

HEALTH AND SAFETY PLAN
for
ENVIRONMENTAL INVESTIGATIONS
AT THE WAYSIDE AREA

NAVAL WEAPONS STATION EARLE
Colts Neck, New Jersey



Northern Division
Naval Facilities Engineering Command

Contract No. N62472-90-D-1298

Contract Task Order 300

OCTOBER 2000



TETRA TECH NUS, INC.

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FOR
NAVAL WEAPONS STATION EARLE
ENVIRONMENTAL INVESTIGATIONS
AT WAYSIDE AREA
Colts Neck, New Jersey

Submitted by:
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Contract No. N62472-90-D-1298
Contract Task Order 300

Tetra Tech NUS Inc.
Project Number 7695-1700

October 2000

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1.0 INTRODUCTION

This Health and Safety Plan (HASP) has been developed to provide the minimum safety and health practices and procedures for Tetra Tech NUS, Inc. (TtNUS) and subcontractor personnel engaged in Investigation and Evaluation activities at the Naval Weapons Station Earle Site Wayside Area located in Colts Neck, New Jersey under the U.S. Navy CLEAN Contract Task Order Number 300, Contract Number N62472-90-D-1298.

This HASP discusses personnel responsibilities and establishes requirements to be incorporated into the above planned activities for the purpose of protecting personnel from hazards which may be inherent to the site or tasks associated with the scope of work.

This HASP is supported by the TtNUS Health and Safety Guidance Manual. The Guidance Manual provides detailed information pertaining to the HASP as well as applicable Standard Operating Procedures (SOPs). This HASP and the contents of the Guidance Manual were developed to comply with the requirements stipulated in 29 CFR 1910.120 (OSHA's Hazardous Waste Operations and Emergency Response Standard) and applicable portions of 29 CFR 1926 Construction Industry Standards. Both of these documents must be present at the site during the performance of all site activities.

This HASP has been developed using the latest available information regarding known or suspected chemical contaminants and potential physical, biological and ergonomic hazards associated with the proposed work at the site. This HASP will be modified if new information becomes available. All changes to the HASP will be made with the approval of the TtNUS Health and Safety Officer (HSO). Requests for modifications to the HASP will be directed to the Site Safety Officer (SSO) who will make applicable recommendations to the HSO regarding content modifications as it may apply to site conditions or the tasks to be performed. All changes made by the HSO will be communicated to the Project Manager (PM), who will notify all affected personnel of changes.

1.1 KEY PROJECT PERSONNEL AND ORGANIZATION

This section defines responsibility for site safety and health for TtNUS and subcontractor employees engaged in on-site activities (see Figure 1-1). Personnel assigned to these positions will exercise the primary responsibility for all on-site health and safety. These persons will be the primary point of contact

for any questions regarding the safety and health procedures and the selected control measures that are to be implemented for on-site activities.

- The TtNUS Project Manager (PM) is responsible for the overall direction of health and safety for this project.
- The TtNUS Health and Safety Officer (HSO) is responsible for developing this HASP in accordance with applicable OSHA regulations. Specific responsibilities include:
 1. Providing information regarding site contaminants and physical hazards associated with the site.
 2. Establishing air monitoring and decontamination procedures.
 3. Assigning personal protective equipment.
 4. Determining emergency response procedures and emergency contacts.
 5. Stipulating training requirements and reviewing appropriate training and medical surveillance certificates.
 6. Providing standard work practices to minimize potential injuries and exposures associated with hazardous waste work.
 7. Making any changes to this document as it may apply to site conditions or tasks to be conducted.
- The TtNUS Field Operations Leader (FOL) is responsible for implementation of the HASP with the assistance of an appointed SSO. The FOL manages field activities, executes the work plan, and enforces safety procedures as applicable to the work plan.
- The SSO supports site activities by advising the FOL on all aspects of health and safety on-site. The SSO shall:
 1. Coordinate all health and safety activities with the FOL.
 2. Select, apply, inspect, and maintain personal protective equipment.
 3. Establish work zones and control points.
 4. Implement the air monitoring program for on-site activities.
 5. Verify training and medical clearance of on-site personnel status in relation to site activities.
 6. Implement Hazard Communication and Respiratory Protection and other associated safety and health programs, as they may apply to the operations identified as part of this project.
 7. Coordinate emergency services.

8. Provide site-specific training for all on-site personnel.

Compliance with the requirements stipulated in this HASP is monitored by the SSO and coordinated through the TtNUS Health and Safety Officer.

**FIGURE 1-1
SITE INFORMATION AND PERSONNEL ASSIGNMENTS**

Site Name: NWS Earle Wayside Area
Colts Neck, NJ

Client Contact: Greg Goepfert

Phone Number: (732) 866-2515

Project Team:

TtNUS Personnel:	Discipline/Tasks Assigned:	Phone Number:
<u>Russell Turner</u>	<u>Project Manager (PM)</u>	<u>(610) 491-9688</u>
<u>Vincent Shickora</u>	<u>Field Operations Leader (FOL)</u>	<u>(610) 491-9688</u>
<u>Don Whalen</u>	<u>Site Safety Officer (SSO)</u>	<u>(610) 491-9688</u>
<u>Michelle F. Gillie, CIH</u>	<u>Project Health and Safety Officer (PHSO)</u>	<u>(610) 491-9688</u>
<u>Matthew Soltis, CIH, CSP</u>	<u>Navy CLEAN Health/Safety Manager</u>	<u>(412) 921-8912</u>

**Other Potential TtNUS
Project personnel:**

	Affiliation/Discipline/Tasks Assigned:	Phone Number
<u>_____</u>	<u>Field Geologist</u>	<u>(610) 491-9688</u>
<u>Tom Patton</u>	<u>Equipment Manager</u>	<u>(412) 262-4583</u>
<u>_____</u>	<u>_____</u>	<u>_____</u>

Non-TtNUS Personnel:	Affiliation/Discipline/Tasks Assigned:	Phone Number
<u>TBD</u>	<u>Driller</u>	<u>_____</u>
<u>FedEx</u>	<u>Parcel Shipment</u>	<u>1(800)463-3339</u>

Prepared by: Michelle F. Gillie, CIH

Reviewed and Approved by:

Russell Turner
Project Manager

Matthew Soltis, CIH, CSP
CLEAN Health and Safety Manager

2.0 EMERGENCY ACTION PLAN

2.1 INTRODUCTION

This section has been developed as part of a pre-planning effort to direct and guide field personnel in the event of an emergency. In the event of an emergency that cannot be handled using on-site resources, personnel will evacuate to a safe place of refuge and the appropriate emergency response agencies will be notified. It has been determined that a majority of potential emergency situations would be better supported by outside emergency responders. Based on this determination, TtNUS and subcontractor personnel will not provide emergency response support beyond the capabilities of on-site response. Workers who are ill or who have suffered a non-serious injury may be transported by site personnel to nearby medical facilities, provided that such transport does not aggravate or further endanger the welfare of the injured/ill person. The emergency response agencies listed in this plan are capable of providing the most effective response, and, as such, will be designated as the primary responders. These agencies are located within a reasonable distance from the area of site operations, which ensures adequate emergency response time. This Emergency Action Plan conforms to the requirements of 29 CFR 1910.38(a), as allowed in 29 CFR 1910.120(l)(1)(ii).

TtNUS will provide the following initial response measures:

- Initial stage fire fighting support and prevention
- Initial spill control and containment measures and prevention
- Removal of personnel from emergency situations
- Initial medical support for injuries or illnesses requiring only first-aid level support
- Site control and security measures as necessary

2.2 PRE-EMERGENCY PLANNING

Initial hazard/risk assessment efforts have identified exposure to chemical or physical hazards or fire as the most probable emergencies (i.e., illness or injury) that could be encountered during site activities. To minimize and/or eliminate these potential emergency situations, pre-emergency planning activities associated with this project include the following (which are the responsibility of the SSO and/or the FOL):

- Establishing and maintaining information at the project staging area (support zone) for easy access in the event of an emergency. This information will include the following:
 - Chemical Inventory (used on-site), with Material Safety Data Sheets.

- On-site personnel medical records (Medical Data Sheets).
- A log book identifying personnel on site each day.

It will be the responsibility of the TtNUS FOL to:

- Identify a chain of command for emergency action.
- Educate site workers to the hazards and control measures associated with planned activities at the site, and to provide early recognition and prevention where possible.

2.3 EMERGENCY RECOGNITION AND PREVENTION

2.3.1 Recognition

Foreseeable emergency situations that may be encountered during site activities will generally be recognizable by visual observation. Visual observation is primarily relevant for physical and biological hazards that may be associated with the proposed scope of work. Visual observation may also play a role in detecting some chemical exposures. To adequately recognize exposures to site contaminants, site personnel must have a clear knowledge of signs and symptoms of exposure associated with potential site contaminants. This information is provided in Table 6-1 of this HASP. Potential site hazards associated with site activities and the recommended control methods are discussed in detail in Section 5.0 and 6.0 of this HASP. Additionally, early recognition of emergency situations will be supported by periodic site surveys to eliminate any situation predisposed to an emergency. The FOL, SSO, and the subcontractor supervisor will be responsible for performing surveys. Site surveys will be conducted at all work locations prior to the commitment of resources and personnel. This will be done for the purpose of removing or barricading identified physical hazards. Additionally, site surveys will be conducted at least once a week at all resource/staging areas. All site surveys conducted during this effort will be documented in the Field Operations Logbook.

The above actions will provide early recognition for potential emergency situations. Should an incident occur, TtNUS will take measures in the beginning stages to control these situations. However, if the FOL and the SSO determine that an incident has progressed to a serious emergency situation, TtNUS will withdraw and notify the appropriate response agencies listed in Table 2-1.

2.3.2 Prevention

TtNUS and subcontractor personnel will minimize the potential for emergencies by following the direction and guidance provided within the HASP and applicable OSHA regulations as they apply to the tasks to be conducted. Additionally, prevention will be facilitated through employment of offensive and defensive measures in removing or denying access to hazards identified through the site survey activities.

2.4 SAFE DISTANCES AND PLACES OF REFUGE

In the event that the site must be evacuated, all personnel will immediately stop activities and report to the designated safe place of refuge. Safe places of refuge will be identified prior to the commencement of site activities and will be conveyed to personnel as part of issuing a Safe Work Permit to conduct exclusion zone activities within an identified area. As part of this issuance, a safety meeting will be conducted to preview hazards and control measures identified on the Safe Work Permit and through the site survey for that particular area. Whenever possible, the safe place of refuge will also serve as the telephone communications point for that area. During an evacuation, personnel will remain at the refuge location until directed otherwise by the TtNUS FOL or the on-site Incident Commander of the Emergency Response Team. The FOL or the SSO will take a head count at this location to account for and to confirm the location of all site personnel. Emergency response personnel will be immediately notified of any unaccounted personnel.

2.5 EVACUATION ROUTES AND PROCEDURES

An evacuation to the identified refuge location will be initiated whenever the health, safety or welfare of site workers is compromised. Specific examples of conditions that may initiate an evacuation include, but are not limited to, the following: severe weather conditions; fire or explosion; monitoring instrument readings above prescribed action levels; and personnel showing signs or symptoms of potential overexposure to site contaminants. In the event of an evacuation, personnel will proceed immediately to the designated place of refuge unless doing so would further jeopardize the welfare of workers. In such an event, personnel will proceed to a designated alternate location and remain until further notification from the TtNUS FOL.

Evacuation procedures will be discussed prior to the initiation of any site work. Evacuation routes from the site and safe places of refuge are dependent upon the location at which work is being performed and the circumstances under which an evacuation is required. Additionally, site location and meteorological conditions (i.e., wind speed and direction) may dictate evacuation routes. As a result, assembly points will be selected and communicated to the workers relative to the site location where work is being performed.

2.6 DECONTAMINATION PROCEDURES/EMERGENCY MEDICAL TREATMENT

During an evacuation, decontamination procedures will be performed only if doing so does not further jeopardize the welfare of site workers. However, it is unlikely that an evacuation would occur at this site which would require workers to evacuate the site without first performing decontamination procedures. TtNUS will provide medical treatment to the level of first aid. Personnel requiring treatment greater than first aid will constitute an emergency situation for which the appropriate agency must be notified. First aid kits will be maintained on-site and accessible to all field personnel during operations as described within this document.

2.7 EMERGENCY ALERTING AND ACTION/RESPONSE PROCEDURES

At each site, TtNUS personnel will be working in close proximity to each other. As a result, hand signals, voice commands, and air horns will be sufficient to alert site personnel of an emergency. If teams will be working simultaneously as part of this project, two-way radios will be used to communicate between teams of workers.

If an emergency occurs, the following procedures are to be initiated:

- Initiate an evacuation by hand signals, voice commands, air horn, or two-way radios. Report to the designated refuge point.
- Describe to the FOL (who will serve as the Incident Coordinator) what has occurred and as many details as possible. Once all personnel are evacuated, appropriate beginning stage response procedures will be enacted to control the situation.

In the event that site personnel cannot control the incident through offensive and defensive measures, the FOL and SSO will enact the emergency notification procedures to secure additional assistance in the following manner:

- Call 911 or other emergency contacts (Table 2-1) and report the emergency. Give the emergency operator the location of the emergency, the type of emergency, the number of injured, and a brief description of what occurred. Stay on the phone and follow the instructions given by the operator. The operator will then notify and dispatch the proper emergency response agencies.

2.8 PPE AND EMERGENCY EQUIPMENT

A first aid kit, eyewash units, and fire extinguishers will be maintained on-site at all active work locations and shall be immediately available for use in the event of an emergency. PPE used in daily activities will serve as the primary defense for all chemical hazards encountered. Emergency situations surpassing the level of protection offered by the prescribed PPE will constitute an emergency and require evacuation and notification of the appropriate response agency.

2.9 EMERGENCY CONTACTS

Prior to performing work at the site, all personnel will be thoroughly briefed on the emergency procedures to be followed in the event of an accident. Table 2-1 provides a list of emergency contacts and their associated telephone numbers. This table must be posted on site where it is readily available to all site personnel.

2.10 INJURY AND ILLNESS REPORTING

After the initial response (e.g., first aid, etc.) to an injury or illness that has taken place, the incidence and details of the injury or illness must be properly reported and documented. Within 24 hours of occurrence, any occupational injury or illness must be reported to the TtNUS Health and Safety Officer (HSO) at (610) 491-9688. An OSHA 101 form (Attachment III) must be completed and submitted to the Corporate HSM (Pittsburgh office) within three working days of the event. A copy of this form will be maintained at the site.

It should be noted that "near misses" as well as actual injuries and illnesses should be reported. By identifying near miss situations, possible recommendations for preventing a recurrence can be made.

TABLE 2-1
EMERGENCY CONTACTS
NWS EARLE WAYSIDE AREA
COLTS NECK, NJ

CONTACT	PHONE NUMBER
EMERGENCY (Police, Fire, Ambulance Service)	1-908-866-2333
Hospital – Riverview Hospital Red Bank, New Jersey	(908) 741-2700
Base Contact – Greg Goepfert	(908) 866-2515
NJDEP 24-Hour Emergency	(609) 292-2172
Poison Control Center	1-800-962-1253
Chemtrec National Response Center	(800) 424-9300 (800) 424-8802
TtNUS, Philadelphia Office	(610) 491-9688
Project Manager Russell Turner	(610) 491-9688 Ext. 104
TtNUS Health and Safety Officer Michelle F. Gillie, CIH	(610) 491-9688 Ext. 106 Mobile (610) 888-3789
CLEAN Health and Safety Manager Matt Soltis, CIH, CSP	(412) 921-8912 (800) 245-2730
Utilities	TBD

2.11

EMERGENCY ROUTE TO HOSPITAL

Directions to Hospital:

- Proceed North on NWS Earle's Normandy Road.
- Take right onto West Front Street.
- Proceed on West Front Street, past the intersection with Broad Street, Red Bank.
- Turn left onto North Washington Street directly leading to the Emergency Room entrance.
- Estimated trip time is 20 minutes.

A legible map indicating the travel route from the site to the Hospital is shown in Figure 2-1 of this HASP.



FIGURE 5-1
 MAP TO HOSPITAL FROM MAIN BASE (page 1 of 3)

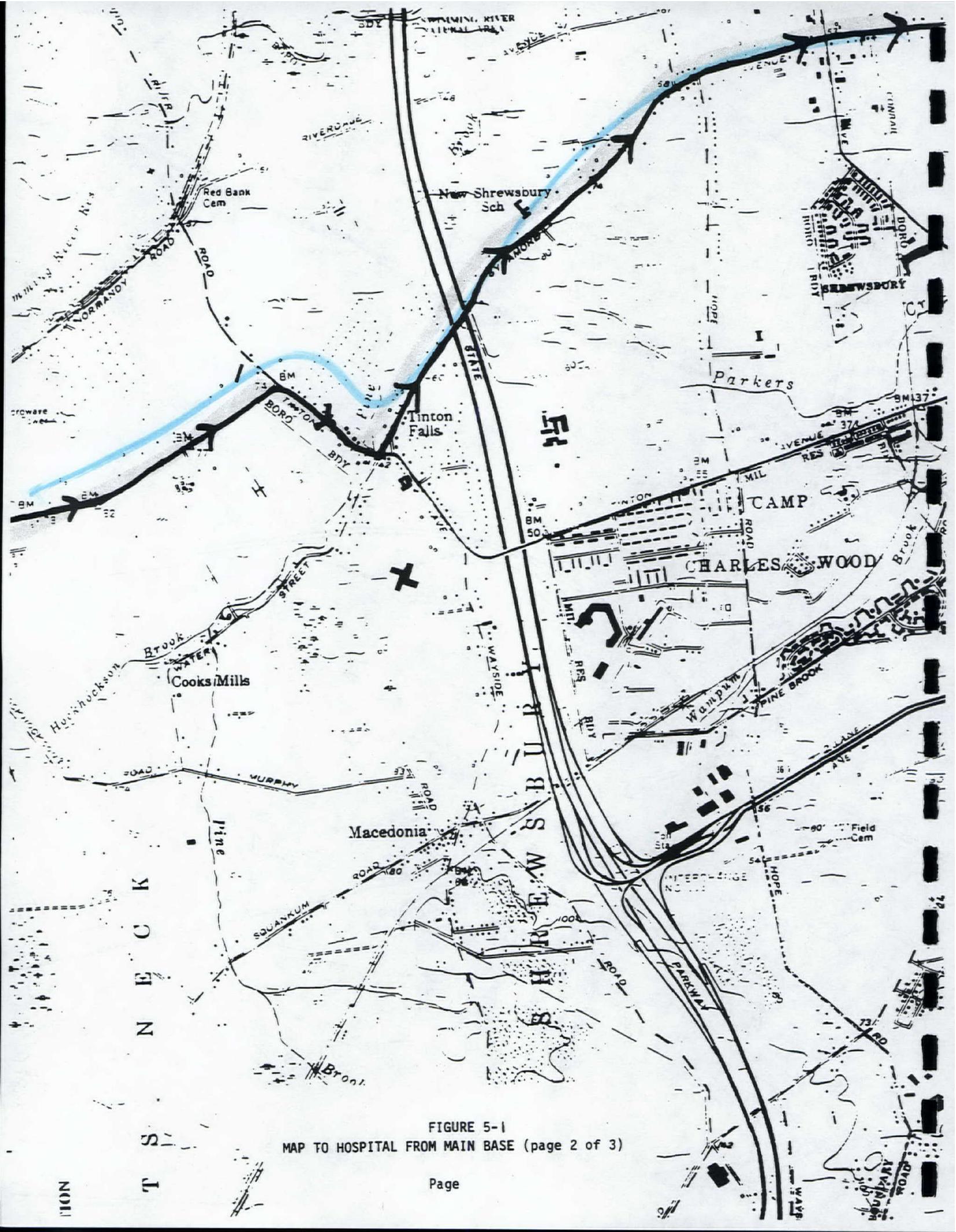


FIGURE 5-1
 MAP TO HOSPITAL FROM MAIN BASE (page 2 of 3)

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FIGURE 5-1
 MAP TO HOSPITAL FROM MAIN BASE (page 3 of 3)

Bank
 Woods

3.0 SITE BACKGROUND

3.1 SITE LOCATION AND DESCRIPTION

The NWS Earle facility is an 11,134-acre U.S. Navy facility located south of Colts Neck, Monmouth County, New Jersey, about six miles inland from the Atlantic Ocean. The station is divided into two parts (Figure 3-1): the Waterfront Area located on Sandy Hook Bay, and the Mainside area located approximately ten miles inland from the Waterfront Area in the town of Colts Neck. The two areas are linked by a narrow tract of land that serves as a right-of-way for a government road and railroad. The mission of NWS Earle is to furnish ammunition to the Naval fleet.

A portion of the NWS Earle Mainside Area was formerly loaned to the U.S. Army for its near exclusive use. The area in question, known as the Wayside Area, consists of approximately 440 acres of land located at the northeast corner of the Weapons Station (Figure 3-2). The Army used this land for approximately 45 years (1947-1992) for training exercises and electronics and communications testing. This area is somewhat isolated from the NWS Earle Mainside Area, located north of an extensive array of railroad car ordnance barricades.

The small arms firing range built by the Army in the Wayside Area has been used by the Army, Navy and others (local law enforcement officers) in the past. There is a small parcel of Navy-owned land in the far northeast corner of the Wayside Area that has been used by a commercial business (asphalt plant) not related to the Navy or the Army.

There is a local manufacturing plant (Estey Manufacturing) that is reportedly a Comprehensive Environmental Response Compensation and Liability Act (CERCLA) Site under environmental investigations monitored by the U.S. Environmental Protection Agency (EPA) Region II and the New Jersey Department of Environmental Protection (NJDEP). The plant is located southeast of portions of the Wayside Area.

