STATE OF NORTH CAROLINA
DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES
DIVISION OF WASTE MANAGEMENT
Hazardous Waste Section and Brownfield’s Program

PERSONAL PROTECTION EQUIPMENT and OCCUPATIONAL HAZARD ASSESSMENT PROGRAM MANUAL

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Certification of Occupational Hazard Assessment:

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PERSONAL PROTECTION EQUIPMENT MANUAL

TABLE OF CONTENTS

I. PURPOSE 2

II. HWS PERSONAL PROTECTION EQUIPMENT POLICY 2

III. DESCRIPTION OF THE DWM-HWS

IV. PERSONAL PROTECTION EQUIPMENT DEFINITION 4

V. HWS OCCUPATIONAL HAZARD ASSESSMENT 5

VI. EQUIPMENT SELECTION 7
   A. LEVELS OF PROTECTION MAINTAINED BY HWS
   B. LEVELS OF PROTECTION DEFINED AND SELECTION CRITERIA
   C. DWM-HWS HAZARD LEVEL ASSIGNMENTS

VII. TRAINING 12

VIII CLEANING AND MAINTENANCE 13

APPENDIX I- OCCUPATIONAL HAZARD ASSESSMENT FORM

APPENDIX II- PPE CHECKLIST

TABLE INDEX

HAZARDOUS WASTE SECTION ORGANIZATIONAL STRUCTURE TABLE 1

REFERENCES
Hazardous Waste Section / Brownfield- Health and Safety Manual
Hazardous Waste Section- Exposure Control Plan
Hazardous Waste Section- Respiratory Protection Program
I. PURPOSE

The purpose of this manual is to establish Standard Operating Guidelines (SOGs) for personal protection equipment (PPE) use by authorized personnel of the North Carolina Division of Waste Management- Hazardous Waste Section (DWM-HWS). This manual is intended to comply with the requirements of 29 CFR parts 1910.120 and 1910.132.

II. HWS PERSONAL PROTECTION EQUIPMENT POLICY

The policy of the Division of Waste Management- Hazardous Waste Section is to provide a safe and healthful workplace free from all recognizable hazards. The HWS management is fully committed to preventing occupational illnesses, injuries and accidents through awareness education and proper, appropriate use of PPE.

Total support is required of each employee in maintaining a safe work environment and complying with applicable 29 CFR 1910 standards and SOGs established by the HWS. This process includes proper training in the use, cleaning, storage and maintenance of PPE. HWS management will provide opportunities for employees to receive proper training and will support the training policies and SOGs established by the Safety Consultant. The responsibilities of the Safety Consultant include insuring that HWS employees are trained in the use, limitations and maintenance of PPE and are able to recognize situations which may require the use of PPE. It is the responsibility of the HWS employee to learn HWS-SOGs with regard to PPE use, and to report any concerns regarding deficiencies in training and support.

All employees engaged in field activities which present the probability of exposure to hazardous or toxic substances, or require the use of respiratory protective equipment, must participate in the HWS’s Occupational Medical Monitoring Program. Employees are not permitted to engage in these types of field activities unless they have undergone a medical examination and have certified by a physician as being physically able to perform such duties.

The HWS is dedicated to insuring that no HWS employee shall be forced into situations considered hazardous without the proper training. Thus, if at any time, a HWS employee feels uncomfortable or unsafe while on duty, that employee should report this concern to the Safety Consultant.

To comply with this policy the HWS will:
- Complete an Occupational Hazard Assessment for every position
- Attempt to eliminate hazards through engineering or administrative controls before selection personal protective equipment.
- Ensure all employees have received training, equipment and medical monitoring appropriate for job responsibility.
- Insure that HWS personnel are aware of PPE use policies and standard operating guidelines as mandated by this manual and the HWS Occupational Health and Safety Manual.
III. DESCRIPTION OF THE HAZARDOUS WASTE SECTION

The Division of Waste Management (DWM) exists under the North Carolina Department of Environment and Natural Resources. The DWM is comprised of the Hazardous Waste Section, the Solid Waste Section, the Superfund Section and Underground Storage Tank Section. The DWM oversees the regulation and management of solid and hazardous wastes as mandated and authorized by EPA under 40 CFR and State Statutes.

