



**HEALTH and SAFETY PLAN**  
**Northport Properties Site**  
**Stevens County, Washington**  
**USEPA Site ID # WAN001020185**  
**SSID 10SF**  
**Project Start Date: August 3, 2020**

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## ATTACHMENTS

Attachment A	Site Safety Plan Amendments
Attachment B	COVID-19 Plans: Interim EPA COVID-19 Health and Safety Guidelines for Field Activities, July 6, 2020; Gov. Jay Inslee’s Construction Working Group Recommendations Phase 2 Construction COVID-19 Job Site Requirements, May 12, 2020, Updated June 2, 2020; Ecology and Environment, Inc. COVID-19 Action Plan, March 20, 2020, Revised June 4, 2020; Environmental Quality Management, Inc. Travel and Remediation Personnel Guidance Plan For COVID-19, Northport Removal, March 24, 2020
Attachment C	Site Vicinity Figure
Attachment D	EPA Region 10 COVID-19 Health Status and Temperature Screening for Site Workers Form
Attachment E	Job Hazard Analysis COVID-19 Supplement
Attachment F	General Information Sheets for site contaminants Lead and Arsenic
Attachment G	Safety Data Sheets
Attachment H	Site Visitor Health Questionnaire (COVID-19)
Attachment I	Site Visitor Log
Attachment J	Hospital Directions
Attachment K	Wildfire Smoke Guide, Revised July 2008 (with 2012 AQI Values)
Attachment L	Respiratory Protection AVI-3000 Scott Mask Instructions
Attachment M	Decontamination Area Sketch
Attachment N	E&E Accident Reporting/Investigation Form; EPA Region 10 Questionnaire for Reporting Suspect or Confirmed Illness (COVID-19)

## APPENDICES

Appendix A	Map of designated work zone (area labeled 2019 Removal Site Evaluation Area is the designated work zone)
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## REFERENCE

U. S. EPA Region 10 Concept of Operations (CONOPS) During A Pandemic - May 11, 2020

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## ACRONYM LIST

ACGIH	American Conference of Governmental Industrial Hygienists
APR	air purifying respirator
COVID-19	corona virus disease of 2019
CPR	Cardiopulmonary Resuscitation
CRZ	Contamination Reduction Zone
E&E	Ecology and Environment, Inc.
EMB	Emergency Management Branch
EMT	Emergency Medical Technician
EPA	United States Environmental Protection Agency
ERRS	Emergency and Rapid Response Services
EQM	Environmental Quality Management, Inc.
EZ	Exclusion Zone
FR	Foreman
HASP	Health and Safety Plan
HAZWOPER	Hazardous Operations and Emergency Response
ICS	Incident Command System
IDLH	immediately dangerous to life or health
JHA	Job Hazard Analysis
mg/kg	milligrams per kilogram
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
OSC	On-Scene Coordinator
OLEM	Office of Land and Emergency Management
OSHA	Occupational Safety and Health Administration
PEL	permissible exposure limit
PPE	personal protective equipment
RM	Response Manager
RSE	removal site evaluation
RI/FS	Remedial Investigation and Feasibility Study
RM	Response Manager
RSE	Removal Site Evaluation
SAHP	Safety and Health Program
SAP	Sampling and Analysis Plan
SCBA	self-contained breathing apparatus
SDS	Safety Data Sheet
SO	Safety Officer
SOP	Standard Operating Procedure
SSSP	Site-Specific Sampling Plan
START	Superfund Technical Assessment and Response Team
SZ	Support Zone
TCRA	time-critical removal action
TLV	threshold limit value
TSP	total suspended particulate
XRF	x-ray florescence

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## 1.0 Introduction

### 1.1 Health and Safety Plan Overview

This Health and Safety Plan (HASP) is required by the Hazardous Waste Operations and Emergency Response (HAZWOPER) regulation (29 CFR 1910.120).

This HASP is incorporated into a written safety and health program (SAHP) as called for under HAZWOPER. The U. S. Environmental Protection Agency (EPA) Region 10 Emergency Management Branch (EMB) has a SAHP for its On-Scene Coordinators (OSCs) that meets their obligations under both HAZWOPER and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) regulations (40 CFR 300). While the SAHP incorporates all HASPs, it relies on HASPs to provide the site-specific details not included in the SAHP. As such, this HASP addresses parts of the SAHP as well as the required elements of a HASP as site conditions dictate.

The procedures and guidelines contained herein were based upon the best available information at the time of the plan's preparation. Specific requirements will be revised when new information is received, or conditions change. A written amendment will document all changes made to the plan. Any written amendment will be maintained in **Attachment A** of this HASP.

This HASP addresses the elements required in Paragraph (b)(4)(ii)(A – J) of HAZWOPER:

- Safety and health risk or hazard analysis
- Employee training assignments
- Personal protective equipment (PPE)
- Medical surveillance requirements
- Air monitoring, personnel monitoring, and environmental sampling
- Site control measures (addresses Site Control Program of SAHP)
- Decontamination procedures
- Emergency response plan
- Confined space entry procedures
- Spill containment program

This HASP may also address those parts of the SAHP that were deferred such as:

- Organizational structure
- Comprehensive workplan
- Training
- Medical surveillance
- Standard operating procedures
- PPE program
- Site control program (deferred to site control measures above)
- Informational program

This HASP also includes health and safety guidelines related to the novel corona virus disease of 2019 (COVID-19). The guidelines provide safety and health protocols to help staff and managers prepare for and perform field activities during a pandemic. See **Attachment B** of this HASP for Interim EPA COVID-19 Health and Safety Guidelines for Field Activities – 7/6/2020; Governor Jay Inslee's Construction

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Working Group Recommendations for Phase 2 Construction COVID-19 Job Site Requirements – 5/12/2020, updated 6/2/2020; E&E COVID-19 Action Plan; EQM Travel and Remediation Personnel Guidance Plan For COVID-19, Northport Removal, March 24, 2020.

This HASP will be kept on site per Paragraph (b)(4)(i) of HAZWOPER.

This HASP consolidates all other employer HASPs by reference to serve as “the site safety and health plan” as required by HAZWOPER. Consolidation includes coordination between employers on common HASP elements and is reflected in the discussion for each of the HASP elements here. Checked boxes below indicate these common elements have been coordinated among the site employers. Subcontractors are responsible for developing and providing their own safety plans.

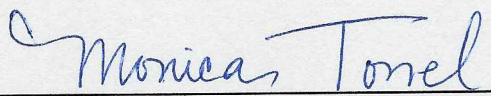
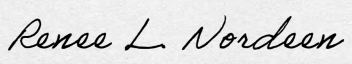
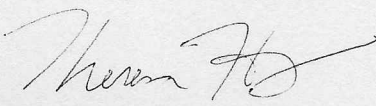
<u>Yes</u>	<u>N/A</u>	
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<input checked="" type="checkbox"/>		Personal protective equipment (PPE)
<input checked="" type="checkbox"/>		Air monitoring, personnel monitoring, and environmental sampling
<input checked="" type="checkbox"/>		Site control measures (addresses Site Control Program of SAHP)
<input checked="" type="checkbox"/>		Decontamination procedures
<input checked="" type="checkbox"/>		Emergency response plan
<input type="checkbox"/>	✓	Confined space entry procedures
<input checked="" type="checkbox"/>		Spill containment program

## 1.2 HASP Acceptance / Acknowledgement

Employers acknowledge that:

- This is the “site-specific safety and health plan” and incorporates by reference the HASPs of all on-site employers.
  - This HASP “is to facilitate coordination and communication of safety and health issues among” site employers.
  - This document serves as the EPA HASP.
  - They have coordinated on common HASP elements as site conditions dictate.
  - Employer-specific tasks and hazards are addressed in their respective employer HASP.
  - They must comply with applicable requirements under 29 CFR 1910.120 (HAZWOPER), 29 CFR 1910 Subpart I (Personal Protective Equipment) and 29 CFR 1910 Subpart Z (Toxic and Hazardous Substances)
  - They are responsible for meeting the requirements of HAZWOPER in their own HASP and are not confirming the adequacy of other employer HASPs.
  - EPA has informed them of the nature, level and degree of exposure likely as a result of participation in this hazardous waste operation. [HAZWOPER paragraph (j)]
  - EPA has informed them of the site emergency response procedures and any potential fire, explosion, health, safety or other hazards of the hazardous waste operation, including those identified in the employer’s informational program (paragraph (i)). [HAZWOPER paragraph (b)(1)(iv)]
  - EPA has informed them of the concepts, guidelines and procedures adopted by the EPA Region 10 Emergency Management Branch when responding to an incident or conducting a time-critical removal action (TCRA) during a pandemic. [Attachment B, EPA OLEM Interim Health and
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Safety Guidelines Related to COVID-19 for Conducting Superfund Site Work – 4/21/2020;  
Governor Jay Inslee's Construction Working Group Recommendations for Phase 2 Construction  
COVID-19 Job Site Requirements – 5/12/2020, updated 6/2/2020; and reference document EPA  
Region 10 Concept of Operations (CONOPS) During a Pandemic, issue date 5/11/2020]

 _____ USEPA On-Scene Coordinator	<u>7/27/2020</u> Date
 _____ START Project Manager	<u>7/28/2020</u> Date
 _____ ERRS Response Manager	<u>7/27/2020</u> Date



### 1.3 Site History and Background

The town of Northport lies in the northeastern section of Washington state along the eastern shoreline of the upper Columbia River, approximately seven miles south of the U.S./Canada border and 35 miles north of Colville, Washington. The TCRA addresses residential properties and common use areas located within Northport town limits west of a former smelter, i.e., Le Roi Smelter. (See **Attachment C** for Site Vicinity Figure)

In 2003, EPA conducted a removal site evaluation (RSE) at the former Le Roi Smelter property. Impacts from historical Le Roi Smelter operations may have extended beyond the private property boundary; therefore, the 2003 RSE was expanded into a project area comprised of the former smelter property and properties within or near the Northport town limits through a voluntary soil sampling effort. Based on the findings of the 2003/2004 RSE, EPA identified several residential and common use areas for a removal action. From July 19, 2004 through October 22, 2004, EPA completed TCRAs at the former Le Roi Smelter property and at 29 residential properties located within or near Northport town limits. In 2004, the TCRA action level for lead in soil was 1,000 milligrams per kilogram (mg/kg).

Additionally, in 2003, EPA began a remedial investigation and feasibility study (RI/FS) at the Upper Columbia River Site in northeast Washington state to investigate contamination along the upper Columbia River from the Grand Coulee Dam to the U.S.-Canada border including the bed and banks of the Columbia River and adjacent upland areas related to smelting operations impacting the Upper Columbia River Site. As part of the RI/FS field sampling activities, EPA identified several residential properties and tribal allotments located outside the Northport town limits with lead and/or arsenic in soil at elevated levels. In 2015, a TCRA was conducted by Teck American Incorporated with EPA oversight at residential properties and a Tribal allotment located outside the Northport town limits using a removal action level for lead in soil of 700 mg/kg. EPA determined that 700 mg/kg was the action level for TCRAs at the Upper Columbia River Site above which lead contamination may present an imminent and substantial endangerment to public health or welfare or the environment based on more protective guidance from EPA and Centers for Disease Control. The removal action cleanup level for lead in soil was 250 mg/kg or less, and 20 mg/kg or less for arsenic, based on a project-specific determination by EPA. In 2017 and 2018, additional removal actions were conducted by Teck American Incorporated with EPA oversight at residential properties located outside Northport town limits.