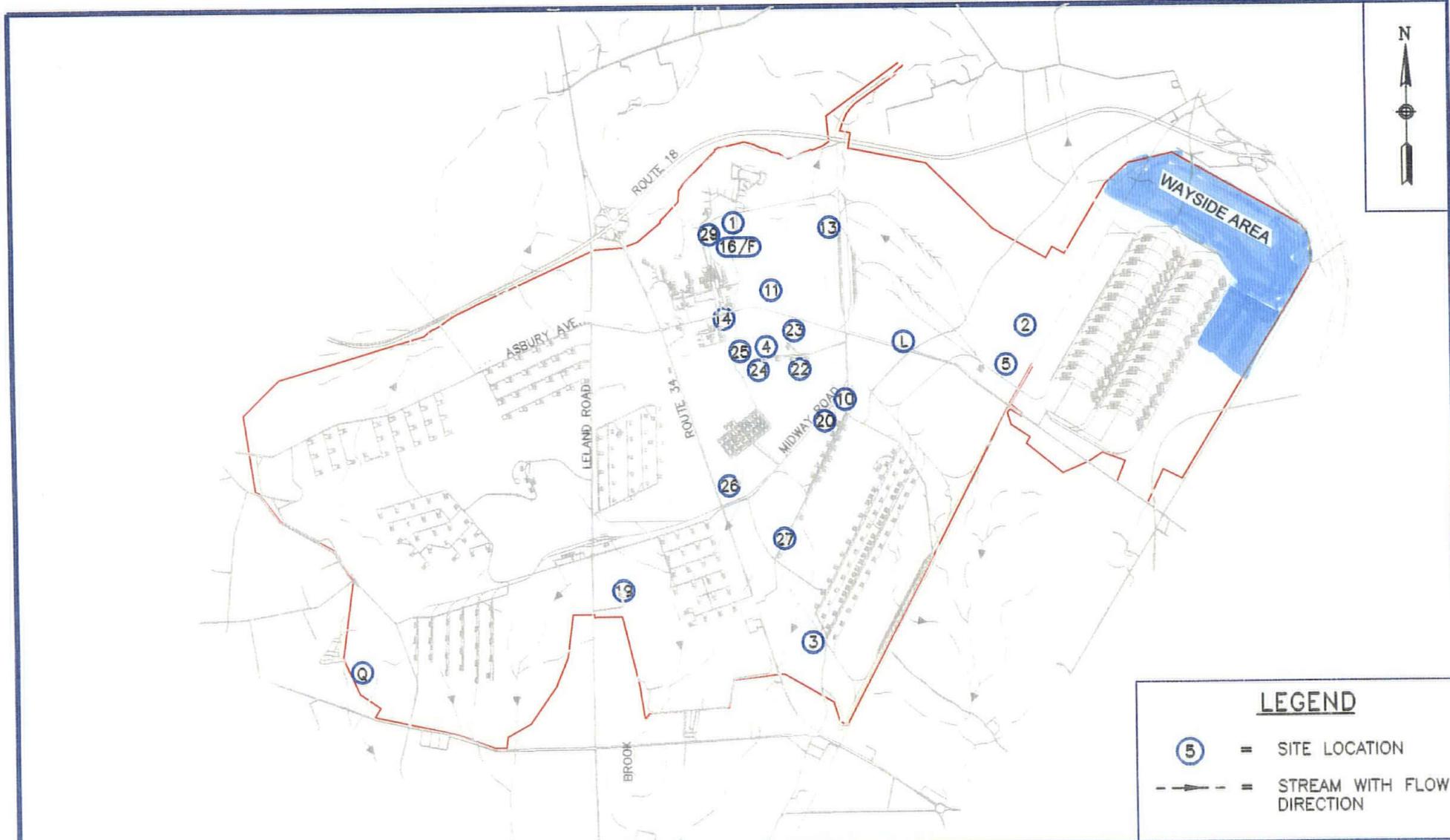
3.2 SITE BACKGROUND

An Environmental Assessment (EA) Report for the Wayside Area was prepared for the Navy (Halliburton NUS, 1991) to document conditions and historical findings and to recommend environmental investigations. Accurate descriptions of Wayside Area boundaries, local topography, climate, geology, soils and site history are contained in the subsequent Site Investigation (SI) Report to the Navy

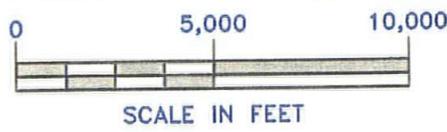
(Halliburton NUS, 1992). The SI report also contains findings of physical/chemical investigations of field conditions and recommendations for further actions.

The SI Report noted that the pistol range impact area was littered with spent metal projectiles and fragments containing lead, copper, and potentially impact surface. Petroleum compounds were found in soil samples obtained beneath the above ground storage tank located in front of Building M in the northwest section of the site. A former underground storage tank located near former Building R (in the same general vicinity) is reported to have leaked. Lead-containing paint is assumed to have been used on all painted surfaces since thirteen buildings tested were found to be lead-painted.

The SI Report indicated there were no PCBs detected in the soil samples collected near the transformer pads that were known to have contained PCBs (removed prior to SI). No petroleum hydrocarbons were found beneath the former above ground tank located at the southeastern corner of the antenna field. No asbestos-containing materials were identified in insulation collected from four buildings. There was no evidence that the septic tanks located at the Communications Electronics Command-Electromagnetic Interference (CECOM-EMI) building or Building N were associated with any hazardous compound disposal.



LEGEND	
	= SITE LOCATION
	= STREAM WITH FLOW DIRECTION



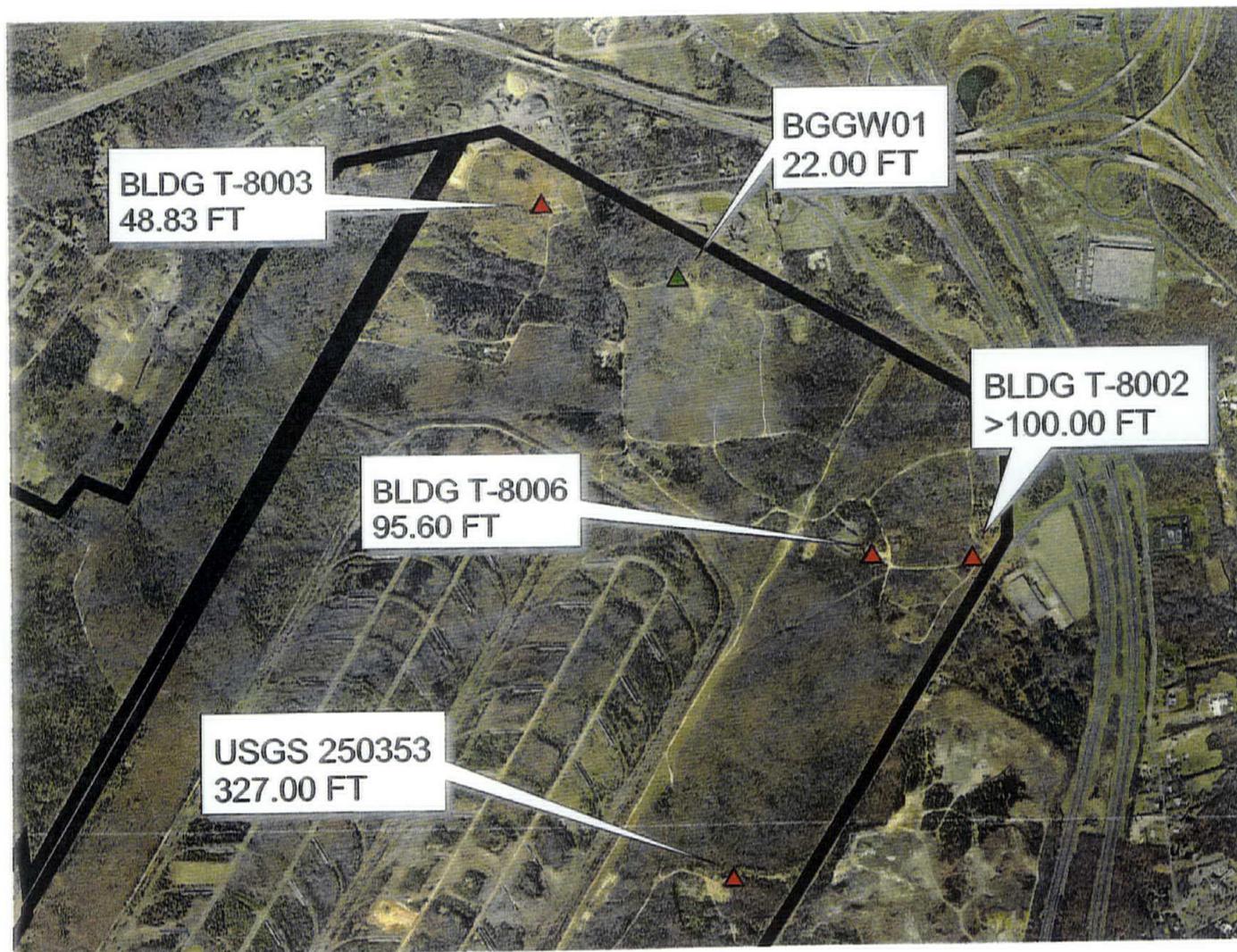
DRAWN BY	DATE
LDL/EEH	5/26/00
CHECKED BY	DATE
REVISED BY	DATE
SCALE AS SHOWN	



MAINSIDE SITE LOCATIONS
NAVAL WEAPONS STATION EARLE
 COLTS NECK, NEW JERSEY

CONTRACT NO. 7695	
OWNER NO. 0300	
APPROVED BY	DATE
DRAWING NO. FIGURE 3-1	REV.

NWS EARLE WAYSIDE AREA



LEGEND:

-  Wells
-  Background Well
-  Earle Approximate Boundaries

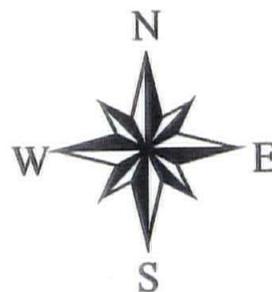


FIGURE 3-2

4.0 SCOPE OF WORK

This section discusses the activities that are to be performed at the NWS Earle Site Wayside Area. Table 5-1 of this HASP provides information related to each of the tasks that are to be performed as part of the scope of work. Additionally, partially completed Safe Work Permits for site tasks are provided in Attachment IV. These Safe Work Permits discuss hazards associated with tasks performed at each site location and the appropriate control measures that are to be implemented during the performance of site activities. Additional information such as site personnel will be completed prior to the commencement of site activities. The planned activities involved in this effort are presented in detail in the October 2000 TtNUS Draft Work Plan (WP) developed for this project. If new tasks are to be performed at the site, Table 5-1 and this section will be modified accordingly and additional Safe Work Permits will be developed. If tasks other than those described below are performed at the site, this section and this HASP will be modified accordingly.

The following tasks will be performed at the Site. However, it should be noted they may not be carried out in the order presented.

- Mobilization/Demobilization
- Utility clearance
- Test pit excavations
- Soil sampling
- Disposal of water tank and contents
- Installation of three temporary monitoring wells
- Groundwater sampling and flow direction at six existing wells
- Site Survey
- Well closure

5.0 TASKS/HAZARDS/ASSOCIATED CONTROL MEASURES SUMMARIZATION

Table 5-1 of this section serves as the primary portion of the site-specific HASP which identifies the tasks that are to be performed as part of the scope of work. This table will be modified and incorporated into this document as new or additional tasks are performed at the site. The anticipated hazards, recommended control measures, air monitoring recommendations, required Personal Protective Equipment (PPE), and decontamination measures for each site task are discussed in detail. This table and the associated control measures shall be revised, if the scope of work, contaminants of concern, or other conditions change.

Through using the table, site personnel can determine which hazards are associated with each task at the site, and what associated control measures are necessary to minimize potential exposure or injuries related to those hazards. The table also assists field team members in determining which PPE and decontamination procedures to use based on proper air monitoring techniques and site-specific conditions.

As discussed earlier, this table and HASP are accompanied by a Tetra Tech NUS Inc. Corporate Health and Safety Guidance Manual. The manual is designed to further explain supporting programs and elements for other site-specific aspects as required by 29 CFR 1910.120. The Guidance Manual should be referenced for additional information regarding air monitoring instrumentation, decontamination activities, emergency response, hazard assessments, hazard communication and hearing conservation programs, medical surveillance, PPE, respiratory protection, site control measures, standard work practices, and training requirements. Many of TtNUS' Standard Operating Procedures (SOPs) are also provided in this Guidance Manual.

Safe Work Permits issued for all exclusion zone activities (See Section 10.10 and Attachment IV) will use elements defined in Table 5-1 as its primary reference. Additional site-specific information will be added to the Safe Work Permit by the FOL and/or the SSO.

TABLE 5-1

TASKS/HAZARDS/CONTROL MEASURES COMPENDIUM
 CTO 300 SITE INVESTIGATION
 NWS EARLE WAYSIDE AREA, COLTS NECK, NJ
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Tasks/Operati n/ Le cati ns	Anticipated Hazards	Recommended Control Measures	Air Monitoring Type/Action Levels	Personal Protective Equipment	Decontaminati n Procedures
Mobilization/ Demobilization	<p>Chemical hazards:</p> <p>Exposure to potential site contaminants is not anticipated during this activity. However, chemicals brought on site in support of field activities are to be identified, logged, accompanied by an appropriate MSDS, properly stored, and evaluated for purposes of hazard communication.</p> <p>Physical hazards:</p> <p>Potential physical hazards associated with this task may include:</p> <ol style="list-style-type: none"> 1) Lifting (muscle strains and pulls) 2) Pinches and compressions 3) Slip, trips, and falls 4) Moving machinery 5) Biological hazards (Insect/animal bites and stings) 6) Vehicular and foot traffic 	<p>Chemical Hazards:</p> <p>To eliminate potential chemical hazards associated with this task ensure the following:</p> <ul style="list-style-type: none"> - A chemical inventory list is generated for all chemicals brought on site (Complete Section 5.0 of the TtNUS Health and Safety Guidance Manual). - Material Safety Data Sheets must be available for all chemicals brought on site (Complete Section 5.0 of the TtNUS Health and Safety Guidance Manual). - Materials are stored in accordance with recommended practices and according to compatibility (See MSDS for storage and compatibility recommendations). <p>Physical hazards:</p> <ol style="list-style-type: none"> 1) Employ machinery or multiple personnel for heavy lifts. <ul style="list-style-type: none"> - Use proper lifting techniques. . Use truck ramps to load/unload heavy equipment onto/off vehicles. 2) Use pinch bars or other equipment to keep hands from the point of operation. 3) Preview and prepare work locations where unstable/uneven terrain exists. Barricade all excavations deeper than 2 feet from access closer than two feet from the edge from foot and vehicular traffic. 4) All equipment to be employed will be <ul style="list-style-type: none"> - Inspected in accordance with OSHA, and manufacturers design. The inspection will include the completion of the Equipment Record Sheet documenting the review and acceptance/failure of safety devices, guards, emergency stops. The Equipment Record Sheet may be found in Section 10.0 of the TtNUS Health and Safety Guidance Manual. <ul style="list-style-type: none"> - Operated by knowledgeable operators, and knowledgeable ground crew, as applicable. - Establish safe zones of approach (i.e., Boom + 3 feet). - Secure all loose articles to avoid possible entanglement. 5) Avoid insect nesting areas, employ repellents (Do NOT use repellents during sampling activities). Report potential hazards to the SSO. Frequently inspect clothing and persons during and after activities in wooded areas for ticks and other vectors. Avoid standing water where mosquitoes breed. Avoid work at dawn, dusk and evening hours when mosquitoes are most active. 6) Identify all access/egress routes and locations twthin established areas of operation. <ul style="list-style-type: none"> - All equipment capable of self propelled movement will be equipped with movement alarms as applicable. - Traffic regulations for NWS are to be followed as posted. - Traffic regulations for TtNUS, operational areas will be posted by the SSO as required. 	Not required during mobilization/demobilization.	<p>Mobilization/demobilization activities is intended to initiate and proceed in Level D protection</p> <p>Level D - (Minimum Requirements)</p> <ul style="list-style-type: none"> - Standard field attire (Long sleeve shirt; long pants; or coveralls) - Safety shoes (Boots with steel toe/shank) - Safety glasses - Hardhat (when overhead hazards exists, or identified as an operation requirement) - Reflective vest for high traffic areas - Hearing protection for high noise areas, or as directed on an operation by operation scenario. As a general rule of thumb, if you need to raise your voice to be heard while engaged in conversation with someone who is within 2 feet of your position you may be exposed to excessive noise levels and should employ hearing protection until the SSO can quantify the potential hazard through sound level measurements or noise dosimetry. <p>Note: The Safe Work Permit(s) (See Section 9.4) will be issued at the beginning of each day to address the tasks planned for that day. As part of this task additional PPE may be assigned to reflect site-specific conditions or special considerations or conditions associated with any identified task.</p>	<p>As potential site contaminants are not anticipated as part of this task, personal decontamination is not required.</p> <p>All equipment arriving/leaving the site will be inspected prior to permitting this equipment to enter or exit the site. The SSO will inspect the equipment and give the clearance to allow the equipment to pass. Failure to pass inspection will prohibit entering or exiting the site as applicable. All equipment which fails the inspection will have to be decontaminated again to a level acceptable to the SSO prior to passage on or off site. All equipment permitted to pass on/off site will be documented using an Equipment Record Sheet indicating the equipment serial number, description, brief history of the other sites the equipment has been on, and the results of the inspection. This form may be found within Section 10.0 of the TtNUS Health and Safety Guidance Manual.</p>