The Hazardous Waste Section (HWS) regulates the management of Hazardous waste, insuring the compliance of generators, treaters, storers and disposors of hazardous waste. Within the HWS, there are three branches- Compliance Branch, Facility Management Branch, and Programs Branch. The Resident Inspector Program, under the Compliance Branch, oversees commercial treatment, storage and disposal facilities (TSDs).

The HWS PPE Program, as described and mandated in this manual, applies to all personnel working within the HWS. The organizational structure of the HWS is illustrated in Table 1.
IV. PERSONAL PROTECTION EQUIPMENT DEFINITION

Personal protection equipment (PPE) is defined under the HWS Health and Safety Program as any one piece of equipment or combination of several pieces of equipment designed such that, when employed by HWS personnel, will provide a protective shield against hazards in the environment. PPE use is based on experience and training in determining the appropriate protection against a particular hazard. PPE use is not based on a set of rules, but is more a type of strategy. The Environmental Protection Agency (EPA), along with the Occupational Safety and Health Administration (OSHA), has established guidelines in order to aid industry in determining types of PPE to employ while working in hazardous situations.

**PPE does not eliminate the hazard**

While HWS personnel will not normally work under worse case conditions, they might be exposed to various hazards (known and unknown) as a normal part of their job. The PPE they employ is designed to protect them from the potential risk of exposure to these hazards. All HWS personnel shall be trained to use of PPE appropriate to their job description.
V. HWS OCCUPATIONAL HAZARD ASSESSMENT

The purpose of conducting a hazard assessment (Appendix II) is to determine what hazards are present, or those that are reasonable anticipated in the workplace, and to determine the PPE to be selected to protect the employees from those hazards. The hazard assessment also facilitates employee training in PPE selection, limitation, use, and maintenance.

A thorough hazard assessment shall be conducted as mandated by 29 CFR 1910.132(d)- Hazard Assessment and Equipment Selection. As the program evolves, further hazard assessments will be conducted as the need arises to insure that proper PPE is employed by HWS personnel for protection against hazards experienced while on duty.

The HWS has two classes of positions: Field and Administrative. Although some positions may only involve occasional fieldwork, employees in these positions are still classified as Field. It is not foreseen that Administrative employees will encounter field work at all, and therefore are classified as Administrative.

See Health and Safety Manual for more detailed information on workplace hazards.

HWS positions considered to be Field positions:

- Section Chief
- Safety Consultant (Division)
- Branch Heads
- Environmental Chemist
- Environmental Supervisor
- Environmental Senior Specialist
- Hydrogeologist
- Environmental Engineer
- Waste Management Analyst

The HWS positions considered to be Administrative positions:

- Office Assistants
- Branch Secretaries
- Processing Assistants
- Administrative Assistants
- Data Entry Operator
- Programmers

Each person in the HWS who is engaged in any field activity shall be appropriately trained and equipped by the HWS in accordance with his/her involvement in field activities.

Potential hazards for field personnel include:

<table>
<thead>
<tr>
<th>Biological Hazards</th>
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Abandoned hazardous waste sites, hazardous waste treatment, storage and disposal facilities, medical waste sites, municipal landfills, wastewater treatment facilities, and industrial incinerators may contain any one or a multitude of these hazards, any one of which could result in serious injury or death. These hazards are a function of the nature of the site as well as a consequence of the work being performed.

Several factors distinguish these sites from other occupational situations involving work with hazardous substances. One important factor is the uncontrolled or unidentified conditions of the environment that exist at these sites. Even extremely hazardous substances do not endanger human health or safety if they are properly controlled. However, improper control of these substances may result in a severe threat to the environment, site workers and to the general public.

