

# PACKAGING OF OFFICE CONTENTS AND COMBUSTIBLE MATERIALS PROCEDURE

**Nuclear Metals, Inc. Superfund Site  
Non-Time-Critical Removal Action  
Concord, Massachusetts**

Prepared for:



***de maximis, inc.***

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## **1. Introduction**

Decontamination Decommissioning and Environmental Services, LLC (DDES), has developed the following approach for packaging and storing office contents and combustible materials from the administrative and office support areas within buildings at the Nuclear Metals, Inc. (NMI) Site. This procedure was developed as an addendum to the approved Non-Time Critical Removal Action Interim Removal Action Work Plan (*de maximis, inc.*, November 2011). This additional interim action will accelerate the ultimate off-site shipment and disposal of these materials by staging packages that can be loaded and removed immediately upon approval of the Phase 1 Construction Submittal. In addition, this work will clear floor space in areas where abatement of asbestos floor tiles is expected to be necessary prior to further demolition activities.

## **2. Removal of Office Contents**

The procedure presents the overall approach to clear rooms of office furniture, files, and equipment from administrative support areas within buildings at the Site. The majority of these materials are located in Buildings A and B. There are also a few support office areas located on the second floors of Buildings C, D, and E. The areas addressed in this procedure are identified in Figures 1 & 2. Removing these materials will reduce the fire load of the buildings and clear travel pathways for better access and assessment of building surfaces. Combustibles and universal wastes inside of the Site buildings to be addressed by this procedure include:

- Trash
- Office furniture including desks, chairs, bookcases, file cabinets, office machinery, and small electronics such as kitchen appliances.
- Paper wastes including cardboard, files, and piles of paper.
- Universal wastes including fluorescent light bulbs, batteries, computers, and computer monitors and other cathode ray tube (CRT) monitors.



- Stockpiled wooden wastes including pallets and scrap wood.

**Table 1**  
**Targeted Cleanup Rooms**

<b>Building/Floor</b>	<b>Room No.</b>	<b>Operation</b>
A/1 <sup>st</sup>	A-101A, B, C, D, E, and F	Human Resources
A/1 <sup>st</sup>	A-102	Human Resources
A/1 <sup>st</sup>	A-103	Clerical Area
A/1 <sup>st</sup>	A-106	Be QA Area
A/1 <sup>st</sup>	A-107, A, and B	Be Clerical Area
A/1 <sup>st</sup>	A-108	Be Administrative Area
A/1 <sup>st</sup>	A-109	Be Administrative Area
A/1 <sup>st</sup>	A-111	Be Administrative Area
A/1 <sup>st</sup>	A-113	Be Administrative Area
A/1 <sup>st</sup>	A-114	Be Administrative Area
A/1 <sup>st</sup>	A-115	Be Administrative Area
A/1 <sup>st</sup>	A-116, and A	Be Administrative Area
A/1 <sup>st</sup>	A-117	Administrative Area
A/1 <sup>st</sup>	A-119	Administrative Area
A/1 <sup>st</sup>	A-120	Administrative Area
A/1 <sup>st</sup>	A-121, and A	Administrative Area
A/1 <sup>st</sup>	A-122	Administrative Area
A/1 <sup>st</sup>	A-124, and A	Administrative Area
A/1 <sup>st</sup>	A-125, and A	Administrative Area
A/1 <sup>st</sup>	A-127, and A	Administrative Area
A/1 <sup>st</sup>	A-128	Administrative Area
A/1 <sup>st</sup>	A-130, A, and B	Administrative Area
A/1 <sup>st</sup>	A-131	Administrative Area
A/1 <sup>st</sup>	A-132	Conference Room
A/1 <sup>st</sup>	A-133	Reception Area
A/1 <sup>st</sup>	A-135	Records/Files Area
A/1 <sup>st</sup>	A-136	Executive/Sales Office
A/1 <sup>st</sup>	A-137, and A	Executive/Sales Office
A/1 <sup>st</sup>	A-138	Executive/Sales Office
A/1 <sup>st</sup>	A-139	Executive/Sales Office
A/1 <sup>st</sup>	A-140	Conference Room
A/1 <sup>st</sup>	A-141, and A	Executive/Sales Office
A/1 <sup>st</sup>	A-142	Executive/Sales Office
A/1 <sup>st</sup>	A-143	Executive/Sales Office
A/1 <sup>st</sup>	A-144	Executive/Sales Office
A/1 <sup>st</sup>	A-154	Administrative
A/1 <sup>st</sup>	A-158	IH/Respiratory Testing



