional (PLHCP) to perform medical evaluations using a medical questionnaire or an initial medical examination that obtains the same information as the medical questionnaire. The medical evaluation must obtain the information in Sections 1 and 2, Part A of Appendix C of 29 CFR 1910.134.

The following information must be provided to the PLHCP before the PLHCP makes a recommendation concerning an employee’s ability to use a respirator: **1)** the type and weight of the respirator to be used by the employee; **2)** the duration and frequency of respirator use (including use for rescue and escape); **3)** the expected physical work effort; **4)** additional protective clothing and equipment to be worn; **5)** temperature and humidity extremes that may be encountered; and **6)** a copy of the written respiratory

protection program and a copy of 29 CFR 1910.134.

In determining the employee's ability to use a respirator, the employer must obtain a written recommendation regarding the employee's ability to use the respirator from the PLHCP. The recommendation must provide only the following information: **1)** any limitations on respirator use related to the medical condition of the employee, or relating to the workplace conditions in which the respirator will be used, including whether or not the employee is medically able to use the respirator; **2)** the need, if any, for follow-up medical evaluations; and **3)** a statement that the PLHCP has provided the employee with a copy of the PLHCP's written recommendations.

The regulations do not specify a frequency for follow-up medical evaluations. They state that additional evaluations must be performed if the following occur: **1)** the employees report symptoms that are related to the ability to use a respirator; **2)** a professional health care provider (e.g., doctor, occupational health nurse) informs the employer that employees must be re-evaluated; **3)** information from the program (e.g., fit test) indicates a need for re-evaluation; and **4)** a change in workplace conditions occurs that may increase the physiological burden placed on an employee.

Training Requirements - Training provided by the employer must ensure that each employee can demonstrate knowledge of at least the following: **1)** why the respirator is necessary and how improper fit, usage, or maintenance can compromise the protective affect of the respirator; **2)** the limitations and capabilities of the respirator; **3)** how to use the respirator effectively in emergency situations, including situations in which the respirator malfunctions; **4)** how to inspect, put on and remove, use, and check the seals of the respirator; **5)** the procedures for maintenance and storage of the respirator; and **6)** how to recognize medical signs and symptoms that may limit or prevent the effective use of respirators.

Fit Test Requirements - Employees must be fit tested to determine the proper size, and type of respirator they should wear. In addition, refresher training and fit testing must be performed annually, or when the working conditions change in any way that may affect the use of respirators. Records of fit tests must be maintained and include the following: the name or identification of the employee tested; the type of fit test performed; the specific make, model, style, and size of respirator tested; the date of the fit test; and the pass/fail results for qualitative fit tests (QLFTs) or the fit factor and strip chart recording or other recording of the test results for quantitative fit tests (QNFTs). These fit test records must be retained for respirator users until the next fit test is administered.

Storage Requirements - Respirators used with SCBAs are to be stored in a dirt- and dust-free environment, away from chemicals. OSHA specifically states that respirators be stored to protect them from damage, contamination, dust, sunlight, extreme temperatures, excessive moisture, and damaging chemicals. They must be packed or stored to prevent deformation of the face piece and exhalation valve. In addition, emergency respirators must be kept accessible to the work area, stored in compartments or in covers that are clearly marked as containing emergency respirators, and stored in accordance with any applicable manufacturer instructions.

OSHA does not recommend storing respirators in a plastic-sealable bag after use because the respirator may be damp after used and sealing prevents drying and encourages microbial growth. If plastic bags are used, the respirators must be allowed to dry before storage (OSHA's "Respiratory Protection Program Advisor," Q&A section).

Testing and Inspection Requirements - Air cylinders for SCBAs must be tested and maintained as described in DOT's Shipping Container Specification Regulations (49 CFR 178). OSHA requires that the employer ensure that all respirators used in routine situations be inspected before each use and during cleaning. All respirators maintained for use in emergency situations must be inspected at least monthly in

accordance with the manufacturer's recommendations, and must be checked for proper function before and after each use. Emergency escape-only respirators must be inspected before being carried into the workplace for use.

All inspections should be documented so the employer can demonstrate the inspections are being performed and are to include a check of respirator function, tightness of connections, and the condition of the various parts including, but not limited to, the face piece, head straps, valves, connecting tube, and cartridges, canisters or filters; and a check of elastic parts for pliability and signs of deterioration.

In addition to the inspection requirements for routine-use, emergency-use, and escape-only respirators, SCBAs must also be inspected monthly, air and oxygen cylinders must be maintained in a fully charged state and recharged when the pressure falls to 90% of the manufacturer's recommended pressure level. A determination must be made that the regulator and warning devices function properly.

OSHA requirements for emergency use further require that the employer certify the respirator by documenting the date the inspection was performed, the name or signature of the person who made the inspection, the findings, required remedial action, and a serial number or other means of identifying the inspected respirator; and provide this information on a tag or label that is attached to the storage compartment for the respirator, is kept with the respirator, or is included in inspection reports stored as paper or electronic files. This information must be maintained until replaced following a subsequent certification.

Air Quality Requirements - OSHA requires the employer to provide breathing gases of high purity to employees using atmosphere-supplying respirators (supplied-air and SCBA). The specifications for the supplied air are detailed in 29 CFR 1910.134(i) and include the following:

- compressed and liquid oxygen must meet the United States Pharmacopoeia requirements for medical or breathing oxygen;
- compressed breathing air must meet at least the requirements for Grade D breathing air described in ANSI/Compressed Gas Association Commodity Specification for Air, G-7.1-1989 (oxygen content (v/v) of 19.5-23.5%; hydrocarbon (condensed) content of 5 milligrams per cubic meter of air or less; carbon monoxide (CO) content of 10 ppm or less; carbon dioxide content of 1,000 ppm or less; and lack of noticeable odor);
- compressed oxygen is not used in atmosphere-supplying respirators that have previously used compressed air;
- oxygen concentrations greater than 23.5% are used only in equipment designed for oxygen service or distribution.

The employer is also required to ensure that cylinders used to supply breathing air to respirators and compressors used to supply breathing air meet requirements for certification, moisture content, and construction. Those requirements are detailed in 29 CFR 1910.134(i)(4) and 29 CFR 1910.134(i)(5).

Recommendation: Excess the SCBA equipment.

Driving Reference(s): 29 CFR 1910.134(b) – definition of SCBA as a respirator
29 CFR 1910.134(c)(3) - program administration
29 CFR 1910.134(e) - medical evaluation
29 CFR 1910.134(e)(7) - additional medical evaluations
29 CFR 1910.134(f) - fit testing
29 CFR 1910.134(k) – training
29 CFR 1910.134(h)(2) – respirator storage
29 CFR 1910.134(h)(3) - cylinder inspection

29 CFR 1910.134(h)(3)(iii) – SCBA inspection
29 CFR 1910.134(h)(3)(iv) – maintenance
29 CFR 1910.134(i)(1) – air quality

Point(s) of Contact: _____
(First and Last names, no groups or committees)

Status of Corrective Action: _____
(e.g., Scheduled for completion by MM/DD/YY; Completed on MM/DD/YY; Funding requested, scheduled for completion by...; Preliminary planning, scheduled for completion by...)

Facility Name: Reserved for the final report
Facility Category: Reserved for the final report

PERSONAL PROTECTIVE EQUIPMENT - PPE

Finding Number: PPE-07-003

Finding: Air purifying respirators (APRs) are provided to employees without hazard evaluations, medical clearance, fit tests, or training on APR use, storage, and maintenance.

Repeat Finding: No

Recurring Issue: No

Safety RAC: 3

Discussion: Two powered APRs and a supply of filter cartridges are stored in the MIB alterations shop break room.

The MIB does not have a respiratory protection program (RPP). If working conditions expose employees to hazards that cannot be eliminated using engineering controls, or employees are using products or performing tasks that require the use of a respirator, a comprehensive written respiratory protection program must be established and implemented.

The written program must include procedures governing the use and selection of respirators, as well as the care and storage of respirators. The program must also provide for surveillance of work area conditions, and be evaluated periodically to maintain program effectiveness. Training, fit tests, and medical evaluations are required for all personnel who wear APRs.