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TASKS/HAZARDS/CONTROL MEASURES COMPENDIUM
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Tasks/Operation	Anticipated Hazard	Recommended Control Measures	Hazard Monitoring	Personal Protective Equipment	Decontamination Procedures
<p>Soil Borings and Monitoring Well Installations.</p> <p>Most soil boring activities will be performed using Direct-Push Technology. Additional soil boring will be performed using hand augering methods.</p>	<p>Chemical hazards</p> <p>1) Air/particulate/water borne contaminants at ppb concentrations including but not limited to: Total Petroleum Hydrocarbons (TPH) and heavy metals. Although site history does not indicate the use of explosives in this area, the potential for encountering residues of explosive compounds and unexploded ordnance is noted.</p> <p>2) Transfer of contamination into clean areas or onto persons</p> <p>Physical hazards</p> <p>3) Rotating machinery (entanglement)</p> <p>4) Noise</p> <p>5) Energized systems</p> <p>6) Lifting</p> <p>7) Slips, trips, and falls</p> <p>8) Natural hazards (poisonous plants, animals, and insects, especially ticks and mosquitoes)</p>	<p>Chemical hazards</p> <p>1) Use real-time monitoring instrumentation, action levels, personal sampling, and identified PPE to control exposures to potentially contaminated media (e.g., air, water, soils, etc.).</p> <ul style="list-style-type: none"> - Identify and physically barricade operational zones where potential contamination may exist to prevent incidental contact and transfer outside of the operational area. - If UXO or explosive residues are suspected or encountered, all field work must stop and the SSO/PHSO must be notified immediately <p>2) Decontaminate all equipment and supplies between drilling events and prior to leaving the site.</p> <p>Physical hazards</p> <p>3) All equipment to be used will be:</p> <ul style="list-style-type: none"> - Inspected in accordance with Federal safety and transportation guidelines, OSHA (1926.600, .601, .602), and manufacturers design and documented as such using Equipment Record Sheet (See Section 10.0 of the TiNUS Health and Safety Guidance Manual. - Operated by Certified operators, and knowledgeable ground crew. - Only manufacturer approved equipment may be used in conjunction with equipment repair procedures (i.e., pins for auger flights etc.). <p>In addition to the equipment considerations, the following standard operating procedures will be employed:</p> <ul style="list-style-type: none"> - All personnel not directly supporting the drilling operation will remain at least 25 feet from the point of operation. - All loose clothing/protective equipment will be secured to avoid possible entanglement. - Hand signals will be established prior to the commencement of drilling. - The driller and helper can simultaneously handle moving augers or flights only when there is a standby person to activate the emergency stop device. - The driller must never leave the controls while tools are rotating unless all personnel are clear of the rotating equipment. - A long handled shovel or equivalent shall be used to clear away drill cuttings from the hole and rotating equipment. Hands or feet shall not be used for this purpose. - A remote sampling device must be used to sample drill cuttings near rotating tools. The driller shall shutdown operations if the sampler is near the tools. - Never climb a drill mast while equipment is rotating. - Use ANSI approved fall protection (i.e., belts, lanyards and a fall protection slide rail) or portable ladders which meet OSHA's requirements when climbing drill masts. - Work areas will be kept clear of clutter. - All personnel will be instructed in the location and operations of the emergency shut off device(s). This device will be tested initially (and then periodically) to insure its operational status. - Areas will be inspected prior to the movement of drill rigs and support vehicle to eliminate any physical hazards. This will be the responsibility of the FOL and/or SSO. - Drill rigs and support vehicles will be moved no closer to banks, ditches, and other excavations than 3 feet unless the wall is supported. <p>4) Excessive noise levels will be mitigated through the use of hearing protection. Any piece of equipment or operation that has the potential to generate excessive noise levels (You must raise your voice to speak to someone within two feet of where you are standing) will require hearing protection until sound level measurements and/or noise dosimetry may be conducted to quantify the associated noise levels.</p> <p>5) All utility clearances shall be obtained in writing prior to subsurface activities. The locations of all underground utilities will be identified and marked prior to all subsurface investigations. Where the clearance cannot be obtained in a reasonable period, or not located, drilling shall proceed with extreme caution using a magnetometer for periodic downhole surveys to at least 6 feet.</p> <ul style="list-style-type: none"> - Drilling, drill masts or other projecting devices shall be at least 20 feet from overhead power lines and a minimum of 3 feet from identified underground locations. <p>6) Employ machinery or multiple personnel for heavy lifts.</p> <ul style="list-style-type: none"> - Use proper lifting techniques. <p>7) Traffic and equipment considerations are to include the following:</p> <ul style="list-style-type: none"> - Establish safe zones of approach (i.e. Boom + 3 feet). - All equipment shall be equipped with movement warning systems. - All personnel working in high equipment traffic areas are required to wear reflective vests for high visibility. - Employ safety belts and follow the site traffic rules. <p>Traffic patterns will be dictated supporting on site activities. However, regulated patterns in and about the work zones and support thereof will be established to safely control the flow patterns of mechanized vehicles and pedestrians.</p> <p>8) Avoid potential nesting areas or suspicious plants. Wear appropriate clothing and periodically inspect clothing and body for ticks or rashes. When necessary use repellent (except when sampling) and protective equipment (chaps, Tyvek coveralls, etc.). Avoid work at dawn, dusk or evening hours when mosquitoes are most active.</p>	<p>Direct reading instrument such as photoionization detectors w/10.6 eV and flame ionization detectors will be employed to screen samples and to detect the presence of any potential volatile organics.</p> <p>Some of the contaminants of concern (particularly metals) are solid at ambient temperatures. Therefore, control of potential exposures will be facilitated through engineering controls by using water to suppress airborne contaminant laden dust and particulates.</p> <p>The following information is provided as a contingency action only.</p> <p>These instruments will only be employed as a screening devices to be employed in the following manner:</p> <p>1) Source monitoring of the borehole will be conducted at regular intervals to be determined by the SSO. Positive sustained results at a source or downwind location(s) which may impact operations crew will require the following actions:</p> <ul style="list-style-type: none"> - Monitor the breathing zone of at-risk and downwind employees. Any sustained readings greater than 10 ppm above background in the breathing zone of the at-risk employees requires the person (SSO/sampler, etc.) monitoring to: - Elevate the level of protection until the source of the readings can be more accurately identified and quantified. - Sustained readings greater than 10 ppm above established background levels will require level C protection. The level of protection may not be downgraded until the readings return to background levels or the identity of the contaminant is determined through additional monitoring efforts (i.e., colorimetric tube analysis or personal air monitoring). - Any sustained readings greater than 25 ppm in worker breathing zones will require site activities to be suspended until the source and identity of the contaminant of concern is determined. Any breathing zone readings greater than 25 ppm will also require the notification of the project manager and the PHSO. <p>4) The SSO may perform noise dosimetry to ensure the drilling, and any contributory levels associated with the operation do not surpass the noise attenuation factors associated with the hearing protection selected.</p> <p>5) When utilities cannot be identified a procedure permitting downhole magnetometer surveys every 2 feet to a total of 6 feet.</p>	<p>All drilling operations are to be initiated in Level D protection.</p> <p>Level D protection constitutes the following minimum protection</p> <ul style="list-style-type: none"> - Standard field dress (Long pants Long Sleeve Shirts - Steel toe/shank safety shoes <p>These following items will be incorporated during drilling operations:</p> <ul style="list-style-type: none"> - Nitrile gloves with a cotton liner, - Hardhat, safety glasses, and earplugs or muffs. - Tyvek coveralls will be worn if there is a possibility of soiling work attire - Impermeable boot covers - PVC or PE coated Tyvek will be incorporated if there is a potential for saturation of work attire. (These items are optional as conditions dictate) <p>Level C protection upgrade will be done based on monitoring instrument results to the following:</p> <ul style="list-style-type: none"> - Air-Purifying Respirator (APR) with organic vapor/HEPA cartridges for elevated readings greater than 10 ppm above established background levels, of - Airborne dusts/particulates are observed and cannot be controlled with area wetting methods. <p>Level C chemical protective clothing will consist of impermeable boot covers, nitrile gloves with a cotton liner, Tyvek coveralls (unless free phase product is encountered). Free phase product or splash potential PVC or PE splash suit.</p> <p>Level B protection is <u>not</u> anticipated to be needed for this project. As a result, action levels and specific PPE items for level B protection are not discussed as part of this addendum. Any observed breathing zone reading greater than 25 ppm above background levels will require site activities to be suspended and the PM and PHSO to be notified.</p> <p>Level B protection would be required if the following conditions existed:</p> <ul style="list-style-type: none"> - If additional contaminants of concern are identified which have poor warning properties or other characteristics which preclude the use of air-purifying respiratory protection. - Additional air monitoring efforts determine contaminant concentrations that exceed acceptable concentrations for the use of air-purifying respiratory protection. - If site activities bring site personnel into contact with unidentified drums or containers which must be handled. <p>As site conditions may change the following equipment will be maintained during all on site activities</p> <ul style="list-style-type: none"> - Fire Extinguishers (Strategically placed) - First-aid kit - Emergency eye-wash units 	<p>Personnel Decontamination - Will consist of a soap/water wash and rinse for outer protective equipment (e.g., boots, gloves, PVC splash suits, etc.). This function will take place at an area adjacent to the drilling operations bordering the support zone.</p> <p>This decontamination procedure for Level D protection will consist of</p> <ul style="list-style-type: none"> - Equipment drop - Soap/water wash and rinse of outer gloves and outer boots, as applicable - Soap/water wash and rinse of the outer splash suit, as applicable - Wash hands and face, leave contamination reduction zone <p>For Level C in addition to that described above:</p> <p>Note: APR cartridge change out would take place at this point.</p> <ul style="list-style-type: none"> - Outer suit, boot covers, outer glove removal - Respiratory (face mask) protection removal - Wash hands and face, leave contamination reduction zone <p>Equipment Decontamination - All equipment decontamination will take place at a centralized decontamination pad utilizing steam or pressure washers. Heavy equipment such as drill rigs, will have the wheels and tires cleaned along with any loose debris removed, prior to transporting to the central decontamination area. All site vehicles will be restricted access to exclusion zones, or also have their wheels/tires sprayed off as not to track mud onto the roadways servicing this installation. Roadways shall be cleared of any debris resulting from the on site activity:</p> <p>All equipment used in the exclusion zone will require a complete decontamination between locations and prior to removal from the site.</p> <p>The FOL or the SSO will be responsible for evaluating equipment arriving on site and that which is to leave the site. No equipment will be authorized access or exit without this authorization.</p> <p>Evaluation will consist of</p> <ul style="list-style-type: none"> - Visual inspection - Scanning equipment with monitoring instruments

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TASKS/HAZARDS/CONTROL MEASURES COMPENDIUM
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Task/Operative Location	Anticipated Hazards	Recommended Control Measures	Air Monitoring Type/Action Levels	Personal Protective Equipment	Decontamination Procedures
<p>Multi-media sampling including surface and subsurface soil sampling from split-spoon or DPT techniques, groundwater and investigative derived waste (IDW).</p> <p>Miscellaneous site activities such as groundwater flow direction studies are also covered under this general task since similar hazards are associated with these tasks.</p>	<p>Chemical hazards:</p> <ol style="list-style-type: none"> 1) Air/particulate/water borne contaminants at ppb concentrations including but not limited to: Total Petroleum Hydrocarbons (TPH) and heavy metals. Although site history does not indicate the use of explosives in this area, the potential for encountering residues of explosive compounds and unexploded ordnance is noted. 2) Transfer of contaminants into clean areas or onto persons <p>Physical hazards:</p> <ol style="list-style-type: none"> 3) Noise 4) Lifting (muscle strains and pulls) 5) Pinches and compressions during split spoon sampling, etc. 6) Slip, trips, and falls 7) Biological hazards (Insect (tick and mosquito) / animal bites and stings) 	<p>Chemical hazards:</p> <ol style="list-style-type: none"> 1) Employ real-time monitoring instrumentation, action levels, personal sampling, and identified PPE to identify, quantify, and control exposures to potentially contaminated media (e.g., air, water, soils). <p>If UXO or explosive residues are suspected or encountered, all field work must stop and the SSO/PHSO must be notified immediately.</p> <ol style="list-style-type: none"> 2) Restrict the cross-use of equipment and supplies between sampling locations without first going through a suitable decontamination. <p>Physical hazards:</p> <ol style="list-style-type: none"> 3) Due to operational and contributory activities in and about work areas, generated noise levels may be excessive. Noise control will be facilitated through the use of hearing protection. <p>As a general rule of thumb, anytime you must raise your voice to speak to someone to be heard within 2 feet of where you are standing, the potential exists that sound pressure levels may be excessive. Therefore, personnel will be required to employ hearing protection in these situations until sound level measurements and/or noise dosimetry may be conducted to quantify the associated noise levels.</p> <ol style="list-style-type: none"> 4) Employ machinery or multiple personnel for heavy lifts. Use proper lifting techniques. 5) Use pinch bars or other equipment to remove hands from the point of operation, when acquiring samples. 6) Preview work locations for unstable/uneven terrain. Barricade all excavations deeper than 2 feet from access closer than 2 feet from the edge. 7) Avoid insect nesting areas and areas with standing water. (Do NOT use insect repellents during sampling activities). Report potential hazards to the SSO. Wear appropriate clothing and personal protective equipment (Tyvek coveralls, snake chaps, etc.). Avoid work at dawn, dusk or evening hours when mosquitoes are most active. 	<p>Given the previously identified contaminant concentrations, elevated airborne concentrations impacting the field crews or downwind receptors are not anticipated to occur during proposed site activities. The following information is provided as a contingency action only.</p> <p>Monitoring instrumentation will be used to bias environmental samples. Wells to be sampled will require opening to allow venting and equilibration prior to sampling.</p> <p>Subsurface soils monitoring direction and action levels will proceed in the following manner using photoionization detectors w/10.6 eV:</p> <ol style="list-style-type: none"> 1) Source monitoring will be conducted at regular intervals to be determined by the SSO. Positive sustained results at a source location which may impact operations crew will require the following actions: <ul style="list-style-type: none"> - Monitor the breathing zone of high risk employees. Any sustained reading greater than 10 ppm above background in the breathing zone of the at-risk employees requires the person (SSO/sampler, etc.) monitoring to: - Elevate the level of protection to Level C until the source of the readings may be identified and quantified or readings subside to background levels. - Sustained readings greater than 10 ppm above established background will require level C protection. The level of protection may not be downgraded until the readings return to background levels or the identity of the contaminant is determined through additional monitoring efforts (i.e., colorimetric tube analysis or personal air monitoring). - Ensure represented at-risk populations are represented for this task, location, and job classification as part of the air sampling program. <p>As discussed earlier, airborne concentrations in worker breathing zones are not anticipated to be encountered, as a result, upgrading the level of protection to Level B is unlikely. Any observed airborne concentrations greater than 25 ppm above background levels will require site activities to be suspended and the PM and PHSO will be immediately notified.</p>	<p>All sampling activities are anticipated to proceed in a modified Level D protection.</p> <p>Level D - (Minimum Requirements) for sampling activities:</p> <ul style="list-style-type: none"> - Standard field attire (Long sleeve shirt; long pants) - Safety shoes (Steel toe/shank) - Safety glasses - Hard hat (when overhead hazards exists, or identified as a operation requirement) - Reflective vest for high traffic areas - Hearing protection for high noise areas, or as directed on an operation by operation scenario. - Layered surgical style gloves (Clean pair for each sample location) <p>If an upgrade to Level C is required:</p> <ul style="list-style-type: none"> - Air purifying respirator with organic vapor/HEPA filters for breathing zone readings greater than 10 ppm above background levels up to 25 ppm. <p>Level C chemical protective clothing will consist of impermeable boot covers, layered surgical style inner gloves with nitrile outer gloves, Tyvek coveralls. Free phase product or splash potential will require the use of PVC or Saranex splash suit.</p> <p>As discussed earlier, level B protection is <u>not</u> anticipated to be needed for this project. As a result, action level and specific PPE items for level B protection are not discussed as part of this addendum. Any observed breathing zone reading greater than 25 ppm above background levels will require site activities to be suspended and the PM and PHSO to be notified.</p>	<p>Decontaminate sample containers in accordance with the QA/QC Plan.</p> <p>Personnel Decontamination - Will consist of a soap/water wash and rinse for outer protective equipment (e.g., boots, gloves, PVC splash suits, etc.). This function will take place at an area adjacent to the drilling operations bordering the support zone.</p> <p>This decontamination procedure for Level D protection will consist of</p> <ul style="list-style-type: none"> - Equipment drop - Soap/water wash and rinse of outer gloves and outer boots, as applicable - Soap/water wash and rinse of the outer splash suit, as applicable - Wash hands and face, leave contamination reduction zone <p>For Level C in addition to that described above:</p> <p>Note: APR cartridge change out would take place at this point.</p> <ul style="list-style-type: none"> - Outer suit, boot covers, outer glove removal - Respiratory (face mask) protection removal - Wash hands and face, leave contamination reduction zone <p>Equipment decontamination:</p> <p>All sampling equipment will undergo a soap/water wash and rinse utilizing a suitable potable water source until visibly clean.</p> <p>Sampling equipment may also be high pressure soap/water wash and rinse or steam cleaned.</p> <p>All chemical decontamination will proceed in accordance with the other site documents such as QA/QC and the Sampling and Analysis Plan addendum.</p>

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Tasks/Operation/ Locations	Anticipated Hazards	Recommended Control Measures	Hazard Monitoring	Personal Protective Equipment	Decontamination Procedures
<p>Surveying activities including magnetometer and topographic surveys.</p>	<p>Chemical hazards</p> <p>Exposure to site contaminants during this activity is anticipated to be unlikely given the limited contact with potentially contaminated media.</p> <p>1) Air/particulate/water borne contaminants at ppb concentrations including but not limited to: Total Petroleum Hydrocarbons (TPH) and heavy metals. Although site history does not indicate the use of explosives in this area, the potential for encountering residues of explosive compounds and unexploded ordnance is noted.</p> <p>Physical hazards</p> <p>2) Slip, trips, and falls</p> <p>3) Biological hazards (Insect/animal bites and stings, poisonous plants)</p> <p>4) Hazards associated with heavy lifting/manual material handling.</p>	<p>1) Monitoring instrumentation may be used for surveying activities conducted in areas where contamination is anticipated to exist. Generally, monitoring instrumentation is not needed during surveying activities due to the fact that contact with potentially contaminated media is limited. Areas where intrusive activities have been performed or media has been disturbed are returned to their pre-investigation state, resulting in a limited potential for exposure. The need for monitoring instrumentation will be made on a case-by-case basis.</p> <p>- Minimize contact with potentially contaminated soils, water, debris, etc.</p> <p>If UXO or explosive residues are suspected or encountered, all field work must stop and the SSO/PHSO must be notified immediately.</p> <p>2) Preview and prepare work locations where unstable/uneven terrain exists. Barricade all excavations deeper than 2 feet from access closer than 2 feet from the edge from foot and vehicular traffic.</p> <p>3) Avoid potential nesting areas of biting/stinging insects and animals. Use commercially available insect repellents and snake bite kits. Avoid contact with poisonous vegetation. Wear appropriate clothing. Tape ankle and wrists areas to prevent ticks, chiggers, etc. from attaching themselves to you skin. Wear light colored clothing so that ticks and other biting insects can be easily visible. Avoid standing water where mosquitoes breed. Avoid work at dawn, dusk or evening hours when mosquitoes are most active.</p> <p>4) Obtain help when handling heavy or cumbersome loads. Avoid areas of rocky or uneven terrain. Use appropriate equipment (rope ladders, harnesses, ladders, etc.) when needed.</p>	<p>The potential for exposure to site contaminants will be characterized during earlier site tasks (drilling, sampling, etc.) prior to surveying activities. As a result, no air monitoring activities are anticipated to be needed given the unlikely presence of airborne concentrations of volatile contaminants. Furthermore, the potential for exposure to site contaminants during this activity is considered minimal given the limited contact with potentially contaminated media.</p> <p>Minimize the generation of airborne dusts since many site contaminants are in the form of a particulate or may be bound to particulates.</p>	<p>Surveying activities shall be performed in Level D protection</p> <p>Level D Protection consists of the following: Steel-toe / shank boots, safety glasses, hard hats (if working near machinery), and standard field dress including long sleeved, long pants.</p> <p>Tyvek coveralls may be worn to provide additional protection against poisonous plants and insects, particularly ticks and mosquitoes. Disposable boot covers are required in any areas identified as having containing surface contamination. Work gloves may be worn if desired. Surgical style nitrile gloves must be worn if the potential for contact with contaminated media exists.</p>	<p>Personnel Decontamination - Will consist of the removal and disposal of outer protective clothing (disposable boots covers, gloves, etc.), if worn. This function will take place at an area adjacent to the surveying operations. The decontamination procedure will consist of:</p> <ul style="list-style-type: none"> - An equipment drop - Removal and disposal of disposable PPE - Wash hands and face, leave contamination reduction zone

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Tasks/Operation/ Locations	Anticipated Hazards	Recommended Control Measures	Hazard Monitoring	Personal Protective Equipment*	Decontamination Procedures
<p>Test pit excavations.</p> <p>Test pit operations may be performed to obtain subsurface soil samples.</p>	<p>Chemical hazards</p> <p>Exposure to site contaminants during this activity is anticipated to be unlikely given the limited contact with potentially contaminated media.</p> <p>1) Air/particulate/water borne contaminants at ppb concentrations including but not limited to: Total Petroleum Hydrocarbons (TPH) and heavy metals. Although site history does not indicate the use of explosives in this area, the potential for encountering residues of explosive compounds and unexploded ordnance is noted.</p> <p>Physical hazards</p> <p>2) Moving machinery</p> <p>3) Excavation cave-in and slip/trip/ and fall hazards</p> <p>4) Energized systems</p> <p>5) Noise</p> <p>6) Biological hazards (Insect/animal bites and stings, poisonous plants)</p>	<p>1) Employ real-time monitoring instrumentation, action levels, and identified PPE to detect and identify exposures to potentially contaminated media (e.g. air, water, soils).</p> <ul style="list-style-type: none"> - Minimize contact with potentially contaminated soils, water, debris, etc. <p>If UXO or explosive residues are suspected or encountered, all field work must stop and the SSO/PHSO must be notified immediately.</p> <p>2) All equipment to be employed will be:</p> <ul style="list-style-type: none"> - Inspected in accordance with Federal safety and transportation guidelines, OSHA (1926.600, .601, .602), and manufacturer's design. - Operated by Certified operators, and knowledgeable ground crew, as applicable. - Establish safe zones of approach (i.e. Boom + 3 feet). - All equipment shall be equipped with movement warning systems. - All personnel working in amongst equipment traffic are required to wear reflective vests for high visibility <p>3) All excavations shall be in conformance with requirements established under 29 CFR 1926.650 - .652 concerning sloping, shoring, storage, and movement on and over trenches and excavations.</p> <p>-- All excavations will be performed in accordance with the Standard Work Practices and SOPs discussed in Section 9.0 of the Health and Safety Plan.</p> <p>-- No personnel associated with this field effort will enter excavations</p> <p>All supplies, clean fill, vehicular traffic will be maintained at a distance of 3 feet from the excavation, or 2 feet if a restraining device is employed.</p> <p>4) All utility clearances shall be obtained prior to any excavation.</p> <p>5) Excessive noise levels will be mitigated through the use of hearing protection.</p> <p>Any piece of equipment or operation that has the potential to generate excessive noise levels (You must raise your voice to speak to someone within two feet of where you are standing) will require hearing protection until sound level measurements and/or noise dosimetry may be conducted to quantify the associated noise levels.</p> <p>6) Avoid potential nesting areas of biting/stinging insects and animals. Use commercially available insect repellents and snake bite kits. Avoid contact with poisonous vegetation. Wear appropriate clothing. Tape ankle and wrists areas to prevent ticks, chiggers, etc. from attaching themselves to you skin. Wear light-colored clothing so that ticks and other biting insects can be easily visible. Avoid standing water where mosquitoes breed. Avoid work at dawn, dusk or evening hours when mosquitoes are most active.</p>	<p>Direct reading instrument such as photoionization detectors w/10.6 eV and flame ionization detectors will be employed to screen samples and to detect the presence of any potential volatile organics.</p> <p>Some of the contaminants of concern (particularly metals) are solid at ambient temperatures. Therefore, control of potential exposures will be facilitated through engineering controls by using water to suppress airborne contaminant with laden dust and particulates.</p> <p>Given the previously identified contaminant concentrations, elevated airborne concentrations impacting the field crews or downwind receptors are not anticipated to occur during proposed site activities. The following information is provided as a contingency action only.</p> <p>These instruments will only be employed as a screening devices to be employed in the following manner:</p> <p>1) Source monitoring of the borehole will be conducted at regular intervals to be determined by the SSO. Positive sustained results at a source or downwind location(s) which may impact operations crew will require the following actions:</p> <ul style="list-style-type: none"> - Monitor the breathing zone of at-risk and downwind employees. Any sustained reading greater than 10 ppm above background in the breathing zone of the at-risk employees requires the person (SSO/sampler, etc.) monitoring to: <ul style="list-style-type: none"> - Elevate the level of protection until the source of the readings can be identified and quantified. - Sustained readings greater than 10 ppm above established background levels will require level C protection. The level of protection may not be downgraded until the readings return to background levels or the identity of the contaminant is determined through additional monitoring efforts (i.e., colometric tube analysis or personal air monitoring). - Any observed breathing zone readings greater than 25 ppm will require site activities to be suspended and the PM and PHSO will be notified. <p>4) The SSO may perform noise dosimetry to ensure the drilling, and any contributory levels associated with the operation do not surpass the noise attenuation factors associated with the hearing protection selected.</p> <p>5) When utilities cannot be identified a procedure permitting downhole magnetometer surveys every 2 feet to a total of 6 feet.</p>	<p>All excavation operations are to be initiated in Level D protection.</p> <p>Level D protection constitutes the following minimum protection</p> <ul style="list-style-type: none"> - Standard field dress (Long pants Long Sleeve Shirts - Steel toe/shank safety shoes <p>These following items will be incorporated during drilling operations:</p> <ul style="list-style-type: none"> - Nitrile gloves with a cotton liner, - Hardhat, safety glasses, and earplugs or muffs. - Tyvek coveralls will be worn if there is a possibility of soiling work attire - Impermeable boot covers - PVC or PE coated Tyvek will be incorporated if there is a potential for saturation of work attire. <p>(These items are optional as conditions dictate)</p> <p>Level C protection upgrade will be done based on monitoring instrument results to the following:</p> <ul style="list-style-type: none"> - Air-Purifying Respirator (APR) with organic vapor/HEPA cartridges for elevated readings greater than 10 ppm above established background levels, or - Airborne dusts/particulates are observed and cannot be controlled with area wetting methods. <p>Level C chemical protective clothing will consist of impermeable boot covers, nitrile gloves with a cotton liner, Tyvek coveralls (unless free phase product is encountered). Free phase product or splash potential PVC or PE splash suit.</p> <p>As discussed earlier, level B protection is <u>not</u> anticipated to be needed for this project. As a result, action level and specific PPE items for level B protection are not discussed as part of this addendum. Any observed breathing zone reading greater than 25 ppm above background levels will require site activities to be suspended and the PM and PHSO to be notified.</p> <p>As site conditions may change the following equipment will be maintained during all on site activities</p> <ul style="list-style-type: none"> - Fire Extinguishers (Strategically placed) - First-aid kit - Emergency eye-wash units 	<p>Personnel Decontamination - Will consist of a soap/water wash and rinse for outer protective equipment (e.g., boots, gloves, PVC splash suits, etc.). This function will take place at an area adjacent to the drilling operations bordering the support zone.</p> <p>This decontamination procedure for Level D protection will consist of</p> <ul style="list-style-type: none"> - Equipment drop - Soap/water wash and rinse of outer gloves and outer boots, as applicable - Soap/water wash and rinse of the outer splash suit, as applicable - Wash hands and face, leave contamination reduction zone <p>For Level C in addition to that described above:</p> <p>Note: APR cartridge change out would take place at this point.</p> <ul style="list-style-type: none"> - Outer suit, boot covers, outer glove removal - Respiratory (face mask) protection removal - Wash hands and face, leave contamination reduction zone <p>Equipment Decontamination - All equipment decontamination will take place at a centralized decontamination pad utilizing steam or pressure washers. Heavy equipment such as the backhoe, will have the wheels and tires cleaned along with any loose debris removed, prior to transporting to the central decontamination area. All site vehicles will be restricted access to exclusion zones, or also have their wheels/tires sprayed off as not to track mud onto the roadways servicing this installation. Roadways shall be cleared of any debris resulting from the on site activity.</p> <p>All equipment used in the exclusion zone will require a complete decontamination between locations and prior to removal from the site.</p> <p>The FOL or the SSO will be responsible for evaluating equipment arriving on site and that which is to leave the site. No equipment will be authorized access or exit without this authorization.</p> <p>Evaluation will consist of</p> <ul style="list-style-type: none"> - Visual inspection - Scanning equipment with monitoring instruments

