DRAFT

SAFETY AND HEALTH SURVEY

OF THE

NUCLEAR REGULATORY COMMISSION

WAREHOUSES AT

5000 BOILING BROOK PARKWAY &

12225 WILKINS AVENUE

ROCKVILLE, MARYLAND 20852

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Under Subcontract To:

Hummer Whole Health Management

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Enclosure 1

1.0 EXECUTIVE SUMMARY

1.1 On February 13, 2009 a comprehensive safety and health survey was performed of two U.S. Nuclear Regulatory Commission, warehouse buildings at 5000 Boiling Brook Parkway and 12225 Wilkins Avenue in Rockville, Maryland. Annual surveys are required to identify occupational safety and health risks in the workplace, which may adversely affect Federal workers. The survey was conducted by Neil R. Temple, PE, CSP of Safety Management Associates and David O'Konski, CIH, CSP of Applied Environmental, Inc.

1.2 There were a total of 15 occupational safety and health findings at the main warehouse (with multiple occurrences) as follows: No Imminent Danger (RAC 1), No Serious (RAC 2), 2 Moderate (RAC 3), 7 Minor (RAC 4) and 6 Negligible (RAC 5) occupational safety and health findings as a result of this survey.

1.3 There were a total of 7 occupational safety and health findings at the annex warehouse (with multiple occurrences) as follows: No Imminent Danger (RAC 1), No Serious (RAC 2), 4 Moderate (RAC 3), 1 Minor (RAC 4) and 2 Negligible (RAC 5) occupational safety and health findings as a result of this survey.

2.0 FACILITY PROFILE

2.1 Description

The NRC Warehouse Building located at 5000 Boiling Brook Parkway, Rockville, MD is a two-story warehouse/mercantile building constructed in 1969. The warehouse portion, approx. 2 1/2 stories high, is located & entered on the off-grade (east) side of the building with a single story retail business above, entered on the west side. There is a new office enclosure at the northeast corner of the building, separated from the warehouse by sheetrock on metal stud walls. Approximately 8,000 sq. ft. of space on the south end has been returned to the lessor and is now occupied by a commercial company. The NRC now has a gross area of 20,000 sq. ft. divided into area bays, divided by 12-inch concrete walls with unprotected wall openings. Previous openings to the south end have been enclosed with concrete block. The floors are concrete slab with concrete block walls and structural steel frame. The upper floor is light concrete on corrugated steel decking supported by steel bar joist and the roof construction is built up roofing on steel pan decking supported by steel beams and joists. Several years ago, an office area at the north end of the warehouse has been vacated for use by the NRC IG for firearms simulator training. The door between the main warehouse and this area has been sealed, but the rear exit to the northwest exit corridor remains open as does the main grade level exit on the east side.

The NRC Warehouse Building located at 12225 Wilkins Avenue is an 6892 sq. ft portion of a one story warehouse/mercantile building. The floors are concrete slab with concrete block walls and structural steel frame. The roof is light concrete on corrugated steel decking supported by steel bar joist and the roof construction is built up roofing on steel pan decking supported by steel beams and joists. This building serves as an annex to the Boiling Brook main warehouse. There are a series of unoccupied office areas near the entrance to the warehouse.

2.2 Operations

The GSA leased space in both buildings is occupied as warehouses for NRC office furniture, equipment and supplies. The warehouse is used to store Class III commodities, which include copy paper, desks, chairs, carpet, books and cardboard boxes. Materials on pallets are stored in racks up to 25 ft. high and are moved via battery powered electric forklifts and pallet jacks. The building is maintained by the lessor and is cleaned by a GSA contractor. The NRC also has a contractor to support operation of the warehouse.

2.3 Fire Protection Systems

Both buildings are sprinklered throughout with an automatic wet pipe system. At the main location, the sprinkler controls are located on the upper level are accessed through the retail space above the warehouse. The following information was obtained from observation, documentation and interviews. The sprinkler system is divided into two zones, east & west, which are provided with OS & Y sectional control valves secured with chains and locks for tamper control purposes. The main water supply OS & Y valve is provided with tamper control switches, connected to the building alarm system. There is a pressure switch and vane type water flow switches also connected to the alarm system. The fire alarm system has been recently upgraded and expanded into the NRC warehouse space. There are now pull stations throughout the space and there are visual and audible enunciators provided. The sprinkler control valves were not examined at the annex due to lack of access to these areas. There are both multi-purpose ABC dry chemical and 2.5 gallon pressurized water fire extinguishers throughout both locations. Emergency lighting is provided via stand-alone battery pack units distributed throughout the warehouses.