**Packaging of Office Contents and Combustible Material Procedure**  
**Nuclear Metals, Inc. Superfund Site**  
**June 6, 2012**

<b>Building/Floor</b>	<b>Room No.</b>	<b>Operation</b>
A/2 <sup>nd</sup>	A-201	Administrative Office
A/2 <sup>nd</sup>	A-202, and A	Administrative Offices
A/2 <sup>nd</sup>	A-203	Administrative Office
A/2 <sup>nd</sup>	A-204	Administrative Office
A/2 <sup>nd</sup>	A-205	Administrative Office
A/2 <sup>nd</sup>	A-206	Administrative Office
A/2 <sup>nd</sup>	A-208	Administrative Office
A/2 <sup>nd</sup>	A-209	Administrative Office
A/2 <sup>nd</sup>	A-211	Administrative Office
A/2 <sup>nd</sup>	A-212, A, B, C, D, and E	Administrative Offices
A/2 <sup>nd</sup>	A-215, A, B, C, and D	Administrative Offices
A/2 <sup>nd</sup>	A-227	Instrument Repair Shop
A/2 <sup>nd</sup>	A-228	Instrument Repair Shop
A/2 <sup>nd</sup>	A-230	Records/File Room
A/2 <sup>nd</sup>	A-231	Records/File Room
A/2 <sup>nd</sup>	A-232	Administrative Office
A/2 <sup>nd</sup>	A-233	Administrative Office
A/2 <sup>nd</sup>	A-234	Administrative Office
A/2 <sup>nd</sup>	A-235	Administrative Office
A/2 <sup>nd</sup>	A-236	Administrative Office
A/2 <sup>nd</sup>	A-237	Administrative Office
A/2 <sup>nd</sup>	A-238	Administrative Office
A/2 <sup>nd</sup>	A-239	Administrative Office
A/2 <sup>nd</sup>	A-240	Administrative Office
A/2 <sup>nd</sup>	A-247, and A	Cafeteria
B/1 <sup>st</sup>	B-101	Restrooms
B/1 <sup>st</sup>	B-103, A, and B	Medical
B/1 <sup>st</sup>	B-108, and A	Computer Rooms
B/1 <sup>st</sup>	B-109	Restrooms
B/1 <sup>st</sup>	B-110	Computer Room
B/2 <sup>nd</sup>	B-201, and A	Restrooms
B/2 <sup>nd</sup>	B-202	Computer Storage
B/2 <sup>nd</sup>	B-203	Administrative
D/2 <sup>nd</sup>	D-203	Records Storage
D/2 <sup>nd</sup>	D-205	Administrative Office
D/2 <sup>nd</sup>	D-206	Administrative Office
D/2 <sup>nd</sup>	D-207	Administrative Office
D/2 <sup>nd</sup>	D-208	Administrative Office
D/2 <sup>nd</sup>	D-209	Administrative Office
E/2 <sup>nd</sup>	E-211	QA Office
E/2 <sup>nd</sup>	E-212	QA Office



**Packaging of Office Contents and Combustible Material Procedure**  
**Nuclear Metals, Inc. Superfund Site**  
**June 6, 2012**

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<b>Building/Floor</b>	<b>Room No.</b>	<b>Operation</b>
E/2 <sup>nd</sup>	E-213	QA Office
E/2 <sup>nd</sup>	E-214	QA Office
E/2 <sup>nd</sup>	E-215, and A	Hallways
E/2 <sup>nd</sup>	E-216	QA Office
E/2 <sup>nd</sup>	E-217	QA Office
E/2 <sup>nd</sup>	E-218	QA Office
E/2 <sup>nd</sup>	E-219	QA Office
E/2 <sup>nd</sup>	E-220	QA Office
E/2 <sup>nd</sup>	E-221	QA Office
E/2 <sup>nd</sup>	E-223	QA Office
E/2 <sup>nd</sup>	E-224	QA Office
E/2 <sup>nd</sup>	E-225	QA Office
E/2 <sup>nd</sup>	E-226	QA Office
E/2 <sup>nd</sup>	E-227	QA Office
E/2 <sup>nd</sup>	E-228	QA Office
Butler B-1/1 <sup>st</sup>	Maintenance Office	Administrative