Another factor is the large variety and number of substances that may be present at a site/facility. Any individual location may contain hundreds or even thousands of hazardous substances or chemicals. Frequently, an accurate assessment of all hazards present on a site is impossible due to the large number of substances and the potential interactions among them. In addition, the identity of the substances on sites may be unknown, particularly in the initial stages of an inspection/investigation.

The combination of all these conditions results in a working environment that is characterized by numerous and varied hazards which:

- may pose an immediate danger to life or health.
- may not be immediately obvious or identifiable.
- may vary according to the location on site and the task being performed.
- may change as site activities progress.

In approaching a site, it is prudent to assume that all these hazards are present until a site characterization has been conducted and shows otherwise. A more specific description of each of these hazards exists in the Hazardous Waste Section’s Health and Safety Program Manual.
VI. EQUIPMENT SELECTION

The HWS maintains three levels of protection Levels: B, C, D. Equipment will be selected to ensure protection within the appropriate Level.

- Protective Footwear should be tested according to ANSI Z41-1991.
- Protective Footwear for Mercury Switch Program must be Puncture Resistant and conform to ANSI Z41.
- Protective Eyewear should be tested according to ANSI Z87-1991.
- Protective Headwear should be tested according to ANSI Z41 1991 procedures. Only Type II hard hats will be used.
- Protective Hand protection should be consistent with the substance being Handled.
- Protective Hearing equipment shall be used with decibel reduction appropriate for its use.
- Prescription protective spectacles will be provided for employees needed protective eyewear.
- PPE will be disposed of or decontaminated according the Health and Safety Manual.
- Traffic Safety vest will be provided by HWS.
- Employee owned PPE must be approved by the Safety Consultant before use by the employee.

All Personal Protective Equipment will be used, donned, and maintained according to the manufacturer.

1. LEVELS OF PROTECTION:

Level of protection refers to the maximum personal protection clothing or equipment needed to protect field personnel under certain conditions or situations they may encounter in the performance of their duties. The selection of personnel protective clothing and equipment is based on the potential risk of exposure to these conditions. PPE is designed to reduce exposure and not eliminate the hazard. Personnel shall be trained to select the appropriate level protection needed based on what hazards are presented.

There are four levels of protection described under EPA 1440 Guidelines. Level A involves worse case conditions and maximum risk. The environment has the potential to be immediately dangerous to life and health (IDLH). Pressure-demand, self-contained breathing apparatus (SCBA) and totally encapsulated chemical resistant suits (for maximum skin protection) are required. Level B involves the maximum level of respiratory protection (SCBA) without the maximum skin protection as required under Level A. Level C includes the use of air-purifying respirators (with appropriate filter canisters) and chemical protection clothing. Level C is not employed during IDLH situations. Level D involves a minimum level of protection. An example of Level D protection may include the use of emergency escape respiratory protection, safety boots or minimum eye and skin protection.
OF THE FOUR LEVELS OF PROTECTION, THE HAZARDOUS WASTE SECTION PERSONNEL, AT THIS TIME, IS CAPABLE OF USING LEVEL B, LEVEL C AND LEVEL D. HWS DOES NOT MAINTAIN THE ABILITY TO EMPLOY LEVEL A PROTECTION NOR AUTHORIZE HWS PERSONNEL TO EMPLOY LEVEL A PROTECTION. THE HWS SAMPLING TEAM MAY DON LEVEL B PROTECTION.

2. LEVEL OF PROTECTION DEFINED
The following is a description of the levels of personal protection, corresponding levels of protective equipment, and criteria for selection.

Level A Personal Protection
1. Positive pressure, full facepiece self-contained breathing apparatus (SCBA), or positive pressure supplied air respirator with escape SCBA, approved by the National Institute for Occupational Safety and Health (NIOSH).
2. Totally-encapsulating chemical-protective suit.
3. Coveralls.
4. Long underwear.*
5. Gloves, outer, chemical-resistant.
7. Boots, chemical-resistant, steel toe and shank.
8. Hard hat (under suit).*
9. Disposable protective suit, gloves and boots (depending on suit construction, may be worn over totally-encapsulating suit).