2.4 HVAC Systems

The main warehouse is heated via suspended gas-fired, fan-powered unit heaters located throughout the storage bays. The center section of the warehouse is served by a single overhead gas fired unit that is ducted throughout the central warehouse. There is no air conditioning in the warehouse, but there are exhaust ventilation fans and make-up air vents that are used for cooling in the summer months. The new office area is heated and cooled by a dedicated unit located in a utility closet on the west side of the office. The other modular offices are cooled by through-the-wall commercial AC units and electric space heaters. Filters on the office HVAC unit are reportedly changed on a quarterly PM schedule.

3.0 FINDINGS AND RECOMMENDATIONS

5000 BOILING BROOK PARKWAY – MAIN WAREHOUSE

#01-MAIN WHS-09
Finding: There were numerous fire extinguishers with out-of-date inspection tags located throughout the main warehouse.
Assessment: RAC IIID - 5 Negligible
Risk: In the event of a fire, personnel may be unable to access an operable fire extinguisher in a timely manner. Delays may increase the severity of injuries or property damage.
Applicable Standard/code: 29 CFR 1910.157(c)(1)
Recommendation: All fire extinguishers must be inspected monthly and serviced annually and bear a tag documenting these services.
Abatement Plan Category: A

#02-MAIN WHS-09
Finding: There were several non-sprinklered areas including: under solid shelving in the (4 tier) rack storage areas throughout the warehouse.
Assessment: RAC IIIC - 4 Minor
Risk: Fires occurring in these areas could not be extinguished by the automatic sprinkler system causing increased property damage or personal injury.
Applicable Standard/Code: 29 CFR 1910.159(c)(10)
Recommendation: Install in-rack sprinklers under solid shelving in areas storing combustible materials or provide open mesh rack decking to allow coverage by the sprinkler system.
Abatement Plan Category: C

#03-MAIN WHS-09
Finding: The emergency eyewash near the forklift charging station has not been tested on a weekly basis and no inspection/test documentation was available.
Assessment: RAC IIIC - 4 Minor
Risk: The eyewash may not operate properly in an emergency.
Applicable Standard/Code: 29 CFR 1910.151(c)
Recommendation: Test all emergency eyewashes and provide current inspection tags or logs. Also attach a tag to the water control valve stating that it must remain in the open position.
Abatement Plan Category: A

#04-MAIN WHSE-09
Finding: There are combustibles stored in both exit stairways and exit corridors including carpeting, furniture, pails of spackle, drums of cleaning solvent and debris.
Assessment: RAC IIC - 3 Moderate
Risk: These obstructions may cause occupants or visitors to trip and fall while accessing this exit. In addition, these obstructions may increase injuries due to delays in exiting the building during a fire or other emergency. Combustible materials may contribute to a fire and block access to emergency exits.
Applicable Standard/Code: 29 CFR 1910.37(k)(2)
Recommendation: Remove all obstructions and combustible materials from the both exit corridors. This includes areas under the stairs, on landings and in corridors.
Abatement Plan Category: A

#05-MAIN WHS-09
Finding: There were "A" rated 2 ½ gallon pressurized water fire extinguishers located near the doorway and in several furniture aisles.
Assessment: RAC IIID - 5 Negligible
Risk: The water extinguishers would not be effective against a class B or C fire in electrical equipment. Personnel may sustain injuries or property damage may be increased due to a delay in extinguishing a fire.
Applicable Standard/Code: 29 CFR 1910.157(d)(1)
Recommendation: Provide multi-purpose ABC dry chemical extinguishers for this area.
Abatement Plan Category: B

#06-MAIN WHSE-09
Finding: There were multiple instances of blocked or restricted aisles and obscured exits throughout the warehouse where forklifts are in operation. Pallets, equipment and materials were placed in aisles and at the ends of racks in the central warehouse.
Assessment: RAC ID - 3 Moderate
Risk: Occupants and visitors may not be able to access exits in an emergency. Delays in reaching exits during a fire or other emergency may increase the severity of injuries or result in death.
Applicable Standard/Code: 29 CFR 1910.178(m)(14)
Recommendation: Keep all aisles clear. Place all stored materials and equipment on permanent storage racks. Exit paths should be marked on the floor with lines or crosshatching and materials in transit should be restricted to designated areas outside of these lines.
Abatement Plan Category: B