TABLE 5-1
TASKS/HAZARDS/CONTROL MEASURES COMPENDIUM
CTO 300 SITE INVESTIGATION
NWS EARLE WAYSIDE AREA, COLTS NECK, NJ
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Task/Operation/ Location	Anticipated Hazards	Recommended Control Measures	Air Monitoring	Personal Protective Equipment	Decontamination Procedures
Decontamination of sampling, and heavy equipment	<p>Chemical hazards:</p> <p>1) Air/particulate/water borne contaminants at ppb concentrations including but not limited to: Total Petroleum Hydrocarbons (TPH) and heavy metals. Although site history does not indicate the use of explosives in this area, the potential for encountering residues of explosive compounds and unexploded ordnance is noted.</p> <p>- Decontamination fluids - Liquinox (detergent), and any other decontamination solvents such as acetone, isopropanol, methanol, and/or hexane</p> <p>Physical hazards:</p> <p>2) Lifting (muscle strains and pulls)</p> <p>3) Pinches and compressions</p>	<p>1) Employ protective equipment to minimize contact with site contaminants and hazardous decontamination fluids.</p> <p>- Have a means by which the eyes and/or skin may be flushed (i.e., portable camp shower, emergency eyewash, etc.) readily accessible</p> <p>- Refer to MSDS for specific decontamination solvents to determine appropriate PPE and safe handling procedures.</p> <p>If UXO or explosive residues are suspected or encountered, all field work must stop and the SSO/PHSO must be notified immediately.</p> <p>2) Use multiple persons where necessary for lifting and handling heavy pieces of equipment for decontamination purposes. Use truck ramps to load heavy equipment onto vehicles.</p> <p>3) If necessary, provide stacking racks for air drying of decontaminated equipment to prevent unstable drying stacks of equipment from collapsing.</p>	<p>1) Use visual observation, and real-time monitoring instrumentation to ensure all equipment and/or areas which has been cleaned and dried is properly cleaned of potentially contaminated media (e.g., air, water, soils).</p> <p>Elevated airborne concentrations impacting field crews or downwind receptors are not anticipated for this task.</p>	<p>For Drill rigs and other heavy equipment: This applies to high-pressure soap/water, steam cleaning wash and rinse procedures.</p> <p>Level D Minimum requirements -</p> <ul style="list-style-type: none"> - Standard field attire (Long sleeve shirt; long pants) - Safety shoes (Steel toe/shank) - Chemical resistant boot covers - Nitrile outer gloves, cotton liners - PVC Rain suits or PE or PVC coated Tyvek - Safety glasses underneath a splash shield <p>For sampling equipment including trowels, split spoons, bailers, etc.:</p> <p>Level D Minimum requirements -</p> <ul style="list-style-type: none"> - Standard field attire (Long sleeve shirt; long pants) - Safety shoes (Steel toe/shank) - Nitrile outer gloves, cotton liners - Safety glasses underneath a splash shield <p>In the event of overspray of chemical decontamination fluids, employ PVC Rain suits or PE or PVC coated Tyvek as necessary.</p> <p>Respiratory protection is not anticipated for these activities.</p>	<p>This decontamination procedure for Level D protection will consist of:</p> <ul style="list-style-type: none"> - Soap/water wash and rinse of outer gloves - Soap/water wash and rinse of the outer splash suit, as applicable - Wash hands and face, leave contamination reduction zone

6.0 HAZARD ASSESSMENT

This section provides information regarding the chemical, physical and biological hazards which may be associated with the Site and the activities that are to be conducted as part of the scope of work. Table 6-1 contains a partial list of chemicals known or suspected to have been handled and/or disposed of at the Site. The table includes heavy metals and petroleum hydrocarbon compounds. Specifically, toxicological information, exposure limits, symptoms of exposure, physical properties, and air monitoring data are discussed in this table. Additionally, Section 6.2 discusses potential natural hazards that may be encountered during field activities and the control measures necessary to minimize or eliminate these hazards.

6.1 CHEMICAL HAZARDS

Based upon the data obtained from previous site investigations, site contamination consists of heavy metals from spent projectiles and fragments and other petroleum hydrocarbon compounds from storage tanks. Potential routes of exposure are dermal contact or inhalation of airborne contaminants generated or released during site activities. To a lesser degree, incidental ingestion of site contaminants as a result of improper PPE usage or decontamination is another potential route of exposure. Table 5-1 and Safe Work Permits contained in Attachment IV provide various control methods that will be used to minimize potential exposures to site personnel.

Table 6-1 provides information on some of the potential contaminants of concern at the Site to be investigated as part of this scope of work. Included is information on the toxicological, chemical, and physical properties of these substances.

These following activities were selected as tasks involving the highest potential for exposure because they will be performed at a point expected to be a source of groundwater contamination.

- Groundwater sampling at well T-8002

6.1.2 DECONTAMINATION SOLUTIONS AND PRESERVATIVES

Chemicals used to determinate sampling equipment and to preserve environmental samples also present hazards to the site personnel who use them. The chemicals likely to be brought to the site for use in this manner include:

- Nitric Acid
- Sulfuric Acid
- Hydrochloric Acid
- Sodium Hydroxide
- Methanol
- Detergents (Alconox)

In order to communicate the hazards of these chemicals to site personnel, Material Safety Data Sheets (MSDS) for each of these chemicals used onsite will be maintained as part of field records and presented as part of the site-specific training (Section 9.0).

**TABLE 6-1
CHEMICAL, PHYSICAL, AND TOXICOLOGICAL DATA
NWS EARLE WAYSIDE AREA, COLTS NECK, NJ (CTO 300)**

Substance	CAS No.	Air Monitoring/Sampling Information	Exposure Limits	Warning Property Rating	Physical Properties	Health Hazard Information	
VOLATILE ORGANIC COMPOUNDS							
Benzene	71-43-2	PID: I.P 9.24 eV, 100% response with PID and 10.2 eV lamp. FID: 150% relative response ratio with FID.	Air sample using 2 mil Tedlar sample bags or charcoal tube with carbon disulfide desorption. Sampling and analytical protocol in accordance with NIOSH Method # 3700 or #1500 and OSHA 07.	OSHA: 1 ppm 5 ppm (STEL) <i>See 29 CFR 1910.1028</i> ACGIH: 10 ppm NIOSH: 0.1 ppm IDLH: 500 ppm	Inadequate - Odor threshold 1.4-120 ppm. The use of half-face air-purifying respirators with organic vapor cartridge up to 10 ppm is acceptable despite the inadequate warning properties, providing cartridges are changed at the beginning of each shift. Recommended gloves: Butyl/neoprene blend - >8.00 hrs; Silver shield as a liner - >8.00 hrs; Viton - >8.00 hrs	Boiling Pt: 176°F; 80°C Melting Pt: 42°F; 5.5°C Solubility: 0.07% Flash Pt: 12°F; -11°C LEL/LFL: 1.2% UEL/UFL: 7.8% Vapor Density: 2.77 Vapor Pressure: 75 mmHg Specific Gravity: 0.88 Incompatibilities: Strong oxidizers, fluorides, perchlorates, and acids Appearance and Odor: Colorless to a light yellow liquid with an aromatic odor	Overexposure may result in irritation to the eyes, nose, throat, and respiratory system. CNS effects include giddiness, lightheadedness, headaches, staggered gait, fatigue, and lassitude and depression. Additional effects may include nausea, difficulty breathing, and intoxication. Long duration exposures may result in respiratory collapse. May cause damage to the blood forming organs and may cause a form of cancer called leukemia. The ACGIH, IARC, and OSHA list benzene as a carcinogen.
Ethylbenzene	100-41-4	PID: I.P 8.76, High response with PID and 10.2 eV lamp. FID: 100% response with FID.	Air sample using charcoal tube; carbon disulfide desorption; GC/FID detection. Sampling and analytical protocol in accordance with OSHA Method #07 or NIOSH Method #1501 Aromatic Hydrocarbon.	ACGIH; NIOSH: 100 ppm; 125 ppm STEL OSHA: 100 ppm IDLH: 800 ppm	Adequate - Can use air-purifying respirator with organic vapor cartridge up to 800 ppm. Recommended gloves: Neoprene or nitrile w/ silver shield when potential for saturation; Teflon >3.00 hrs	Boiling Pt: 277°F; 136°C Melting Pt: -139°F; -95°C Solubility: 0.01% Flash Pt: 55°F; 13°C LEL/LFL: 1.0% UEL/UFL: 6.7% Vapor Density: 3.66 Vapor Pressure: 10 mmHg @ 79°F; 26 °C Specific Gravity: 0.87 Incompatibilities: Strong oxidizers Appearance and odor: Colorless liquid with an aromatic odor. Odor Threshold of 0.092-0.60.	Regulated primarily because of its potential to irritate the eyes and respiratory system. In addition, effects of overexposure may include headaches, narcotic effects, CNS changes (i.e., coordination impairment, impaired reflexes, tremoring) difficulty in breathing, possible chemical pneumonia, and potentially respiratory failure or coma.

**TABLE 6-1
CHEMICAL, PHYSICAL, AND TOXICOLOGICAL DATA
NWS EARLE WAYSIDE AREA, COLTS NECK, NJ (CTO 300)**

Substance	CAS No.	Air Monitoring/Sampling Information		Exposure Limits	Warning Property Rating	Physical Properties	Health Hazard Information
Toluene	108-88-3	PID: I.P. 8.82 eV, High response with PID and 10.2 eV lamp. FID: 110% response with FID.	Air sample using charcoal tube; carbon disulfide desorption. Sampling and analytical protocol shall proceed in accordance with OSHA Method #07, or NIOSH Method #1500.	OSHA: 200 ppm 300 ppm (Ceiling) ACGIH: 50 ppm (skin) NIOSH: 100 ppm 150 ppm STEL IDLH: 500 ppm	Adequate - Odor threshold 1.6 ppm is considered good. Can use air-purifying respirator with organic vapor cartridge up to 1,000 ppm. Recommended gloves: Teflon >15.00 hrs; Viton >16.00 hrs; silver shield >6.00 hrs; supported nitrile (Useable time limit 0.5 hr, complete submersion for the nitrile selection); PV alcohol >25.00 hrs	Boiling Pt: 232°F; 111°C Melting Pt: -139°F; -95°C Solubility: 0.05% (61°F; 16°C) Flash Pt: 40°F; 4°C LEL/LFL: 1.2% UEL/UFL: 7.1% Vapor Density: 3.14 Vapor Pressure: 20 mmHg @ 65°F; 18 °C Specific Gravity: 0.87 Incompatibilities: Strong oxidizers Appearance and odor: Colorless liquid with a sweet pungent aromatic odor.	Overexposure to this substance may result in mild to moderate irritation at all points of contact, and CNS changes including euphoria, confusion, nervousness, and possibly paresthesia characterized by an abnormal burning sensation, pricking, or numbness. At 200-500 ppm exposure has resulted in headaches, nausea, eye irritation, loss of appetite, bad taste, impair coordination, fatigue, and weariness. Chronically, toluene overexposure may result in dermatitis, liver, and kidney damage.
Xylene All isomers o-, m-, p-	1330-20-7	PID: I.P. 8.56 eV, High response with PID and 10.2 eV lamp. FID: 110% response with FID.	Air sample using charcoal tube; carbon disulfide desorption; GC/FID detection. Sampling and analytical protocol shall proceed in accordance with OSHA 07, or NIOSH Method 1500.	ACGIH, & NIOSH: 100 ppm, 150 ppm STEL OSHA: 100 ppm IDLH: 900 ppm	Adequate - Odor thresholds for the following isomers: 0.6 m-; 5.4 p-; 20 o- ppm. Can use air-purifying respirator with organic vapor cartridge up to 9 00 ppm concentrations. Recommended gloves: PV Alcohol >12.67 hrs; Viton >8.00 hrs; CPE >1.00 hr; Butyl 0.87 hrs; Nitrile is acceptable for limited operations and contact (>0.20 hrs)	Boiling Pt: 269-281°F; 132-138°C Melting Pt: -130/-54m/56p°F; -25o/- 48m/13p °C Solubility: 0.02 % Flash Pt: 81-90°F; 27-32°C LEL/LFL: 0.9% UEL/UFL: 7.0% Vapor Density: 3.66 Vapor Pressure: 7-9 mmHg @ 70°F; 21°C Specific Gravity: 0.86-0.88 Incompatibilities: Strong oxidizers and strong acids Appearance and odor: Colorless liquid with an aromatic odor.	Effects may of overexposure include irritation at all points of contact, CNS changes (i.e. dizziness, excitement, drowsiness, incoherent, staggering gait), difficulty in breathing, pulmonary edema, and possibly respiratory failure. Chronic effects may include dermatitis and cornea vacuolization.

**TABLE 6-1
CHEMICAL, PHYSICAL, AND TOXICOLOGICAL DATA
NWS EARLE WAYSIDE AREA, COLTS NECK, NJ (CTO 300)**

Substance	CAS No.	Air Monitoring/Sampling Information		Exposure Limits	Warning Property Rating	Physical Properties	Health Hazard Information
METALS							
Aluminum	7429-90-5	Particulate form - unable to be detected by PID/FID.	Air sample using a cellulose ester membrane filter (particulate filter); atomic absorption (Method #7013) or ICP (Method #7300). Sampling and analytical protocol shall proceed in accordance with NIOSH Methods #7013 and #7300 as applicable.	OSHA: 15 mg/m ³ Total dust, 5 mg/m ³ Respirable fraction NIOSH: 10 mg/m ³ Total dust, 5 mg/m ³ Respirable fraction ACGIH: 10 mg/m ³	Particulate form - No identifiable warning properties to indicate presence and thereby detection. Employ air purifying respiratory protection suitable for dust and fume. Organic vapor acid gases with HEPA filter. Recommended gloves: This is in the particulate form. Therefore any glove suitable to prevent skin contact (Nitrile has been the one most widely used for the other substances).	Boiling Pt: 4452F; 2450°C Melting Pt: 1220°F; 660°C Solubility: Insoluble Flash Pt: Nonflammable LEL/LFL: Nonflammable UEL/UFL: Nonflammable It should be noted that finely divided powders or dust when airborne becomes moderately flammable/explosive when exposed to heat, flame, or powerful oxidizers Vapor Density: Not available Vapor Pressure: 1 mmHg @ 2343°F; 1284°C Specific Gravity: 2.702 @ 77°F; 25°C Incompatibles: Acids, alkalis, oxidizers, halogens and halocarbons, alcohols. Appearance and odor: silvery gray ductile, lustrous metal	Inhalation of finely divided powders or dusts may result in difficulty in breathing, coughing, and has been reported to cause pulmonary fibrosis. This malady known as "Shavers disease" is a form of benign pneumoconiosis.
Cadmium	7440-43-9	Particulate Form - Unable to be easily detected by PID or FID.	Air sample using a mixed cellulose-ester filter / acid desorption and analysis by atomic absorption-flame. Sampling and analytical protocol shall proceed in accordance with NIOSH Method #7300 or #7048.	OSHA: 2 µg/m ³ (0.002 mg/m ³) ACGIH: 0.01 mg/m ³ (total particulate); 0.002 mg/m ³ (respirable particulate) IDLH: 9 mg/m ³ (as cd)	The use of an air purifying, full face-piece respirator with a high efficiency particulate air filter for concentrations up to 0.25 mg/m ³ . Recommended Gloves: This is in particulate form. Therefore any glove suitable to prevent skin contact.	Boiling Pt: 1412°F; 767°C Melting Pt: 610°F; 321°C Solubility: Insoluble Flash Pt: Not applicable (Airborne dust may burn or explode when exposed to heat, flame, or incompatible chemicals) LEL/LFL: Not applicable UEL/UFL: Not applicable Vapor Density: Not available Vapor Pressure: 1 mmHg @ 741°F; 394°C Specific Gravity: 8.65 @ 90°F; 32°C Incompatibilities: Strong oxidizers, elemental sulfur, selenium, tellurium, zinc, nitric acid, and hydrazoic acid Appearance and Odor: Metal: Silver-white, blue-tinged lustrous, odorless solid. Fume: yellow-brown, finely divided particulate dispersed in air.	Overexposure to this substance may result in irritation to the respiratory tract, dyspnea, tightness in the chest, coughing, possibly pulmonary edema. Overexposure to fumes causes symptoms characteristic of the flu (headaches, chills, muscle aches, nausea, vomiting, diarrhea). Chronic exposure may result in damage to the lungs, kidneys and liver. This substance has been identified as a confirmed animal; potential human carcinogen by IARC and NTP.

**TABLE 6-1
CHEMICAL, PHYSICAL, AND TOXICOLOGICAL DATA
NWS EARLE WAYSIDE AREA, COLTS NECK, NJ (CTO 300)**

Substance	CAS No.	Air Monitoring/Sampling Information		Exposure Limits	Warning Property Rating	Physical Properties	Health Hazard Information
Chromium Compounds	7440-47-3 (Element)	Not detectable by PID. Not detectable by FID.	Air sample using mixed cellulose -ester filter; acid desorption and analysis by atomic absorption. Sampling and analytical protocol shall proceed in accordance with NIOSH Method #7024.	OSHA & NIOSH: (Chromium II, III) 0.5 mg/m ³ (Chromium VI) 0.1 mg/m ³ (Ceiling) ACGIH: 0.5 mg/m ³ (Chromium II, III compounds), 0.05 mg/m ³ (Chromium VI compounds) IDLH: 30 mg/m ³ (Chromium VI compounds)	The use of a air purifying, full face-piece respirator with a high efficiency particulate filter for concentrations up to 0.1 mg/m ³ . Recommended Gloves: This is in particulate form. Therefore any glove suitable to prevent skin contact.	Boiling Pt: 4788°F; 2642°C Melting Pt: 3452°F; 1900°C Solubility: Insoluble Flash Pt: Not applicable (Airborne dust may burn or explode when exposed to heat, flame, or incompatible chemicals) LEL/LFL: Not applicable UEL/UFL: Not applicable Vapor Density: Not available Vapor Pressure: 0 mmHg Specific Gravity: 7.14 Incompatibilities: Strong oxidizers, peroxides, and alkalis Appearance and Odor: Appearance and odor vary depending upon the specific compound.	Health hazards are characterized normally through chronic exposure manifesting as histologic fibrosis of the lungs and ulceration of the nasal septum and skin. IARC, NTP and ACGIH list various chromium compounds as possessing carcinogenic properties.
Copper	7440-50-8 (Cu) 1317-38-0 (CuO)	Substance is not volatile. Unable to be detected by PID or FID.	Air sample using a mixed cellulose ester filter; inductively coupled plasma/atomic emission spectroscopy. Sampling and analytical protocol shall proceed in accordance with NIOSH Method #7300.	NIOSH; OSHA: 0.10 mg/m ³ ACGIH: 0.2 mg/m ³	The use of an air-purifying full-face respirator with a high efficiency particulate air filter. Recommended gloves: This is in the particulate form. Therefore any glove suitable to prevent skin contact (Nitrile has been the one most widely used for the other substances).	Boiling Pt: 4215°F; 2324°C Melting Pt: 1981°F; 1083°C Solubility: Insoluble Flash Pt: Not applicable (Airborne dust may burn or explode when exposed to heat, flame, or incompatible chemicals) LEL/LFL: Not applicable UEL/UFL: Not applicable Vapor Density: Not available Vapor Pressure: 1 mmHg @ 2962°F; 1628°C Specific Gravity: 8.94 Incompatibilities: Oxidizers, alkalis, sodium azide, acetylene, bromates, chlorates, iodates, and acids. Appearance and Odor: Metal: Reddish, lustrous malleable, odorless solid. Fume: Finely divided black particulate dispersed in air.	Irritation to the nose, throat, and respiratory tract. Metallic taste Discoloration of skin (potential dermatitis) and hair. Chronic exposure may result in dermatitis and damage to the liver and kidneys. Overexposure to fumes causes symptoms characteristic of the flu (headaches, chills, muscle aches, nausea, vomiting, diarrhea). Ingestion may cause burning in the mouth, throat, and stomach. Metallic taste with colicky abdominal pain. Individuals with Wilson's disease are at greater risk of chronic exposure as a result of the bodies tendency to absorb and retain copper.