*Optional, as applicable.

Criteria for selection:
Meeting any of these criteria warrants use of Level A Protection:
1. The chemical substance has been identified and requires the highest level of protection for skin, eyes, and the respiratory system based on either the measured (or potential for) high concentration of atmospheric vapors, gases, or particulate; or the site operations and work functions involve a high potential for splash, immersion, or exposure to unexpected vapors, gases, or particulate of materials that are harmful to skin or capable of being absorbed through the skin;
2. Substances with a high degree of hazard to the skin are known or suspected to be present, and skin contact is possible; or
3. Operations are being conducted in confined, poorly ventilated areas, and the absence of conditions requiring Level A have not yet been determined.
4. Oxygen level < 19.5%.

Level B Personal Protection
1. Positive pressure, full-facepiece self-contained breathing apparatus (SCBA), or positive
pressure supplied air respirator with escape SCBA (NIOSH approved).
2. Hooded chemical-resistant clothing (overalls and long-sleeved jacket; coveralls; one
or two-piece chemical-splash suit; disposable chemical-resistant overalls).
3. Coveralls*
4. Gloves, outer, chemical-resistant.
5. Gloves, inner, chemical-resistant.
6. Boots, outer, chemical-resistant steel toe and shank.
7. Boot-covers, outer, chemical-resistant (disposable)*
8. Hard hat*
9. Face shield*

* Optional, as applicable.

Criteria for selection:
Meeting any of these criteria warrants use of Level B Protection:
1. The type and atmospheric concentration of substances have been identified and
require a high level of respiratory protection, but less skin protection;
2. The atmosphere contains less than 19.5 percent oxygen; or
3. The presence of incompletely identified vapors or gases is indicated by a direct-
reading organic vapor detection instrument, but vapors and gases are not suspected
of containing high levels of chemicals harmful to skin or capable of being absorbed
through the skin.

Note: This involves atmospheres with IDLH concentration of specific substances that
present severe inhalation hazards and that do not represent a severe skin hazard;
or that do not meet criteria for use of air-purifying respirators.

Level C Personal Protection
1. Full-face or half-mask, air purifying respirators (NIOSH approved).
2. Hooded chemical-resistant clothing (overalls; two-piece chemical-splash suit;
disposal chemical-resistant overalls).
3. Coveralls*
4. Gloves, outer, chemical-resistant.
5. Gloves, inner, chemical-resistant.
6. Boots (outer), chemical-resistant steel toe shank*
7. Boot-covers, outer, chemical-resistant (disposable)*
8. Hard hat*
9. Escape mask*
10. Face shield*

* Optional, as applicable.

Criteria for selection
Meeting all of these criteria permits use of Level C protection:
1. The atmospheric contaminants, liquid splashes, or other direct contact will not
adversely affect or be absorbed through any exposed skin;
2. The types of air contaminants have been identified, concentrations measured, and an air-purifying respirator is available that can remove the contaminants; and
3. All criteria for the use of air-purifying respirators are met.
4. Oxygen levels greater than 19.5%.
Note: The concentration(s) and type(s) of airborne substance(s) is known and the criteria for using air purifying respirators are met.

Level D Personal Protection

1. Coveralls.
2. Puncture Resistant Insoles
3. Gloves.*
4. Boots/shoes, chemical resistant steel toe and shank.
5. Boots, outer, chemical-resistant (disposal).*
6. Safety glasses or chemical splash goggles.*
8. Face shield.*
* Optional, as applicable.

Criteria for selection:
Meeting all of these criteria permits use of Level D Protection:
1. The atmosphere contains no known hazard; and
2. Work functions preclude splashes, immersion, or the potential for unexpected inhalation of any chemicals fumes.

Note: Level D is a work uniform affording minimal protection, used for nuisance contamination only.