We do not anticipate that any of these materials will be contaminated with significant quantities of radioactive or hazardous materials. Significant radioactive contamination shall be defined as removable or total contamination levels which exceed 100 times the applicable limits specified in the Nuclear Regulatory Commission (NRC) Regulatory Guide 1.86 under this procedure. Generally contamination levels in these rooms are expected range from background to 18,000 dpm/100cm<sup>2</sup> for total contamination measurements (MADPH Radiation Protection Program Assessment October/ November 2006.) Only combustibles and universal wastes stored in areas that were used for office or administrative support are covered under this procedure. Areas where operations may have handled radioactive or hazardous materials such as laboratory operations, research and development, quality control operations, etc. will not be disturbed under this procedure.

Figures 1 and 2 provide an overview of the administrative/office areas that will be cleared under this procedure.



### **3. Waste Categorization**

The wastes from these areas will be split into the following radiological categories based on the anticipated concentrations of radioactive materials, as defined in site specific procedure *HP-NMI-019 found in Appendix C of the NTCRA HASP*, based on the anticipated concentrations of radioactive materials and preliminary field screening:

- Waste Type 1 – Potentially contaminated items that have the potential to contain minimum DU contamination. During field screening operations these items will be found to be on average below 20% of the regulatory limit of 5,000 dpm/100cm<sup>2</sup> for total alpha contamination as defined in NRC Regulatory Guide 1.86 for U-nat, U-235, U-238, and associated decay products (15,000 dpm/100cm<sup>2</sup> total alpha maximum).
- Waste Type 2 – Materials containing DU less than 0.05% by weight. During field screening operations these items will be found to be above 1,000 dpm/100cm<sup>2</sup> for alpha contamination. Waste Type 2 will have an upper threshold limit of 10,000 dpm/100cm<sup>2</sup>.
- Waste Type 3- Materials containing less than 18,000 pCi/gram for solids. During field screening operations these items will be found to be above 10,000 dpm/100cm<sup>2</sup> for alpha contamination. Waste Type 3 will have an upper threshold limit of 100,000 dpm/100cm<sup>2</sup>.

It is anticipated that the majority of materials removed under this procedure will be Waste Types 1 and 2. There is little potential for materials falling into Waste Type 3 to be generated during these operations. Materials with concentrations of DU greater than 18,000 pCi/gram (Waste Type 4), will not be packaged under this procedure. If



items fitting Waste Type 4 are identified they will be segregated and staged for future packaging operations.

A large quantity of radiological data exists for the Site. In January 2006, *de maximis* and MACTEC, Inc. completed a building survey. This survey included performing a health and safety survey and a contamination assessment to evaluate the levels of radiological contamination and exposure rates. In November 2006, MADPH-RCP assessed the radiation protection program at the facility, which included a series of radiological characterization surveys. These past radiological assessment data along with current field surveys will be used to quantify radioactivity in each waste package.

Metals wipe sampling results from the target areas show that beryllium (Be) is not present in excess of  $3\mu\text{g}/100\text{cm}^2$  in these administrative support areas. Metals wipe sampling results for Be from these areas are presented in Figures 3, 4 & 5.

#### **4. Waste Packaging**

Waste generated under this procedure will be sorted and segregated with like items. The universal waste streams consisting of fluorescent tubes will be grossly decontaminated by wet wiping to remove exterior particulate at the point of origin and transported to the designated universal waste accumulation area. Fluorescent tubes may be subject to further decontamination and survey for release based on the selected disposal or recycle method. The free release verification process is detailed in the Phase 1 Construction Submittal. Other universal waste streams are expected to have sufficient amounts of radiological contamination or inaccessible surfaces within them so that decontamination and free release will not be economically feasible. These materials (computers and CRTs) will be managed for off-site disposal at an appropriate facility similar to the combustible wastes.