An individual must be designated as the RPP administrator to oversee the training necessary to carry out the requirements detailed in the written RPP. The regulations require that the administrator “be a suitably trained program administrator.”

Engineering Controls – If working conditions expose employees to an environment above an OSHA permissible exposure limit (PEL) that cannot be eliminated by use of engineering controls, or employees are using products or performing tasks that require the use of a respirator, a comprehensive written respiratory protection program must be established and implemented. However, if engineering controls can eliminate employee exposure to an environment above a PEL, OSHA requires that those controls be implemented.

OSHA requires that engineering controls be implemented if they will eliminate employee exposure to an environment above an OSHA Permissible Exposure Limit (PEL). For example, employees operating heavy equipment are routinely exposed to dust levels above the PEL. If exposure above the PEL could be eliminated by spraying water on the ground or by fully enclosed air conditioned cabs outfitted with high-efficiency particulate air filters, one or the other would have to be implemented. The regulations specifically state: “In the control of those occupational diseases caused by breathing air contaminated with dusts, fogs, mists, gases, ...or vapors, the primary objective shall be to prevent atmospheric contamination. This shall be accomplished as far as feasible by accepted engineering control measures (for example, enclosure or confinement of the operation, general and local ventilation, and substitution of less toxic materials). Where effective controls are not feasible, or while they are being instituted, appropriate respirators shall be used pursuant to this section.”

Medical Evaluations - Wearing a respirator makes breathing more difficult and stresses the heart and lungs, creating a health hazard. Persons should not be assigned to tasks requiring the use of a respirator

unless they are in suitable physical condition.

OSHA requires the employer to provide a medical evaluation to determine an employee's ability to use a respirator before the employee is fit tested or required to use the respirator in the workplace. The employer must identify a physician or other licensed health care professional (PLHCP) to perform medical evaluations using a medical questionnaire or an initial medical examination that obtains the same information as the medical questionnaire. The medical evaluation must obtain the information in Sections 1 and 2, Part A of Appendix C of 29 CFR 1910.134. Medical exams must be provided to employees who give positive answers to specific questions in Section 2 of the evaluation.

The following information must be provided to the PLHCP before the PLHCP can make recommendations concerning an employee's ability to use a respirator: **1)** the type and weight of the respirator to be used; **2)** the duration and frequency of respirator use (including use for rescue and escape); **3)** the expected physical work effort; **4)** additional protective clothing and equipment to be worn; **5)** temperature and humidity extremes that may be encountered; and **6)** a copy of the written respiratory protection program and a copy of 29 CFR 1910.134.

In determining an employee's ability to use a respirator, the employer must obtain a written recommendation regarding the employee's ability to use the respirator from the PLHCP. The recommendation must provide the following information: **1)** any limitations on respirator use related to the medical condition of the employee, or relating to the workplace conditions in which the respirator will be used; **2)** the need, if any, for follow-up medical evaluations; and **3)** a statement that the PLHCP has provided the employee with a copy of the PLHCP's written recommendations.

The regulations do not specify a frequency for follow-up medical evaluations, but require that additional evaluations must be performed if any of the following occur: **1)** the employees report symptoms that are related to the ability to use a respirator; **2)** a professional health care provider (e.g., doctor, occupational health nurse) informs the employer that employees must be re-evaluated; **3)** information from the program (e.g., fit test) indicates a need for re-evaluation; or **4)** a change in workplace conditions occurs that may increase the physiological burden placed on an employee.

Training - Training provided by the employer must ensure that each employee can demonstrate knowledge of the following information: **1)** why the respirator is necessary and how improper fit, usage, or maintenance can compromise the protective effect of the respirator; **2)** the limitations and capabilities of the respirator; **3)** how to use the respirator effectively in emergency situations, including situations in which the respirator malfunctions; **4)** how to inspect, put on and remove, use, and check the seals of the respirator; **5)** the procedures for maintenance and storage of the respirator; and **6)** how to recognize medical signs and symptoms that may limit or prevent the effective use of the respirator.

Fit Tests - Employees must be fit tested to determine the proper size, and type of respirator they should wear. Refresher training and fit testing must be performed annually, or when the working conditions change in any way that may affect the use of the respirator. Records of fit tests must be maintained and include the following: the name or identification of the employee tested; the type of fit test performed; the specific make, model, style, and size of respirator tested; the date of the fit test; and the pass/fail results for qualitative fit tests (QLFTs) or the fit factor and strip chart recording or other recording of the test results for quantitative fit tests (QNFTs). Fit test records must be retained for respirator users until the next fit test is administered.

Respirator Storage - Respirators must be stored in a dirt- and dust-free environment, away from chemicals. OSHA specifically states that respirators be protected from damage, contamination, dust, sunlight, extreme temperatures, excessive moisture, and damaging chemicals. They must be packed or

stored to prevent deformation of the face piece and exhalation valve. In addition, emergency respirators must be kept accessible to the work area, stored in compartments or in covers that are clearly marked as containing emergency respirators, and stored in accordance with manufacturer instructions.

OSHA does not recommend storing respirators in sealable plastic bags after use because the respirator may be damp after use and a sealed plastic bag prevents drying and encourages microbial growth. If plastic bags are used, respirators must be allowed to dry before storage (OSHA's "Respiratory Protection Program Advisor," Q&A section).

Voluntary Use – Voluntary use is when an employee chooses to wear a respirator even though the use of the respirator is not required by the employer or any OSHA standard (e.g., the working environment exceeds a PEL). OSHA requires employers to determine if the working environment exceeds a PEL before supplying respirators for voluntary use by employees. To determine if a working environment exceeds a PEL, a personal air monitor is typically placed on an employee while performing tasks that potentially warrants use a respirator. Personal air monitors periodically pump air from near the employee's breathing zone through a filter. The filter is then analyzed for the contaminants of concern (e.g., dust, organic vapors) and compared to the applicable PEL. Air monitoring may need to be contracted to an industrial hygienist. Facilities industrial hygienist should be consulted if there is any question as to whether personal air monitoring is necessary to determine if dust masks use can be considered voluntary.

Employers may allow employees to use respirators voluntarily, if the employer first determines that the respirator itself will not present a hazard to the employee due to misuse, other hazards or conditions in the workplace, or employee medical conditions. The employer must also ensure that the following aspects of the written RPP are implemented for voluntary respirator users: **1)** provisions and schedules for medical evaluations; **2)** procedures and schedules for cleaning, disinfecting, storing, inspecting, repairing, removing from service or discarding, and otherwise maintaining respirators. **Note that the voluntary-use RPP elements discussed in this paragraph must be written and are only required for the voluntary use of tight-fitting negative-pressure APRs (also referred to as elastomeric) and powered APRs. They do not apply to voluntary use of dust masks (also referred to as filtering facepieces).**

Lastly, the employer must provide the voluntary respiratory user with the advisory information contained in Appendix D of 29 CFR 1910.134. This appendix provides basic information on the proper use of respirators for voluntary users of respirators, thereby eliminating employee training. These precautions can be presented to the employee either verbally or in a written form.

The voluntary-use section of the regulation does not specifically state that a medical evaluation is required, but state that "an employer may provide respirators at the request of employees or permit employees to use their own respirators, if the employer determines that such respirator use will not in itself create a hazard." OSHA's Small Entity Compliance Guide for the Revised Respiratory Protection Standard (September 30, 1998) states that the employer is required to ensure that employees are medically able to wear a respirator. Wearing a respirator creates a health hazard by physiologically stressing the heart and lungs. For this reason, a medical evaluation is necessary if employees are wearing respirators, even if worn voluntarily.

On August 3, 1998, OSHA issued "Questions and Answers on the Respiratory Protection Standard." The following questions and answers are taken directly from page 17 of the document:

Question: "Are medical evaluations required for positive pressure, as well as negative pressure, respirators?" [Federal Register, January 8, 1998, page 1210]

Answer: "Yes. Clinical studies show that [even] positive pressure use can harm the employee."