In 2019, the Region 10 Superfund and Emergency Management Division, Emergency Management Branch conducted a RSE of the properties located within Northport town limits that were sampled in 2003/2004 that contained lead in soil at concentrations near or above the action level of 700 mg/kg, but at which no soil removal action was taken. For those properties with soil sampling results near 700 mg/kg, EPA included in the RSE those properties within ten percent (10%) of the action level of 700 mg/kg, to account for a margin of safety. EPA visited the properties from October 24 to October 28, 2019, documented the condition and layout of each property designated for potential cleanup and interviewed each of the property owners regarding their use of the property and any changes to the property since the 2003/2004 soil sampling.

Based on the findings of the 2019 RSE, 16 residential properties and common use areas were identified as meeting the established criteria for a TCRA. The analytical results of soil samples collected from these properties revealed the presence of lead at concentrations near or above the removal action level for lead in soil of 700 mg/kg.

#### 1.4 Scope of Work

Mitigate incidental ingestion exposure to heavy metal contaminated soils and address potential migration/mobilization of contaminants by wind and rain through the disposal and/or stabilization of the contaminated materials. The primary contaminants of concern are lead and arsenic.

Field verify and mark location of all utilities on each property utilizing a certified locate company. Hand dig when necessary to protect utilities and potentially place trench plates over any utilities where the possibility of damage exists.

1. Excavate the contaminated soil from each property as indicated in the property-specific work plans approved by the property owner and EPA. Load the material into haul trucks that will transport the contaminated soil to a centrally located stockpile area or, if necessary and/or feasible, directly to a disposal facility consistent with the off-site rule. At the stockpile location, contaminated soil will be loaded onto trucks for transport to a landfill consistent with the off-site rule.
2. Use a field-portable x-ray florescence (XRF) unit to acquire immediate data for lead and arsenic within the excavated area. Once XRF data demonstrates contaminants of concern (arsenic and lead) are below field screening levels, collect soil samples from excavated areas for fixed laboratory analysis as outlined in the Sampling and Analysis Plan (SAP).
3. Conduct perimeter air monitoring with DustTrak to assess particulate levels. Conduct personnel air sampling as determined necessary by the OSC based on site conditions.
4. If the results of soil samples collected from the bottom of the excavation are below the removal cleanup levels of 250 mg/kg for lead and 20 mg/kg for arsenic, the excavated areas will be backfilled to the original grade with pit run gravel and/or topsoil, depending on the property-specific workplan. If soil is above cleanup levels for lead or arsenic, then a geotextile fabric or similar material will be laid down at the bottom of the excavation area before backfilling as a visual indicator. Hydroseed, sod, or gravel can be added to areas backfilled with clean topsoil as per the approved property-specific work plan.
5. Following backfill, the property will be restored to a condition comparable to its pre-removal condition, based on pre-removal documentation.
6. Document and photograph site activities.

Work tasks to be completed during the response action are summarized into the following major tasks.

##### **Task 1: Mobilization and Site Preparation**

1. Mobilize personnel and equipment to the site.
2. Establish a command post with utilities, and office trailers.
3. Locate any underground utilities at the residential properties and common use areas.

**Task 2: Excavation and replacement of contaminated soil at the residential properties and common use areas**

1. Excavate lead contaminated soil at residential properties and common use areas.
2. Utilize a field-portable XRF unit to acquire immediate data for lead and arsenic from excavated areas.
3. Collect soil samples from excavated areas for fixed laboratory analysis.
4. Provide air monitoring of site operations for particulate aerosols (DustTrak, high volume perimeter, low volume personal).
5. Gather air samples using total suspended particulate (TSP) high volume pumps, low volume pumps and real time aerosol monitors, as determined by the OSC based on site conditions. Provide interpretation of analytical laboratory results.
6. Backfill after excavation is complete and after soil data is evaluated.
7. Dispose of lead contaminated soil consistent with the off-site rule.
8. Perform dust suppression throughout the site operations.

**Task 3: Demobilization**

1. Decontaminate site equipment.
2. Demobilize personnel and equipment from the site upon completion of site work.

**Task 4: Document and photograph site activities.**

Other tasks not identified in the work plan may be assigned by the OSC, and the HASP will be amended, as required. If more information becomes available concerning the hazards of operations to be undertaken at the site, the requirements of the HASP may be modified by the Safety Officer to accommodate for additional site hazard information.

## 2.0 Organization and Responsibilities

This site-specific organizational structure is a continuation of the organizational structure in the SAHP.

### 2.1 Organizational Structure

Organizational Structure			
Name	Site Role	Employer	
<b>Monica Tonel</b> m: 206-348-2692	OSC	EPA	Lead OSC
<b>Jeff Fowlow</b> m: 206-225-5582	OSC	EPA	
<b>Renee Nordeen</b> m: 206-419-9782	START Project Manager	E&E	
<b>Theresa Holz</b> m: 708-307-5106	ERRS Response Manager	EQM	

Organizational Structure			
Name	Site Role	Employer	
<b>Tom Vroman</b> m: 206-513-3425	Safety officer	E&E	
<b>Theresa Holz</b> m: 708-307-5106	ERRS Health & Safety Technician	EQM	
<b>Bonnie Criss</b> m: 206-920-5155	Safety Officer	E&E	Alternate
<b>Derek Pulvino</b> m: 206-419-3420	Project Manager	E&E	Alternate
<b>David Burford</b> m: 206-327-2593	Data Manager	E&E	
<b>Lisa Graves</b> m: 708-3747	Data Manager	E & E	
<b>Sam Fisher</b> M: 206-450-4321	Field Sampler	E & E	
<b>Chris Landrum</b> M: 206-798-2872	Field Sampler	E & E	
<b>Ken Burley</b> <b>M: 626-384-1103</b>	Site Foreman	EQM	
<b>Luis Fula Jr.</b> <b>M: 562-546-9858</b>	Site Foreman	EQM	

## 2.2 Roles and Responsibilities

The following summarizes the roles and responsibilities of those engaged in the health and safety planning and oversight during a hazardous waste operation. The positions and responsibilities defined are not permanent and may be altered or expanded upon to fulfill the operational needs of each unique hazardous waste operation.

**EPA OSC:** The On-Scene Coordinator is the federal official pre-designated by EPA to coordinate and direct responses under the NCP. The OSC will be the incident commander when operating under the Incident Command System (ICS). The OSC is also responsible under the NCP for addressing worker health and safety concerns in accordance with HAZWOPER at a response scene. Under HAZWOPER the OSC is the general supervisor who has responsibility and authority to direct all work operations. The OSC is the lead Agency contact for cultural resources communication and coordination for the Northport Properties site.

The OSC is the overall site safety officer and is responsible for coordinating health and safety standards for all individuals on-site at all times. The OSC is also responsible for the health and safety of on-site visitors. However, each contractor (as an employer under the Occupational Safety and Health



Administration [OSHA]) is also responsible for the health and safety of its employees. If there is any dispute with regards to health and safety, the following procedures shall be followed:

1. Attempt to resolve the issue on site;
2. If the issue cannot be resolved, on-site personnel shall consult off-site health and safety personnel for assistance and the specific task operation in dispute shall be discontinued until the issue is resolved.

**Safety Officer:** The Safety Officer (SO) is the site safety and health supervisor, as called for under HAZWOPER, who is minimally responsible for, and has the authority to develop and implement the HASP and verify compliance. The SO reports to the OSC, which is consistent with the command structure under ICS. The OSC is the SO until the OSC delegates that responsibility and authority to someone else. The SO has the authority to halt site work if unsafe conditions are detected.

Included in the responsibilities of the SO are:

- 1) Managing the safety and health functions for on-site employees.
- 2) Serving as the site point of contact for safety and health matters.
- 3) Ensuring that site monitoring, worker training, and effective selection and use of PPE are being performed.
- 4) Assessing site conditions for unsafe acts and conditions and providing input on corrective action.
- 5) Assisting in the preparation and review of this HASP.
- 6) Maintaining effective site safety and health recordkeeping.
- 7) Coordinating with others as necessary for safety and health efforts.
- 8) Conducting daily COVID-19 health status screening and non-contact temperature check of site personnel each morning before the start of a work day using the iPad/electronic version of the health screening form found in **Attachment D**, and making daily observations of COVID-19 safety compliance.

**Field Team Members:** Hazardous waste operations personnel are minimally responsible for:

- 1) Taking all reasonable precautions to prevent injury to themselves and to their fellow employees.
- 2) Performing only those tasks that they believe they can do safely and immediately, reporting any accidents and/or unsafe conditions to the OSC and/or Safety Officer, as well as following their internal reporting requirements.
- 3) Implementing the procedures set forth in this HASP and their employer's HASP, reporting any deviations from the prescribed procedures prior to beginning work.
- 4) Observing the "Buddy System" during work activities, unless otherwise directed.

### 3.0 Safety and Health Job Hazard Analysis (JHA) / Safe Work Practices

#### 3.1 Safety and Health Job Hazard Analysis

A job hazard analysis is a technique that focuses on job tasks as a way to identify hazards before they occur. It focuses on the relationship between the worker, the task, the tools, and the work environment. For each anticipated task, it identifies the potential uncontrolled hazards and the steps to eliminate or reduce them to an acceptable risk level. Further details on JHAs (or Activity Hazard Analyses, AHAs) are provided in each employer's respective HASP.

Task-specific hazards and controls are to be addressed at daily safety meetings as each task is performed. The site work plan should be referenced for further details for each task. Each Task-Specific Safety Assessment is designed to develop awareness to the specific chemical and physical hazards for each task. It would be impractical to repeat in complete detail each control measure and standard operating procedure (SOP) for each job task. Sources and hazards will be addressed for each job task with reference made to applicable control measures in Sections 3.1, 3.2, SOPs, and **Attachment E** Job Hazard Analysis COVID-19 Supplement. The tables in Section 3.1, 3.2 and Attachment E should be posted at the command post. When the Task-Specific Safety Assessments are discussed, additional hazards may need to be addressed.

#### TASKS 1 & 3: MOBILIZATION, SITE PREPARATION AND DEMOBILIZATION TASK-SPECIFIC SAFETY ASSESSMENT

<b>JOB TASK:</b> Mobilization, Site Preparation and Demobilization. Prepare site for removal action.			
<b>PERSONAL PROTECTIVE EQUIPMENT:</b> Level D, Modified Level D			
HAZARD	SOURCES	CONTROL MEASURES	REF.
Muscle strain	Lifting heavy equipment and bending	Use proper lifting techniques. Use mechanical devices for handling materials greater than 60 pounds when possible. Use buddy system.	Table 3-3
Slip, trip, and fall	Debris and oily/wet surfaces	Use caution, use buddy system, flag or mark hazards, good housekeeping.	Table 3-3
Chemical exposure	Contaminated soils	Limit set up operations to only "clean" areas. Perform air monitoring to assure proper PPE is utilized (may upgrade to Level C).	Tables 3-1 and 9-1
Biological hazards	Snakes, ticks, vermin, etc.	Hazard recognition training, use buddy system, use caution, avoid vermin and areas where they may exist.	Sec. 3.5 and Table 3-4
Electrocution	Energized utilities	Use qualified electrician during site set up, properly ground hand tools, ground fault circuit interrupter (GFCI) on electrical lines which are not a part of permanent wiring.	Table 3-3

<b>JOB TASK:</b> Mobilization, Site Preparation and Demobilization. Prepare site for removal action.			
<b>PERSONAL PROTECTIVE EQUIPMENT:</b> Level D, Modified Level D			
HAZARD	SOURCES	CONTROL MEASURES	REF.
Traffic control/struck by vehicle	Adjacent roads and site traffic	Barricade work areas to deter traffic from personnel. If work is to be performed near traffic area, utilize traffic spotter during loading and unloading equipment.	Table 3-3
Heat stress	Weather conditions, physical activity, and wet clothing	Take breaks as necessary when wearing Tyveks. Use buddy system. Maintain dry clothing inventory. Monitor weather forecasts and dress appropriately. Provide sufficient drinking water. SO monitoring of workers.	Table 3-3 and Sec. 8.1