***Packaging of Office Contents and Combustible Material Procedure  
Nuclear Metals, Inc. Superfund Site  
June 6, 2012***

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Non-compactable materials, such as desks and large office furniture will be packaged on pallets and wrapped in plastic. The use of cubic yard containers (“super sacks”) and pallets will allow for the safe handling and transportation of materials within the buildings from the point of origin to the designated accumulation areas. Materials will not be hand carried from point of origin via stairwells. Materials will be transported in carts or on pallets to minimize physical stresses. The compactor and completed packages will be moved from the second floor of Building A by the vertical reciprocating conveyor that was recently repaired or forklift. There is an access point on the Building C mezzanine that allows materials to be moved via vertical reciprocating conveyor or forklift to the ground floor. Cubic yard containers and pallets are appropriately sized to be loaded into the various sizes of larger containers that ultimately will be used to transport wastes for off-site disposal, so this packaging effort will result in a stockpile of materials that can be loaded and shipped immediately upon reaching agreements with and EPA’s approval of the transportation and disposal contractor(s).

Dry Active Waste (DAW) is a general term for solid wastes that do not contain additional recognized hazards except radioactivity. Compactable materials such as metal shelving and similar office furnishings will be size reduced using the most labor efficient methods, e.g., disassembly, cutting with a reciprocating saw, compaction, etc. These materials will be also packaged in cubic yard containers or packaged on pallets and wrapped in plastic. A compactor will be used to consolidate like materials into cubic yard containers to increase packing efficiencies and densities. Compacting operations will take place in containment under negative pressure to insure employee protection and prevent the potential spread of contamination through the facility. The compactor and containment will be moved from building to building during removal operations to reduce the amount of material handling. The compactor will only be operated by a trained and authorized user.





The materials to be packaged within the designated office and administrative areas will be screened by health physics personnel to 1) ensure that personnel are properly protected and 2) ensure that the prospective Waste Acceptance Criteria for the off-site disposal facilities are met. Helmeted Powered Air Purifying Respirators (PAPRs) equipped with HEPA filtration will be used during the removal and waste packaging activities, as specified in the Radiation Work Permit and Job Hazard Analysis.

Each waste package will be assigned and labeled with a unique identification number to allow the materials to be tracked using a single identification code. Each package shall be labeled using the following format:

**ID: AB-CCCC-DDD**

AB = Building & Floor

CCCC = Room Number or General Area

DDD = Sequential Number

**Date: MM-DD-YYYY**

MM = Month

DD = Day

YYYY = Year

**Waste Type: A-BBBBB**

A = Type 1 or 2

B = Metal/DAW(Dry Active Waste)/UW(Universal Waste)

A waste inventory will be prepared that contains the Inventory ID, Container Type, Waste Type, Waste Description, Date, Storage Location and Activity. This will allow for proper waste characterization and segregation. An example waste inventory sheet has been provided as Figure 6.

## **5. Interim Storage**

Packaged materials will be stored in two locations at the Site that have been previously cleared of materials. The waste staging areas have been HEPA vacuumed, sprayed with