Recommendation: **A)** Prohibit the use of APRs; **B)** Provide all facilities personnel with a point of contact for any concerns relating to respiratory protection.

Driving Reference(s): 29 CFR 1910.134(c)(3) - program administration
29 CFR 1910.134(e) - medical evaluation
29 CFR 1910.134(e)(5)(i) – conditions preventing a good face seal
29 CFR 1910.134(e)(7) - additional medical evaluations
29 CFR 1910.134(f)(2) - annual fit test
29 CFR 1910.134(k) – training
Small Entity Compliance Guide for the Revised Respiratory Protection Standard (OSHA, September 30, 1998)

Point(s) of Contact: _____
(First and Last names, no groups or committees)

Status of Corrective Action: _____
(e.g., Scheduled for completion by MM/DD/YY; Completed on MM/DD/YY; Funding requested, scheduled for completion by...; Preliminary planning, scheduled for completion by...)

Facility Name: Reserved for the final report
Facility Category: Reserved for the final report

RADIATION - RAD

Finding Number: RADIATION-07-001

Finding: The security screening and mail checking X-Ray machines in the Interior Complex are currently not certified.

Repeat Finding: N/A

Recurring Issue: N/A

Safety RAC: 2

Discussion: The security entrance and mail room have X-Ray machines used to screen items brought into the building and packages. The District of Columbia Department of Public Health is authorized by the Nuclear Regulation Commission for the regulation of selected ionizing radiation sources such as X-ray machines. The Department of Public Health regulations require that X-ray machines must be evaluated

Recommendation: The X-ray machines need to be inspected following District of Columbia requirements.

Driving Reference(s): District of Columbia DPH X-Ray inspection requirements

Status of Corrective Action: _____
(e.g., Scheduled for completion by MM/DD/YY; Completed on MM/DD/YY; Funding requested, scheduled for completion by...; Preliminary planning, scheduled for completion by...)

Facility Name: Reserved for the final report

Facility Category: Reserved for the final report

TOXIC AND HAZARDOUS SUBSTANCES - THS

Finding Number: THS-07-001

Finding: Material safety data sheets (MSDSs) are not available for any of the water treatment chemicals, refrigerants, lubricants, or coatings used or stored in the SIB basement mechanical room.

Repeat Finding: No

Recurring Issue: No

Safety RAC: 4

Discussion: The HAZCOM Standard requires an MSDS for each hazardous chemical used and stored to be readily available to employees in their workplace. Retailers are required to provide a copy of an MSDS upon request or provide instructions to the purchaser on how to obtain one. Missing MSDSs can be obtained from manufacturers or suppliers on the Internet. The University of Vermont has one of many websites (www.hazard.com) where MSDSs can be obtained.

“Right-to-Know Centers” are an excellent means to increase employee awareness of MSDSs and of their availability. A Right-to-Know Center typically consists of a poster explaining how to read an MSDS and a rack for the visible storage of an MSDS binder and any other safety booklets.

OSHA also requires the employer maintain chemical exposure information for the duration of employment plus 30 years. MSDSs concerning the identity of a substance or agent need not be retained for any specified period as long as some record of the identity (chemical name, if known) of the substance or agent, where it was used, and when it was used is retained for at least 30 years. However, the CASHE Team recommends maintaining the MSDSs to ensure products that contain more than one chemical are not overlooked.

Recommendation: **A)** Inventory all hazardous materials (be sure to include often-forgotten hazardous materials such as welding rods and concrete mix); **B)** Obtain MSDSs for all hazardous materials used and stored at facility; **C)** Organize MSDSs applicable for the mechanical room and place them in “Right-to-Know Centers” to ensure that they are available to employees in their workplace; [**Note:** Place MSDSs for products that are no longer used in a separate binder that must be maintained for 30 years.] **D)** Instruct credit card holders to request MSDSs from retailers when purchasing a hazardous material; and **E)** Assign supervisors the responsibility for maintaining hazardous material inventories and MSDSs at mechanical and storage area.

Driving Reference(s): 29 CFR 1910.1200(g)(8) - material safety data sheet requirement
29 CFR 1910.1020(d)(1)(ii)(B) – maintaining chemical exposure information

Point(s) of Contact: _____
(First and Last names, no groups or committees)

Status of Corrective Action: _____
(e.g., Scheduled for completion by MM/DD/YY; Completed on MM/DD/YY; Funding requested, scheduled for completion by...; Preliminary planning, scheduled for completion by...)

Facility Name: Reserved for the final report

Facility Category: Reserved for the final report

TOXIC AND HAZARDOUS SUBSTANCES - THS

Finding Number: THS-07-002

Finding: Paint, possibly lead-based, in MIB mechanical areas is cracked and peeling.

Repeat Finding: No

Recurring Issue: No

Safety RAC: 3

Discussion: Due to the age of construction, the paint chips falling off the wall may contain lead. If the peeling paint contains lead, it poses a hazard to personnel.

In addition, the concentration of the lead in the paint chips may be high enough that the paint itself fails TCLP criteria, and therefore, the paint chips would be a hazardous waste.

Recommendation: **A)** Collect a sample of paint chips and analyze it for total and TCLP-lead; **B)** If the chips have a TCLP-lead concentration over 5.0 mg/L, they are a hazardous waste and must be collected and disposed of as such; and **C)** If the chips have a total lead concentration over 5,000 mg/kg, the paint is considered lead-based by EPA and HUD, and scraping and repainting of the areas must be done by a contractor who is licensed by the State for lead-based paint abatement and complies with the OSHA construction regulations for lead.

Driving Reference(s): 29 CFR 1910.1025 - lead safety
29 CFR 1910.1025(h) - lead housekeeping
29 CFR 1910.134 - respiratory protection
29 CFR 1926.62 - construction standards
40 CFR 261.24 - TCLP limit for lead

Point(s) of Contact: _____
(First and Last names, no groups or committees)

Status of Corrective Action: _____
(e.g., Scheduled for completion by MM/DD/YY; Completed on MM/DD/YY; Funding requested, scheduled for completion by...; Preliminary planning, scheduled for completion by...)

Facility Name: Reserved for the final report

Facility Category: Reserved for the final report

TOXIC AND HAZARDOUS SUBSTANCES - THS

Finding Number: THS-07-003

Finding: Friable asbestos-containing materials (ACM) are located throughout the Interior Complex.

Repeat Finding: No

Recurring Issue: No

Safety RAC: 3

Discussion: Asbestos exists throughout the MIB and SIB, including pipe and tank insulation, mastic, and floor tiles. This asbestos has reportedly been surveyed, and is abated as portions of the buildings are renovated or where repairs are required. Most friable asbestos has been adequately coated or covered to prevent release; however, pipe chases with limited access contain friable asbestos. At the rear of the MIB shop next to room 331, an unsealed doorway provides direct access to a pipe chase. Behind the doorway, friable asbestos is falling to the floor.

At the trash compactor near the MIB "B Ramp" loading dock, asbestos insulation on pipes over the compactor is becoming damaged while working with trash containers and has become friable.

In the MIB mechanical room (Room B266), asbestos on motor M-3-49 and tank T-1-9 has become disturbed and friable.

OSHA requires that employers ensure that no employee is exposed to an airborne concentration of asbestos in excess of 0.1 fiber per cubic centimeter (f/cc) of air as an 8-hour time-weighted average (TWA) or 1.0 f/cc of air averaged over 30 minutes, unless they are protected and trained as described in 29 CFR 1910.1001(g), (h), and (j)(7). All asbestos work in the MIB and SIB is performed by contractors.

Recommendation: A) Seal all areas where friable asbestos exists to reduce employee exposure; and B) abate asbestos on the pipes near the trash compactor.

Driving Reference(s): 29 CFR 1910.1001 - asbestos removal

Point(s) of Contact: _____

(First and Last names, no groups or committees)

Status of Corrective Action: _____

(e.g., Scheduled for completion by MM/DD/YY; Completed on MM/DD/YY; Funding requested, scheduled for completion by...; Preliminary planning, scheduled for completion by...)