**TASK 2: EXCAVATION AND REPLACEMENT OF CONTAMINATED SOIL, AND AIR  
MONITORING/SAMPLING  
TASK-SPECIFIC SAFETY ASSESSMENT**

<b>JOB TASK:</b> Use heavy equipment and hand-held shovel to excavate and hand-dig contaminated soil. Collect XRF data and conduct soil sampling. Conduct air monitoring/sampling. Restore terrain to pre-excavation conditions.			
<b>PERSONAL PROTECTIVE EQUIPMENT:</b> Level D for most tasks			
HAZARD	SOURCES	CONTROL MEASURES	REF.
Slip, trip, and fall	Debris, slick surfaces	Use caution while walking. Maintain a clear waste handling area. Maintain good housekeeping. Clean up spills as soon as they occur.	Table 3-3
Chemical exposure	Contaminated soils	Wear appropriate PPE at all times.	Sec. 4.0, 7.0, 8.0
Muscle strain	Lifting heavy equipment and bending	Use proper lifting techniques. Use mechanical devices for handling materials greater than 60 pounds when possible. Use buddy system.	Table 3-3
Collision, crush trauma, struck by equipment	Automobiles, heavy equipment	Use traffic barricades and/or certified flaggers to control public traffic. Make eye contact with heavy equipment operators and vice versa; do not pass under overhead loads. Keep unnecessary personnel away. Use backup alarms on equipment. Use a spotter as necessary. Delineate work area with physical barrier.	Table 3-3
Dust	Contaminated soil	Wear appropriate PPE at all times. Use a water truck to keep soils wet and to control dust levels. Monitor airborne lead levels with a portable air monitoring instrument.	Sec. 3.3.3, 9.0
Fire	Sparks from tools in presence of	Use non-spark tools; use remote opening procedures if necessary. Eliminate sources of ignition from the work area. Prohibit smoking.	Table 3-3

<b>JOB TASK:</b> Use heavy equipment and hand-held shovel to excavate and hand-dig contaminated soil. Collect XRF data and conduct soil sampling. Conduct air monitoring/sampling. Restore terrain to pre-excavation conditions.			
<b>PERSONAL PROTECTIVE EQUIPMENT:</b> Level D for most tasks			
HAZARD	SOURCES	CONTROL MEASURES	REF.
	flammable liquids/vapors	Provide fire extinguishers in all work areas, flammable storage areas and generator and compressor locations. Store flammable liquids in well-ventilated areas. Post "NO SMOKING" signs. Store all compressed gas cylinders upright and put caps in place when not in use. Separate flammables and oxidizers by 20 feet.	

## 3.2 Chemical Hazards

### 3.2.1 Primary Chemical Hazards

The primary chemical hazards expected to be present at the Northport properties include:

Lead

Arsenic

A summary of the health effects and the OSHA permissible exposure limits (PELs) for the primary chemical hazards likely to be encountered during operations at the site are summarized in Table 3-1. Hazard Evaluation Sheets for major known site contaminants are presented in **Attachment F**. There will be no products transported to the site.

### 3.2.2 Secondary Chemical Hazards

Secondary chemical hazards are typically introduced and/or generated by site activities but are not considered to be primary chemical hazards for the site. For the Northport properties removal action, the secondary chemical hazards are expected to include:

Diesel (heavy equipment operation)

Gasoline (automobiles)

Note: Gasoline and Diesel contains Benzene and Ethylbenzene

Carbon Monoxide (heavy equipment operation)

Nitric Acid (sample preservation)

A summary of the health effects and the OSHA permissible exposure limits (PELs) for the secondary chemical hazards likely to be encountered during operations at the site are summarized in Table 3-2. Applicable Safety Data Sheets (SDSs) and supplemental chemical hazard information are provided in **Attachment G**.

### 3.2.3 Chemical Hazard Control

An appropriate combination of engineering/administrative controls, work practices, and PPE shall be used to reduce and maintain employee exposures to a level at or below published exposure levels as indicated in Table 3-1.

**Table 3-1**  
**PRIMARY CHEMICAL HAZARD INFORMATION**

COMPOUND	OSHA EXPOSURE LIMITS	EXPOSURE ROUTE	HEALTH EFFECTS
Lead	PEL = 0.05 mg/m <sup>3</sup> IDLH = 100 mg/m <sup>3</sup>	Inhalation, ingestion, skin and/or eye contact	Weakness; facial pallor; headache; abdominal pain; anemia; gingival lead line; tremor; paralysis wrist, ankles; encephalopathy; kidney disease, eye irritation; hypotension
Arsenic	PEL = 0.01 mg/m <sup>3</sup> IDLH = 5.0 mg/m <sup>3</sup>	Inhalation, ingestion, skin and/or eye contact	Irritated skin, possible dermatitis, respiratory distress, diarrhea, kidney damage, muscle tremor, convulsions, possible GI tract, reproductive effects, possible liver damage

**TABLE 3-2**  
**SECONDARY CHEMICAL HAZARD INFORMATION**

COMPOUND	OSHA EXPOSURE LIMITS	EXPOSURE ROUTE	HEALTH EFFECTS
Gasoline	None	Inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation eyes, skin, mucous membrane; dermatitis; headache, lassitude (weakness, exhaustion), blurred vision, dizziness, slurred speech, confusion, convulsions; chemical pneumonitis (aspiration liquid); possible liver, kidney damage; [potential carcinogen]
Diesel (as diesel exhaust)	None	Inhalation, skin and/or eye contact	Eye irritation, pulmonary function changes; [potential occupational carcinogen]
Benzene	OSHA PEL = 1ppm OSHA STEL = 5ppm NIOSH REL = 0.1 ppm NIOSH STEL = 1 ppm	Inhalation, skin absorption, ingestion, skin and/or eye contact	Eye irritant; skin, nose, respiratory system; dizziness; headache, nausea, staggered gait; anorexia, lassitude (weakness, exhaustion); dermatitis; bone marrow depression; [potential occupational carcinogen]
Ethylbenzene	PEL = 100 ppm OSHA STEL – 100 ppm	Inhalation, skin absorption, ingestion,	Eye irritant, nose, respiratory system; headache, lassitude

COMPOUND	OSHA EXPOSURE LIMITS	EXPOSURE ROUTE	HEALTH EFFECTS
	NIOSH REL = 100 ppm NIOSH STEL = 25 ppm	skin and/or eye contact	(weakness, exhaustion), dizziness, confusion, malaise (vague feeling of discomfort), drowsiness, unsteady gait; narcosis; defatting dermatitis; possible liver injury; reproductive effects
Carbon Monoxide	OSHA PEL = 50 ppm NIOSH REL = 35 ppm NIOSH C = 200 ppm	Inhalation, skin and/or eye contact (liquid)	Headache, tachypnea, nausea, lassitude (weakness, exhaustion), dizziness, confusion, hallucinations, cyanosis; depressed S-T segment of electrocardiogram, angina, syncope
Nitric acid	ACGIH TWA = 2 ppm ACGIH STEL = 4 ppm NIOSH STEL = 4 ppm NIOSH REL = 2 ppm OSHA PEL = 2 ppm OSHA TWA = 2 ppm OSHA STEL = 4 ppm	Skin and/or eye contact	Corrosive to skin and eyes. Causes digestive tract burns. Spray mists may cause respiratory tract irritation.

## LEGEND:

PEL: OSHA Permissible Exposure Limit (8-hr TWA)

C: OSHA Ceiling Level

TWA: Time Weighted Average

mg/m3: milligrams per cubic meter air

ppm: parts per million

STEL: OSHA Short Term Exposure Limit (15 min TWA)

ACGIH: American Conference of Governmental Industrial Hygienists

TLV: Threshold Limitation Value

NIOSH: National Institute for Occupational Safety and Health

REL: Recommended Exposure Limit (NIOSH), based on a 10-hour TWA

### 3.3 Dust Hazards

A potential hazard exists from the generation of contaminated dust during work activities. Dust suppression/control measures will be implemented to minimize generation of fugitive dusts during work operations. Such measures are anticipated to be required except when wet/moist conditions exist at the site due to rainy weather conditions.

Generation of dust may occur at the site during the following activities:

- Movement of heavy equipment on unpaved surfaces
- Disturbance of the ground surface areas
- Strong wind gusts

Dust generating activities will require the following dust control measures:

- Water truck to moisten soil along the main access road, steel scrap load-out area and hazardous waste load-out area

- Water truck to moisten soil in work areas prior to dust-generating work activities and periodically during the day to maintain effective dust control
- Water truck and use of fire hose for water application during soil excavation and during soil excavation/loading activities
- Water truck and fire hose to be available on stand-by during all weather conditions

### 3.4 Physical Hazards

The risk of exposure to physical hazards will be from noise, contact with moving parts and struck by equipment. Table 3-3 provides a general physical hazard analysis.

#### Physical Hazards

The primary physical hazards to be encountered during site activities include:

- Fire/Explosion
- Excavation Safety
- Heavy Equipment Operations
- Confined Spaces
- Electrical Equipment
- Noise Exposure
- Heat Stress
- Fall Hazards

#### Miscellaneous Physical Hazards

Miscellaneous physical hazards and safety procedures to be followed will be discussed with personnel in daily safety meetings and may include discussion of the following topics:

- Material handling
- Safe lifting procedures
- Machinery operation
- Hot work safety procedures
- Elevated work surfaces
- Housekeeping
- Uneven terrain
- Slippery work surfaces
- Sharp objects
- Tripping hazards

**TABLE 3-3**  
**GENERAL PHYSICAL/ENVIRONMENTAL HAZARD ANALYSIS**

HAZARD	PRE-PLANNING TO CONTROL HAZARD	ACTIVE CONTROL MEASURES
Cold stress	Low ambient temperatures with: High wind conditions Lack of adequate warm clothing	Provide warm break area and adequate breaks. See E & E HASP for SOP for Cold Stress. Provide warm non-caffeinated beverages.

HAZARD	PRE-PLANNING TO CONTROL HAZARD	ACTIVE CONTROL MEASURES
	Wet clothing	Promote cold stress awareness. Wear layered wind & water-resistant clothing.
Cut/puncture	Sharp/pointed objects (nails sticking out of lumber, broken glass in windows, sharp edges on metal, jagged edges - on broken concrete, etc.) Abrasions and skin irritations are also attributed to a variety of causes during large-scale emergencies	Watch your step, especially in areas with large amounts of debris. Wear proper foot and hand protection. Flatten or remove any nails that might cause puncture wounds.
Driving (general)	Accidents with injuries caused by: Driving while tired Cell phone use (including texting) and other distractions Congested roads Not wearing seat belts Aggressive driving Improperly maintained vehicle Distractions within or outside the vehicle  Contact with person infected with COVID-19, potential spread to others.	Conduct vehicle inspection before use as outlined in the ERL instructions. Do not drive when tired. Company policy forbids talking on phone or texting (including hands-free) while driving. Drive within the speed limit. Wear seatbelt at all times. Sit only on a seat (not coolers, boxes, etc.). Avoid aggressive driving. Refrain from non-essential activities that can distract the driver.  a) For EPA or rental vehicle, follow EPA Disinfection Guidance (EPA OMS-SSD Vehicle Utilization, Cleaning, and Disinfecting Recommendations 4/27/20). b) Obtain adequate EPA-registered disinfectants and hand sanitizers for duration of project (vehicle disinfection kits) from Regional or Program equipment/supply managers. c) Clean and disinfect "common touch" vehicle surfaces, e.g., door handles, console, touch screen, steering wheel, inside of door, before and after use. Disinfect/sanitize before and after use by new driver. d) For EPA-owned or rental vehicle, document name and date of initial disinfection/sanitization. e) Travel should be limited to one person per vehicle. If the project requires multiple personnel in one vehicle, don cloth face covering or disposable surgical mask, maximize outside air flow and attempt to separate occupants by at least six feet. f) Minimize fuel fill-ups: wear nitrile gloves and use cloth face cover or disposable surgical masks, when within six feet of another person; if not wearing gloves, use disinfectant wipe on gas station touch screen before and after use.