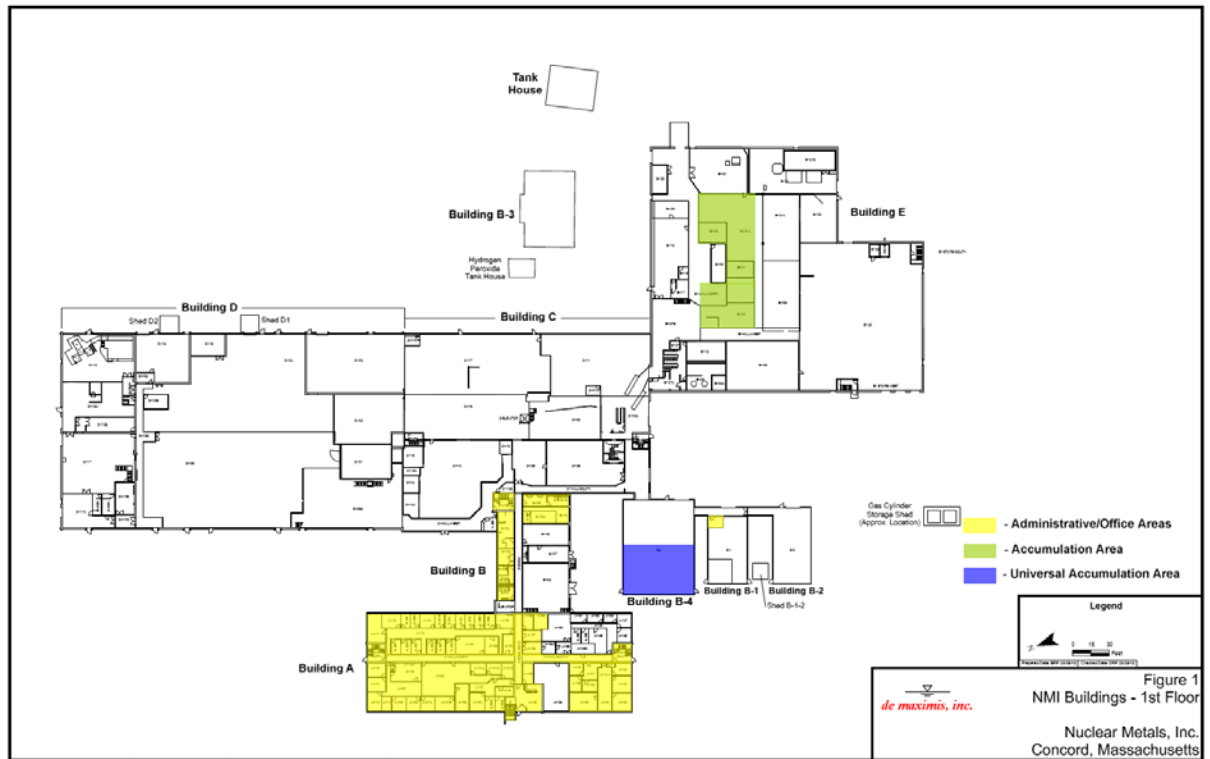
a lockdown agent and subsequently lined with Herculite<sup>®</sup> to prevent cross contamination. Combustibles and metal packages will be stored in Building E in the caged area near E-110. Universal wastes will be stored in Butler Building B-4. All waste packages located in the accumulation areas will be properly sealed and labeled. Interim accumulation areas are depicted in Figures 1 & 2.

***Figure Legend***



**Packaging of Office Contents and Combustible Material Procedure**  
**Nuclear Metals, Inc. Superfund Site**  
**June 6, 2012**