Facility Name: Reserved for the final report

Facility Category: Reserved for the final report

TOXIC AND HAZARDOUS SUBSTANCES - THS

Finding Number: THS-07-004

Finding: The MIB main compressor room (near column D22) contains an unlabeled 55-gallon plastic drum.

Repeat Finding: No

Recurring Issue: No

Safety RAC: 4

Discussion: The HAZCOM Standard requires that all containers be labeled as to content, appropriate hazard warnings (e.g., flammable, corrosive), and target organ effects (e.g., skin irritant, inhalation hazard). Unlabeled containers are typically caused by the original label becoming detached or the transfer of material to an unlabeled container. Under the HAZCOM Standard, an unlabeled container is only appropriate if an employee transfers the chemical from a labeled container to an unlabeled container for his or her immediate use.

The product names on labels must be identical to the name on the product's MSDS. This labeling enables employees to rapidly locate the MSDS. For example, labeling a container "SOLVENT" is not adequate because many different types of solvents are used in the workplace. The simplest method for providing proper labeling is attaching a photocopy of the MSDS to the container using clear packaging tape to protect the MSDS.

A label that only states a generic product name (e.g., "SOLVENT," "PICNIC TABLE PAINT") does not communicate the product's hazard warnings or target organ effects. Examples of hazard warnings are FLAMMABLE, COMBUSTIBLE, POISON, and CORROSIVE. Examples of target organ effects are FATAL IF SWALLOWED, SKIN IRRITANT, and INHALATION HAZARD. Hazard warnings and target organ effects can typically be found in capital letters at the bottom of the original container's label. For example, proper labeling for a container in which antifreeze is stored should be labeled "ANTIFREEZE - POISON - HARMFUL OR FATAL IF SWALLOWED."

Proper labeling requirements also apply to water containers. Water containers and tanks should be labeled "POTABLE WATER" or "NONPOTABLE WATER," according to usage. Water containers must be labeled to ensure that emergency response personnel know that the container's contents are not hazardous, and that a HAZMAT response team is not deployed, if the water container develops a leak or is involved in an accident while in transport.

Portable containers of gasoline, diesel fuel, and chain saw fuel need not have hazard warnings and target organ effects indicated on them because safety and health hazards are common knowledge. However, the contents of every container of fuel must be noted on the container itself or on a tag secured to the container.

Tanks of gasoline and diesel fuel (e.g., truck-mounted tanks, aboveground storage tanks) should be labeled "GASOLINE - FLAMMABLE" and "DIESEL - COMBUSTIBLE," accordingly.

In addition to HAZCOM Standard requirements, RCRA inspectors may consider unlabeled or improperly labeled containers uncharacterized hazardous waste. It would be difficult to convince an inspector that the content of a container is not waste if no one knows exactly what is in the container. In addition, when

facility personnel cannot readily identify the contents of an unlabeled container, the material is typically not used and eventually becomes hazardous waste. Unknown materials must undergo costly testing to determine characteristics prior to disposal.

Recommendation: Properly label all containers as to content, appropriate hazard warnings, and target organ effects.

Driving Reference(s): 29 CFR 1910.1200(f)(5)(i-ii) - hazardous material labeling

Point(s) of Contact: _____

(First and Last names, no groups or committees)

Status of Corrective Action: _____

(e.g., Scheduled for completion by MM/DD/YY; Completed on MM/DD/YY; Funding requested, scheduled for completion by...; Preliminary planning, scheduled for completion by...)

Facility Name: Reserved for the final report

Facility Category: Reserved for the final report

TOXIC AND HAZARDOUS SUBSTANCES - THS

Finding Number: THS-07-005

Finding: A written hazard communication (HAZCOM) program has not been developed for the Interior Complex.

Repeat Finding: No

Recurring Issue: No

Safety RAC: 4

Discussion: The written program, or HAZCOM plan, must include the following information: **1)** a description of how general and hazard-specific training will be provided (e.g., video tape, tailgate, classroom); **2)** designation of specific personnel responsible for ensuring containers are labeled; **3)** clarification that portable containers into which hazardous materials have been transferred are exempt from labeling requirements **only when intended for immediate use by the employee who performs the transfer**; **4)** a list of the chemicals known to be present at the facility, using chemical names as they appear on their MSDS; **5)** a description of methods used to inform MIB employees of the hazards of nonroutine tasks [**Note:** The HAZCOM regulation specifically states that the plan include “the **methods** the employers will use to inform employees of nonroutine tasks.” Simply stating in the plan that the employees are to be trained is not sufficient. OSHA has clarified in its guidance to field personnel that the written HAZCOM plans are to identify how the training will be provided to employees (e.g., classroom, tailgate, video)]; **6)** a discussion concerning the ways in which employees will be informed of the hazardous chemicals brought into the facility by a contractor performing work in or around the facility, and the person responsible for providing this information; **7)** the person responsible for alerting contractors of hazardous chemicals stored or used by Department personnel in work spaces where contractors’ employees are working; **8)** methods used to provide employees with MSDS information while in the field; **9)** action to be taken if a specific MSDS is missing and who is responsible for that action; **10)** a requirement that names used on container labels be consistent with product names used on the MSDSs, and that appropriate hazard warnings (e.g., flammable) and target organ effects (e.g., inhalation hazard) also be on the labels; **11)** a clarification that labeled names must be identical to the product name on MSDSs, allowing employees to cross-reference the label with the MSDS so that it can be easily located; **12)** a statement that the HAZCOM plan is applicable to all employees, including seasonal and volunteer employees who use or handle hazardous materials; and **13)** designation of personnel responsible for providing general and hazard-specific training.

The following issues, although not required in a HAZCOM plan, should be included to clarify its content: **1)** Instructions for bankcard holders to obtain and forward MSDSs to their supervisors for filing; and **2)** Exclusions of common consumer products from the HAZCOM Process.

The HAZCOM plan should address all facilities and operations. Reviewing the plan annually will ensure it addresses changing facility operations. As new materials are brought in, personnel changes occur, and operations change, the HAZCOM plan must be revised to reflect the changes.

A sample HAZCOM plan that addresses all required information can be obtained via e-mail from Ken Morin at ken_morin@blm.gov. The sample plan was written using OSHA’s “Guidance for Conducting HAZCOM Inspections.” As a result, the sample plan addresses issues that are not clearly defined in the regulations.

Recommendation: **A)** Develop a HAZCOM plan that includes all required information and train employees on its content; **B)** Review the plan annually to ensure it remains current and addresses all MIB and SIB operations; and **C)** Implement the plan at parts of the facilities.

Driving Reference(s): 29 CFR 1910.1200(e) - written HAZCOM program

Point(s) of Contact: _____
(First and Last names, no groups or committees)

Status of Corrective Action: _____
(e.g., Scheduled for completion by MM/DD/YY; Completed on MM/DD/YY; Funding requested, scheduled for completion by...; Preliminary planning, scheduled for completion by...)

Facility Name: Reserved for the final report

Facility Category: Reserved for the final report

TOXIC AND HAZARDOUS SUBSTANCES - THS

Finding Number: THS-07-006

Finding: The MIB print plant has not been monitored for potential air contaminants nor its controls evaluated.

Repeat Finding: No

Recurring Issue: No

Safety RAC: 3

Discussion: Hazardous chemicals are used in the print plant for printing and binding operations. Chemical odors were evident during the audit, even though printing and binding operations were not actively being performed. Selected hazardous chemicals are also flammable liquids. The binding machine has a local exhaust ventilation system; however its exhaust duct downstream from the air cleaning unit leaks contaminated air back into the Print Plant. Print Plant employees have complained of air quality issues.

OSHA requires employers to evaluate the working environment and institute engineering controls that control air contaminants below occupational exposure limits.

Recommendations: Evaluate the air quality and engineering controls to determine if hazardous chemicals are being adequately controlled.