[illegible]

HAZARD	PRE-PLANNING TO CONTROL HAZARD	ACTIVE CONTROL MEASURES
Existing Site Topography	<p>Survey site prior to layout. Identify areas unsafe for personnel or equipment due to physical conditions. Identify/locate existing utilities.</p> <p>Determine impact of site operations on surrounding properties, communities, etc.</p> <p>Identify mechanized equipment routes both on site and onto and off the site.</p> <p>Layout site into exclusion and contamination reduction zones based on initial site evaluation.</p>	<p>Awareness to work environment – regular inspection/audits to identify changing condition.</p> <p>Shut down operations when unknown conditions encountered.</p> <p>Utilize physical barriers, signs, and markings.</p>
Fire & Explosion	<p>Possible fuel and ignition sources:</p> <ul style="list-style-type: none"> <li>☐ Vehicles</li> <li>☐ Fuels</li> <li>☐ Dry vegetation</li> <li>☐ Equipment</li> <li>☐ Propane use</li> </ul> <p>Evaluate all operations for fire and explosion potential.</p> <p>Define requirements for handling and storage of flammable liquids on site, need for hot work permits and procedures to follow in the event of fire and explosion.</p> <p>Define the type and quantity of fire suppression equipment needed on site.</p> <p>Coordinate with local firefighting agencies to discuss unique fire hazards, hazardous materials, etc.</p> <p>Ensure site operations comply with 20CFR 1910157G.</p>	<p>Inform personnel of the location(s) of potential fire/explosion hazards.</p> <p>Establish site-specific procedures for working around flammables.</p> <p>Store flammables away from oxidizer and corrosives.</p> <p>Utilize Hot Work Permit for all hot work on site.</p> <p>Ensure that appropriate fire suppression equipment and systems are available and in good working order.</p> <p>Define requirements for intrinsically safe equipment.</p> <p>Remove ignition sources from flammable atmospheres.</p> <p>Coordinate with local fire-fighting groups regarding potential fire/explosion situations.</p> <p>Establish contingency plans and review daily with team members.</p> <p>Periodically monitor boreholes and vicinity of drilling and excavation sites for combustible gases.</p> <p>Site is located near an area where large forest fires have occurred. If such conditions exist additional precaution may be necessary to plan for response to fire activity and potential need to demobilize from site work.</p> <p>Identify special monitoring needs (see Section 8.1).</p>
Flammable Vapor and Gases	<p>Evaluate site to determine sources of likely flammable gas or vapor generation.</p> <p>Develop specific procedures to be followed in the event of exposure to flammables.</p> <p>Specify specialized equipment needs for inerting flammable atmospheres, ventilating spaces and monitoring flammable vapor concentrations.</p> <p>Define requirements for intrinsically safe equipment.</p> <p>Develop contingency plan to follow in the event of fire or explosion.</p>	<p>Calibrated monitoring equipment available and utilized by trained personnel whenever working where flammable gas or vapor is present.</p> <p>Monitoring performed at regular frequency and in all areas where vapor could generate or pool.</p> <p>Equipment and operations shut down when threshold levels are exceeded.</p> <p>Contingency plans reviewed regularly by all involved personnel.</p> <p>Work areas are carefully inspected to look for possible ignition sources. Sources are removed.</p>

HAZARD	PRE-PLANNING TO CONTROL HAZARD	ACTIVE CONTROL MEASURES
		Operations shut down if specific task procedures can't be followed to the letter.
Heat Stress	Contributing factors: High ambient temperatures Heavy work load High humidity with low wind PPE use Certain medications Not acclimatized	Proper work/rest schedule and monitoring. Provide cool break area and adequate breaks. Drink plenty of fluids. Promote heat stress awareness, e.g., awareness to levels of heat stress symptoms, awareness to stress placed on body by specific PPE. Provide cool non-caffeinated beverages. Buddy system/awareness. First aid on site. Use active cooling devices (e.g., cooling vests) where specified. Medical care if symptoms persist. See E & E HASP for SOP for Heat Stress
Heavy Equipment (working near)	Equipment operating on site: Backhoe Track hoe Skid loader Front-end loader Grader Crane Dump truck (standard) Potential for: <input type="checkbox"/> Being struck by equipment <input type="checkbox"/> Being injured by falling suspended loads	Only use tools for jobs for which they were designed. Never use a screwdriver on work being done in your hands. Always do work on a flat, stable surface. Always wear proper hand protection (i.e., gloves) and eye protection for the job. Practice good housekeeping – keep a clean work area.
Heavy Equipment Operations	Define equipment routes and traffic patterns for site. Ensure that operators are properly trained on equipment operation for all equipment required on project. Define safety equipment requirements, including back up alarm and roll over, for all equipment on site. Implement SOP of requiring operators to perform safety inspections on equipment on a daily basis in accordance with manufacturer requirements. Evaluate project requirements to ensure that equipment of adequate capacity is specified.  Contact with person infected with COVID-19, potential spread to others.	Equipment inspected as required. Equipment repaired or taken out of service. Ground spotters are assigned to work with equipment operators. Utilize standard hand signals and communication protocols. Personnel wear the proper PPE; utilize hearing protection, gloves for handling rigging, etc. Equipment safety procedures discussed at daily scheduled safety meetings. Do not exceed lifting capacities or load limits of equipment in question. Personnel follow basic SOPs that prohibit passengers on equipment.  Refer to Table 3-4
Illumination	Evaluate all operations and work areas to determine lighting requirements. Specify specialized lighting requirements including explosion proof, intrinsically safe, lighting needs. Determine if nighttime outdoor operations are necessary. Evaluate tasks to be performed and number of light plants necessary to allow operations.	Inspect specialized equipment and discard or replace as needed. Add additional lighting to areas with lighting deficiencies. Inspect drop cords and portable lights on regular basis. Replace or repair as necessary.

HAZARD	PRE-PLANNING TO CONTROL HAZARD	ACTIVE CONTROL MEASURES
	Ascertain if outdoor lighting from nighttime operations will have an impact on surrounding communities.	
Noise	<p>Local community noise standards examined.</p> <p>Expected loud operations evaluated to determine compliance with community standards.</p> <p>Loud operations scheduled for approved time periods.</p> <p>Noise level standards established for equipment brought onto site.</p> <p>Hearing protection requirements defined for personnel expected to have excessive exposures.</p>	<p>Use earplugs or muffs.</p> <p>Establish noise level standards for on-site equipment/operations.</p> <p>Require use of hearing protection by site personnel whenever noise exposures exceed 85 decibels.</p> <p>Noise exposures in excess of 85 dBA will be assumed to be present whenever voices must be raised to be heard in normal conversation at three feet apart and wherever working in immediate areas of operating heavy equipment, generators, compressors and similar equipment.</p> <p>Personnel receive annual audiogram.</p> <p>Routine noise level monitoring and dosimetry performed.</p> <p>Defective equipment repaired as needed.</p> <p>Ongoing hearing conservation education promoted at scheduled safety meetings.</p> <p>Medical evaluation following noise (impact) exposure if symptoms present themselves.</p>
Personal Injuries	<p>Site operations will be evaluated for exposures with serious injury potential such as falling objects, pinch points, flying objects, falls from elevated surfaces, etc.</p> <p>A written Fall Prevention Program will be developed if workers will be required to work at heights greater than 10 feet from unguarded work locations.</p> <p>PPE requirements will be based on potential for injury.</p>	<p>Personnel will wear required PPE.</p> <p>Specialized equipment such as rope grabs, winches, etc. will be inspected prior to each use. Defective equipment will be immediately replaced.</p> <p>All injury and near miss incidents will be reported to the SO.</p> <p>First aid/CPR-trained person on site at all times.</p> <p>All injuries will be treated on site with advanced medical treatment being sought if doubt about severity.</p>
Hand Tool Usage	<p>Injuries caused by hand tools vary by tool.</p> <p>List hand tools to be used.</p> <p>Shovels, rakes.</p> <p>Hand tools for field equipment maintenance.</p>	<p>Establish safety procedures for hand tools to be used. General:</p> <p>Keep tools properly maintained and stored.</p> <p>See E &amp; E SOP for Hand and Portable Power Tools.</p> <p>Keep hands and fingers away from sharp edges on cutting tools.</p>
	<p>Equipment operating on site:</p> <p>Backhoe</p> <p>Track hoe</p> <p>Skid loader</p> <p>Front-end loader</p> <p>Grader</p> <p>Crane</p> <p>Dump truck (standard)</p>	<p>Define equipment routes, traffic patterns, and site-specific safety measures.</p> <p>Never cross the path of a piece of equipment without getting acknowledgement from the operator, that he/she sees you (i.e., nod or wave).</p> <p>Wear high visibility gear when working near heavy equipment.</p>

HAZARD	PRE-PLANNING TO CONTROL HAZARD	ACTIVE CONTROL MEASURES
	Potential for: <input type="checkbox"/> Being struck by equipment <input type="checkbox"/> Being injured by falling suspended loads	Stay out of the equipment's swing radius. Confirm that operators are properly trained and equipment has been properly inspected and maintained. Verify back-up alarms. Discuss proper hand signals and communication protocols between ground spotters and operators. Identify special PPE (Section 7) and monitoring (Section 8) needs. Avoid working in close proximity to operating equipment. Discuss lifting capacities, load limits, etc., based on expected work each day. Avoid being under suspended load
Manual Lifting	Potential for back injury or tripping caused by lifting or carrying: (List heavy items) Coolers, samples	Try not to lift more than 50 pounds without help. See E & E SOP for Ergonomics for proper lifting techniques. Maintain neutral and straight spine alignment whenever possible. Usually, bending at the knees, not the waist helps maintain proper spine alignment.
Noise	Potential hearing damage caused by: (List sources of noise) Heavy Equipment	Use earplugs or muffs. Establish noise level standards for on-site equipment/operations. Require use of hearing protection by site personnel whenever noise exposures exceed 85 decibels. Noise exposures in excess of 85 dBA will be assumed to be present whenever voices must be raised to be heard in normal conversation at three feet apart and wherever working in immediate areas of operating heavy equipment, generators, compressors and similar equipment. Inform personnel of hearing protection requirements (Section 7). Define site-specific requirements for noise monitoring (Section 8).
Overhead Obstructions	Potential eye or head injury caused by items such as equipment, tree branches, protruding objects, and piping.	Wear hard hat and safety glasses (Section 7) Flag obstructions, if practical.
Septic systems and leech fields	The city of Northport has no existing sewage or waste treatment plant. Each residence therefore has a septic tank and leech field for home wastewater. Care must be taken when excavating material around septic tanks and leech fields. Human waste can carry disease such as hepatitis.	Workers should use appropriate PPE such as nitrile or PVC gloves, and possible Tyvek.