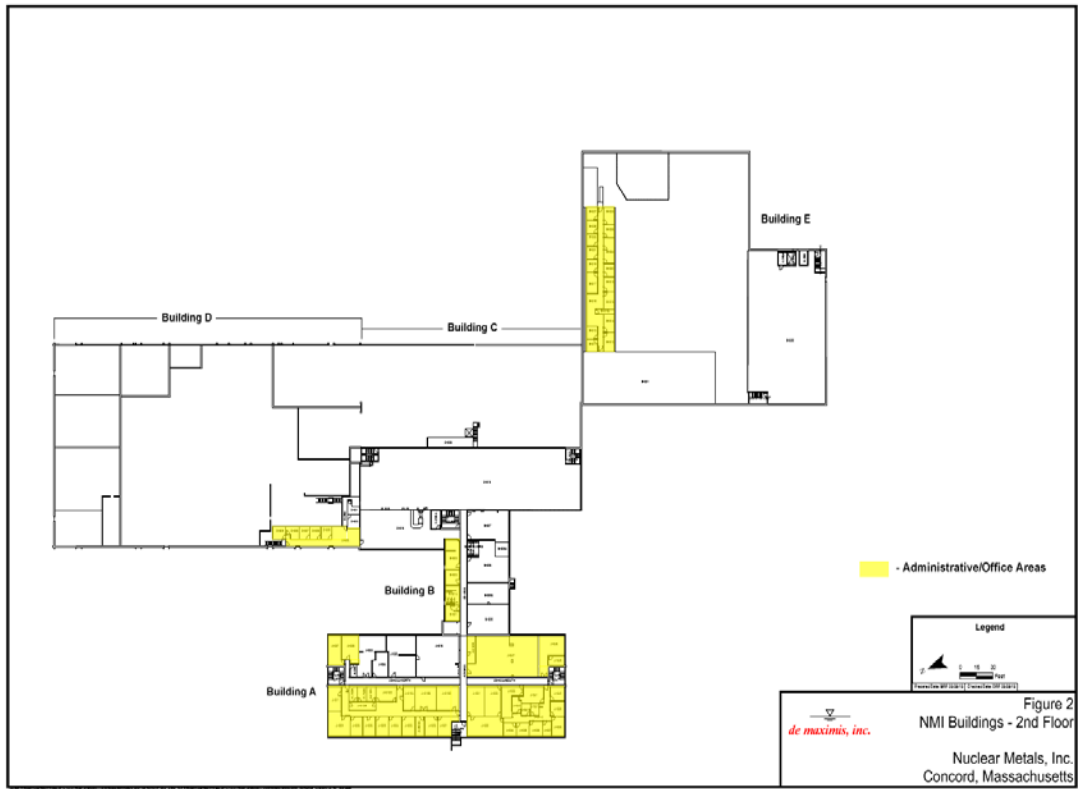
Figure 1





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**Nuclear Metals, Inc. Superfund Site**  
**June 6, 2012**

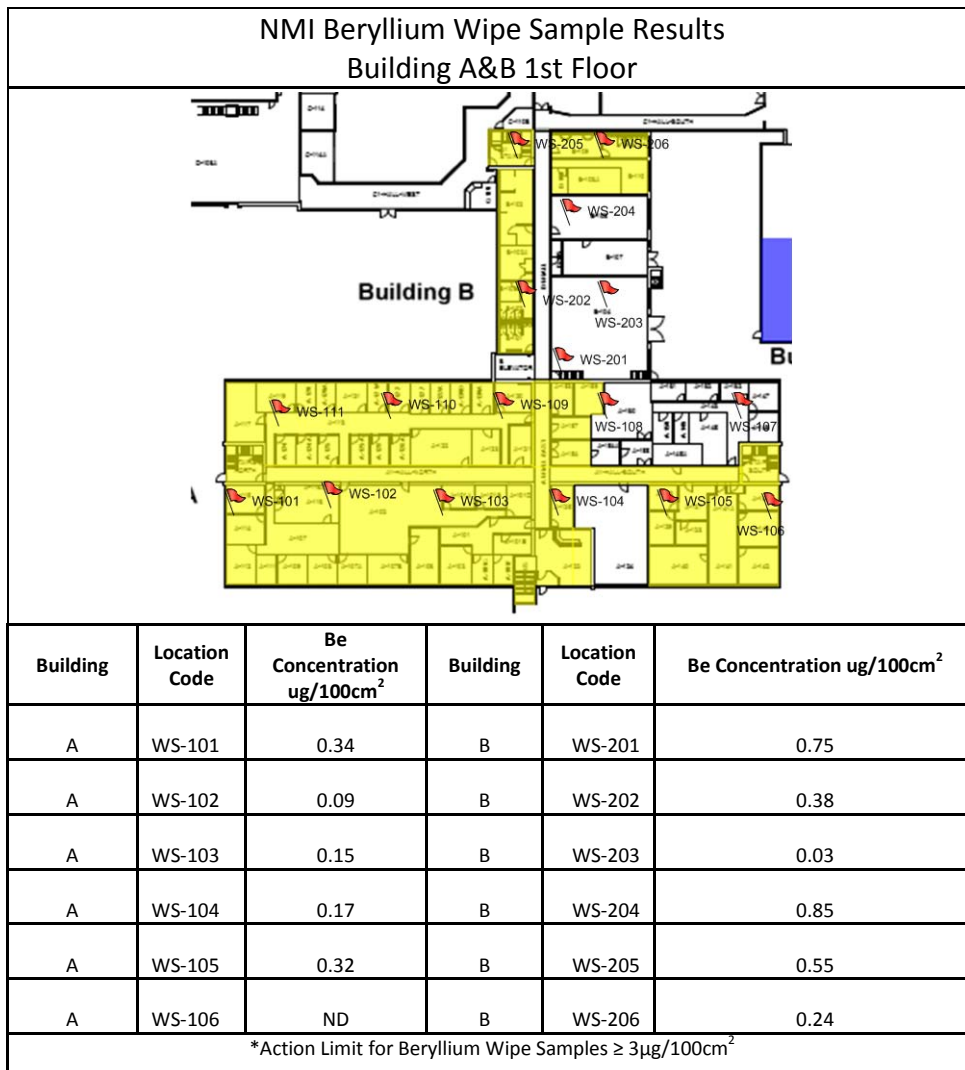
Figure 2





**Packaging of Office Contents and Combustible Material Procedure**  
**Nuclear Metals, Inc. Superfund Site**  
**June 6, 2012**