Driving Reference(s): 29 CFR 1910.1000(e) –engineering controls

Point(s) of Contact:
(First and Last names, no groups or committees)

Status of Corrective Action:
(e.g., Scheduled for completion by MM/DD/YY; Completed on MM/DD/YY; Funding requested, scheduled for completion by...; Preliminary planning, scheduled for completion by...)

Facility Name: Reserved for the final report

Facility Category: Reserved for the final report

WALKING-WORKING SURFACES - WWS

Finding Number: WWS-07-001

Finding: Elevated working surfaces are not equipped with proper railings.

Repeat Finding: No

Recurring Issue: No

Safety RAC: 3

Discussion: Elevated work surfaces where a fall of 4 feet or more to a lower level exists do not have standard railings in the following locations:

- SIB inner stairwell landings (handrail height is 36" high)
- SIB auditorium outdoor exit stairs and top landing (handrail height is 34" high)
- SIB mechanical room (railing along upper level is 32" high)
- MIB "B Ramp" loading dock (trash compactor's elevated ramp's railing is 34" high, and are not present on both sides of the area directing in front of the compactor loading area)
- MIB bailer room (Room B019) (rear railing to prevent a fall to a stairwell is broken)
- MIB sump room (wall around the sump pit is 24" high)
- MIB south penthouse roof terrace (roof-top exit route to the secondary exit travels by parapet walls that are 24" high)
- MIB M-Floor (platform stairs near tank T-1-5 has no stair railings)
- MIB outdoor stairs to Upper Penthouse (stair railing has no intermediate railing)
- MIB cardboard disposal chute (no railing or other safety device to prevent falling into chute)
- MIB elevator pits (the railings around the pit openings have no intermediate railings, toe boards the handrails are 36" high, and are not of substantial construction)

Open-sided platforms, including stairs 4 or more feet above the ground, must be provided with standard railings. Handrails must be designed and installed so that the railing height is 42" and will support a load of at least 200 pounds applied in any direction at any point on the rail. OSHA also requires that the intermediate railing should be approximately halfway between the top rail and the platform's floor. Open-sided stairs handrail heights are required to be 34" with a intermediate railing and toe board.

Toe boards are intended to prevent items from being kicked over or from otherwise falling and creating a hazard. Toe boards are required by OSHA wherever persons can pass beneath, or where there is moving machinery or equipment below. The toe board must be 4 inches nominal in vertical height from its top edge to the level of the floor, platform, runway, or ramp; and must be securely fastened in place and with not more than 1/4-inch clearance above floor level.

Recommendation: Install standard railings in the identified areas.

Driving Reference(s): 29 CFR 1910.23(e) – railing specifications

Point(s) of Contact: _____
(First and Last names, no groups or committees)

Status of Corrective Action: _____

(e.g., Scheduled for completion by MM/DD/YY; Completed on MM/DD/YY; Funding requested, scheduled for completion by...; Preliminary planning, scheduled for completion by...)

Facility Name: Reserved for the final report

Facility Category: Reserved for the final report

WALKING-WORKING SURFACES - WWS

Finding Number: WWS-07-002

Finding: A fall protection program has not been instituted.

Repeat Finding: N/A

Recurring Issue: N/A

Safety RAC: 2

Discussion: Authorized employees are exposed to fall hazards from the MIB and SIB roofs and other elevated work surfaces. For example, auditors observed personnel working in piping in the MIB main compressor room more than 7 feet off the ground. Also, personnel occasionally need to access speakers in an area above the stage in the Yates Auditorium that does not have a ceiling designed to support the weight of a person. Falls can result in fatalities or catastrophic injuries and can be through wall openings or floor openings.

OSHA's general industry standard requires that standard railings and floor coverings be used when a fall of 4 feet or more exists. OSHA's construction standard requires fall protection when a fall of 6 feet or more exists. The fall protection requirements address various fall situations and provide fall protection options. For example, in fixed locations where employees regularly work, standard railings and floor opening covers are applicable. For temporary fall conditions that may be created during construction activities, personal fall protection is the preferred option. Personal fall protection consists of a full body harness, lanyard, and rated anchorage point. Employees need to be trained on the program.

Recommendation: Develop a fall protection program.

Driving Reference(s): 29 CFR 1926.500-510 – fall protection

Point(s) of Contact: _____
(First and Last names, no groups or committees)

Status of Corrective Action: _____
(e.g., Scheduled for completion by MM/DD/YY; Completed on MM/DD/YY; Funding requested, scheduled for completion by...; Preliminary planning, scheduled for completion by...)

Facility Name: Reserved for the final report

Facility Category: Reserved for the final report

WALKING-WORKING SURFACES - WWS

Finding Number: WWS-07-003

Finding: Ladders are not being frequently inspected in the Interior Complex.

Repeat Finding: N/A

Safety RAC: 3

Discussion: Many wood step ladders and fiberglass step ladders are present in each of the buildings. The ladders are in generally good repair, however, loose steps were observed during the audit on a few of the wood ladders. For example, a wood step ladder in MIB M-Floor 6 east, has a broken rail connector. There is no ladder inspection program.

OSHA requires ladders to be maintained in good condition at all times. Joints between the steps and side rails must be tight, all hardware and fittings securely attached, and the movable parts must operate freely without binding or undue play. OSHA requires wood ladders be inspected monthly. A good management practice is to inspect all ladders. Ladders with defects must be withdrawn from service for repair or destruction. Damaged ladders should be labeled "DANGEROUS, DO NOT USE." Care should be taken that employees do not use damaged ladders or take them home for personal use.

Recommendation: **A)** Inspect all ladders on a monthly basis; **B)** Remove the damaged ladders from service and tag them as dangerous for use; **C)** Repair the ladders; or **D)** Throw them away.

Driving Reference(s): 29 CFR 1910.25(d)(1)(x) – wooden ladder inspection and removal
29 CFR 1910.25(d)(1)(i) and (x) - removal of defective ladders from service
29 CFR 1910.26(a)(5)(vii) – out-of-service metal ladders

Point(s) of Contact: _____
(First and Last names, no groups or committees)

Status of Corrective Action: _____
(e.g., Scheduled for completion by MM/DD/YY; Completed on MM/DD/YY; Funding requested, scheduled for completion by...; Preliminary planning, scheduled for completion by...)

Facility Name: Reserved for the final report

Facility Category: Reserved for the final report

WALKING-WORKING SURFACES - WWS

Finding Number: WWS-07-004

Finding: Tripping and other walking hazards exist in several locations.

Repeat Finding: No

Recurring Issue: No

Safety RAC: 3

Discussion: Tripping hazards exist in the following locations:

- SIB, Mechanical Room, Electrical Supply Area: 18 old electrical conduits that have been sealed protrude approximately 8" into the walking area
- SIB, Mechanical Room, hot water tank area: A floor drain cover is missing, leaving a floor depression approximately 8" in diameter in the floor
- SIB, Guard Office: The floor strip at the office door is damaged, creating a tripping hazard

Head and body obstruction hazards exist in the following locations:

- MIB M-Floor, outside of Verizon main frame room: Cable support racks protrude into the aisle at approximately 5'8" high and are difficult to see

OSHA requires that walking and working surfaces be kept free of tripping hazards and clear of obstructions that could create a hazard.

Recommendation: Replace the floor with one that is supported to provide a firm walking surface.

Driving Reference(s): 29 CFR 1910.22(b) - walking surfaces

Point(s) of Contact: _____

(First and Last names, no groups or committees)

Status of Corrective Action: _____

(e.g., Scheduled for completion by MM/DD/YY; Completed on MM/DD/YY; Funding requested, scheduled for completion by...; Preliminary planning, scheduled for completion by...)

Facility Name: Reserved for the final report

Facility Category: Reserved for the final report

WALKING-WORKING SURFACES - WWS

Finding Number: WWS-07-005

Finding: The fixed ladder into the MIB modernized elevator pit is not constructed properly.

Repeat Finding: No

Recurring Issue: No

Safety RAC: 3

Discussion: The fixed ladder into the MIB elevator pit only provides 22" of clearance from the ladder to the circular floor opening. The near vertical ladder has been constructed with stair-like treads that are 11" apart and 6-1/2" deep.