#07-MAIN WHSE-09
Finding: The gas meter room and the electrical/utility room at the top of the southwest and northwest exit stairs were unlocked & open, unmarked non-exit doors located in an exit path.
Assessment: RAC IID - Minor
Risk: In an emergency, employees or visitors may attempt to exit the building via a non-exit door, causing a delay in egress or trapping them in a non-exit path.
Applicable Standard/code: 29 CFR 1910.37(f)(4)
Recommendation: Applicable doors should be marked with a "NOT AN EXIT" sign and must be locked at all times when not in actual use.
Abatement Plan Category: A

#08-MAIN WHSE-09
Finding: Light bulbs were burned out and emergency light fixtures were not functional in both exit corridors and stairways. Illumination levels in both the northwest and southwest exit corridors and stairways were less than 1 ft/c at the walking surface.
Assessment: RAC IIID- 5 Negligible
Risk: Persons may be unable to see walking surfaces or potential obstructions and may fall or impede egress. This risk would increase in emergency situations.
Applicable Standard/Code: 29 CFR1910.36(b)(6)
Recommendation: Improve the illumination levels by replacing all burned out bulbs, repairing emergency lights and increasing the wattage of the existing lights.
Abatement Plan Category: A

#09-MAIN WHSE-00
Finding: There were burned out, damaged and/or missing exit indicators at the top of both the northwest and southwest exit stairs.
Assessment: RAC IID - 4 Minor
Risk: In a fire emergency, personnel may be delayed due to confusion over the direction of exit from the stairways.
Applicable Standard/Code: 29 CFR 1910.37(q)(6)
Recommendation: Replace the burned out bulbs and repair or replace these exit light fixtures.
Abatement Plan Category: A

#10-MAIN WHS-09
Finding: There were un-mounted fire extinguishers throughout the warehouse.
Assessment: RAC IIID - 5 Negligible
Risk: In the event of a fire, personnel may be unable to access an operable fire extinguisher in a timely manner. Delays may increase the severity of injuries or property damage.
Applicable Standard/code: 29 CFR 1910.157(c)(1)
Recommendation: Extinguishers must be mounted on a wall or rack in an accessible location. The location of all fire extinguishers should be marked with a sign or conspicuous paint scheme. All fire extinguishers and locations should be identified on a

log to facilitate inspections.
Abatement Plan Category: A

#11-MAIN WHS-09
Finding: Flammable liquids are being stored in a non-approved metal cabinet near the restroom.
Assessment: RAC IIIC - 4 Minor
Risk: The storage cabinet may not be able to protect or contain the contents in the event of a fire.
Applicable Standard/Code: 29 CFR 1910.106 (d)(3)(ii)
Recommendation: Provide a (UL or FM) approved flammable liquid storage cabinet for the paints, thinners and other flammables now stored in the metal cabinet.
Abatement Plan Category: A

#12-MAIN WHS-09
Finding: Electrical circuit breaker panels near Mr. Gladhill's office and on the rear wall in the main warehouse are obstructed by furniture and storage.
Assessment: RAC IIIC 4 Minor
Risk: Emergency access to these panels may be impeded.
Applicable Standard/Code: 29 CFR 1910.303(g)(i)
Recommendation: Remove all storage from in front of circuit breaker panels and maintain at least 3 ft. of clearance.
Abatement Plan Category: A

#13-MAIN WHS-09
Finding: There is an AED mounted on the wall near the office, but all personnel have not been trained in its use.
Assessment: RAC IIIC 4 Minor
Risk: An employee in a medical emergency may not get appropriate first aid in a timely manner.
Applicable Standard/Code: 29 CFR 1910.151(b)
Recommendation: Provide AED specific first aid training and CPR to all employees.
Abatement Plan Category: B

#14-MAIN WHS-09
Finding: There were extension cords "daisy chained" together to supply power to the scale.
Assessment: RAC IIIC-4 Minor
Risk: Extension cords are susceptible to damage and may overheat if not correctly rated for this purpose.
Applicable Standard/code: 29 CFR 1910.305(g)(1)(iii)(E)
Recommendation: Provide additional permanently wired receptacles near this equipment to eliminate the need for use of extensions cords.
Abatement Plan Category: B

#15-MAIN WHS-09
Finding: There were no guards for the drive v-belt and pulley on the blower equipment mounted on a cart stored between the restroom and the office.
Assessment: RAC IIIC - 4 Minor
Risk: Personnel may contact v-belt and drive pulleys while operating or performing maintenance or repairs on this equipment.
Applicable Standard/code: 29 CFR1910.219(d)(3)
Recommendation: Provide a complete barrier guard that includes coverage of all portions of the power transmission v-belt and pulley including the rear of this drive assembly.
Abatement Plan Category: B