HAZARD	PRE-PLANNING TO CONTROL HAZARD	ACTIVE CONTROL MEASURES
Traffic (working near)	Moving traffic creating a potential struck-by hazard: Interstate right-of-way (ROW) Urban highway ROW Rural highway ROW Local/residential road Dirt access road Construction site vehicles Parking lot	Wear ANSI/ISEA 107 Class 2 or Class 3 high visibility safety vests. See E & E SOP for Working Near Traffic. Set up workstations away from traffic areas when possible. Place traffic cones for static operations. Use spotters/flagmen in areas of high traffic and evaluate the need for a traffic control contractor. Follow state DOT procedures for work site protection measures for work along highways (signage, etc.). All vehicles parked in the work area ROW must have amber strobe. If applicable, follow direction of traffic control contractor.
Utility Lines	Excavations and trenching work. Damaged buildings. Downed lines caused by high winds. Heavy equipment activities during demolition. Raised boom during delivery and pick-up of roll off boxes. Tree removal operations.	Contact utilities to confirm underground locations. Identify/locate existing underground utilities prior to work. Call 811 or otherwise contact the state utility protection organization for utility location identification and contract with a private locator for private facilities. Have lines de-energized as necessary. Verify that overhead utility lines are at least 25 feet away from project activities and 10 feet from heavy equipment for electrical lines.
Small Equipment Usage	Site operations evaluated to determine need for specialized intrinsically safe, explosion-proof and UL approved equipment and instruments. Implement requirement for GFI, double insulated tool usage, or assured grounding program in all outdoor operations, will be utilized. Specify equipment needs to ensure that equipment used only for the purpose for which it is designed and to prevent abuse or misuse of the equipment. Specify requirements for the inspections and maintenance of specialized equipment. Specify that all equipment utilized on the project meets all OSHA requirements.  Contact with person infected with COVID-19, potential spread to others.	First aid on site. Transport for medical care if necessary.          Refer to Table 3-4
Sunburn (skin and eyes)	Exposure to sunlight, either direct or reflected (i.e., by water or snow).	Apply sunscreen. Wear hats/caps and long sleeves. Wear sunglasses. Monitor the day's UV index forecast.

HAZARD	PRE-PLANNING TO CONTROL HAZARD	ACTIVE CONTROL MEASURES
Slip, Trip, Fall	Uneven surfaces Debris/clutter Plastic sheeting (especially slippery when wet) Wet, icy, oily, muddy, or moss-covered surfaces Tangles of vegetation Steep slopes Mired footing Inattentiveness	Stay in good physical condition. See E & E SOP for Housekeeping for slip, trip and fall prevention. Wear appropriate and properly fitted footwear. Stay well hydrated. Don't be in a hurry. Use handrails. Be attentive; constantly scan the way ahead when walking.
Weather extremes	Potential hazards: High winds Tornados Lightning Blizzard Heavy rain  Evaluate prevailing weather conditions for the site. Contingency plans developed for likely severe weather conditions such as tornado, and extreme thunderstorm. Provide for daily weather forecast services in extreme weather areas. Plan to weatherize safety systems, such as showers and eyewashes, which would be impacted by extreme cold weather. Order necessary specialized cold weather clothing. Grounding and bonding requirements defined for thunderstorm areas. Sheltered air-conditioned break areas provided for extreme hot and cold weather zones.	Establish site-specific contingencies for severe weather situations. Provide for frequent weather broadcasts. Do not work outdoors when lightning is present. Follow the 30-30 Rule. Weatherize safety gear. Discontinue work during severe weather.

### 3.5 Biological Hazards

#### 3.5.1 Wildlife Concerns

##### 1. Wasps, Bees, Hornets and Yellow Jackets

Yellow jackets and hornets are prevalent at the Northport properties, they have a lance like stinger and can sting repeatedly. When wasps or hornets are near you move slowly, as quick movement often provokes attacks and painful stings. When outdoors, avoid the use of heavily scented soaps, shampoos, perfumes, colognes and cosmetics. Avoid wearing shiny jewelry and buckles and cover exposed skin with neutral colored clothing.

Wasp, hornet and yellow jacket stings can be life threatening to persons who are allergic to the venom. People who develop hives, have difficulty breathing or swallowing, wheezing or similar allergic reactions should inform the SO. If a sting occurs seek medical attention, itching, pain and localized swelling can be somewhat reduced with antihistamines and a cold compress.

2. Bears, Coyote, Deer, Mountain Lions and Dogs

Northport has a wide variety of wildlife in the surrounding areas, many of the safety measures are the same for these animals. Never approach a bear, mountain lion, etc., if encountered on site act immediately by throwing small sticks or stones and make considerable noise. Stay together as a group to present a more intimidating figure. When done immediately, these actions have been successful in scaring bears away. Notify SO and OSC as soon as possible after incident. Wildlife in Northport can be a nuisance for traffic considerations, always remain alert when driving.

3. Poison oak and poison ivy

Poison ivy is found throughout the Rocky Mountains and the northwest, it is characterized by a three-leaf formation and is a shrub generally about three feet high. Poison oak grows as a thick bush or climbing vine and is found in all western states. Both species create a rash when contact is made with the climbing vine and is found in all western states. Both species create a rash when contact is made with the plants natural oil, the best defense against an outbreak is good hygiene, wash hands and any exposed skin after being in a woodsy setting.

4. Ticks

Ticks are blood feeding parasites. Most perch on low lying vegetation and wait for unsuspecting animal hosts to pass by. The following is a list of disease commonly spread by ticks.

Rocky Mountain Spotted Fever

- Sudden fever
- Headache
- Muscle pain
- Reddish-to-black rash

Tick Paralysis

- Fatigue
- Leg numbness
- Muscle pain
- Difficulty standing or walking

Tularemia

- Fever
- Headache
- Swollen lymph nodes
- Skin ulcer near bite

Lyme disease

- Fever



- Headache
- Stiff neck pain
- Fatigue
- Slowly expanding “bull’s-eye” rash

When working or walking in a tick habitat, woody, brushy, or grassy places, a few simple precautions can reduce the chance of being bitten. Long pants and long shirts are ideal, check yourself often and thoroughly for ticks.

**TABLE 3-4  
BIOLOGICAL HAZARD ANALYSIS**

Biological Hazards		
Hazard	Source of Contributing Factor(s)	Hazard Control Measures
Bears	Bear attacks on people may occur in outdoor areas near/within bear range. Contributing factors for a bear attack include: Drought or other conditions causing hunger Perceived threat to offspring The scent of food on field personnel Surprising a bear	Always take precautions to avoid an encounter. Guidelines suggest fighting back only if a predatory bear attacks with a silent approach and erect ears. Never make direct eye contact, scream, or run away. Other:
Biting and stinging insects and ticks	Outdoor areas where the following exist: Mosquitos - can carry West Nile and other diseases) Ticks – can cause Lyme disease, Rocky Mountain Spotted Fever and other diseases Bees, wasps, hornets Chiggers Fire ants	Wear insect repellent on clothing that contains Permethrin, DEET or Picaridin. Wear light-colored long pants, socks, and long-sleeved shirts. Perform tick checks throughout the day. Carry EpiPen or equivalent if needed. Inform other team members of its presence. Treat bites and stings with over-the-counter products that relieve pain and prevent infection.
Corona Virus Disease of 2019	Contact with person infected with COVID-19, potential spread to others.	a) Follow the steps outlined in the EPA Self-Assessment to Stop the Spread of COVID-19 tool or similar questionnaire to make sure employees are not ill or symptomatic. Workers should be directed to contact the Site Supervisor or Safety Officer if they answer yes to any of these questions. Perform this or similar self-assessment daily before reporting to work. b) EPA Site Supervisor or designee has the responsibility for ensuring that personnel with COVID-19 symptoms do not come onsite. c) The Site Safety Officer should make daily observations of COVID-19 safety compliance and consider monitoring response workers for symptoms. d) Use electronic sign-in (spreadsheet, SharePoint site, etc. Avoid use of clipboard and pen). e) Conduct daily health status screening of site personnel (Follow OSHA recordkeeping requirements).

Biological Hazards		
Hazard	Source of Contributing Factor(s)	Hazard Control Measures
		<p>f) If screening is performed, include a non-contact temperature check, e.g., forehead thermometer, and seek guidance from a public health department or healthcare professional on how to implement a health status screening and temperature screening program.</p> <p>g) Require face coverings for all indoor and outdoor operations when social distancing cannot be consistently maintained.</p> <p>h) Require face coverings for all outdoor operations where social distancing cannot be consistently maintained. Similar to administrative and engineering controls implement during Level A, B and C PPE use, if the face covering causes a hazard to a worker (e.g. heat and physical stress while performing strenuous work), implement administrative or engineering controls to limit the hazard caused by the face covering. If field activities prevent social distancing (e.g., assisting in donning and doffing of PPE, composite water sampling), use of a cloth face covering is recommended.</p> <p>i) Even when social distancing is maintained, EPA recommends following the respective state or local jurisdiction.</p> <p>j) Site personnel should always routinely carry a small container of hand sanitizer with at least 60% alcohol, a face covering that covers the nose and mouth, and nitrile gloves.</p> <p>k) In indoor residential environments, site personnel cannot control actions of resident(s). Face coverings are required for all work in residential properties. Site personnel should avoid surface contact whenever possible and should wear nitrile gloves. With the permission of residents, site personnel should wipe down all surfaces that were touched by them before departing residence.</p> <p>l) For site work that involves multiple locations, disinfect or replace equipment, PPE, and personal items before moving to next location.</p> <p>m) Do not shake hands. Use other forms of non-contact greeting.</p> <p>n) Avoid touching face.</p> <p>o) Site personnel should be attentive to handwashing upon arrival at the site, after exiting exclusion zone, prior to taking a break, prior to eating lunch, after use of the bathroom, using shared items and upon leaving the site for the day, etc. Encourage adherence to prescribed handwashing guidelines.</p>

Biological Hazards		
Hazard	Source of Contributing Factor(s)	Hazard Control Measures
		<p>p) Augment site handwashing equipment. Make sure soap and water handwashing facilities are readily available onsite. Do not rely on hand sanitizer alone.</p> <p>q) Avoid sharing items with others. This includes personal items such as pen and paper.</p> <p>r) When equipment must be shared (e.g., monitoring and sampling equipment), disinfect touch surfaces (following manufacturer's instructions) before providing to other individual for use and wear nitrile gloves.</p> <p>s) Whenever PPE such as protective suits, boots, air-purifying respirators are needed, attempt to don PPE without an attendant. If an attendant is needed, the attendant should wear a face covering and nitrile gloves.</p> <p>t) When trailers are necessary, separate smaller trailers are preferable to single large trailers in order to facilitate separate space and social distancing of personnel.</p> <p>u) When weather permits, store equipment outside to limit confinement of personnel and number of entries and exits from trailers.</p> <p>v) When possible, use Skype, MS Teams or other virtual communications tools to limit personnel meetings.</p> <p>w) Site trailers, command post, port-a-johns, handwash stations, etc. must be cleaned and disinfected with an EPA List N approved disinfectant daily or more frequently with high use, with special attention to common touch points.</p> <p>x) For rental of select items (e.g. port-a-johns), periodic disinfection may be included. When this is not the case, select site personnel will be designated with this responsibility.</p> <p>y) Do not share respirators or cartridges.</p>
Poisonous plants	<p>Contact w/vegetation.</p> <p>Site is within range of the following:</p> <p>Poison ivy</p> <p>Poison oak</p> <p>Poison sumac</p> <p>Poison hemlock</p> <p>Wild parsnip</p> <p>Giant Hogweed</p>	<p>Wear appropriate PPE when walking in areas where these plants may grow.</p> <p>If contacted:</p> <p>Wash clothing and shoes with soap and hot water. Oil can linger on them. Use Technu® products to remove poisonous plant oil.</p> <p>DO NOT touch skin or clothing that still has the oil.</p> <p>DO NOT burn poisonous plants for any reason. The oil can be spread via smoke.</p>
Rodents (mice, rats)	<p>May be in and around buildings and may carry diseases such as:</p> <p>Rat Bite Fever and Rabies</p> <p>Hanta virus, a sometimes fatal</p>	<p>Avoid contact with rats or rat-contaminated buildings.</p> <p>If bitten/scratched, get medical attention immediately.</p> <p>Workers should wear gloves and other PPE as appropriate (Section 7)</p>

Biological Hazards		
Hazard	Source of Contributing Factor(s)	Hazard Control Measures
	disease, in dried feces	
Stray animals (dogs and other pets)	On the street or on site In abandoned structures Risk of rabies and other infections Risk of bites and physical injury	Do not call to these animals; walk away. If animals appear aggressive, back away and use anything on or near you to protect yourself. Do not make contact with puppies, as they are less likely to be immunized.
Venomous snakes	Field staff may potentially be bitten in various areas of the U.S. where venomous snakes exist. Western Diamondback Rattlesnake	Back away slowly if you see any type of snake. Do not attempt to touch it. If bitten, try to remember the color and shape of the snake and seek medical attention.
Wildlife	Inspect work environment where tasks are being performed. Awareness to bites. Dogs, animals, poison ivy, etc.	First aid on site. Seek medical attention if symptoms-signs persist.