OSHA fixed ladder regulations require a minimum of 30" of clearance on the climbing side. It may be necessary to modify the ladder and floor opening.

Recommendation: Modify the ladder and floor opening so that they meet OSHA requirements.

Driving Reference(s): 29 CFR 1910.27(c)(1)– ladder climbing side clearance

Point(s) of Contact: _____
(First and Last names, no groups or committees)

Status of Corrective Action: _____
(e.g., Scheduled for completion by MM/DD/YY; Completed on MM/DD/YY; Funding requested, scheduled for completion by...; Preliminary planning, scheduled for completion by...)

Facility Name: Reserved for the final report

Facility Category: Reserved for the final report

WALKING-WORKING SURFACES - WWS

Finding Number: WWS-07-006

Finding: The stairs to the SIB Mechanical Room upper platform are not constructed properly.

Repeat Finding: No

Recurring Issue: No

Safety RAC: 3

Discussion: The stairs to the small platform adjacent to the hot water tank area is a metal ladder that has been placed at a 45-degree angle. A metal pipe handrail without an intermediate railing and toe board is located on each side of the ladder.

OSHA regulations require that fixed stairs must be installed at angles to the horizontal of between 30 and 50 degrees. OSHA also stipulates that rise height and tread width are to be uniform throughout any flight of stairs. Table D-1 in 29 CFR 1910.24(e) provides rise and tread dimensions that will produce a stairway within the permissible angle range. A standard railing on each open side is required.

Recommendation: Reconstruct the stairway so that they meet OSHA requirements.

Driving Reference(s): 29 CFR 1910.24(e) – angle of stairway rise
29 CFR 1910.24(f) – stair treads and risers

Point(s) of Contact: _____
(First and Last names, no groups or committees)

Status of Corrective Action: _____
(e.g., Scheduled for completion by MM/DD/YY; Completed on MM/DD/YY; Funding requested, scheduled for completion by...; Preliminary planning, scheduled for completion by...)

Facility Name: Reserved for the final report

Facility Category: Reserved for the final report

WALKING-WORKING SURFACES - WWS

Finding Number: WWS-07-007

Finding: Unguarded sprinkler heads in the MIB library pose a hazard to individuals and to the books stored in it.

Repeat Finding: No

Recurring Issue: No

Safety RAC: 2

Discussion: The fire sprinkler system in the library is run through the center of each aisle of library books. The majority of the sprinkler heads are approximately six feet three inches (75 inches) above the floor. A person not paying attention or who quickly turns around may easily bang their head into sharp edges of a sprinkler head. A severe cut and accidental discharge of the sprinkler head could occur. Some sprinkler heads have metal cages around them to protect individuals from their sharp edges and prevent an accidental discharge. However, the majority of the sprinkler heads in the library are unguarded. An accidental discharge of a sprinkler head would obviously result in numerous books getting wet.

OSHA regulations require that aisles be kept clear with no obstruction across or in aisles that could create a hazard. In addition, an exit route must meet the following minimum height and width requirements: (1) ceiling of an exit route must be at least seven feet six inches high; and any projection from the ceiling must not reach a point less than six feet eight inches from the floor.

It is not possible to relocate the sprinkler piping because the library ceiling is so low.

Recommendation: Install cages around all sprinkler heads in the library that are lower than 80 inches from the floor

Driving Reference(s): 29 CFR 1910.22(b) – no obstruction in aisles that could create a hazard
29 CFR 1910.36(g)(1) – exit route minimum height
NFPA 101 (2003) -7.1.5.1 – headroom projections

Point(s) of Contact: _____

(First and Last names, no groups or committees)

Status of Corrective Action: _____

(e.g., Scheduled for completion by MM/DD/YY; Completed on MM/DD/YY; Funding requested, scheduled for completion by...; Preliminary planning, scheduled for completion by...)

Facility Name: Reserved for the final report

Facility Category: Reserved for the final report

WALKING-WORKING SURFACES - WWS

Finding Number: WWS-07-008

Finding: Stagnant, potentially sewage contaminated water, accumulates in the elevator sumps in the Main and South Interior Buildings.

Repeat Finding: No

Recurring Issue: No

Safety RAC: 3

Discussion: One of the elevator pits inspected by the CASHE Team had a strong musty odor from the stagnant water in its sump. The elevator maintenance staff and NBC personal both stated that the pit periodically flood with rain water. In addition, drinking water from a water line break or sewage from a backed up toilet flows into the pit.

A spill of elevator hydraulic fluid into South Interior Building mechanical room pit occurred during the CASHE audit. This incident illustrates the need to be able determine if the fluid in the pit can be discharged into the sanitary sewer. One of the elevator pits in the Main Interior Building has a sump pump installed in it. If this pit was to receive a hydraulic fluid spill, the petroleum product would have automatically been discharged into the sanitary sewer in violation of pretreatment standards. Hand-off-automatic control switches are necessary to allow the sump pumps to be left in the off position and then put in a hand or automatic position depending on the circumstance. [Note: Power is improperly provided to the pump by an extension cord. This is documented in a separate finding.]

A secondary containment curb could be installed around the elevator sumps to prevent elevator hydraulic fluid from flow into the sump. The curb height would have to be sufficient to allow the hydraulic fluid to collect on the elevator pit floor. The curb would allow water to flow over it in the event of a flood or water line break. A lockable drain valve in the curb would allow water contained by it to flow into the sump. This drain valve would have to be kept closed and locked and only opened to drain water/sewage into the sump for discharge into the sanitary sewer system.

OSHA requires all places of employment, passageways, storerooms, and service rooms shall be kept clean and orderly and in a sanitary condition. The floor of every workroom shall be maintained in a clean and, so far as possible, a dry condition. Sewage is potentially contaminated with a variety of blood borne pathogens. Providing a means to pump the elevator sumps out eliminates a variety of potential health issues and regulatory requirements.

Recommendation: **A)** Pump the stagnant water that has accumulated in the elevator sumps out; **B)** If sanitary sewer piping is easily accessible, permanently install sump pumps in the elevator pit sumps without them; and; **C)** Provide hand-off-automatic operational control switches on the pumps so that they are left in the off position, but may be manually or automated operated as appropriate; or **D)** Construct a curb with a lockable valve in it around the sumps of a height sufficient to contain the largest possible hydraulic fluid leak on the floor, but allows water to flow over it and into the sump; or **E)** Develop a procedure utilizing a portable pump that allows stagnant water to be removed from the sumps.

Driving Reference(s): 29 CFR 1910.22(b) – walking working surfaces shall be keep in a clean and sanitary condition
29 CFR 1910.1030 – blood borne pathogens

Point(s) of Contact: _____
(First and Last names, no groups or committees)

Status of Corrective Action: _____
(e.g., Scheduled for completion by MM/DD/YY; Completed on MM/DD/YY; Funding requested, scheduled for completion by...; Preliminary planning, scheduled for completion by...)

Facility Name: Reserved for the final report

Facility Category: Reserved for the final report

WELDING, CUTTING, AND BRAZING – WCB

Finding Number: WCB-07-001

Finding: Welding gas cylinders are not stored properly at the MIB and SIB.

Repeat Finding: No

Recurring Issue: No

Safety RAC: 3

Discussion: One each oxygen and acetylene cylinders are stored together in the SIB fire pump room. According to NBC personnel the outfit is rarely used. In addition, the welding torches were not equipped with flash-back protection, and the valve for the acetylene cylinder was stored open. Two each oxygen and acetylene cylinders are stored together in the MIB M-Floor (3 West). The cylinders are stored adjacent to each other, the rope securing the oxygen cylinders is too low, and the rope securing the acetylene is around the neck of the cylinders. Lastly, one each oxygen and acetylene are stored on welding cart on the MIB M-Floor (3 West). The cylinders are not hooked up and are not scheduled for use. Because they are not being used daily, the cylinders are considered in storage.