**TABLE 6-1
CHEMICAL, PHYSICAL, AND TOXICOLOGICAL DATA
NWS EARLE WAYSIDE AREA, COLTS NECK, NJ (CTO 300)**

Substance	CAS No.	Air Monitoring/Sampling Information		Exposure Limits	Warning Property Rating	Physical Properties	Health Hazard Information
Lead	7439-92-1	Particulate form - Unable to be detected by either PID or FID.	Air sample using a mixed cellulose ester filter; or HNO ₃ or H ₂ O ₂ desorption; or Atomic absorption detection. Sampling and analytical protocol shall proceed in accordance with NIOSH Method #7082 or #7300.	OSHA: 0.05 mg/m ³ ACGIH: 0.15 mg/m ³ NIOSH: 0.10 mg/m ³ IDLH: 100 mg/m ³ as lead	The use of a air purifying, full-face respirator with high efficiency particulate air filter for up to 2.5 mg/m ³ . Recommended gloves: This is in the particulate form. Therefore any glove suitable to prevent skin contact (Nitrile has been the one most widely used for the other substances).	Boiling Pt: 3164°F; 1740°C Melting Pt: 621°F; 327°C Solubility: Insoluble Flash Pt: Not applicable (Airborne dust may burn or explode when exposed to heat, flame, or incompatible chemicals) LEL/LFL: Not applicable UEL/UFL: Not applicable Vapor Density: Not available Vapor Pressure: 0 mmHg Specific Gravity: 11.34 Incompatibilities: Strong oxidizers, peroxides, sodium acetylide, zirconium, and acids Appearance and Odor: Metal: A heavy ductile, soft gray solid.	Overexposure to this substance via ingestion or inhalation may result in metallic taste in the mouth, dry throat, thirst, Gastrointestinal disorders (burning stomach pain, nausea, vomiting, possible diarrhea sometimes bloody or black, accompanied by severe bouts of colic), CNS effects (muscular weakness, pain, cramps, headaches, insomnia, depression, partial paralysis possibly coma and death. Extended exposure may result in damage to the kidneys, gingival lead line, brain, and anemia.
Manganese	7439-96-5 as Mn	Particulate form - This substance is unable to be detected by PID/FID.	Air sample using particulate filter; acid desorption, ICP detection. Sampling and analytical protocol shall proceed in accordance with NIOSH Method #7300.	OSHA: Ceiling 5 mg/m ³ as a fume 1 mg/m ³ NIOSH: 1 mg/m ³ for dust and fume; 3 mg/m ³ as a STEL ACGIH: 5 mg/m ³ for dust; 1 mg/m ³ for fume IDLH: 500 mg/m ³	No identifiable warning properties to indicate presence and thereby detection. Recommended APR Cartridge: Suitable for dust and fume. Organic vapor acid gases with HEPA filter. Recommended gloves: This is in the particulate form. Therefore any glove suitable to prevent skin contact (Nitrile has been the one most widely used for the other substances).	Boiling Pt: 3452°F; 1900°C Melting Pt: 2300°F; 1260°C Solubility: Insoluble Flash Pt: Not available (Airborne dust may burn or explode when exposed to heat, flame, or incompatible chemicals. This substance is considered a combustible solid.) LEL/LFL: Not available UEL/UFL: Not available Vapor Density: Not available Vapor Pressure: 1 mmHg @ 2358°F; 1292°C Specific Gravity: 7.20 Incompatibilities: Strong oxidizers, halogens, and nitrates. Will react with water to produce hydrogen gas. Appearance and odor: Silvery solid or reddish-gray, odorless	Overexposure to this product may result in Central Nervous System and pulmonary effects by inhalation. Symptoms may include disturbances in gait and speech, sleepiness, mental confusion, stolid, masklike face, muscular twitching varying from tremors to coarse rhythmical movements of the extremities accompanied by cramps. Symptoms are described as postencephalitic Parkinsonism. Additionally dry throat, tightness in the chest, dyspnea, rales, flu-like symptoms low back pain, and vomiting.

**TABLE 6-1
CHEMICAL, PHYSICAL, AND TOXICOLOGICAL DATA
NWS EARLE WAYSIDE AREA, COLTS NECK, NJ (CTO 300)**

Substance	CAS No.	Air Monitoring/Sampling Information		Exposure Limits	Warning Property Rating	Physical Properties	Health Hazard Information
Nickel	7440-02-0	Particulate form - This substance is unable to be detected by PID/FID.	Air sample using particulate filter; acid desorption; ICP detection. Sampling and analytical protocol shall proceed in accordance with NIOSH Method #7300.	OSHA: as Ni metal and insoluble compounds 1 mg/m ³ NIOSH: 0.015 mg/m ³ ACGIH: 0.05 mg/m ³ IDLH: 10 mg/m ³	No identifiable warning properties to indicate presence and thereby detection. Recommended APR Cartridge: Suitable for dust and fume. Organic vapor acid gases with HEPA filter. Recommended gloves: This material is in the particulate form. Therefore any glove suitable to prevent skin contact (Nitrile has been the one most widely used for the other substances).	Boiling Pt: 4946°F; 2730°C Melting Pt: 2651°F; 1455°C Solubility: Insoluble acid Flash Pt: Not available (Airborne dust may burn or explode when exposed to heat, flame, or incompatible chemicals) LEL/LFL: Not available UEL/UFL: Not available Vapor Density: Not available Vapor Pressure: 1 mmHg @ 3290°F; 1810°C Specific Gravity: 8.90 Incompatibilities: Strong acids, halogens, sulfur, wood and other combustibles, nickel nitrate, and oxidizers Appearance and odor: Silvery white, hard, malleable ductile metal, odorless	Symptoms of overexposure to this product may include headaches, vertigo, delirium, extreme weakness, GI disturbance and pain including nausea vomiting and diarrhea, coughing, hyperpnea, cyanosis, weakness, allergic dermatitis, nickel itch, pulmonary asthma, chest pains tightness, dyspnea, dry cough, and conjunctivitis. This substances has been identified as a Human carcinogen by NTP and IARC.

**TABLE 6-1
CHEMICAL, PHYSICAL, AND TOXICOLOGICAL DATA
NWS EARLE WAYSIDE AREA, COLTS NECK, NJ (CTO 300)**

Substance	CAS No.	Air Monitoring/Sampling Information	Exposure Limits	Warning Property Rating	Physical Properties	Health Hazard Information	
PETROLEUM COMPOUNDS							
Waste Oils All information is based on mineral oil	N.E. 8012-95-1 for mineral oil	Varies between fractions however waste oils tend to be less volatile. The FID tends to handle the longer chained aliphatic hydrocarbons more efficiently than its PID counterpart and would be selected as the instrument of choice.	Sampling and analytical protocol shall be in accordance with NIOSH Method #5026 is the recommended method for mineral oil mist.	ACGIH; NIOSH: 5 mg/m ³ (Oil mists); 10 mg/m ³ STEL OSHA: 5 mg/m ³ (Oil mists)	Non-volatile substance, therefore no respiratory protection is required. In an aerosol form dust and mist respirator would be considered acceptable for up to 500 mg/m ³ . Recommended gloves: Any glove suitable to prevent skin contact (Nitrile has been the one most widely used for the other substances, and will be acceptable).	Boiling Pt: 680°F; 360°C Melting Pt: Not available Solubility: Insoluble Flash Pt: 275-500°F; 135-260°C depends on the distillation fraction LEL/LFL: Not available UEL/UFL: Not available Vapor Density: Not available Vapor Pressure: <0.5 mmHg Specific Gravity: 0.90 Incompatibilities: None reported Appearance and odor: Colorless, oily, with an odor of burned lubricating oil.	Minor irritation to the eyes, skin, and respiratory system.
Diesel Fuel No.2-D	Mixture	Components of this substance will be detected readily however no documentation exists as to the relative response ratio of either PID or FID.	Air sample using charcoal tube as a collection media; carbon disulfide desorption; GC/FID detection. Sampling and analytical protocol in accordance with NIOSH Method #1550.	OSHA; NIOSH; ACGIH: 5 mg/m ³ as mineral oil mist. In addition NIOSH and ACGIH establish 10 mg/m ³ as a STEL.	Kerosene odor Recommended Air Purifying cartridges: Organic vapor Recommended gloves: Nitrile	Boiling Pt: <170-400°F; 77-204°C Melting Pt: Not available Solubility: Negligible Flash Pt: 125°F; 52°C LEL/LFL: 0.6% UEL/UFL: 7.5% Vapor Density: >5 Vapor Pressure: >1 mmHg @ 70°F; 21 °C Specific Gravity: 0.86 Incompatibilities: strong oxidizers, halogens, and hypochlorites Appearance and odor: Colorless to amber with a kerosene odor	Prolonged or repeated exposures to this product may cause skin and eye irritation. Due to the defatting capabilities this exposure may lead to a dermatitis condition. High vapor concentrations are irritating to the eyes and respiratory tract. Exposure to high airborne concentrations may result in narcotic effects including dizziness, headaches, and anesthetic to unconsciousness. High concentrations in a confined space may adequately displace oxygen thereby resulting in suffocation.
Gasoline	8006-61-9	Relative response ratios for the components of gasoline range from 100 - 200% for PID and FID detection.	See components for measurement considerations.	ACGIH & OSHA: 300 ppm 500 ppm STEL NIOSH: Reduce to lowest feasible concentration.	Respiratory Protection: Odor threshold 0.7 ppm, adequate air purifying respirator with organic vapor cartridges up to 100 ppm. Recommended Gloves: Nitrile >6.00 hrs; PV alcohol >6.00 hrs; Viton/neoprene >8.00 hrs	Boiling Pt: 102°F; 39°C Melting Pt: Not available Solubility: Negligible Flash Pt: -50°F; -45°C LEL/LFL: 1.4% UEL/UFL: 7.6% Vapor Density: ~5 Vapor Pressure: 38-300 mmHg (varies seasonally) Specific Gravity: 0.74 @ 20/20°C Incompatibilities: Strong oxidizers, peroxides, strong acids, and perchlorates Appearance and Odor: Colorless liquid with gasoline odor.	Overexposure to this substance may result in irritation to the eyes, skin, and mucous membranes. Systemically, headache, fatigue, blurred vision, dizziness, slurred speech, confusion, possible convulsion, and chemical pneumonia (aspiration). Prolonged or chronic exposures may result in possible liver or kidney damage. Components of this substance have been determined to be confirmed human carcinogens.

6.2

NATURAL HAZARDS

During field activities, site personnel may encounter various natural hazards. These hazards include, but are not limited to the following:

- Insect bites and stings
- Vector-transmitted illnesses (e.g., ticks and mosquitoes)
- Snakes and other wild animal encounters
- Poisonous plants

In order to minimize or eliminate these hazards, the following control measures will be enacted where possible.

6.2.1

Insect Bites and Stings

Insect bites and stings are difficult to control given the climate and environmental setting of the Site. However, in an effort to minimize this hazard, the following control measures will be initiated where possible.

- Loose-fitting and light-colored clothing with long sleeves, where possible (given heat stress considerations), should be worn to provide a barrier between the field person and the insects. Commercially available insect repellents can be used if necessary. Products such as DEET should not be applied directly to the skin due to potential irritation. This product should be applied over clothing articles. For mosquito-infested areas, mosquito nets may also be used.
- The FOL and/or the SSO will preview all access routes and work areas in an effort to identify physical hazards including nesting areas and standing water (mosquito breeding areas) in and around the work sites. These areas will be communicated to all site personnel.
- All personnel will be directed in the administration of antidotes for personnel who suffer allergic reactions to bee stings. Commercially available bee sting kits as well as dermal applications for the bite areas will be maintained as part of the first-aid kit.

Note: It is important that any allergies be reported on the medical data sheets and to the SSO. Additionally, any specific procedure for administering treatment as directed by your physician must also be communicated to ensure the quickest and most efficient response possible.

6.2.2 **Vector-Transmitted Illnesses**

Ticks and mosquitoes are the primary vectors of concern at this site. These insects have been identified in the transmission of diseases including Lyme disease and West Nile viral encephalitis, respectively. The greatest risk of contact occurs during the warm months (spring through early fall).

Information concerning vector-transmitted Lyme Disease including recognition, evaluation, tick removal, and control is provided in Attachment Ia of this HASP and in Section 4.0 of the Health and Safety Guidance Manual.

Information concerning vector-transmitted West Nile viral encephalitis is provided in Attachment Ib of this HASP.

6.2.3 **Snakes And Other Wild Animals**

Indigenous animals including snakes (poisonous and non-poisonous varieties), raccoons, and other animals native to the region may be encountered during field operations. Some of the work locations may encroach on nesting areas or territories claimed by these animals.

To avoid the obvious hazards conveyed as part of a direct encounter, the following actions will be taken to minimize impact on field crews and/or site operations.

- The FOL and/or SSO will preview access routes and work locations for nesting areas, signs or animal activities (i.e., tracks, foraging areas, etc.). All identified suspect areas will be communicated to the field crews. Where avoidance of these areas or the animals that inhabit them is not possible, the relocation of animals and nests will be done through the coordination of the Pennsylvania Fish and Wildlife Commission.

6.2.3.1 **Snake Bites**

As stated above, all initial efforts will be directed to avoid, where possible, nesting and territorial areas claimed by these reptiles. However, should field personnel receive a bite, the following actions are necessary.

1. Obtain a detailed description of the snake. This and the bite mark will enable medical personnel administering medical aid to provide prompt and correct antidotes as necessary.

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2. Immobilize the bite victim to the greatest extent possible. Physical exertion will mobilize the toxins (if poisonous varieties) from the bite point systemically through the body.
3. Apply a pressure wrap (for extremities), just above and over the bite area. With a couple wraps of the pressure wrap in place over the bite area, apply a splint, and continue the application of the pressure wrap. The purpose for the splint is to restrict the movement of the extremity. This, along with the pressure wrap, will aid in restricting the toxins from leaving the site of the bite.
4. Seek medical attention immediately.

6.2.4 Poisonous Plants

Various plants that can cause an allergic reaction may be encountered during field work. These include, but are not limited to, poison ivy, poison oak, and poison sumac. Contact may occur when clearing vegetation to gain access to work areas. Oils from the plant are transferred to exposed skin or clothing.

Protective measures to control and minimize the effects of poisonous plants include the following:

- Identify plants for field personnel. These are as follows:
 - Poison Ivy - Suspect plants are characterized as climbing shrubbery, three-leaf configuration ovate to elliptical in shape, greenish flowers, and white berries that produce irritating oils.
 - Poison Sumac - Suspect plants are characterized as a tall bush of the sumac family bearing compound leaves (7-13 entire leaflets), branched from a central axis, drooping, with axillary clusters of white fruit producing irritating oils.
 - Poison oak - Suspect plants are characterized as similar to poison ivy consisting of a shrub, stems erect, 0.3 to 2.0 meters tall, leaflets consist of broad thick lobes coarsely serrated configuration, denser at the base, less so than the top.

Protective measures may include the use of disposable garments such as Tyvek when clearing brush. After use, remove and properly dispose of disposable PPE; do not reuse potentially contaminated PPE.

Personal Hygiene - The oils from the plants will only elicit an allergic response when the person's protective skin layer is penetrated. This can be accomplished through open pores when perspiring, cuts, nicks, scratches, etc. This can also be accomplished when using excessively hot water for cleaning the

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skin, which also causes pores to open. Immediately wash with rubbing alcohol (isopropyl alcohol) or cool water and soap to remove as much of the oils as possible. In heavily vegetated areas of these plants, additional measures including barrier creams and blocks may be used to prevent the oils from accessing and penetrating the dermal layer.

6.3 PHYSICAL HAZARDS

In addition to the chemical and biological hazards discussed above, the following physical hazards may be present during the performance of site activities.

- Contact/entanglement with rotating equipment or machinery.
- Slips, trips and falls.
- Contact with underground or overhead utilities (electric, gas, and water lines, etc.).
- Strain from heavy lifting.
- Pinch/compression points.
- Noise in excess of 85 decibels (dBA).
- Thermal stress and inclement weather (depending on season).
- Heavy equipment operations (struck by hazards).

Control measures to help protect site personnel from these potential hazards are incorporated throughout this Health and Safety Plan and specifically in Section 9.0, "Standard Work Practices."

7.0 HAZARD MONITORING

This section presents requirements for the use of real-time air monitoring instruments during site activities. It establishes the types of instruments to be used. Information on specific instrumentation, the frequency at which they are to be used, techniques for their use, and the action levels for upgrading/downgrading levels of protection are addressed in Table 5-1 of this document. Methods for instrument maintenance and calibration can be found in Section 1.0 of the Tetra Tech NUS Health and Safety Guidance Manual.

7.1 INSTRUMENTS AND USE

Real-time monitoring instruments will be used to monitor source areas (i.e., sample locations, etc.) and worker breathing zones. Action levels are discussed in Table 5-1 as they may apply to a specific task or location. This approach (coupled with the use of personal protective equipment and the observance of the other control requirements presented in this HASP) has been selected to minimize potential for personnel exposures to hazardous concentrations of airborne contaminants. These instruments will be utilized as screening tools to detect the presence of some of the site contaminants identified within Table 6-1 in the air.

7.1.1 Photoionization Detector

A photoionization detector (PID) with a lamp energy of 10.6 eV (Photovac instrument) will be used to evaluate airborne concentrations of chemicals which may present an exposure potential to site personnel. This instrument will be used to monitor potential source areas and to screen the breathing zones of employees during sample collection and other subsurface or intrusive procedures. The PID has been selected because it is capable of detecting organic gases and vapors and some inorganic gases and vapors. In some cases, the contaminants of concern will not be detected by the PID, so emphasis will be placed on engineering controls, safe work practices, and PPE to control potential exposures.

Prior to the commencement of any field activities, the background levels of the site must be determined and noted. Daily background readings will be taken away from any areas of potential contamination. These readings, any influencing conditions (i.e., weather, temperature, humidity), location, and the other information specified in the field operations logbook or preferably on the activities sheet (i.e., boring log, sample log sheet, etc.).

7.1.2 Hazard Monitoring Frequency

Table 5-1 presents the frequencies that hazard monitoring and the action levels indicating when elevated levels of protection may be required, as it may apply to the tasks to be conducted. However, based on instrument responses and site observations, the SSO may decide to increase these frequencies. Reduction in monitoring frequencies will not be permitted without obtaining the prior consent of the HSO.

The PID will be used throughout execution of these activities:

- Sampling Equipment Decontamination/Equipment (Heavy) Decontamination.
- Groundwater sampling.
- Test pit excavations.

7.1.3 Combustible Gas Meter/Oxygen Meter

Additionally, an LEL/O₂ meter will be used during intrusive activities to detect the presence of flammable/explosive atmospheres.

7.2 INSTRUMENT MAINTENANCE AND CALIBRATION

Airborne hazard monitoring instruments will be maintained and pre-field calibrated by the TtNUS Equipment Manager. Operational checks and field calibration will be performed on all instruments each day prior to their use. Field calibration will be performed on instruments according to manufacturer's recommendations (for example, the PID must be field calibrated daily and an additional field calibration must be performed at the end of each day to determine any significant instrument drift). These operational checks and calibration efforts will be performed in a manner that complies with the employee's health and safety training, the manufacturer's recommendations, and with the applicable manufacturer standard operating procedure (copies of which can be found in the Health & Safety Guidance Manual which will be maintained on site for reference). All calibration efforts must be documented. Figure 7-1 is provided for documenting these calibration efforts. This information may instead be recorded in a field Health and Safety Logbook, provided that all of the information specified in Figure 7-1 is recorded. This required information includes the following:

- Date calibration was performed
- Individual calibrating the instrument
- Instrument name, model, and serial number
- Any relevant instrument settings and resultant readings (before and after) calibration

- Identification of the calibration standard (lot no., source concentration, supplier)
- Any relevant comments or remarks

7.3 PARTICULATES

It is not anticipated that significant concentrations of dusts will be generated as a result of site activities. If dusts are generated during site operations, exposure to these dusts will be minimized by the use of area wetting methods and/or avoidance of the dusts (moving upwind of source, evacuation, etc.). Monitoring for particulates, therefore, is not anticipated for this project.

8.0 TRAINING/MEDICAL SURVEILLANCE REQUIREMENTS

8.1 INTRODUCTORY/REFRESHER/SUPERVISORY TRAINING

This section is included to specify health and safety training and medical surveillance requirements for both TtNUS and subcontractor personnel participating in site activities.

8.1.1 Requirements for TtNUS Personnel

All TtNUS personnel must complete 40 hours of introductory hazardous waste site training prior to performing work at the NWS Earle Wayside Area. Additionally, TtNUS personnel who have had introductory training more than 12 months prior to site work must have completed 8 hours of refresher training within the past 12 months before being cleared for site work. In addition, 8-hour supervisory training in accordance with 29 CFR 1910.120(e)(4) will be required for site supervisory personnel.

Documentation of TtNUS introductory, supervisory, and refresher training as well as site-specific training will be maintained at the project. Copies of certificates or other official documentation will be used to fulfill this requirement.

TtNUS will also conduct a brief meeting daily to discuss operations planned for that day and to issue Safe Work Permits for those operations. At the end of the workday, a short meeting will be held to discuss the operations completed and any problems encountered. This activity will be supported through the use of a Safe Work Permit System (See Section 10.10).

8.1.2 Requirements for Subcontractors

All TtNUS subcontractor personnel must have completed introductory hazardous waste site training or equivalent work experience as defined in OSHA Standard 29 CFR 1910.120(e) and 8 hours of refresher training meeting the requirements of 29 CFR 1910.120(e)(8) prior to performing field work at the Site. All subcontractor personnel serving as supervisors must also provide documentation of supervisory training as per 29 CFR 1910.120(e)(4). TtNUS subcontractors must certify that each employee has had such training by sending TtNUS a letter, on company letterhead, containing the information in the example letter provided as in Figure 8-1 and by providing copies of certificates for all subcontractor personnel participating in site activities.

FIGURE 8-1

TRAINING LETTER

The following statements must be typed on company letterhead and signed by an officer of the company and accompanied by copies of personnel training certificates:

LOGO
XYZ CORPORATION
555 E. 5th Street
Nowheresville, Kansas 55555

Month, day, year

Mr. Russell Turner
Project Manager
TtNUS
600 Clark Avenue, Suite 3
King of Prussia, PA 19406-1433

Subject: HAZWOPER Training for NWS Earle Wayside Area, Colts Neck, NJ

Dear Mr. Turner:

As an officer of XYZ Corporation, I hereby state that I am aware of the potential hazardous nature of the subject project. I also understand that it is our responsibility to comply with all applicable occupational safety and health regulations, including those stipulated in Title 29 of the Code of Federal Regulations (CFR), Parts 1900 through 1910 and Part 126.