## 4.0 Site Control Measures (Site Control Program)

The SAHP defers development of a Site Control Program to the HASP. This Site Control Program has been coordinated among the employers and is concerned with the safety and security of response personnel and others in the area of the emergency response incident or TCRA.

### 4.1 Work Zones

The primary purpose for site controls is to establish the hazardous area perimeter, to reduce migration of contaminants into clean areas and to prevent access or exposure to the hazardous materials by unauthorized persons. At the end of each workday, the site will be secured or guarded, to prevent unauthorized entry. Site work zones will include:

#### 4.1.1 Support Zone

This uncontaminated Support Zone (SZ) or clean zone will be the area outside the Exclusion Zone (EZ) and Contamination Reduction Zone (CRZ) and within the geographic perimeters of the site. This area is used for staging of materials, parking of vehicles, office facilities, sanitation facilities and receipt of deliveries. Personnel entering this zone may include delivery personnel, visitors, security guards, etc. who will not necessarily be permitted in the EZ. All personnel arriving in the SZ will upon arrival, report to the command post and sign the site entry/exit log. There will be one controlled entry/exit point from the clean zone to the CRZ. The location of the SZ will be at the Old Town Hall property located at the corner of 3<sup>rd</sup> and Columbia Street, Northport, Washington.

#### 4.1.2 Contamination Reduction Zone

The Contamination Reduction Zone (CRZ) will provide a location for removal of contaminated personal protective equipment and final decontamination of personnel and equipment. All personnel and

equipment should exit the Exclusion Zone via the CRZ area. A separate decontamination area will be established for heavy equipment.

The CRZ is a buffer zone between contaminated and clean areas identified by caution tape. The CRZ is located inside each property line.

#### 4.1.3 Exclusion Zone

The Exclusion Zone (EZ) will be the “hot-zone” or contaminated area inside the property perimeter. The EZ may be identified by caution tape and signage and will include the areas of the property where soil removal is being conducted. General Safety Rules for Exclusion Zone include:

- a. Wear the appropriate level of PPE defined in the SSSP
- b. Do not remove any PPE or break the integrity to pick, scratch or touch parts of your body
- c. No smoking, eating or drinking
- d. No horseplay
- e. No matches or lighters in this zone
- f. Implement the communication and line of sight system

## 4.2 SITE LAYOUT AND WORK ZONES

Site Work Zone: Refer to the site map/figure in **Appendix A** for the designated work zone (labeled 2019 Removal Site Evaluation Area). Follow procedures in E & E SOP ENV 3.2 Site Control Procedures for Potentially Contaminated Sites for work zone set-up.

Site Access Requirements and Special Considerations: Only sites for which access has been previously obtained will be entered. Property owner notified by EPA OSC.

Signed access agreements: Obtained by EPA OSC.

Illumination Requirements: Site activities will be conducted during daylight hours only.

Sanitary Facilities (e.g., toilet, shower, potable water) where applicable shall comply with 29 CFR 1910.120(n): Sanitary facilities will be coordinated by the EPA ERRS contractor.

Handwashing facilities or hand sanitizer will be available for staff to use before and after contact with others.

On-Site Communications: Due to the large geographic area of the site, cell phones are the primary means of communication. However, cell phones may not work at all locations, and radios or other agreed upon forms of communication may be used.

Other Site-Control Requirements: Field personnel will only enter and begin excavation work at the various DUs after discussing with the OSC.

## 4.3 General Field Safety Rules

- All visitors must be sent to the Command Post and referred to the OSC. The OSC will administer the Visitor Health Check Questionnaire (**Attachment H**, source Region 10 Concept of Operations During A Pandemic, May 2020) and complete the Visitor Log (**Attachment I**). The visitor log will be maintained by the OSC at the Command Post.

- It is EPA policy to practice administrative hazard control for all site areas by restricting entrance to Exclusion Zone to essential personnel and by using operational SOPs.
- Whenever possible, avoid contact with contaminated (or potentially contaminated) surfaces. Walk around (not through) puddles and discolored surfaces. Do not kneel on the ground or set equipment on the ground. Stay away from any waste drums unless necessary. Protect equipment from contamination by bagging.
- Eating, drinking, smoking, and the use of tobacco products is prohibited in the exclusion and contamination reduction areas and is permitted only in designated areas in the Support Zone.
- Hands and face must be thoroughly washed upon leaving the decontamination area.
- All equipment must be decontaminated or discarded upon exit from the Exclusion Zone, as determined by the OSC or designee.
- All personnel exiting the Exclusion Zone must go through the decontamination procedures described in Section 9.0.
- Safety Equipment described in Section 5.0 will be required for all field personnel in the Exclusion Zone.
- Personnel will only travel in vehicles where individual seats (for each occupant are provided). Seat belts will be worn as required.
- Fire extinguishers will be available on site in all areas with increased fire danger such as the refueling area.
- A minimum of two personnel will always be on site whenever heavy equipment is operated. Only necessary personnel need to be on or around heavy equipment.
- Employees will not interfere with or tamper in any way with air monitoring equipment.
- Backhoes or other equipment with booms shall not be operated within 10 feet of any electrical conductor.
- The OSC will assume responsibility for personnel entering the site and will allow only those individuals authorized to enter the site.

Visitors are not allowed in the work areas without authorization and not without appropriate levels of PPE as determined by site safety personnel. Access to the properties is restricted to the EPA and authorized representatives. All visitors must sign in at the Command Post and the OSC will be notified of visitor arrival.

#### 4.4 Safe Work Practices

Daily Safety Meeting: A daily safety meeting will be conducted at the start of each shift for all personnel and documented on the Daily Safety Meeting Record form (see page 54 of this HASP) and in the field logbook. The information and data obtained from applicable site characterization and analysis will be addressed in the safety meetings and also used to update this SHASP, as necessary. All site meetings will be conducted following current social distancing guidelines. No clipboards or pens will be passed around during meetings.

As a component of field efforts, the daily safety meeting will include discussion of additional precautions implemented in light of the ongoing COVID-19 pandemic. Discussions will include a debrief on daily activities, any lessons learned, and changes (suggested or otherwise) that may be required as a result of conditions or situations encountered in the course of field work. Such observations and work practice alterations will be recorded in the Daily Safety Meeting notes and used to inform best practices towards managing the potential for viral transmission during field personnel interactions. Potential scenarios where best practice refinement may be required include daily meetings, field data review and management, sample collection and processing, etc.

Work Limitations: Work shall be limited to a maximum of 12 hours per day. If 12 consecutive days are worked, at least one day off shall be provided before work is resumed. Work will be conducted in daylight hours unless prior approval is obtained and the illumination requirements in 29 CFR 1910.120(m) are satisfied.

Weather Limitations: Work shall not be conducted during electrical storms. Work conducted in other inclement weather (e.g., rain, snow) will be approved by project management and the regional safety coordinator or designee.

Buddy System: Field work will be conducted in pairs of team members according to the buddy system.

Line of Sight: Each field team member shall remain in the line of sight and within verbal communication of at least one other team member.

Contamination Avoidance: Field personnel shall avoid unnecessary contamination of personnel, equipment, and materials to the extent practicable.

Sample Handling: Protective gloves of a type designated in Section 7 will be worn when containerized samples are handled for labeling, packaging, transportation, and other purposes.

Standard Operating Procedures: E & E and EQM Standard Operating Procedures that are applicable to this project are presented in their respective Health and Safety Plans for this project.

## 5.0 Emergency Responsibilities

### ON-SCENE COORDINATOR (OSC)

As the administrator of the project, the OSC has primary responsibility for responding to and correcting emergency situations. The OSC will:

- Take appropriate measures to protect personnel including: withdrawal from the Exclusion Zone, total evacuation and securing of the site or up-grading or down-grading the level of protective clothing and respiratory protection.

- Take appropriate measures to protect the public and the environment including isolating and securing the site, preventing run-off to surface waters and ending or controlling the emergency to the extent possible.
- Ensure that appropriate Federal, State and local agencies are informed, and emergency response plans are coordinated. In the event of fire or explosion, the local fire department should be summoned immediately. In the event of an air release of toxic materials, the local authorities should be informed in order to assess the need for evacuation. In the event of a spill, sanitary districts and drinking water systems may need to be alerted.
- Ensure that appropriate decon treatment or testing for exposed or injured personnel is obtained.
- Determine the cause of the incident and make recommendations to prevent the recurrence.
- Ensure that all required reports have been prepared.

#### SAFETY OFFICER (SO)

The SO will recommend health/safety and protective measures appropriate to the emergency.

#### ERRS RESPONSE MANAGER (RM)

The RM must immediately report emergency situations to the OSC, take appropriate measures to protect site personnel and assist the OSC as necessary in responding to and mitigating the emergency situation.

#### START Field Team Leader

The START must immediately report emergency situations to the OSC, take appropriate measures to protect site personnel and assist the OSC as necessary.

#### All Personnel

All personnel shall be alert to the possibility of an on-site emergency; report potential or actual emergency situations to the team leader and SO; and notify appropriate emergency resources, as necessary. All field personnel will have the right of refusal and any field personnel may call out any emergency and stop work immediately if necessary.

## 6.0 Site Communications

Select all modes of communication to be used during the event:

- |  |  |  |  |
|--|--|--|--|
| <input checked="" type="checkbox"/> Radio    | <input checked="" type="checkbox"/> Cell phone   | <input checked="" type="checkbox"/> Hand signals | <input checked="" type="checkbox"/> Visual contact |
| <input checked="" type="checkbox"/> Air horn | <input checked="" type="checkbox"/> Vehicle horn | <input type="checkbox"/> Whistle                 | <input type="checkbox"/> Other                     |



Complete the following table summarizing the site communication plan:

Site Communications Overview			
Organization/Agency/Event	Contact Name	Communication Device	Number/Channel/Pattern
Local hospital/clinic	Providence Mount Carmel Hospital 982 East Columbia Street Colville, WA 99114  See <b>Attachment J</b> for directions from Site to Hospital. Maps and directions to the hospital will be posted in the Command Post office and Decontamination Area.	Cell phone	(509) 685-5100
Ambulance		Cell phone	911
Fire	Stevens County Fire District 11 315 Summit Avenue Northport, WA 99157	Cell phone	(509) 732-0262
Sheriff	Stevens County Sheriff's Department 215 S. Oak Street Colville, WA 99114	Cell phone	(509) 684-5926
Federal On-Scene Coordinator	Monica Tonel	Cell phone	(206) 348-2692
Contractor Site Health and Safety Officer	Tom Vroman, E&E	Cell phone	(206) 513-3425
Contractor Site Health and Safety Officer	Theresa Holz, EQM	Cell Phone	(708) 307-5106
Site Workers	All	Radio	Channel 1
Evacuation	All	Air Horn or Vehicle Horn	Three short blasts
Level A/B PPE	Team A	In-Ear radio	Voice activated

Further details on communication are provided in each employer's respective HASP.