OSHA prohibits oxygen cylinders from being stored near fuel-gas cylinders (e.g., acetylene), unless the welding gas cylinders have the welding leads attached and they are “ready for use.” A welding cart with the gas cylinders capped and covered with dust and cob webs would not be considered “ready for use.” Cylinders can be left on the cart when the equipment is being used periodically because the act of separating the cylinders poses a risk as well.

OSHA requires that oxygen cylinders be stored at least 20 feet from fuel-gas or combustible materials, especially oil or grease, or be separated by a noncombustible barrier at least 5 feet high with a fire resistance rating of at least 30 minutes. All compressed gas cylinders must be stored in an area where the ventilation is adequate to dissipate escaping gas in the event of a leaking cylinder; they may be stored outdoors. Cages with solid metal roofs and locking wire cage side panels are readily available from most industrial equipment suppliers, but are not required.

OSHA regulations require that all handling, storage, and use of compressed gas cylinders be conducted in accordance with the Compressed Gas Association’s (CGA) Pamphlet P-1-2000 (available from CGA, telephone 703-788-2700). The CGA pamphlet states that all cylinders must be secured (e.g., chained) in an upright position to prevent them from falling, and that all cylinder valves be protected from damage.

Proper cylinder storage is typically accomplished by securing cylinders around the shoulder (below the valve neck). The CGA requirement to securely store cylinders and protect cylinder valves from damage is interpreted by the CASHE Team as a prohibition against securing a cylinder around its neck or valve. Securing a cylinder around its neck can damage the valve or allow the cylinder to slip out from under the chain, strap, or ring holding it in place. In addition, securing a cylinder across its middle or lower, or too loosely, will allow the cylinder to tip if it is jolted.

The CGA pamphlet also states that, at gas manufacturing facilities, nesting cylinders is considered a safe manner of storage. However, nesting may not be adequate in seismically active areas, and additional measures, such as chaining and strapping, may be required to prevent the cylinders from falling. Appendix D of the pamphlet illustrates proper cylinder nesting. Nesting depends on a 3-point contact system (i.e., all cylinders must be in contact at three points - either with a secure wall or with another

cylinder). Personnel will need to ensure that when a cylinder is removed from a nested set, the remaining cylinders must be readjusted to regain the 3-point contact before the strap or chain is secured in place.

In addition, OSHA requires that manifold systems be equipped with flash-back protection to prevent oxygen from flowing into the fuel-gas (e.g., acetylene) system or fuel from flowing into the oxygen system. A manifold is a multi-cylinder system with lateral outlets for more than one fuel supply or oxygen supply.

Flash-back protection is not required on single unit systems, such as those in use at the facility; however, the CASHE Team recommends using flash-back protection devices as a best management practice to prevent the gases from mixing.

Recommendation: **A)** If cylinders are not intended for regular use, dispose of them by giving them to the local gas supplier; **B)** If cylinders are intended for regular use, place them on a welding cart, keep the leads on, and store the cart so that it is ready for use; **C)** If the cylinders are being stored, separate them by at least 20 feet and chain them below the shoulder to a wall with the valve caps on; **D)** Purchase UL-listed flash-back protection devices and install them on the welding torch; or **E)** Purchase a new torch equipped with flash-back protection and dispose of the old torch.

Driving Reference(s): 29 CFR 1910.253(b)(4) – welding gas storage
29 CFR 1910.101(b) – compressed gas storage
CGA P-1-2000 – cylinder storage
29 CFR 1910.253(e)(5)(v) - hose and hose connections
29 CFR 1910.253(e)(3)(ii)(C)(3) - flash-back protection for manifold systems

Point(s) of Contact: _____
(First and Last names, no groups or committees)

Status of Corrective Action: _____
(e.g., Scheduled for completion by MM/DD/YY; Completed on MM/DD/YY; Funding requested, scheduled for completion by...; Preliminary planning, scheduled for completion by...)

Facility Name: Reserved for the final report
Facility Category: Reserved for the final report

WELDING, CUTTING, AND BRAZING - WCB

Finding Number: WCB-07-002

Finding: The welding exhaust ventilation systems in the MIB M-Floor and MIB welding shop are not adequate to prevent those gases from entering the Main Interior Building ventilation system or to effectively protect the welder.

Repeat Finding: No

Safety RAC: 3

Discussion: A window has been removed by the modernization contractor and a circular fan installed in front of the open window to provide fresh air in the mezzanine. Ventilation duct work for the seventh floor is located next to this fan and open window.

A squirrel cage fan has been installed near the ceiling of the welding shop to exhaust fumes from it. The fan exhausts into the main compressor room. The fan intake is so high that welding fumes they are drawn through the welder's breathing zone, exposing the welder to the fumes the ventilation system was designed to eliminate. Welding fumes from both locations could be drawing into the MIB ventilation system.

OSHA regulations require that mechanical ventilation be provided if employees are welding or cutting materials such as zinc, zinc-bearing compounds, or stainless steel. A common zinc-bearing material is galvanized metal because the galvanizing coating is primarily zinc. Lead may also be present as a contaminant in the galvanizing compound. When galvanized metal is welded or cut, potentially toxic fumes are created from the heating of the zinc or lead compounds in the metal. OSHA requires mechanical ventilation to be provided as close as possible to the galvanized or stainless steel being welded or cut to reduce the potentially toxic fumes from being in the welder's breathing zone (i.e., their mouth and nose). However, mechanical ventilation is not required if galvanized metals are only cut or welded outdoors.

Regardless of the metals being welded, mechanical ventilation is required if the space in which welding is conducted is less than 10,000 cubic feet per welder or the ceiling is less than 16 feet high. The ceiling in the shop was approximately 12 feet high therefore mechanical ventilation that complies with OSHA's ventilation standards is required. Neither location meets this criteria.

OSHA's ventilation standards require that local mechanical exhaust ventilation systems meet one of the following: **1)** a freely moveable hood placed by the welder, as near as practical to the work being welded, with an air flow rate sufficient to maintain a velocity in the direction of the hood of 100 linear feet per minute in the welding zone when the hood is at its most remote distance from the point of welding; or **2)** a fixed enclosure with a top and not less than two sides that surrounds the welding or cutting operations and has an airflow rate sufficient to maintain a velocity away from the welder of not less than 100 linear feet per minute. A table in the regulations provides additional details on the minimum airflow and duct diameters (for option 1 described above) depending on the distance the torch or arc is from the material being welded.

Recommendation: **A)** Require the modernization contractor to purchase a portable self contained compliant welding gas exhaust unit with a moveable hood that may be placed by the welder as close to the work being welded as possible; and **B)** Purchase a portable self-contained compliant welding gas exhaust unit with a moveable hood that may be placed by the welder as close to the work being welded as

possible for the Welding Shop.

Driving Reference(s): 29 CFR 1910.252(c)(2) - ventilation for general welding and cutting
29 CFR 1910.252(c)(3) – local exhaust hoods and booths
29 CFR 1910.252(c)(6)(ii) – ventilation for welding or cutting zinc indoors

Point(s) of Contact: _____
(First and Last names, no groups or committees)

Status of Corrective Action: _____
(e.g., Scheduled for completion by MM/DD/YY; Completed on MM/DD/YY; Funding requested, scheduled for completion by...; Preliminary planning, scheduled for completion by...)

Facility Name: Reserved for the final report
Facility Category: Reserved for the final report

WELDING, CUTTING, AND BRAZING – WCB

Finding Number: WCB-07-003

Finding: Oxygen, acetylene, and other compressed gas cylinders are not stored properly in the Interior Complex.

Repeat Finding: No

Recurring Issue: No

Safety RAC: 2

Discussion: Compressed gases are stored in the MIB M-Floor (two locations) and MIB main compressor room (two locations), in the SIB attic, and in the SIB fire pump room.

A welding cart with oxygen and acetylene cylinders with caps in place was found in the MIB M-Floor. Two oxygen and two acetylene cylinders with caps in place tied to a column on the mezzanine were also found by the CASHE Team. All of these cylinders are believed to have been left by the modernization contractor.