I also understand that Title 29 CFR 1910.120, entitled "Hazardous Waste Operations and Emergency Response," requires an appropriate level of training for certain employees engaged in hazardous waste operations. In this regard, I hereby state that the following employees have had 40 hours of introductory hazardous waste site training or equivalent work experience as requested by 29 CFR 1910.120(e) and have had 8 hours of refresher training as applicable and as required by 29 CFR 1910.120(e)(8) and that site supervisory personnel have had training in accordance with 29 CFR 1910.120(e)(4).

LIST FULL NAMES OF EMPLOYEES AND THEIR SOCIAL SECURITY NUMBERS HERE.

Should you have any questions, please contact me at (555) 555-5555.

Sincerely,

(Name and Title of Company Officer)

Enclosed: Copies of Training Certificates

8.2 SITE-SPECIFIC TRAINING

TtNUS will provide site-specific training to all TtNUS employees and subcontractor personnel who will perform work on this project. Site-specific training will also be provided to all personnel (EPA, etc.) who may wish to enter exclusion zones of the site to perform functions that may or may not be directly related to site operations. Site-specific training will include:

- Names of designated personnel and alternates responsible for site safety and health
- Safety, health, and other hazards present on site
- Use of personal protective equipment
- Work practices to minimize risks from hazards
- Safe use of engineering controls and equipment
- Medical surveillance requirements
- Signs and symptoms of overexposure
- Contents of the Health and Safety Plan
- Use and application of the Safe Work Permits
- Emergency response procedures (evacuation and assembly points)
- Spill response procedures
- Review of the contents of relevant Material Safety Data Sheets

Site-specific documentation will be established through the use of Figure 8-2. All site personnel and visitors must sign this document upon receiving site-specific training.

8.3 MEDICAL SURVEILLANCE

8.3.1 Medical Surveillance Requirements for TtNUS Personnel

All TtNUS personnel participating in project field activities will have had a physical examination meeting the requirements of TtNUS's medical surveillance program and will be medically qualified to perform hazardous waste site work using respiratory protection.

Documentation for medical clearances will be maintained in the TtNUS Philadelphia, PA office and made available, as necessary.

8.3.2 Medical Surveillance Requirements for Subcontractors

Subcontractors are required to submit a certificate of their ability to perform hazardous waste site work and to wear respiratory protection. The "Subcontractor Medical Approval Form" provided in Figure 8-3 shall be used to satisfy this requirement, providing it is properly completed and signed by a licensed physician.

Subcontractors who have a company medical surveillance program meeting the requirements of paragraph (f) of OSHA 29 CFR 1910.120 can substitute "Subcontractor Medical Approval Form" with a letter, on company letterhead, containing all of the information in the example letter presented in Figure 8-4 of this HASP.

8.3.3 Requirements for All Field Personnel

Each field team member (including subcontractors) and visitors entering the exclusion zone(s) shall be required to complete and submit a copy of Medical Data Sheet presented in Section 7 of the Health and Safety Guidance Manual. This shall be provided to the SSO prior to participating in site activities. The purpose of this document is to provide site personnel and emergency responders with additional information that may be necessary in order to administer medical attention.

8.4 SUBCONTRACTOR EXCEPTIONS

Subcontractors who will not enter the exclusion zone during site operations, and whose activities involve no potential for exposure to site contaminants, may not be required to meet the requirements for training/medical surveillance other than site-specific training as stipulated in Section 8.2. This exception can only be granted under the sole authority of the HSO.

**FIGURE 8-3
SUBCONTRACTOR MEDICAL APPROVAL FORM**

For employees of _____
Company Name

Participant Name: _____ Date of Exam: _____

Part A

The above-named individual has:

1. Undergone a physical examination in accordance with OSHA Standard 29 CFR 1910.120, paragraph (f), and was found to be medically -

- qualified to perform work at the NWS Earle Wayside Area Site
 not qualified to perform work at the NWS Earle Wayside Area Site

and,

2. Undergone a physical examination in accordance with OSHA 29 CFR 1910.134(b)(10) and was found to be medically -

- qualified to wear respiratory protection
 not qualified to wear respiratory protection

My evaluation has been based on the following information, as provided to me by the employer.

- A copy of OSHA Standard 29 CFR 1910.120 and appendices.
 A description of the employee's duties as they relate to the employee's exposures.
 A list of known/suspected contaminants and their concentrations (if known).
 A description of any personal protective equipment used or to be used.
 Information from previous medical examinations of the employee that is not readily available to the examining physician.

Part B

I, _____, have examined _____
Physician's Name (print) Participant's Name (print)

and have determined the following information:

**FIGURE 8-3
SUBCONTRACTOR MEDICAL APPROVAL FORM
PAGE TWO**

1. Results of the medical examination and tests (excluding findings or diagnoses unrelated to occupational exposure):

2. Any detected medical conditions which would place the employee at increased risk of material impairment of the employee's health:

3. Recommended limitations upon the employee's assigned work:

I have informed this participant of the results of this medical examination and any medical conditions which require further examination of treatment.

Based on the information provided to me, and in view of the activities and hazard potentials involved at the NWS Earle Wayside Area Site, this participant

- may
 may not

perform his/her assigned task.

Physician's Signature _____

Address _____

Phone Number _____

NOTE: Copies of test results are maintained and available at:

Address

FIGURE 8-4

MEDICAL SURVEILLANCE LETTER

The following statements must be typed on company letterhead and signed by an officer of the company:

LOGO
XYZ CORPORATION
555 E. 5th Street
Nowheresville, Kansas 55555

Month, day, year

Mr. Russell Turner
Project Manager
TtNUS Corp.
600 Clark Avenue Suite 3
King of Prussia, PA 19406-1433

Subject: Medical Surveillance for NWS Earle Wayside Area, Colts Neck, NJ

Dear Mr. Turner:

As an officer of XYZ Corporation, I hereby state that the persons listed below participate in a medical surveillance program meeting the requirements contained in paragraph (f) of Title 29 of the Code of Federal Regulations (CFR), Part 1910.120, entitled "Hazardous Waste Operations and Emergency Response." I further state that the persons listed below have had physical examinations under this program within the past 12 months and that they have been cleared, by a licensed physician, to perform hazardous waste site work and to wear positive- and negative-pressure respiratory protection. I also state that, to my knowledge, no person listed below has any medical restriction that would preclude him/her from working at the NWS Earle Wayside Area Site in Colts Neck, NJ.

LIST FULL NAMES OF EMPLOYEES AND THEIR SOCIAL SECURITY NUMBERS HERE.

Should you have any questions, please contact me at (555) 555-5555.

Sincerely,

(Name and Title of Company Officer)

9.0 SPILL CONTAINMENT PROGRAM

9.1 SCOPE AND APPLICATION

It is not anticipated that quantities of bulk potentially hazardous materials (greater than 55-gallons) will be handled during some of the site activities conducted as part of the scope of work. Significant quantities of waste water (decontamination, purge and development) and Investigation-Derived Wastes (IDW) may be generated as part of site activities. It is not anticipated, however, that spillage of these materials would constitute a significant danger to human health or the environment. Further, it is possible that as the job progresses, disposable PPE and other non-reusable items may be generated. As needed, 55-gallon drums will be used to contain wastewater, IDW, and other unwanted items generated during investigatory activities. These drums will be labeled with the site name (Site and location), drum number, the type of contents (purge waters), volume, the date, point of contact with telephone number. An updated Inventory Log will be provided to the PM at the termination of every work day. This will be done to keep a running tab of containers retained within an established marshalling area.

Samples will be collected and analyzed to characterize the material and determine appropriate disposal measures. Once characterized, they can be removed from the staging area and disposed of in accordance with applicable Federal, State and local regulations.

9.2 POTENTIAL SPILL AREAS

Potential spill areas will be monitored in an ongoing attempt to prevent and control further potential contamination of the environment. Currently, there are various areas vulnerable to this hazard including the following:

- Areas used for central staging of resources
- Areas used for central staging of IDW materials
- Decontamination area

Additionally, areas designated for handling, loading, and unloading of potentially contaminated soils, waters, and debris present limited potential for leaks or spills. Monitoring of these areas will be done daily.

9.2.1 Site Drums/Containers

All drums/containers used for containing soils and liquids will be sealed, labeled, and staged within a centralized area awaiting shipment or disposal. Drums used for the storage and transportation of IDW will meet the packaging requirements for steel drums category U.N. 1A2, removable head as specified in paragraph 9.6.1, United Nations Transport of Dangerous Goods.

9.2.1.1 Staging Area Configuration

The staging or marshalling area will be configured to support this spill prevention and control program. The area will be configured as follows:

- Where possible, secondary containment will be provided for all drums containing liquids. This will consist of a bermed area sufficient in size to hold 10% of the total volume or the volume of the largest container, whichever is greater. This calculation of secondary containment should also consider any displacement by containers or pallets. This bermed area should be lined (plastic liner or other impermeable surface) to prevent any spillage inside the containment from saturating the ground.
- Drums will be organized no more than four to a pallet. The drum label and the head bolt arranged as such to permit reading/review or removal of the head without requiring the drum to be moved on the pallet. Drums will be segregated according to site and media. A minimum of two feet shall be maintained between each row of pallets to permit access for spill response measures.

9.3 LEAK AND SPILL DETECTION

To establish an early detection of potential spills or leaks, a daily walk around by the SSO will be conducted during working hours to visually determine that containers are not leaking. If a leak is detected, the first approach will be to transfer the container contents using a hand pump into a new container. Other provisions for the transfer of container contents will be made and appropriate emergency contacts will be notified, if necessary. In most instances, leaks will be collected and contained using absorbents such as Oil-dry, vermiculite, or sand, which will be stored at the staging area in a conspicuously marked drum. This material will be containerized for disposal pending analyses. All inspections will be documented in the Project Logbook.

9.4 PERSONNEL TRAINING AND SPILL PREVENTION

All personnel will be instructed on the procedures for spill prevention, containment, and collection of hazardous materials in the site-specific training. The FOL and/or the SSO will serve as the Spill Response Coordinator for this operation should the need arise.

9.5 SPILL PREVENTION AND CONTAINMENT EQUIPMENT

The following represents the minimum equipment which will be maintained at the staging area at all times for the purpose of supporting this Spill Prevention/Containment Program.

Spill Response Equipment:

- Sand, clean fill, vermiculite, or other noncombustible absorbent (oil-dry);
- Drums (55-gallon U.N 1A2)
- Portable storage tanks or additional drums
- Shovels, rakes, and brooms
- Labels

PPE stored at the staging area:

- Rubber boot covers, nitrile outer gloves, PVC rain-suit or other form of impermeable splash protection, should it be required.

9.6 SPILL CONTROL PLAN

This section describes the procedures the TINUS field crew members will employ upon the detection of a spill or leak.

- 1) Notify the SSO or FOL immediately upon the detection of a leak or spill.
- 2) Employ the personnel protective equipment stored at the staging area. Take immediate actions to stop the leak or spill by plugging or patching the drum or raising the leak to the highest point. Spread the absorbent material in the area of the spill covering completely.
- 3) Transfer the material to a new container, collect and containerize the absorbent material. Label the new container appropriately. Await analyses for treatment or disposal options.

- 4) All spills occurring on soils, grassy areas, or gravel lots will be re-containerized including 2-inches of top cover on which the spill occurred, and await test results for treatment or disposal options.

It is not anticipated that a spill will occur which the field crews cannot handle. Should this occur, notification of appropriate emergency response agencies will be carried out by the FOL or SSO.

10.0 SITE CONTROL

This section outlines the means by which TtNUS will delineate work zones and use these work zones in conjunction with decontamination procedures to prevent the spread of contaminants into previously unaffected areas of the site. It is anticipated that a three-zone approach will be used during work at this site. This three-zone approach will utilize an exclusion zone, a contamination reduction zone, and a support zone. It is also anticipated that this control measure will be used to control access to site work areas. Use of such controls will restrict the general public, minimize the potential for the spread of contaminants, and protect individuals who are not cleared to enter work areas.

10.1 EXCLUSION ZONE

The exclusion zone will be considered those areas of the site of known or suspected contamination. It is not anticipated that significant amounts of surface contamination are present in the proposed work areas of this site. It is anticipated that this will remain so until/unless contaminants are brought to the surface by intrusive activities, such as soil boring or sampling operations. Furthermore, once intrusive activities have been completed and surface contamination has been removed, the potential for exposure is again diminished and the area can then be reclassified as part of the contamination reduction zone. Therefore, the exclusion zones for this project will be limited to those areas of the site where active work is being performed plus a designated area surrounding the point of operation (see Table 5-1 for specific operation). The exclusion zone for this activity will be fragmented to represent the areas where the soil is disturbed through direct push or sampling activities. When possible, exclusion zones will be delineated using barrier tape, cones and/or drive poles, and postings to inform personnel other than the field crew.

10.1.1 Exclusion Zone Clearance

Prior to the initiation of site activities, utility locations will be identified by commercial utility location companies. The positions of identified utilities will be field located and staked, to minimize the potential for damage during intrusive activities. Sample locations can be located to avoid buried utilities. In the event that a utility is struck during a subsurface investigative activity, the emergency numbers provided in Section 2.9 and Table 2-1 will be notified.

Access to work areas will be controlled by TtNUS personnel. No persons will be permitted to enter site exclusion zones without site-specific training. Site visitors will be provided site-specific training and will be escorted by TtNUS personnel at all times (see Section 10.4).

10.2 CONTAMINATION REDUCTION ZONE

The contamination reduction zone (CRZ) will be a buffer area between the exclusion zone and any area of the site where contamination is not suspected. The personnel and equipment decontamination will not take place in this area, but will take place at a central location established for this project. This area instead will serve as a focal point in supporting exclusion zone activities. When applicable, this area will be delineated using barrier tape, cones and/or drive poles, and postings to inform and direct facility personnel.

10.3 SUPPORT ZONE

The support zone for this project will include a staging area where site vehicles will be parked, equipment will be unloaded, and where food and drink containers will be maintained. In all cases, the support zones will be established at areas of the site where exposure to site contaminants would not be expected during normal working conditions or foreseeable emergencies.

10.4 SITE VISITORS

Site visitors for the purpose of this document are identified as representing the following groups of individuals:

- Personnel invited to observe or participate in operations by TtNUS
- Regulatory personnel (EPA, OSHA, etc.)
- Other authorized visitors (Navy)

All personnel working on this project are required to gain initial access to the Site by coordinating with the TtNUS FOL or designee and following established site access procedures.

Once access to the Site is obtained, all personnel who require site access into areas of ongoing operations will be required to obtain permission from the FOL and SSO. The prerequisites for all site visitors wishing to observe operations in progress in the exclusion zone are discussed below:

- All site visitors will be routed to the FOL, who will sign them into the field logbook. Information to be recorded in the logbook will include the individual's name (proper identification required), the entity which they represent, and the purpose of the visit.

- All site visitors will be required to produce the necessary information supporting clearance to the site. This shall include information attesting to applicable training (40-hours of HAZWOPER training) and medical surveillance as stipulated in Section 8.0 of this document. In addition, to enter the site operational zones during planned activities, all visitors will be required to first go through site-specific training covering the topics stipulated in Section 8.2 of this HASP.

Once the site visitors have completed the above items, they will be permitted to enter the operational zone. All visitors are required to observe the protective equipment and site restrictions in effect at the site at the time of their visit. Any and all visitors not meeting the requirements stipulated in this plan will not be permitted to enter the site operational zones during planned activities. Any incidence of unauthorized site visitation will cause the termination of all on-site activities until the unauthorized visitor is removed from the premises. All site visitors granted access to the exclusion zones during ongoing operations will be escorted by a TtNUS representative (arranged for by the FOL) at all times while the visitor remains in the exclusion zone.

10.5 SITE SECURITY

TtNUS will retain control over active operational areas. The FOL will serve as a focal point for site personnel, and will serve as the final line of security for the work areas. As stated above, all work will cease in the event of unauthorized personnel entering the exclusion zone. Work will remain temporarily suspended until the unauthorized visitor can be removed.

10.6 SITE MAP

Once the areas of contamination, access routes, utilities, topography, and dispersion routes are determined, a site map will be generated and adjusted as site conditions change. These maps will show utility locations, potential points of contact with the public, roadways, and other significant characteristics that may impact site operations and safety. Site maps will be posted to illustrate up-to-date collection of contaminants and adjustment of zones and access points.

10.7 BUDDY SYSTEM

Personnel engaged in on-site activities will practice the "buddy system" to ensure the safety of all personnel involved in this operation.

10.8 MATERIAL SAFETY DATA SHEET (MSDS) REQUIREMENTS

TtNUS and subcontractor personnel will provide MSDSs for all chemicals brought on-site. The contents of these documents will be reviewed by the SSO with the user(s) of the chemical substances prior to any actual use or application of these substances on site. A chemical inventory of all chemicals used on site will be developed using Tab 5 of the Health and Safety Guidance Manual. A copy of the Chemical Inventory List will be provided to the Fire Department, as they would serve as primary responders to the work/storage trailer should the need arise. The MSDSs will then be maintained in a central location and will be available for anyone to review upon request.

10.9 COMMUNICATION

As personnel may not always be working in proximity to one another during field activities, a supported means of communication between field crews will be used as necessary. As a result, two-way radio communication devices will be used by field personnel while at the site.

External communication will be accomplished by using designated telephones at the site. External communication will primarily be used for the purpose of resource and emergency resource communications.

10.10 SAFE WORK PERMITS

All exclusion zone work conducted in support of this project will be performed using Safe Work Permits to guide and direct field crews on a task-by-task basis. An example of the Safe Work Permit to be used is illustrated in Figure 10-1. Attachment IV contains partially completed Safe Work Permit for tasks that are to be performed as part of the investigation. Information such as field crew performing the task, date, time, procedure reviews, and equipment preparation information need to be completed by the FOL or SSO prior to the initiation of site activities. Safe work permits will be further supported by the daily safety meetings. This effort will ensure all site-specific considerations and changing conditions are incorporated into the planning effort. All permits will require the signature of the FOL and/or SSO. All personnel engaged in on-site activities will be aware of the elements indicating levels of protection and precautionary measures to be used.

Use of these permits will provide the communication line for reviewing protective measures and hazards associated with each operation. This HASP will be used as the primary reference for selecting levels of protection and control measures. The safe work permit will take precedence over the HASP when more conservative measures are required based on specific site conditions.

Upon completion of work specified on the Safe Work Permit, the person accepting the permit will return it to the SSO.

Any problems encountered regarding control measures taken will be annotated on the permit or a separate sheet of paper and returned to the SSO for review and evaluation.

FIGURE 10-1 SAFE WORK PERMIT

Permit No. _____ Date: _____ Time: From _____ to _____

SECTION I: General Job Scope (To be filled in by person performing work)

I. Work limited to the following (description, area, equipment used): _____

Equipment used: _____

II. Names: _____

III. On-site Inspection conducted Yes No Initials of Inspector _____

TtNUS

SECTION II: General Safety Requirements (To be filled in by permit issuer)

IV. Protective equipment required

Level D Level B
 Level C Level A
 Detailed on Reverse

Respiratory equipment required

Full face APR <input type="checkbox"/>	Escape Pack <input type="checkbox"/>
Half face APR <input type="checkbox"/>	SCBA <input type="checkbox"/>
SKA-PAC SAR <input type="checkbox"/>	Bottle Trailer <input type="checkbox"/>
Skid Rig <input type="checkbox"/>	None <input type="checkbox"/>

Modifications/Exceptions: _____

V. Chemicals of Concern

Action Level(s)

Response Measures

VI. Additional Safety Equipment/Procedures

Hard-hat.....	<input type="checkbox"/> Yes	<input type="checkbox"/> No	Hearing Protection (Plugs/Muffs)	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Safety Glasses.....	<input type="checkbox"/> Yes	<input type="checkbox"/> No	Safety belt/harness	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Chemical/splash goggles.....	<input type="checkbox"/> Yes	<input type="checkbox"/> No	Radio	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Splash Shield.....	<input type="checkbox"/> Yes	<input type="checkbox"/> No	Barricades	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Splash suits/coveralls.....	<input type="checkbox"/> Yes	<input type="checkbox"/> No	Gloves (Type)	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Steel toe Work shoes or boots	<input type="checkbox"/> Yes	<input type="checkbox"/> No	Work/rest regimen	<input type="checkbox"/> Yes	<input type="checkbox"/> No

Modifications/Exceptions: _____

VII. Procedure review with permit acceptors

Yes NA

Yes NA

Safety shower/eyewash (Location & Use).....	<input type="checkbox"/>	<input type="checkbox"/>	Emergency alarms.....	<input type="checkbox"/>	<input type="checkbox"/>
Procedure for safe job completion.....	<input type="checkbox"/>	<input type="checkbox"/>	Evacuation routes.....	<input type="checkbox"/>	<input type="checkbox"/>
Contractor tools/equipment/PPE inspected.....	<input type="checkbox"/>	<input type="checkbox"/>	Assembly points.....	<input type="checkbox"/>	<input type="checkbox"/>

VIII. Equipment Preparation

Yes NA

Equipment drained/depressurized.....	<input type="checkbox"/>	<input type="checkbox"/>
Equipment purged/cleaned.....	<input type="checkbox"/>	<input type="checkbox"/>
Isolation checklist completed.....	<input type="checkbox"/>	<input type="checkbox"/>
Electrical lockout required/field switch tested.....	<input type="checkbox"/>	<input type="checkbox"/>
Blinds/misalignments/blocks & bleeds in place.....	<input type="checkbox"/>	<input type="checkbox"/>
Hazardous materials on walls/behind liners considered.....	<input type="checkbox"/>	<input type="checkbox"/>

IX. Additional Permits required (Hot work, confined space entry, excavation etc.)..... Yes No

If yes, complete permit required or contact Philadelphia Office

X. Special instructions, precautions: _____

Permit Issued by: _____ Permit Accepted by: _____

11.0 CONFINED SPACE ENTRY

It is not anticipated, under the proposed scope of work, that permit-required or non-permit-required confined space entry activities will be conducted. **Therefore, personnel under the provisions of this HASP are not allowed, under any circumstances, to enter confined spaces.** A confined space is defined as an area that has the following characteristics:

- Is large enough and so configured that an employee can bodily enter and perform assigned work.
- Has limited or restricted means for entry or exit (e.g., tanks, vessels, silos, storage bins, hoppers, vaults, and pits are spaces that may have limited means of entry).
- Is not designed for continuous employee occupancy.