## 7.0 Buddy System

*A buddy system organizes the workers to monitor each other for health and safety accountability. The strictness of buddy system to be used needs to be discussed in context to the site, task, and hazards. Buddy system could range from radio check-in every half hour to two people together at all times.*

Further details on buddy system are provided in each employer's respective HASP.

- Buddy System
  - (1) The buddy system is mandatory at any time that personnel are working in the Exclusion Zone, remote areas, on tanks, or when conditions present a risk to personnel.
  - (2) A buddy system requires at least two trained/experienced people who work as a team and maintain at a minimum audible and/or visual contact while operating in the Exclusion Zone.

## 8.0 Additional Emergency Numbers

Poison Control	800-222-1222
National Response Center	800-424-8802
U.S. EPA Region 10 Emergency Response Branch	206-553-1679 (24 hr)
Center for Disease Control	770-488-7100 (24 hr)
AT&F (explosives Information)	800-424-9555
Federal Occupational Health Unit	312-353-0379
Chemtrec	800-424-9300
National Pesticide Hotline	800-858-7378

### EPA Region 10

Contact	Office number	Cell phone number
Health & Safety Program Coordinator – Lori Muller	206-553-2967	206-475-2773
Health & Safety Officer-Grady Maxwell	206-553-0241	206-399-9394

### START Contractor Contacts

Contact	Office number	Extension	After hours contact
Ecology & Environment, Inc.	716-684-8060		716-684-8060
WSP Safety & Health Director – Mike Donaldson			360-536-3321

Regional Health & Safety Officer – Tom Vroman	206-624-9537	3634	206-513-3425
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## ERRS Contractor Contacts

Contact	Office number	Extension	After hours contact
Environmental Quality Management, Inc.	425-673-2900		425-673-2900
EQM Director of Health and Safety – John Kominsky			513-310-4473

## 9.0 Other Emergency Response Procedures

- On-Site Evacuation Signal/Alarm (must be audible and perceptible above ambient noise and light levels): Three long blasts on an air horn, vehicle horn, or by verbal communication via radio.

On-Site Assembly Area: The public sidewalk at each residence.

Emergency egress route to get off site: Walk to the street

Off-Site assembly area: United States Post Office 409 Center Ave

The OSC and/or SO will conduct a head count to ensure all personnel have been evacuated safely.

Preferred means of reporting emergencies:

Site security and control: In an emergency situation, personnel will attempt to secure the affected area and control site access.

Spill Control Procedures: Isolate the source of the spill (e.g., hydraulic fluid) by turning off equipment or shutting valves, if possible. Use shovels to construct temporary earthen berms to prevent migration to sewers or ditches. Scrape oily soil and place in buckets or double-bag in 3-mil trash can liners. Dispose of clean-up materials according to state and federal regulations.

Emergency Medical Treatment and First Aid: Field team members shall be trained in basic first aid practices. If emergency medical treatment is necessary, immediately call for emergency medical service response (911).

Emergency Equipment: Appropriate emergency equipment is listed in Section 21.0. Adequate supplies of this equipment shall be maintained in the support area or other approved work location.

Incident Reporting Procedures: Notify appropriate local emergency services and OSC Tonel, notify appropriate H&S contacts for each impacted organization.

## 9.1 Medical Emergencies

Any person who becomes ill or injured in the Exclusion Zone must be decontaminated to the maximum extent possible when practical. If the injury or illness is minor, full decontamination should be completed and first aid administered prior to transport. If the patient's condition is serious, at least partial decontamination should be completed (i.e., complete disrobing of the victim and redressing in clean coveralls or wrapping in a blanket.) First aid should be administered while awaiting an ambulance or paramedics. All injuries and illnesses must immediately be reported to the OSC.

If the first aid provided to an injured person presents the possibility of exposure to blood or other body fluids or potentially infectious material, the caregiver must wear surgical type impermeable gloves. The exposure must be reported to the OSC, the individual's supervisor and the Site Safety Officer within 24 hours of exposure, naming the injured person(s) and the person(s) administering first aid. Hepatitis B vaccination and treatment must be offered to exposed individuals within 24 hours or as soon as possible after exposure. Exposed individuals may decline the vaccination and treatment but must do so by means of a signed statement.

Any persons transporting an injured/exposed person to a clinic or hospital for treatment should take with them directions to the hospital and information on the chemical(s) they may have been exposed to. This information is included in Table 3-1. Any vehicle used to transport contaminated personnel, will be cleaned or decontaminated as necessary.

## 9.2 Fire or Explosion

In the event of a fire or explosion, the local fire department should be summoned immediately. Upon their arrival, the OSC or designated alternate will advise the fire commander of the location, nature and identification of the hazardous materials on-site.

If it is safe to do so, site personnel may:

- Use fire-fighting equipment available on site.
- Remove or isolate flammable or other hazardous materials that may contribute to the fire.

## 9.3 Adverse Weather Reaction Plan

Adverse weather can take many forms. Severe thunder and lightning storms, winter storms, hail, freezing rain; flash floods and tornados are a few examples. Sudden changes in the weather, extreme weather conditions and natural disasters can create a number of hazards. Generally, adverse weather can create hazards due to slips, trips, and falls, generation of airborne debris, electrical shock, etc. Natural disasters can create many secondary hazards such as release of hazardous materials into the environment, structure failure and fires.

In the event of impending adverse weather, continuous monitoring will provide current information regarding impending adverse weather. In addition, monitoring of weather broadcasts and television broadcasts will provide information on current weather conditions. The terms “tornado watch” and “tornado warning” may be used during the broadcasts. The former term means that conditions are favorable for their development although none have actually been sighted. The latter term means that a tornado has been visually sighted. Additional weather terminology includes:

Weather Watch - tornado, severe t-storm, flash flood, winter storm, “Conditions are favorable for the development/occurrence of hazardous weather.”

Weather Warning - by county issuance

Tornado - tornado sighted or indicated by radar

Severe Thunderstorm - winds >50 mph and/or ¼” hail stones sighted or predicted by radar

Flash Flood - sighted or indicated by radar

Information provided by the emergency and weather radio broadcasts will be used to determine whether any actions need to be taken by project personnel. The EPA OSC in conjunction with the Response Manager and Safety Officer will decide what operations, if any, are safe to perform based on existing and anticipated weather conditions and shall notify personnel when to stop operations and seek shelter.

Obviously, the best protection against most severe weather episodes and natural disasters is to seek shelter before a storm hits. When notification is given that severe weather (particularly tornados) is approaching an area where project personnel are located, begin to secure the site. If experiencing severe weather, the EPA OSC will decide whether to stop work activities and have affected personnel seek shelter.

At the site, workers in Level B and C personal protective equipment will be instructed to: 1) leave the building, doff protective clothing and seek shelter (if adequate advance warning is given); 2) remain inside the building and sit away from any windows; and 3) lie down and curl up. All other field personnel should exit the trailers and seek shelter until the weather improves. Do not seek shelter under the trailers under any circumstances. If no warning is provided, personnel should leave the trailers and lie face down in low lying grassy areas away from the trailers or under any available box (moving) trucks located at the parking lot.

Additionally, for tornados:

Tornado - Vacate trailers, automobiles and seek building/shelter on/above ground.

Severe Thunderstorm – Lightning – avoid tall trees, metal objects, towers, fences, creek beds

Flash flood - seek higher ground

For Wildfire – Be alert to public service announcements/advisories informing the public about air pollution events. Refer to EPA’s Air Quality Index (AQI) which is used by states and many communities across the country (<https://www.airnow.gov/>). See **Attachment K** for Wildfire Smoke Guide, Revised July 2008 (with 2012 AQI Values).

## 10. Personal Protective Equipment

The following is a brief description of the personal protective equipment (PPE), which may be required during various phases of the project. The EPA terminology for protective equipment will be used: Levels A, B, C and D.

Respiratory protective equipment shall be NIOSH approved and use shall conform to OSHA 29 CFR 1910.134 Requirements. Each employer shall maintain a written respiratory protection program detailing selection, use, cleaning, maintenance and storage of respiratory protective equipment. The written Respiratory Protection Program will be maintained at the local and regional offices.

### 10.1 PPE Requirements

Task 1: Mobilization and Site Preparation..... Level D

Level D for mobilization/site preparation activities where contact with contaminants is unlikely.

Task 2: Excavation and Replacement of Soil at the Northport properties...Level D, Level C

Level D for any other site activities where contact with contaminants is unlikely and dust control will be done to control for any airborne particulates.

Task 3: Demobilization..... Level D

Once contaminated materials are excavated and disposed, Level D PPE is anticipated.

#### 10.1.1 Level A

Level A protection shall be used when:

- An extremely hazardous substance requires the highest level of protection for skin, eyes, and the respiratory system;
- Substances with a high degree of hazard to the skin are known or suspected;
- Chemical concentrations are known to be above IDLH levels; or,

- Biological hazards requiring Level A are known or suspected.

Level A protective equipment use is not anticipated during planned project activities.

#### 10.1.2 Level B

Level B protection shall be used when:

- The substance(s) has been identified and requires a high level of respiratory protection but less skin protection.
- Concentrations of chemicals in the air are IDLH or above the maximum use limit of an APR with full-face mask;
- Oxygen deficient or potentially oxygen deficient atmospheres (<19.5%) are possible; and/or,
- Confined space entry may require Level B.
- Incomplete identification of gases and vapors, but not suspected to be harmful to skin or skin absorbable.

Level B protective equipment use is not anticipated during planned project activities.

#### 10.1.3 Level C

Level C protection shall be used when:

- The same level of skin protection as Level B, but a lower level of respiratory protection is required;
- The types of air contaminants have been identified, concentrations measured, and an air-purifying respirator is available than can remove contaminants; or,
- The substance has adequate warning properties and all criteria for the use of APR respirators have been met.

Level C protective equipment at a minimum shall consist of the same equipment as Level B except the SAR will be substituted with a full-face Air Purifying Respirator (APR) with Organic Vapor/Acid Gas HEPA cartridges.

Respiratory Protection:	Air Purifying Respirator (APR) with Organic Vapor/Acid Gas HEPA cartridges
Chemical Resistant/Protective Coveralls:	Tyvek™
Inner Gloves	Latex or Nitrile;
Outer Chemical Gloves	Viton or PVA or Nitrile
Outer Work Gloves	Cotton or leather
Safety Boots	Steel-toe
Boot Covers (booties)	or Rubber overboots
Hard Hat	Yes
Other:	Hearing protection as required for noisy operations.

#### 10.1.4 Level D

Level D protection shall be used when:

- The atmosphere contains no known respiratory hazard; and,
- Work functions preclude splashes, immersion or the potential for unexpected inhalation of, or contact with, hazardous concentrations of harmful chemicals.