OSHA prohibits oxygen cylinders from being stored near fuel-gas cylinders (e.g., acetylene), unless the welding gas cylinders have the welding leads attached and they are “ready for use.” A welding cart with the gas cylinders capped and covered with dust and cob webs would not be considered “ready for use.” Cylinders can be left on the cart if the equipment is being used periodically because the act of separating the cylinders poses a risk as well.

Oxygen and acetylene cylinders were found chained to together in the compressed gas storage cage in the MIB main compressor room with other compressed gases inert gases and propane. The chain was in the proper location for most of the tall oxygen cylinders below the cylinders’ shoulder above the midpoint on the cylinder, but the chain when around the neck of the shorter acetylene cylinders. None of the cylinders were firmly secured. They all move or slide if someone accidentally tripped into them or something fell onto them.

A small hand carrying welding set was found in the SIB attic. The pressure cage showed the acetylene lead was still pressurized. The cylinder did not have a knob on its valve stem to shut off the pressure and the special wrench needed to turn the stem was not with the welding set. Welding gases are secured at the cylinder and then bled off the torch to ensure that the leads are not left pressurized and flammable gas allowed to potential leak into the workplace.

OSHA requires that oxygen cylinders be stored at least 20 feet from fuel-gas or combustible materials, especially oil or grease, or be separated by a noncombustible barrier at least 5 feet high with a fire resistance rating of at least 30 minutes. The modernization contractor has a red expanded metal cage with a noncombustible barrier in located a Main Interior Building courtyard.

All compressed gas cylinders must be stored in an area where the ventilation is adequate to dissipate escaping gas in the event of a leaking cylinder; they may be stored outdoors. Cages with solid metal roofs and locking wire cage side panels are readily available from most industrial equipment suppliers, but are not required.

Approximately 20 cylinders of free standings were found near a new compressor in the Main Compressor

Room.

OSHA regulations require that all handling, storage, and use of compressed gas cylinders be conducted in accordance with the Compressed Gas Association's (CGA) Pamphlet P-1-2000 (available from CGA, telephone 703-788-2700). The CGA pamphlet states that all cylinders must be secured (e.g., chained) in an upright position to prevent them from falling, and that all cylinder valves be protected from damage.

Proper cylinder storage is typically accomplished by securing cylinders around the shoulder (below the valve neck). The CGA requirement to securely store cylinders and protect cylinder valves from damage is interpreted by the CASHE Team as a prohibition against securing a cylinder around its neck or valve. Securing a cylinder around its neck can damage the valve or allow the cylinder to slip out from under the chain, strap, or ring holding it in place. In addition, securing a cylinder across its middle or lower, or too loosely, will allow the cylinder to tip if it is jolted. The cylinders stored on the Mezzanine

The CGA pamphlet also states that, at gas manufacturing facilities, nesting cylinders is considered a safe manner of storage. However, nesting may not be adequate in seismically active areas, and additional measures, such as chaining and strapping, may be required to prevent the cylinders from falling. Appendix D of the pamphlet illustrates proper cylinder nesting. Nesting depends on a 3-point contact system (i.e., all cylinders must be in contact at three points - either with a secure wall or with another cylinder). Personnel will need to ensure that when a cylinder is removed from a nested set, the remaining cylinders must be readjusted to regain the 3-point contact before the strap or chain is secured in place.

Recommendation: **A)** Require the modernization contractor to store all gas cylinders that are not in use outside in an expanded metal cage; **B)** Store oxygen cylinder cylinders at least 20 feet from acetylene cylinders or provide a noncombustible barrier between the gases as described in this finding; **C)** Educate all employees on the requirement to properly secure all cylinders; and **D)** Instruct personnel not to store oxygen and acetylene with gas still in the torch leads.

Driving Reference(s): 29 CFR 1910.253(b)(4) – welding gas storage
 29 CFR 1910.101(b) – compressed gas storage
 CGA P-1-2000 – cylinder storage
 29 CFR 1910.253(e)(5)(v) - hose and hose connections

Point(s) of Contact: _____
(First and Last names, no groups or committees)

Status of Corrective Action: _____
(e.g., Scheduled for completion by MM/DD/YY; Completed on MM/DD/YY; Funding requested, scheduled for completion by...; Preliminary planning, scheduled for completion by...)

Facility Name: Reserved for the final report
Facility Category: Reserved for the final report

WELDING, CUTTING, AND BRAZING - WCB

Finding Number: WCB-07-004

Finding: The welding torch stored in the attic of the South Interior Building is not equipped with flash-back protection to prevent flame from passing into the fuel-gas system.

Repeat Finding: No

Recurring Issue: No

Safety RAC: 4

Discussion: OSHA requires that manifold systems be equipped with flash-back protection to prevent oxygen from flowing into the fuel-gas (e.g., acetylene) system or fuel from flowing into the oxygen system. A manifold is a multi-cylinder system with lateral outlets for more than one fuel supply or oxygen supply.

Flash-back protection is not required on single unit systems, such as those in use by the Department; however, the CASHE Team recommends using flash-back protection devices as a best management practice to prevent the gases from mixing. New welding torches purchased today have flash-back protection devices built in. Inexpensive, UL-listed devices that can be installed on welding torches without built in flash-back protection can be purchase from welding supply companies.

Recommendation: **A)** Purchase UL-listed flash-back protection devices and install them on the welding torch; or **B)** Purchase a new torch equipped with flash-back protection and dispose of the old torch.

Driving Reference(s): 29 CFR 1910.253(e)(3)(ii)(C)(3) - flash-back protection for manifold systems

Point(s) of Contact: _____
(First and Last names, no groups or committees)

Status of Corrective Action: _____
(e.g., Scheduled for completion by MM/DD/YY; Completed on MM/DD/YY; Funding requested, scheduled for completion by...; Preliminary planning, scheduled for completion by...)

Facility Name: Reserved for the final report

Facility Category: Reserved for the final report

WELDING, CUTTING, AND BRAZING - WCB

Finding Number: WCB-07-005

Finding: Arc welders in use at the MIB are damaged.

Repeat Finding: No

Recurring Issue: No

Safety RAC: 2

Discussion: An arc welder (welder #57) in the MIB basement has a burned and cut power cord, which is lying in a puddle of water on the floor. The damaged cord poses an electrocution hazard.

In the MIB welding shop, an arc welder has been damaged on the cord, within 2 feet of the electrode holders. OSHA requires that the insulation on arc welder cords be undamaged within 10 feet of the electrode holder. Damage to this area can not be corrected using electrical tape.

Recommendation: Repair or replace all damaged arc welder components.

Driving Reference(s): Provided in Final Report

Point(s) of Contact: _____
(First and Last names, no groups or committees)

Status of Corrective Action: _____
(e.g., Scheduled for completion by MM/DD/YY; Completed on MM/DD/YY; Funding requested, scheduled for completion by...; Preliminary planning, scheduled for completion by...)

Facility Name: Reserved for the final report

Facility Category: Reserved for the final report

6.0 UNRESOLVED ISSUES

The following issues were identified during the on-site assessment. However, the lack of available resources and time of the assessment prevented the completion of the regulatory research necessary to resolve them. These issues will be researched and findings will be generated, if appropriate. Any generated findings will be included in the final report.

Unresolved Issue	Protocol	
Requirements for EPCRA reporting relating to quantities of lead-acid batteries in the MIB and SIB. Lead-acid batteries are used for communication system backup power supplies, starting emergency generators, and operating floor cleaning equipment.	SARA	
Large-capacity transformers in the MIB contain several hundred gallons of dielectric fluid (oil) each. The CASHE team will investigate whether this type of oil storage triggers the applicability of Spill Prevention Control and Countermeasures (SPCC) requirements, including an SPCC plan, in light of rapidly changing Federal regulations.	SPCC	
MIB Health Services disposes of biohazardous waste (e.g., blood, vomit) by double-bagging in plastic and discarding with regular trash. The CASHE team will confirm that District regulations do not require special handling as “red bag” waste.	SW	
Diesel-powered emergency generators have been installed in both the SIB and MIB. No air permits have been obtained. The CASHE Team will determine whether these generators are regulated as new sources and whether air emissions permits are required.	AIR	