A Permit-Required Confined Space is one that:

- Contains or has a potential to contain a hazardous atmosphere.
- Contains a material that has the potential to engulf an entrant.
- Has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls or by a floor that slopes downward and tapers to a smaller cross-section.
- Contains any other recognized or serious safety or health hazard.

For further information on confined space, consult the Health and Safety Guidance Manual or call the HSO. If confined space operations are to be performed as part of the scope of work, detailed procedures and training requirements will have to be addressed and this HASP modified accordingly.

12.0 MATERIALS AND DOCUMENTATION

The TtNUS FOL shall ensure the following materials/documents are taken to the project site and used when required.

- A complete copy of this HASP
- Health and Safety Guidance Manual
- Incident Reports
- Medical Data Sheets
- Material Safety Data Sheets for all chemicals brought on site, including decon solutions, fuels, sample preservatives, calibration gases, etc.
- Follow-up Reports
- A full-size OSHA Job Safety and Health Poster (posted in the site trailer)
- Training/Medical Surveillance Documentation Form (Blank)
- First-Aid Supply Usage Form
- Emergency Reference Form (Section 2.0, extra copy for posting)

12.1 MATERIALS TO BE POSTED AT THE SITE

The following documentation is to be posted at the site for quick reference purposes. In situations where posting of these documents is not feasible (such as no office trailer), these documents should be separated and immediately accessible.

Chemical Inventory Listing - This list represents all chemicals brought on site, including decontamination solutions, sample preservatives, fuel, calibration gases, etc. This list should be posted in a central area.

Material Safety Data Sheets (MSDSs) - The MSDSs should also be in a central area accessible to all site personnel. These documents should match all the listings on the chemical inventory list for all substances employed on site. It is acceptable to have these documents within a central folder and the chemical inventory as the table of contents.

The OSHA Job Safety & Health Protection Poster - This poster, as directed by 29 CFR 1903.2 (a)(1), should be conspicuously posted in places where notices to employees are normally posted. Each FOL shall ensure that this poster is not defaced, altered, or covered by other material.

Site Clearance Posting - This list is found within the training section of the HASP (See Figure 8-1). This list identifies all site personnel, dates of training (including site-specific training), and medical surveillance. This list indicates not only clearance but also status. If personnel do not meet these requirements, then they do not enter the site while site personnel are engaged in activities.

Emergency Phone Numbers and Directions to the Hospital(s) - This list of numbers and the directions will be maintained at all phone communications points and in each site vehicle.

Medical Data Sheets/Cards - Medical Data Sheets will be filled out by all on-site personnel and filed in a central location. The Medical Data Sheet will accompany any injury or illness requiring medical attention to the medical facility. A copy of this sheet or a wallet card will be given to all personnel to be carried on their person.

Hearing Conservation Standard (29 CFR 1910.95) - This standard will be posted anytime hearing protection or other noise abatement procedures are employed.

Personnel Monitoring - All results generated through personnel sampling (levels of airborne toxics, noise levels, etc.) will be posted to inform individuals of the results of that effort.

Placards and Labels - Where chemical inventories have been separated, because of quantities and incompatibilities, these areas will be conspicuously marked using Department of Transportation (DOT) placards and acceptable [Hazard Communication 29 CFR 1910.1200 (f)] labels.

13.0 GLOSSARY

ACGIH	American Conference of Governmental Industrial Hygienists
APR	Air Purifying Respirators
AOC	Area of Concern
BTEX	Benzene, Toluene, Ethyl Benzene, Xylene
CFR	Code of Federal Regulations
CNS	Central Nervous System
CRZ	Contamination Reduction Zone
DOD	Department of Defense
DOT	Department of Transportation
EPA	Environmental Protection Agency
eV	electron Volts
FID	Flame Ionization Detector
FOL	Field Operations Leader
FSP	Field Sampling Plan
HASP	Health and Safety Plan
HAZWOPER	Hazardous Waste Operations and Emergency Response
HEPA	High Efficiency Particulate Air
LEL/O ₂	Lower Explosive Limit/Oxygen
N/A	Not Available
NIOSH	National Institute for Occupational Safety and Health
OSHA	Occupational Safety and Health Administration (U.S. Department of Labor)
PEL	Permissible Exposure Limit
PHSO	Project Health and Safety Officer
PID	Photo-ionization Detector
PM	Project Manager
PPE	Personal Protective Equipment
PVC	Polyvinyl Chloride
SAP	Sampling and Analysis Plan
SCBA	Self-Contained Breathing Apparatus
SSO	Site Safety Officer
STEL	Short-Term Exposure Limit
SWMU	Solid Waste Management Unit
TOM	Task Order Manager
TPH	Total Petroleum Hydrocarbons
TWA	Time-Weighted Average

UV
WP

Ultraviolet
Work Plan

ATTACHMENT I a

**TICK CONTROL
AND
LYME DISEASE**

TICK CONTROL AND LYME DISEASE

The occurrence of Lyme disease has become a worldwide problem since its identification in 1976. This disease is characteristically recognized as being transmitted by ticks, which may be encountered by field personnel while working at this site. As a result, this discussion has been included with this Health and Safety Plan to provide for adequate recognition, evaluation, and control efforts to minimize the occurrence and effects of this potential health hazard.

The discovery of Lyme disease is credited to Dr. Allen Steere of Yale University Medical School, and is named after the community where it was (reportedly) first encountered, Lyme, Connecticut. This disease can be transmitted to man through the bite of ticks that are infected with a cork screw-shaped microbe (spirochete). The spread of this disease has been so rapid that in 1984 it surpassed Rocky Mountain Spotted fever as the most common tick-borne disease in the United States. In this country, most of the incidents of this disease have been recorded in the Northeast, and the tick species most commonly attributed with its spread is the deer tick.

Recognition

This hazard potential exists primarily in the spring and summer months, as these are the seasons that tick populations and activity flourish. In fact, 90 percent of the reported cases have occurred from early June through September. Also, this concern exists primarily in heavily vegetated areas. Therefore, recognition of these factors can aid in the awareness and control of this threat.

To aid in the recognition and identification of these insects, an example illustration of the tick species common to the region where this site is located has been included with this discussion. This species (the American Dog tick) is common in the eastern half of the United States, and typically exists in areas covered with grass or underbrush. These insects will attach themselves to animals (including man) that pass through the area and rub against them. After finding a host, the tick inserts its mouthparts and sucks blood until it is fully engorged. This requires a time period of three to twelve days, then the tick will drop off. In addition to Lyme disease concerns, this tick has also been identified as a transmitter of Rocky Mountain Spotted Fever, and the organisms of tularemia and possibly relapsing fever. The wounds left by tick bites can be painful, and can also have a paralyzing effect commonly referred to as tick paralysis.

The earliest symptom of the onset of this disease is the occurrence of an unusual red skin rash. This is commonly the first indication since it has been evidenced that many persons who have contracted this disease were, in fact, unaware that they had been bitten. This rash can appear at the site of the bite anywhere from several days to a few weeks after the bite. It typically starts as a small red spot, and then expands as the spirochetes expand from the bite location. Rash sizes can vary, but have been most commonly associated in a 2 to 3 inch diameter size range. This rash will fade (with or without treatment) after a few weeks. Close inspection is necessary to detect this symptom as the rashes are easy to miss because they're often very faint. Body sites where rashes frequently occur include the thigh areas, groin, and armpits. Also, it is not uncommon for a rash to develop in more than one place.

Other early symptoms include profound fatigue, a stiff neck, and flu-like symptoms such as headache, chills, fever, and muscle aches. Recognition of the onset of any of these symptoms is important since tick bites do not always produce a rash. If left untreated, the disease will progress to its second stage within weeks or months after the infection. This stage involves affects to the heart and nervous system. A common second stage symptom is a paralysis on one or both sides of the face. Others include severe headache, encephalitis, or meningitis. The third and final stage involves the development of chronic inflammatory arthritis, which can occur up to a year or more after the bite.

Evaluation

Evaluation of this hazard potential principally involves field personnel performing close self-inspections for the presence of ticks each time they leave the site. This should involve careful examination, especially of the individuals' heads. Personnel should be aware that when a tick attaches itself to its host, it inserts its entire head under the surface of the skin.

Control

Control of this threat involves several components. First, field personnel must be aware of the climate and area conditions that are commonly associated with being conducive to tick infestation. Second, when working in or walking through potential infested areas, personnel must ensure that they do not have exposed body parts (i.e., at least long-sleeved shirts and long pants, particularly when protective coveralls are not worn). In heavily vegetated areas where infestation is likely, Tyvek coveralls will be required to minimize this hazard potential. Also, several commercial products have been demonstrated as being effective in repelling ticks. Examples include Permanone, Off!, and Cutter. These types of repellents will be used at the direction and discretion of the TtNUS Health and Safety Officer, and only in accordance and observation of manufacturer's recommendations. In most instances, however, such repellents are typically applied to the outside surfaces of clothing (and not directly onto the skin), and should be applied also to shoe tops, socks, pants cuffs, and other areas most susceptible to ticks.

Tick Removal

In the event that a tick is discovered to be attached to a member of the field team, timely removal of the insect is critical to reducing the potential for contracting the disease. According to available information and research, there is apparently a grace period of at least a few hours from the time of the bite before the tick transmits the microbe (the spirochetes are not present in the mouth parts of the tick). However, the incident of a tick bite is frequently unnoticed, and the discovery of the tick may not occur until after this suspected grace period has already elapsed. Therefore, timely removal is very important. The preferred method of tick removal is to pull it out using tweezers or small forceps. In this method, the tick should be grasped as close to the mouth as possible, and then pulled steadily upward. Care must be exercised so as not to pull in a jerking motion as this can result in the head becoming detached. After the tick has been removed, disinfect the bite with rubbing alcohol or povidone iodine (Betadine). The tick must not be handled as the microbes can enter the body through any breaks in intact skin. The bite should be checked occasionally for at least a two-week period to see if a rash forms. If it does, medical attention must be promptly sought.

In order to provide for proper and timely response to the occurrence of a tick bite, the SSO will ensure that the site First Aid kit is properly equipped with medical forceps and rubbing alcohol, in addition to the standard kit contents. Also, an adequate supply of commercial insect (tick) repellents will be maintained on-site, and all personnel will be trained in its proper application and will be required to use it, at the direction of FOL.

ATTACHMENT I b

West Nile Virus Information

West Nile Fever



-.com

New York City Department of Health



West Nile Virus General Information on West Nile virus

Q: What is West Nile virus?

A: West Nile virus is a mosquito-borne virus that can cause encephalitis (inflammation of the brain) or meningitis (inflammation of the lining of the brain and spinal cord).

Q: How is West Nile virus spread?

A: West Nile virus is spread to humans by the bite of an infected mosquito. A mosquito becomes infected by biting a bird that carries the virus. You or your child cannot get West Nile virus from a person who has the disease. West Nile virus is not spread by person-to-person contact such as touching, kissing, or caring for someone who is infected.

Q: Where did the West Nile virus come from?

A: Outbreaks of the West Nile virus have occurred before in Egypt, Asia, Israel, South Africa, parts of Europe and Australia. Before 1999, the West Nile virus had never before been found in the United States. The New York City Department of Health, the New York State Health Department, and the U.S. Centers for Disease Control and Prevention (CDC), are currently investigating how the West Nile virus got into New York City. The most likely

explanation is that the virus was introduced by an infected bird that was imported or an infected human returning from a country where the virus is common.

Q: Can you get West Nile virus directly from birds?

A: West Nile virus cannot spread directly from birds to people. However, dead birds should not be handled with bare hands. Use gloves to carefully place dead birds in a double plastic bag and then place the dead birds in the outdoor trash.

Q: Besides mosquitoes, can you get West Nile virus directly from other insects or ticks?

A: Infected mosquitoes are the primary source for West Nile virus and caused the recent outbreak in the New York City metropolitan area. There is no information to suggest that ticks transmitted West Nile virus to patients in the New York area outbreak.

Q: What are the symptoms of West Nile virus?

A: In last year's outbreak, most people who were infected with West Nile virus had no symptoms or experienced mild illness such as a fever, headache and body aches before fully recovering. In outbreaks in other parts of the world, some persons also developed a mild rash or swollen lymph glands. In some individuals, particularly the elderly, West Nile virus can cause serious disease that affects brain tissue. At its most serious, it can cause permanent neurological damage and can be fatal. Encephalitis (inflammation of the brain) symptoms include the rapid onset of severe headache, high fever, stiff neck, confusion, loss of consciousness (coma), and muscle weakness. Death may result in some cases.

Q: Is a woman's pregnancy at risk if she gets West Nile encephalitis?

A: There is no documented evidence that a pregnant woman or her fetus are at increased risk due to infection with West Nile virus.

Q: How is West Nile encephalitis treated?

A: There is no specific therapy. In more severe cases, intensive supportive therapy is indicated, i.e., hospitalization, intravenous (IV) fluids and nutrition, airway management, ventilatory support (ventilator) if needed, prevention of secondary infections (pneumonia, urinary tract, etc.), and good nursing care.

Q: Is there a vaccine against West Nile virus?

A: No.

Q: How long does it take to get sick if bitten by an infected mosquito?

A: Being bitten by an infected mosquito will not necessarily make you sick since most people who are infected with West Nile virus have no symptoms or experience mild illness. If illness were to occur, it would occur within 5 to 15 days of being bitten by an infected mosquito.

Q: What should a person do if he/she thinks they have West Nile encephalitis?

A: If a person has signs of encephalitis, with fever, muscle weakness, and confusion, he or she should seek medical care as soon as possible.

Q: Who is at risk for getting West Nile encephalitis after being bitten by an infected mosquito?

A: Persons older than 50 years of age have the highest risk of severe disease.

Q: What can I do to reduce my risk of becoming infected with West Nile virus?

A: From April to October, when mosquitoes are most active, take the following precautions:

- If outside during evening, nighttime and dawn hours when mosquitoes are most active and likely to bite, children and adults should wear protective clothing such as long pants, long-sleeved shirts, and socks.
- If outside during evening, nighttime and dawn hours, consider the use of an insect repellent containing 10% or less DEET (N, N-diethyl-methyl-meta-toluamide) for children and no more than 30% DEET for adults.
- **USE DEET ACCORDING TO MANUFACTURER'S DIRECTIONS:**
 - Do not use DEET on infants or pregnant women.
 - Do not allow young children to apply DEET themselves.
 - Do not apply DEET directly to children. Apply to your own hands and then put it on the child.
 - DEET is effective for approximately four hours. Avoid prolonged or excessive use of DEET. Use sparingly to cover exposed skin and clothing.
 - Wash all treated skin and clothing after returning indoors.
 - Store DEET out of reach of children.
- **Note** that Vitamin B, ultrasonic devices, incense and

bug zappers have not been shown to be effective in preventing mosquito bites.

Q: What can I do around my home to help reduce exposure to mosquitoes?

A: Mosquitoes lay their eggs in standing water. Weeds, tall grass, and bushes provide an outdoor home for the adult *Culex pipiens* mosquito (the common house mosquito) which is most commonly associated with West Nile virus. Mosquitoes can enter homes through unscreened windows or doors, or broken screens.

- Make sure that doors and windows have tight-fitting screens. Repair or replace all screens in your home that have tears or holes.
- Remove all discarded tires from your property.
- Dispose of tin cans, plastic containers, ceramic pots, or similar water-holding containers.
- Make sure roof gutters drain properly. Clean clogged gutters in the spring and fall.
- Clean and chlorinate swimming pools, outdoor saunas and hot tubs. If not in use, keep empty and covered.
- Drain water from pool covers.
- Change the water in bird baths at least once a week.
- Turn over plastic wading pools and wheelbarrows when not in use.
- Eliminate any standing water that collects on your property.
- Remind or help neighbors to eliminate breeding sites on their properties.

Please Note: Some local hardware stores may carry a product called Mosquito Dunk that contains a larvicide - *Bacillus thuringiensis israelensis* (BTI) - for use in areas of standing water around the home. The City Department of Health recommends eliminating standing water around the home to reduce breeding sites for mosquitoes and warns that direct handling of larvicides may cause skin and eye irritation. If these products are purchased for home use, we recommend careful reading of the hazards label, directions, and details regarding storage and handling.

Q: What is the City doing to address the possible return of West Nile virus?

A: The New York City Department of Health, along with other City, State and federal agencies, has developed a comprehensive plan to reduce the risk of West Nile virus returning in 2000. The main goal of this plan is to decrease the number of adult mosquitoes by eliminating their breeding

sites, where possible, and applying larvicides (to kill the immature larval form of the mosquito) to areas with standing water that can not be drained completely. The City will also regularly test adult mosquitoes and birds for West Nile virus throughout the spring and summer. If West Nile virus is found, focused and limited applications of pesticides may be needed to prevent the spread to people.

Q: Is the City planning to spray pesticides by plane or helicopter, as was done last year?

A: Reducing the adult mosquito population (adulticiding) with pesticides approved by the US Environmental Protection Agency will be done when necessary to prevent or address the potential for illness in the human population. The City is hopeful that with an early and aggressive campaign against mosquitoes, the need for aerial spraying of pesticides will be reduced. In addition, early warning systems to detect the spread of West Nile virus in birds and mosquitoes can help direct effective and targeted use of pesticides.

Q: What health risks are posed to people and pets from pesticides?

A: If pesticides are used, the products that will be applied will be used according to guidelines set by the U.S. Environmental Protection Agency. In the small amounts that they would be used, these pesticides would pose negligible risks to people and to pets. Some people may be more sensitive to pesticides and should closely adhere to the recommendations below. Avoiding exposure to pesticides will lessen the risk of any reactions, which may include eye irritation, rash or difficulty breathing. There could be an odor associated with pesticides, but it will pass in a few hours. **Call the City's Poison Control Center at (212) POISONS or (212) 764-7667 for more information, if exposure to pesticides causes any adverse reactions.**

Q. Will the public be notified in advance about spraying activities?

A: Residents will learn about spraying schedules through public service announcements, the media, the City's website, and a telephone information line.

Q: If the City sprays pesticides, what should I do during the spraying?

A: If spraying were to occur, the New York City Department of Health recommends that all individuals take the following precautions to avoid direct exposure to pesticides and reduce the risk of any reactions to pesticides:

- Some individuals are sensitive to pesticides. Persons with asthma or other respiratory conditions are especially encouraged to stay inside during spraying since there is a possibility that spraying could worsen those conditions.
- Whenever possible, stay indoors during spraying.
- Turn fans and air conditioners off or set them to exhaust to reduce indoor odor.
- Remove children's toys, outdoor equipment and clothes from outdoor areas.
(If toys are left outside, wash with soap and water before using again.)
- Wash skin and clothing exposed to pesticides with soap and water.
- **Anyone experiencing adverse reactions to pesticides should call their doctor or the NYC Poison Control Center at (212) POISONS or (212) 764-7667.**

Q: If I live in an area where birds or mosquitoes with West Nile virus have been reported, and I am bitten by a mosquito, am I likely to get sick?

A: No. Even in areas where mosquitoes do carry the virus, very few mosquitoes -- less than 1% -- are infected. The chances that any one bite will be from an infected mosquito are very small.

Q: I've gotten a mosquito bite. Should I be tested for West Nile virus?

A: No. Most mosquitoes are not infected with West Nile virus. Illnesses related to mosquito bites are rare, especially in New York City. However, you should see a doctor immediately if you develop symptoms such as high fever, confusion, muscle weakness, severe headaches, stiff neck, or if your eyes become sensitive to light. Patients with mild symptoms should recover completely, and do not require any specific medication or laboratory testing.

Q: Should I report dead birds to the Health Department?

A: The Department of Health is taking reports on dead bird sightings within New York City, especially crows and sparrows. While the Department of Health is interested in collecting information about dead birds as part of its efforts to understand West Nile virus, we will not be picking up *every* dead bird reported. The Department will only be collecting a small sample of the bird population. However, we encourage New York City residents to report all dead bird sightings on this line to assist the department's monitoring efforts.

If you do not receive a phone call from the Department of

Health to arrange pick up of the dead bird within 24 hours of making the report or by the next business day, please dispose of the dead bird. West Nile virus cannot spread directly from birds to people, however dead birds should not be handled with bare hands. **Use gloves to carefully place dead birds in a double plastic bag and then place the dead birds in the outdoor trash.**

For more information about West Nile virus, call the New York City Department of Health West Nile Information Line, 24 hours a day, seven days a week, at (877) WNV-4NYC or (877) 968-4692.