Figure 3





**Packaging of Office Contents and Combustible Material Procedure**  
**Nuclear Metals, Inc. Superfund Site**  
**June 6, 2012**

Figure 4

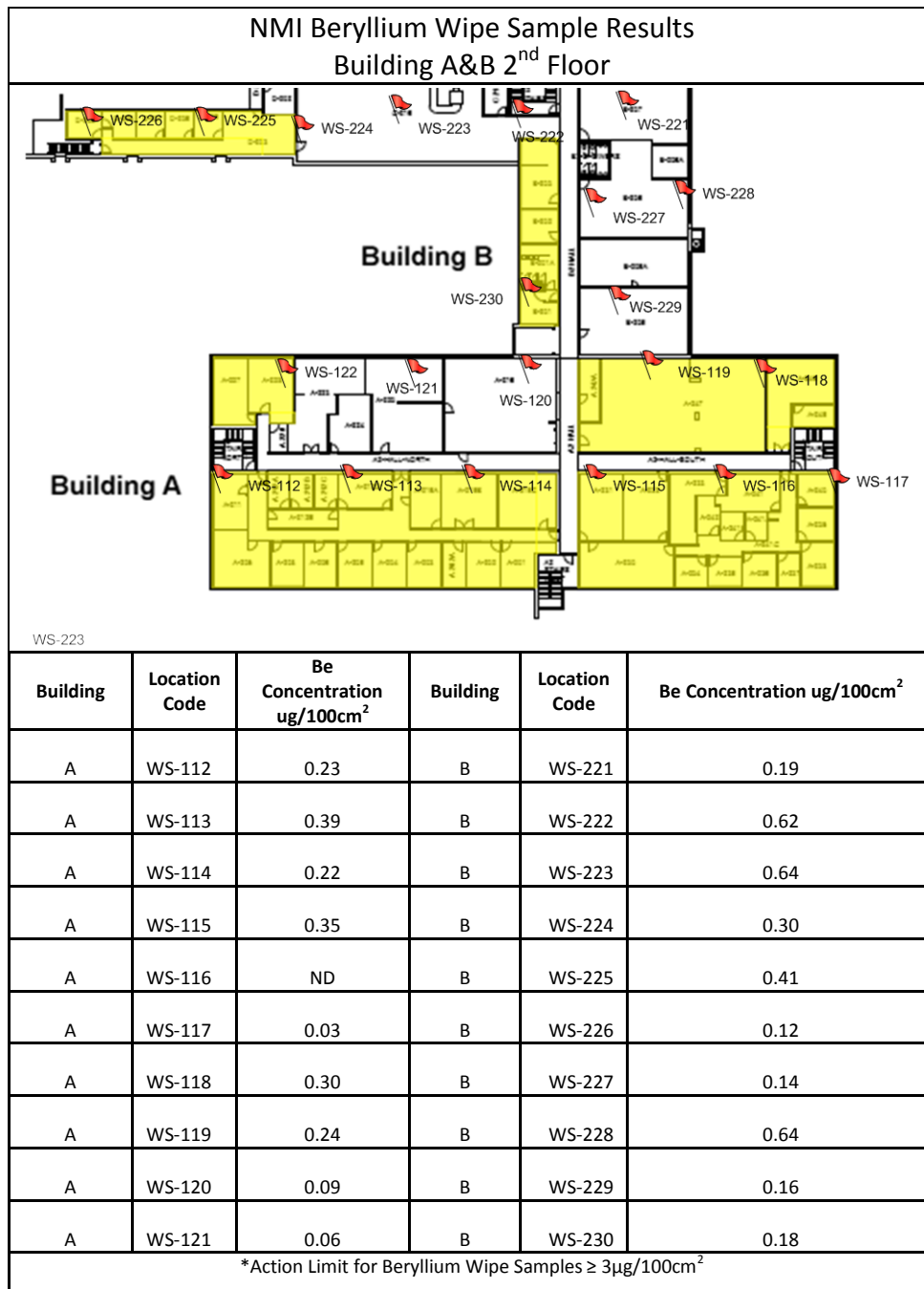




Figure 5