3. HWS LEVEL OF PROTECTION ASSIGNMENTS
The following of positions and their approved Level of Protection:
Level A:
Not used by HWS
Level B:
Sampling Team Members Only
Level C:
Sampling Team Members Only.
Level D:
All personnel except Administrative.
VII. TRAINING

See HWS Health and Safety Manual for additional training requirements and Class Curriculums

Policy

All HWS staff shall receive training prior to engaging in job responsibilities. The training involved will be commensurate to the specific hazard category assigned to the job position as defined by the Occupational Hazard Assessment. The safety training of HWS personnel is designed to comply with 29 CFR 1910- Health and Safety Standards for General Industry; however, training is specific to HWS. 29 CFR 1910.120 requires that all employees engaged in activities with hazardous materials receive 40 hours of initial training in health and safety and personal protection and to receive thereafter, an annual 8 hours refresher. The topics discussed in this training include those elements listed in 29 CFR 1910.120(e),(p),(q)- fundamentals of hazard recognition, toxicology; use and limitation of direct-reading, air-monitoring instrumentation; the selection, use, maintenance (to include cleaning and inspection- at least yearly of PPE); selection of respiratory and personal protection clothing; and safety guides and standard operating guidelines for conducting response operations. Roughly half of this training consists of hands-on use of personal protection equipment. The employee shall also be able to explain when PPE is necessary, what PPE is necessary, how to properly don, doff, adjust, and wear the PPE, limitations of PPE, proper care of PPE.

After completing the 40-hour initial training course, the new employee will spend a minimum of three days in the field under the direct supervision of a trained, experienced supervisor. The new HWS employee must be able to demonstrate their knowledge through "real-life" application in the field at each step of the training process. Copies of certificates of completion of the 40-hour course, 8-hour refresher and any other health and safety training will be kept on file in the office of the Safety Consultant.

If a HWS employee is issued any type of PPE, it is the shared responsibility of that employee’s immediate Supervisor, Branch Head, Section Chief, and Safety Consultant to insure that the employee is trained in the use, maintenance, storage, limitations of the PPE and to recognize the situations which may deem its necessary use.

Other training of field personnel (as dictated by the Occupation Hazard Assessment) may include initial respiratory protection training and fit testing (see Respiratory Protection Manual). Sampling Team members must attend annual training (see Respiratory Protection Manual). The purpose of the training sessions and updates is to insure that HWS personnel demonstrate and maintain proficiency in the use of PPE and hazard recognition.

VIII. CLEANING AND MAINTENANCE

It is important for all personal protective equipment to be kept clean and in proper working order. Much of the personal protection equipment is disposal, one use. For PPE that is not disposal such as safety shoes, it will be clean and maintained according to manufacture recommendations. All personal protection equipment will be inspected at least annually for proper fit and condition. For equipment manuals, see the Safety Consultant.
The Occupational Hazard Assessment has three intentions:
• communicate workplace hazards associated with the position
• bring about awareness of what personal protective equipment is available
• determine what training is needed for the position.

Position Title: __________________________

Name: ________________________________

Hazard Associated with this position:
A check indicates exposure to the hazard is reasonable anticipated. Any hazard left blank indicates the hazard is not likely to occur.

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Personal Protective Equipment that may be needed for this Position:

- NIOSH Chemical Guide
- Hard Hat
- Eye wash unit
- Fire Extinguisher
- First Aid Kit
- Hand Sanitizer
- Nitrile Gloves
- Chemical Resistant over Boots
- Reflective Traffic Safety Vest
- Binoculars
- Safety Shoes
- Hearing Protection

Training Requirements:

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<tr>
<th>Yes/No</th>
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<tr>
<td>Hazwoper 40 hour</td>
<td>Office Safety</td>
</tr>
<tr>
<td>Hazwoper 8 hour Refresher (Parts A and B)</td>
<td>First Aid/ CPR</td>
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<tr>
<td>Sampling Team</td>
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Employee __________________________

Safety Consultant __________________________

Three Dates Employee was Observed Working: _________   __________   _________