April 2000

HOME

EMAIL

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West Nile Virus Hotlines

New York City Health Department: 1.877.968.4692 (877.WNV.4NYC)

Nassau County 1.516.571.2500

Suffolk County: 1.631.852.4939

Rockland County: 1.845.364.8990

Westchester County: 1.914.637.2420

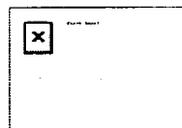
Monmouth County Mosquito Extermination Commission 1.877.626.3211

HOME

EMAIL

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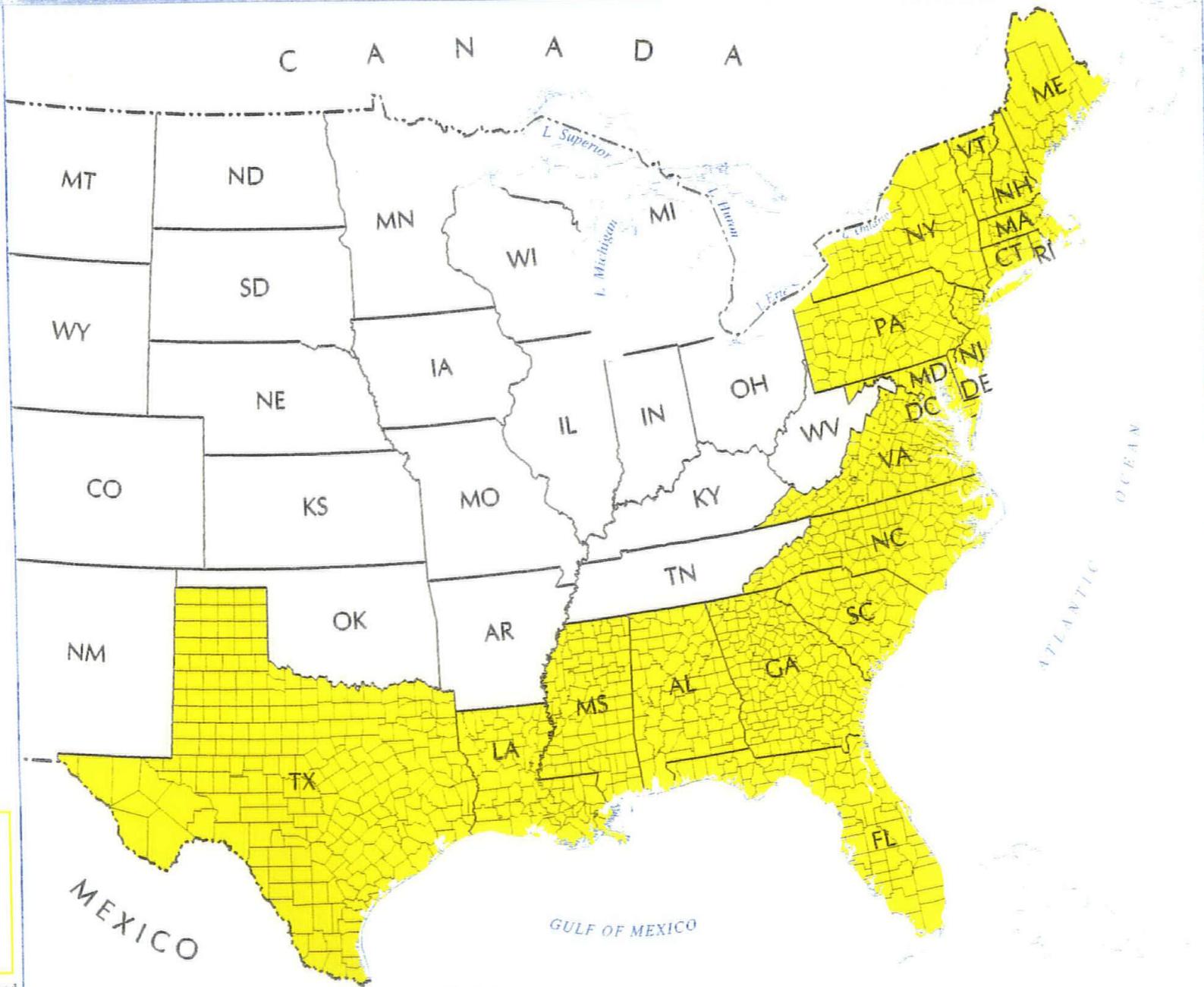


Surveillance Area

This data represents the program during the Fall of the year 2000.

-  Participating
-  Not Participating

This map depicts the 22 recipients of cooperative agreement funds for West Nile virus (WNV) surveillance to work with the Centers for Disease Control and Prevention, for the year 2000. The recipients were chosen because they were affected by the WNV in 1999, or because they have a high potential for being affected in the future because of bird migration patterns. Maine, New Hampshire, and Vermont joined the program in September.



Disclaimer: These data are provisional and may be revised or adjusted in the future.

This map is available at: <http://nationalatlas.gov/virusprint.html>

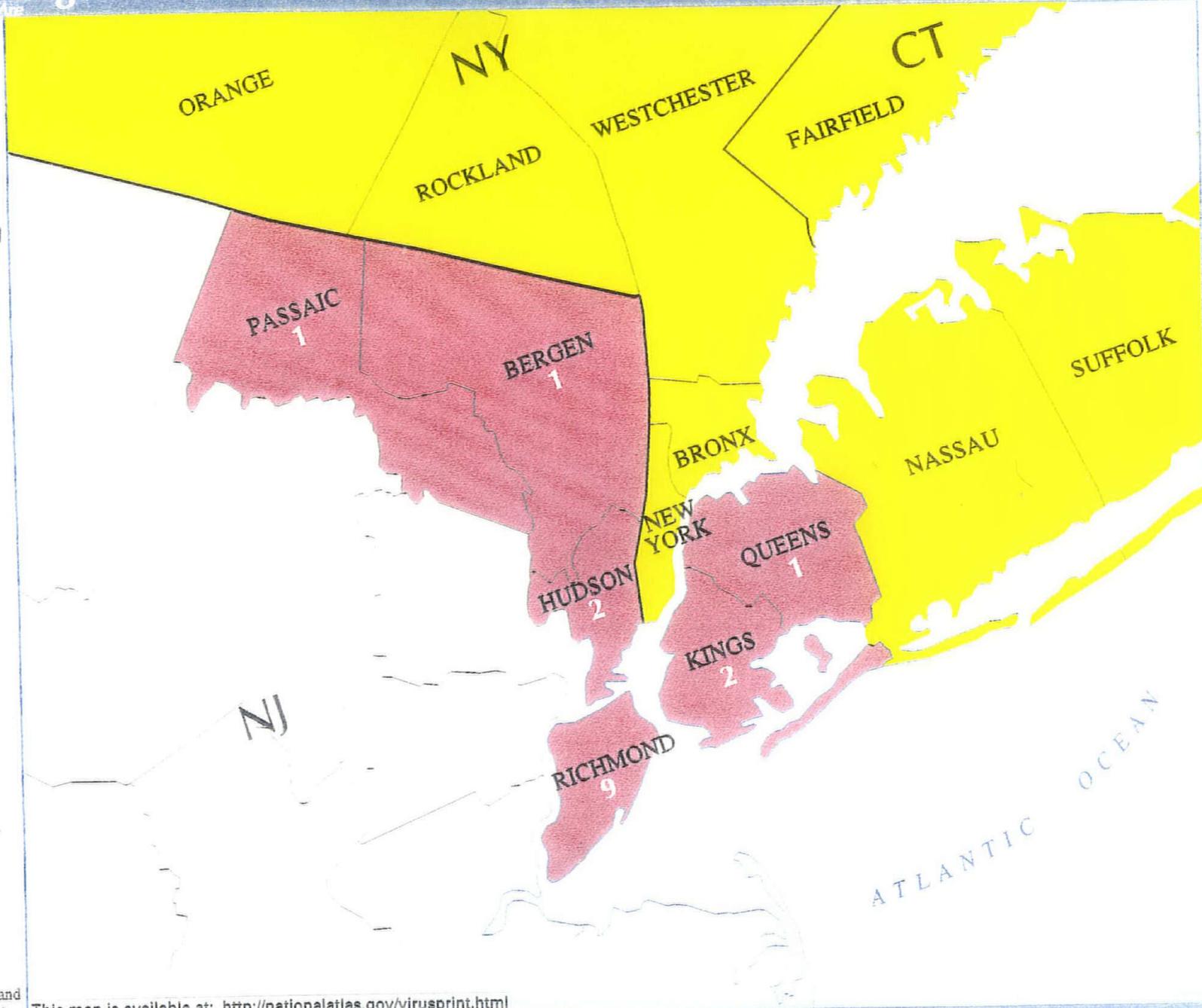


Human Cases: Cumulative Report

Data from reports made
between 1 JAN 00 and 6 OCT 00.

- 1 Number of Positives
- Test Samples Submitted
- No Reports
- Not Participating

These data are based on information voluntarily reported by state health departments to CDC. West Nile virus (WNV) infection was determined by laboratory testing. Case locations are based on the county of residence (or county equivalent) of the patient, not the medical facility location. Note that the map includes all areas of positive (confirmed or probable) WNV results, but not necessarily all areas with submitted samples or areas with no reports.



Disclaimer: These data are provisional and may be revised or adjusted in the future.

This map is available at: <http://nationalatlas.gov/virusprint.html>

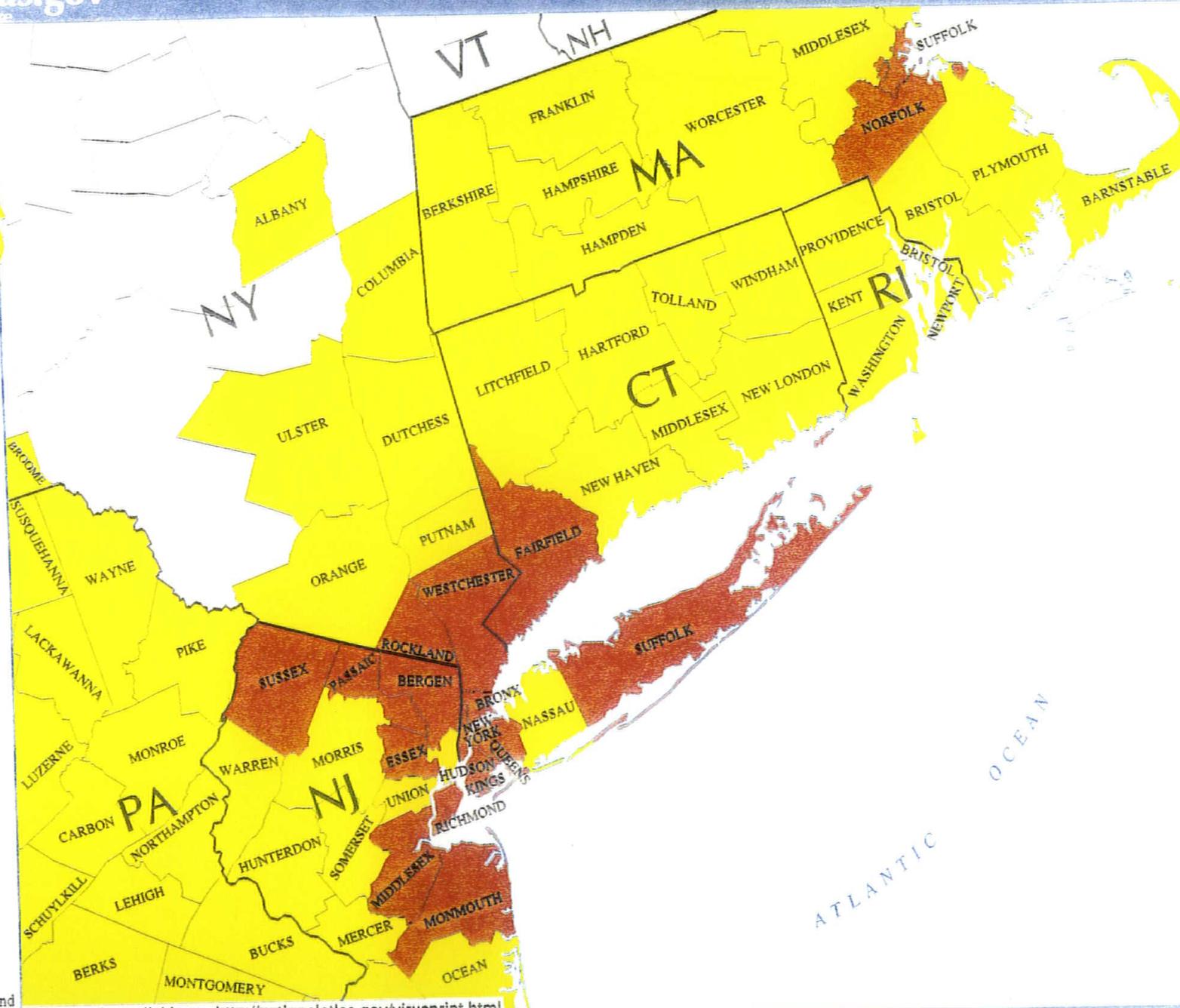


Mosquito Surveillance: Cumulative Report

Data from reports made
between 1 JAN 00 and 6 OCT 00.

- Any Positive
- Test Sample Submitted
- No Reports
- Not Participating

These county and county equivalent data are based on laboratory tests of mosquitoes collected by state or local health agencies. Mosquitoes are sorted by species and gender. Note that the map includes all areas of positive (confirmed or probable) West Nile virus results, but not necessarily all areas with submitted samples or areas with no reports.



Disclaimer: These data are provisional and may be revised or adjusted in the future.

This map is available at: <http://nationalatlas.gov/virusprint.html>

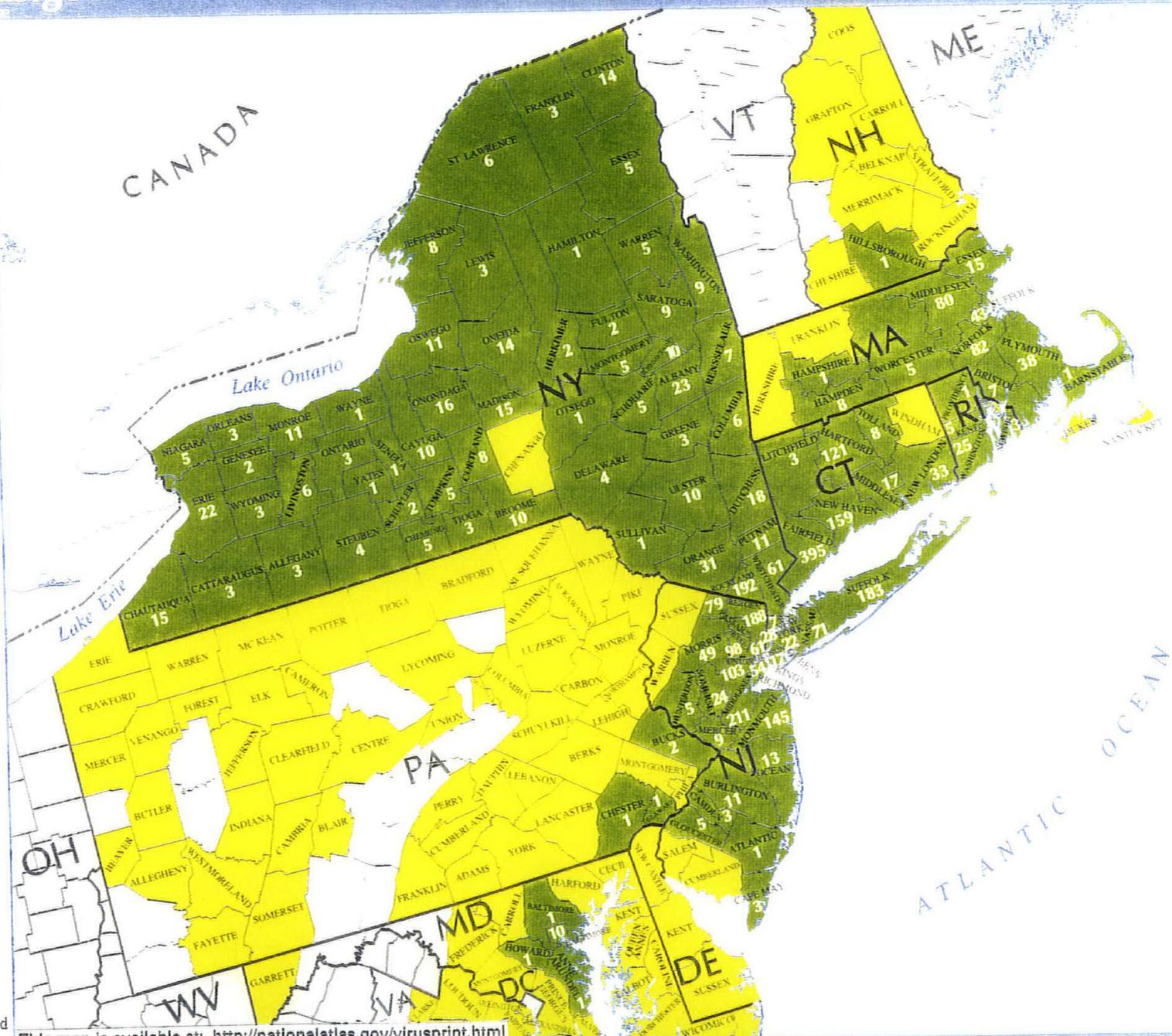


Wild Bird Cases: Cumulative Report

Data from reports made
between 1 JAN 00 and 6 OCT 00.

- Number of Positives
- Test Samples Submitted
- No Reports
- Not Participating

These county and county equivalent data are based on tests of tissue samples from dead and diseased wild birds, provided by state health officials. Many of these data represent crows, which are especially sensitive to West Nile virus (WNV). Note that the map includes all areas of positive (confirmed or probable) WNV results, but not necessarily all areas with submitted samples or no reports.



Disclaimer: These data are provisional and may be revised or adjusted in the future.

This map is available at: <http://nationalatlas.gov/virusprint.html>

ATTACHMENT II

EQUIPMENT INSPECTION CHECKLIST

EQUIPMENT INSPECTION

COMPANY: _____ UNIT NO. _____

FREQUENCY: Inspect daily, document prior to use and as repairs are needed.

Inspection Date: ___/___/___ Time: _____ Equipment Type: _____

(e.g., bulldozer)

Good Need Repair N/A

Tires or tracks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hoses and belts	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cab, mirrors, safety glass	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- Turn signals, lights, brake lights, etc. (front/rear) for equipment approved for highway use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- Is the equipment equipped with audible back-up alarms and back-up lights?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Horn and gauges	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Brake condition (dynamic, park, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fire extinguisher (Type/Rating - _____)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fluid Levels:			
- Engine oil	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- Transmission fluid	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- Brake fluid	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- Cooling system fluid	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- Windshield wipers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- Hydraulic oil	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Oil leak/lube	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Coupling devices and connectors	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Exhaust system	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Blade/boom/ripper condition	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Accessways: Frame, hand holds, ladders, walkways (non-slip surfaces), guardrails?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Power cable and/or hoist cable	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Steering (standard and emergency)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Safety Guards:

Yes No

- | | | |
|---|--------------------------|--------------------------|
| - Around rotating apparatus (belts, pulleys, sprockets, spindles, drums, flywheels, chains) all points of operations protected from accidental contact? _____ | <input type="checkbox"/> | <input type="checkbox"/> |
| - Hot pipes and surfaces exposed to accidental contact? _____ | <input type="checkbox"/> | <input type="checkbox"/> |
| - All emergency shut offs have been identified and communicated to the field crew? _____ | <input type="checkbox"/> | <input type="checkbox"/> |
| - Have emergency shutoffs been field tested? _____ | <input type="checkbox"/> | <input type="checkbox"/> |
| - Results? _____ | <input type="checkbox"/> | <input type="checkbox"/> |
| - Are any structural members bent, rusted, or otherwise show signs of damage? _____ | <input type="checkbox"/> | <input type="checkbox"/> |

- Are fueling cans used with this equipment approved type safety cans? _____
- Have the attachments designed for use (as per manufacturer's recommendation) with this equipment been inspected and are considered suitable for use? _____

Portable Power Tools:

- Tools and Equipment in Safe Condition? _____
- Saw blades, grinding wheels free from recognizable defects (grinding wheels have been sounded)? _____
- Portable electric tools properly grounded? _____
- Damage to electrical power cords? _____
- Blade guards in place? _____
- Components adjusted as per manufacturer's recommendation? _____

Cleanliness:

- Overall condition (is the decontamination performed prior to arrival on-site considered acceptable)? _____
- Where was this equipment used prior to its arrival on site? _____
- Site Contaminants of concern at the previous site? _____
- Inside debris (coffee cups, soda cans, tools and equipment) blocking free access to foot controls? _____

Operator Qualifications (as applicable for all heavy equipment):

- Does the operator have proper licensing where applicable, (e.g., CDL)? _____
- Does the operator, understand the equipments operating instructions? _____
- Is the operator experienced with this equipment? _____
- Does the operator have emotional and/or physical limitations which would prevent him/her from performing this task in a safe manner? _____
- Is the operator 21 years of age or more? _____

Identification:

- Is a tagging system available, for positive identification, for tools removed from service? _____

Additional Inspection Required Prior to Use On-Site

- | | Yes | No |
|--|--------------------------|--------------------------|
| - Does equipment emit noise levels above 90 decibels? | <input type="checkbox"/> | <input type="checkbox"/> |
| - If so, has an 8-hour noise dosimetry test been performed? | <input type="checkbox"/> | <input type="checkbox"/> |
| - Results of noise dosimetry: _____ | | |
| - Defects and repairs needed: _____ | | |
| - General Safety Condition: _____ | | |
| - Operator or mechanic signature: _____ | | |
| - Approved for Use: <input type="checkbox"/> Yes <input type="checkbox"/> No | | |

Site Safety Officer Signature

ATTACHMENT III

OSHA FORM 101

Supplementary Record of Occupational Injuries and Illnesses

EMPLOYER

1. Name -----
2. Mail address -----
(No. and street) (City or town) (State)
3. Location, if different from mail address -----

INJURED OR ILL EMPLOYEE

4. Name ----- Social Security No. -----
(First name) (Middle name) (Last name)
5. Home address -----
(No. and street) (City or town) (State)
6. Age ----- 7. Sex: Male ----- Female ----- (Check one)
8. Occupation -----
(Enter regular job title, not the specific activity he was performing at time of injury.)
9. Department -----
(Enter name of department or division in which the injured person is regularly employed, even though he may have been temporarily working in another department at the time of injury.)

THE ACCIDENT OR EXPOSURE TO OCCUPATIONAL ILLNESS

10. Place of accident or exposure -----
(No. and street) (City or town) (State)
If accident or exposure occurred on employer's premises, give address of plant or establishment in which it occurred. Do not indicate department or division within the plant or establishment. If accident occurred outside employer's premises at an identifiable address, give that address. If it occurred on a public highway or at any other place which cannot be identified by number and street, please provide place references locating the place of injury as accurately as possible.
11. Was place of accident or exposure on employer's premises? ----- (Yes or No)
12. What was the employee doing when injured? -----
(Be specific. If he was using tools or equipment or handling material, name them and tell what he was doing with them.)

13. How did the accident occur? -----
(Describe fully the events which resulted in the injury or occupational illness. Tell what happened and how it happened. Name any objects or substances involved and tell how they were involved. Give full details on all factors which led or contributed to the accident. Use separate sheet for additional space.)

OCCUPATIONAL INJURY OR OCCUPATIONAL ILLNESS

14. Describe the injury or illness in detail and indicate the part of body affected. -----
(e.g.: amputation of right index finger at second joint; fracture of ribs; lead poisoning; dermatitis of left hand, etc.)
15. Name the object or substance which directly injured the employee. (For example, the machine or thing he struck against or which struck him; the vapor or poison he inhaled or swallowed; the chemical or radiation which irritated his skin; or in cases of strains, hernias, etc., the thing he was lifting, pulling, etc.) -----
16. Date of injury or initial diagnosis of occupational illness -----
(Date)
17. Did employee die? ----- (Yes or No)

OTHER

18. Name and address of physician -----
19. If hospitalized, name and address of hospital -----
Date of report ----- Prepared by -----
Official position -----

ATTACHMENT IV

SAFE WORK PERMITS

This location reserved for field-generated forms.