12225 WILKINS AVENUE – WAREHOUSE ANNEX

#01-ANNEX WHS-09
Finding: There were numerous fire extinguishers with out-of-date inspection tags located throughout the warehouse annex.
Assessment: RAC IIID - 5 Negligible
Risk: In the event of a fire, personnel may be unable to access an operable fire extinguisher in a timely manner. Delays may increase the severity of injuries or property damage.
Applicable Standard/code: 29 CFR 1910.157(c)(1)
Recommendation: All fire extinguishers must be inspected monthly and serviced annually and bear a tag documenting these services.
Abatement Plan Category: A

#02-ANNEX WHS-09
Finding: There was an un-mounted fire extinguisher midway along the center section of racks.
Assessment: RAC IIID - 5 Negligible
Risk: In the event of a fire, personnel may be unable to access an operable fire extinguisher in a timely manner. Delays may increase the severity of injuries or property damage.
Applicable Standard/code: 29 CFR 1910.157(c)(1)
Recommendation: Extinguishers must be mounted on a wall or rack in an accessible location. The location of all fire extinguishers should be marked with a sign or conspicuous paint scheme. All fire extinguishers and locations should be identified on a log to facilitate inspections.
Abatement Plan Category: A

#03-ANNEX WHS-09
Finding: There is no emergency eyewash in the forklift battery charging area and no personal protective equipment is available in this area. Temporary eye wash squeeze bottles were provided.
Assessment: RAC IIIB - 3 Moderate
Risk: Chemical splashes may do extensive eye damage due to lack of immediate first-aid or protective equipment.
Applicable Standard/code: 29 CFR 1910.151(c) &.178(g)(2)
Recommendation: Install a new permanently plumbed eyewash in this area and connect it to a potable water supply capable of at least 15 minutes of continuous operation. Provide personal protective equipment such as goggles and face shields for use by employees.
Abatement Plan Category: C

#04-ANNEX WHS-09
Finding: There are missing insulator blanks in the circuit breaker panel "B" near the battery charger. The main electrical power distribution buss-bars are exposed to persons using this equipment.
Assessment: ID - 3 Moderate
Risk: Personnel may contact energized electrical parts or connections and sustain electrical shocks and/or burns.
Applicable Standard/Code: 29 CFR 1910.303(g)(2)(i)
Recommendation: Install UL listed insulated blanks or plugs in these openings.
Abatement Plan Category: A

#05-ANNEX WHS-09
Finding: There were missing covers on the electrical junction boxes near the battery charger and on the first column of the center racks.
Assessment: RAC IIIC-4 Minor
Risk: Personnel may come in contact with exposed current carrying conductors while accessing these electrical devices and may sustain electrical shocks or burns.
Applicable Standard/Code: 29 CFR 1910. 305(j) and .305 (j)(2)(ii)
Recommendation: Install approved covers on junction boxes and properly install all electrical conductors within the conduit system.
Abatement Plan Category: A

#06-ANNEX WHS-09
Finding: An orange extension cord located at the rear of the warehouse had the ground prong removed and had a non-standard splice.
Assessment: RAC ID - 3 Moderate
Risk: Personnel may receive an electrical shock and/or burns if a short should occur in the equipment connected to the extension cord.
Applicable Standard/Code: 29 CFR 1910.304(f)(5)(v) & 29 CFR 1910. 305(j)(2)(ii)
Recommendation: Replace the extension cord with a new cord containing a ground prong and no splices.
Abatement Plan Category: A

#07-ANNEX WHS-09
Finding: The suspended fluorescent light fixtures in the aisles are susceptible to damage from the operation of the forklift.
Assessment: RAC ID - 3 Moderate
Risk: Personnel can be struck by broken glass or may contact live electrical parts.
Applicable Standard/code: 1926.405(a)(2)(ii)(E)
Recommendation: Install fixture guards or bulb guards on the fluorescent lights in the warehouse aisles.
Abatement Plan Category: B

APPENDIX A

Risk Assessment Codes

METHOD OF RISK ASSESSMENT

The following methodology of risk assessment permits an evaluation of hazardous conditions from a fire, safety and health perspective and allows engineering judgments to be made concerning the level of risk associated with each condition.

The method incorporates the use of a risk assessment code and an abatement priority number both of which a re defined below along with other terms used by the model.

I. Definitions

1. Risk Assessment Code (RAC). A RAC is an expression of risk associated with a hazard, which combines the elements of hazard severity and mishap probability into a single Arabic number. Hazards are assigned a RAC, which is derived using procedures outlined below.

2. Abatement Plan Category (APC). An APC is a letter, which combines the RAC value for a particular hazard with a cost & logistics factor. The APC is used during the abatement process to assist managers in the allocation of resources to correct hazards. The APC is assigned after a RAC has been determined.

3. Hazard Severity. Hazard severity is a judgment of a potential consequence defined by the (2) degree of injury, (2) property damage, or (3) mission impairment that could ultimately occur.

4. Mishap Probability . Mishap probability is an assessment of the likelihood that a mishap will occur as a result of exposure to an existing hazard. It is based on an assessment of such factor as location, exposure in terms of cycles or hours of operation, and affected population.

II. Procedure

1. Determine Hazard Severity Hazard severity categories shall be assigned by Roman numerals as outlined in Table 1-1.

Category I	Death, permanent total disability, total mission impairment, multiple injuries (5 or more people), or property damage over $500,000.
Category II	Permanent partial disability, temporary total disability in excess of 3 months, major property damage which results in serious mission impairment in excess of 3 months, or property damage from $100,000 to $500,000.
Category III -	Injury which results in loss of work for less than 3 months or property damage from $10,000 to $100,000.
Category IV	First aid, minor medical treatment, or property damage of less that $10,000 or simply a violation of a requirement in a standard that will not necessarily cause one of the above.

Table 1-1

2. Determine Mishap Probability Mishap probability shall be assigned an upper case letter according to the information in Table 1-2.

MISHAP PROBABILITY	
Category A	Likely to occur immediately or within a short period of time.
Category B	Probably will occur in time.
Category C	Possible to occur in time.
Category D	Unlikely to occur.

Table 1-2

3. RAC Determination

Determine the RAC for the hazard by using the matrix in Table 1-3. This matrix incorporates both the hazard severity categories and the mishap probability factors by arraying degree of severity with probability of mishap.

RISK ASSESSMENT CODES					
		Probability			
		A	B	C	D
Severity	I	1	1	2	3
	II	1	2	3	4
	III	2	3	4	5
	IV	3	4	5	5

Table 1-3

Risk Assessment Codes

1 - Imminent Danger
2 - Serious
3 - Moderate
4 - Minor
5 - Negligible

APPENDIX B

Abatement Schedule Categories

ABATEMENT SCHEDULES FOR DEFICIENCIES

a. All deficiencies must be assigned one of the following action plan codes. The time frames associated with these action plans cannot be met by following routine procedures. The risk associated with deficiencies is unacceptable and dictates that extraordinary measures, including the declaration of public urgency, be taken to ensure prompt abatement.

(1) Action Plan A deficiencies are local action items that can generally be corrected within the field office manager's authority. The items are to be completed within 30 calendar days of the report date. If an item is not completed within 30 days, it is considered "delinquent" until it is completed.

(2) Action Plan B deficiencies generally require some procurement of materials. These are to be completed within 90 calendar days of the report date. If an item is not completed within 90 calendar days, it is considered "delinquent" until it is completed.

(3) Action Plan C deficiencies require a design and construction effort and must be completed within 180 calendar days of the report date. If an item is not completed within 180 calendar days, it is considered "delinquent" until it is completed unless a deferment is in effect. The item will be considered delinquent if the deferment expires prior to final correction.

(4) Action Plan D deficiencies are items that require major design and construction. They generally have an estimated construction cost in excess of $100,000. These items must be under construction within 180 calendar days from the report date and completed promptly. If an item is not under construction within 180 calendar days, it is considered "delinquent" until it is under construction unless a deferment is in effect. The item will be considered delinquent if the deferment expires prior to final correction.

DECLARATIONS

The information in this report is based on the best data available at the time of the survey from NRC facility management staff and safety personnel, from existing documentation and direct observation. This report is intended as a walk-through survey of occupational safety & health issues affecting NRC employees and certain on-site NRC contractors. Stated items and services were specifically excluded in the quote/proposal submitted to NRC for this project, including: fire systems testing, air monitoring for laboratory analysis, radiological or audio-dosimetry, structural analysis, ergonomic task analysis and environmental compliance not affecting worker safety. There is no representation that all areas of the building were surveyed nor that all hazards were identified. Locked special security areas were not surveyed if unoccupied at the time of the survey. There is no assurance that conditions noted during the survey will remain as observed or that new deficiencies will not develop after the survey.

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