Level D protection equipment at a minimum shall consist of:

Rain Suit	As necessary;
Safety Shoes/Boots (type)	Steel-toe;
Boot Covers (booties)	Latex or Robars;
Work Gloves	Cotton;
Hard Hat	Yes;
Face Shield	As necessary;
Safety Glasses	As necessary;

Modifications: Hearing protection as required by noisy operations. Polytyvek™ coveralls and Viton, Nitrile or PVA gloves when working and the possibility of a splash exists.

Specific operating procedures for PPE and Respiratory Protection are provided in **Attachment L**.

#### 10.1.5 Decisions to Upgrade/Downgrade PPE

- a. All decisions to downgrade from Level B to C or C to D must be accompanied by air monitoring results. The ERRS Safety Managers must be advised on on-site decisions to downgrade. All decisions must be documented with an Amendment to the Site-Specific Sampling Plan (SSSP).
- b. The following conditions will necessitate reevaluation of PPE use.
  1. Commencement of a new work activity not previously identified
  2. Change of job tasks during a work phase
  3. Change of season/weather
  4. Contaminants other than those identified in Safety Plan
  5. Change in ambient levels of contaminants
  6. Change in work that affects degree of chemical contact
- c. Action Levels (See Section 7.0)

## 11.0 EPA PPE Requirements

This section addresses PPE to be used by EPA employees for each of the site tasks and operations being conducted.

PPE is selected after first considering engineering controls then administrative controls or combination of all three as means of hazard controls.



OSCs operate under a PPE program found in the SAHP. This element of the HASP is an extension of the PPE program.

If a task the OSC performs at this site requires him or her to wear a respirator, it is noted that the OSC is enrolled in a respiratory protection program, a subset of the PPE program, and is fit-tested annually in accordance with 29 CFR 1910.134(f).

PPE requirements for EPA employees are addressed in the applicable JHAs. See the JHA for further information.

EPA PPE Requirements		
Task	Level of Protection	Description
Excavation, backfill/ restoration	Level-D	<i>Steel-toed boots, safety vest, trousers, hearing and eye protection. Hard hat if overhead objects present.</i>

Further details on PPE are provided in each employer's respective HASP.

## 12.0 Heat Stress Monitoring

Heat stress monitoring for the Northport properties TCRA will begin when temperatures exceed 80°F. Heat stress monitoring for personnel working in permeable clothing, such as cotton or synthetic work clothes, will be conducted in accordance with The American Conference of Governmental Industrial Hygienists' (ACGIH) Threshold Limit Values for heat stress. The SO will be responsible for verifying the work/rest schedules judging from instantaneous weather conditions at the command post and notifying workers of results; and documenting results.

### Location of Monitoring Records

Copies of monitoring records will be retained in the on-site command post during the project and the job file upon completion of the project.

## 13.0 Air Monitoring and Action Levels

According to 29 CFR 1910.120 (h), air monitoring shall be used to identify and quantify airborne levels of hazardous substances and health hazards in order to determine the appropriate level of employee protection needed on-site. Air monitoring records shall be kept on file for future use.

### 13.1 Routine Air Monitoring Requirement

- Upon initial entry to rule out IDLH conditions;
- When the possibility of an IDLH condition or flammable atmosphere has developed;

- When work begins on a different portion of the site;
- Contaminants other than those previously identified are being handled;
- A different type of operation is initiated;
- Employees are handling leaking drums or containers or working in areas with obvious liquid contamination; and,
- During confined workspace.

Air monitoring will consist at a minimum of the criteria listed below. All air monitoring data will be documented by the START contractor and will be available in the command post site files for review by all interested parties. The START contractor will provide air monitoring data to the ERRS contractor upon their request. Air monitoring instruments will be calibrated and maintained in accordance with the manufacturer's specifications. Calibration and maintenance performed will be entered in the site log and/or instrument logbook.

### 13.2 Site-Specific Air Monitoring Requirements

Monitoring will be completed to determine personnel exposures as well as protection of Northport citizens to possible chemical contaminants and physical agents during various project activities. The START contractor will be responsible for completing monitoring activities during field operations where there is potential exposure to airborne dust and other airborne contaminants above PELs/TLVs. The following table summarizes site air requirements:

**TABLE 13-1  
AIR MONITORING SUMMARY**

<b>INSTRUMENT</b>	<b>COMPOUNDS TO DETECT</b>	<b>FREQUENCY</b>	<b>COMMENTS/ ACTION LEVEL</b>
DustTrak (MIE)	Real time aerosol monitor for particulates	During construction phases	<5.0 mg/m <sup>3</sup> total fugitive dust is acceptable  >5.0 mg/m <sup>3</sup> total fugitive dust, OSC discretion for upgrade of PPE
TSP high volume	Airborne particulate contamination	Constant during site work	Laboratory analytical results
SKC universal sampling pump	Airborne particulate contamination	Periodic during soil excavation	Laboratory analytical results
Personal Data Ram (MIE)	Real time aerosol monitor for particulates	Periodic during excavation operations	<5.0 mg/m <sup>3</sup> total fugitive dust is acceptable

INSTRUMENT	COMPOUNDS TO DETECT	FREQUENCY	COMMENTS/ ACTION LEVEL
			>5.0 mg/m <sup>3</sup> total fugitive dust, OSC discretion for upgrade of PPE

\*The reading must be sustained for one (1) minute in the breathing zone.

## 14.0 Decontamination Procedures

All equipment, materials, and personnel will be evaluated for contamination upon leaving the exclusion area. Equipment and materials will be decontaminated and/or disposed, and personnel will be decontaminated, as necessary. Decontamination will be performed in the contamination reduction area or any designated area such that the exposure of uncontaminated employees, equipment, and materials will be minimized. The Site Safety Officer, or their designee, shall monitor decontamination procedures for effectiveness.

Equipment/Material Decontamination Procedures (specified by work plan): Only dedicated sampling equipment will be utilized on this project.

Ventilation: All decontamination procedures will be conducted in a well-ventilated area.

Personnel Decontamination Procedures: Wash hands during breaks and at the end of each day. Wash boots with soapy water at the end of each day.

Personnel Decontamination in General: Following appropriate decontamination procedures, all field personnel will wash their hands and face with soap and potable water. Personnel should shower at the end of each work shift.

Disposition of Disposable PPE: Disposable PPE must be rendered unusable and disposed at a municipal landfill.

Disposition of Decontamination Wastes (e.g., dry wastes, decontamination fluids, etc.): Decon waste will be handled by the ERRS contractor.

General: PPE and equipment shall be decontaminated, cleaned, laundered, maintained or replaced as needed to maintain effectiveness. If non-impermeable clothing becomes wet with hazardous substances, the clothing shall be removed and properly disposed of or cleaned in the contamination reduction area. Unauthorized personnel shall not remove contaminated PPE or equipment from contamination reduction area.

### 14.1 Emergency Decontamination Steps

Move the victim only if it is safe to do so. Decontaminate the victim only to the extent as to allow a safe removal of the victim without further injury. Any blood contaminated material or body fluid will be bagged, labeled Biohazard and accompany the individual to the hospital.

### 14.2 Required Decontamination Equipment

Tables, chairs, trashcans, scrub brushes, buckets, brooms, scrapers, and cleaning supplies.

### 14.3 Disposition of Decontamination Wastes

All equipment and solvents used for decontamination shall be decontaminated or disposed of with the established waste streams. Commercial laundries or cleaning establishments that decontaminate or are used to launder contaminated clothing shall be informed of the presence of potentially harmful effects of the contamination. Less than 50 lbs. per month of biohazard waste may be disposed with routine waste.

A sketch of the decontamination area for this site is provided in **Attachment M**.

## 15.0 Personnel Monitoring

The following is a summary of the action levels to be adhered to by EPA employees. *EPA/Tech Law/E&E* is tasked with maintaining and calibrating monitoring equipment while on site as well as conducting the monitoring unless otherwise indicated.

The frequency and types of air and personnel monitoring and instrumentation to be used, including methods of maintenance and calibration of monitoring and sampling equipment to be used will be addressed in each respective employer's HASP.

### 15.1 Minimum Contaminant Action Levels

MINIMUM CONTAMINANT ACTION LEVELS				
Hazard	Monitoring Equipment*	Employer Assigned	Action Level	Action
Particulates (and arsenic in sampled areas <1000 ppm arsenic in soil)	DustTrak		> 10 mg/m <sup>3</sup>	Implement engineering controls or upgrade to Level C

\*Unless otherwise noted, these instruments were maintained and calibrated by contractors at the EPA warehouse.

## 15.2 Monitoring Schedule

MONITORING SCHEDULE				
Task	Monitoring Equipment	Upon Entry or Continuous	Periodic	Perimeter
Site entry				
Documentation				
Air Monitoring	<b>DustTrak</b>	<b>X</b>		<b>X</b>
Sampling	<b>SKC PC-XR-8 Pump</b>	<b>X</b>	<b>X</b>	
Decontamination				

## 16.0 Hazard Communication Program

Each contractor will be responsible for maintaining a copy of their Hazard Communication Program and SDS's on site.

### 16.1 Safety Data Sheets

- (1) Safety Data Sheets (SDSs) will be maintained at the Command Post in the Health and Safety Binder.
- (2) SDS's will be available to all employees for review during the work shift.
- (3) See Attachment E.

### 16.2 Container Labeling

- (1) All containers received on site will be inspected by the contractor using the material to ensure the following:
  - a. All containers clearly labeled
  - b. Appropriate hazard warning
  - c. Name and address of the manufacturer

### 16.3 Hazardous Chemical List

Refer to the ERRS/START Health and Safety Binder for the Hazard Communication Program and applicable SDS's

## 17.0 Spill Prevention and Response

A spill containment program, meeting the requirements of paragraph (j) of HAZWOPER, is addressed in HASP of the employer tasked with performing the clean-up.

## 18.0 Employee Training and Information

- (1) Prior to starting work, each employee will attend a health and safety orientation and will receive information and training on the following:
  - a. An overview of the requirements contained in the Hazard Communication Standard
  - b. Hazardous chemicals present at the site
  - c. The location and availability of the written Hazard Communication Program
  - d. Physical and health effects of the hazardous materials
  - e. Methods of preventing or eliminating exposure
  - f. Emergency procedures to follow if exposed
  - g. How to read labels and review SDS' to obtain information
  - h. Location of SDS file and location of hazardous chemical list

## 19.0 Employee Training Assignment

The OSC is trained to the level of responsibility as required in paragraph (e) of 29 CFR 1910.120 and is current in HAZWOPER training and medical surveillance. In addition, the OSC has had the management and supervisory training required in paragraph (e). OSC training covers decontamination procedures, emergency response plans, confined space entry, and spilled containment procedures, the four key discussion elements in this HASP. The OSC Safety and Health Training Program can be found in the SAHP.

All EPA employees engaged in field activities are required to meet EPA Order 1440.2, *Health and Safety Requirements for Employees Engaged in Field Activities*. No EPA employee will be allowed in the exclusion zone who has not completed the requisite training under HAZWOPER.

A pre-entry briefing (tailgate safety briefing) as required by Paragraph (b)(4)(iii) of HAZWOPER will be held at the start of each operational period and is considered part of the OSC Employee Training Program.

Other onsite employers will address their employee training assignments in their respective site-specific HASP.

## 20.0 Medical Surveillance

The OSC is enrolled in a medical surveillance program and has been medically cleared to work in uncontrolled hazardous waste operations and if necessary, wear respirators (Level A-C). The Medical Surveillance Program is discussed in the SAHP.

Medical surveillance requirements for non- EPA employees are addressed in their employer's HASP. Medical surveillance clearance records will be kept on site or be produced within 24-hours of any request.

Medical surveillance requirements do not apply to workers who work in the support zone.

### 20.1 Pre-Employment Physical

- a. Pre-employment and periodic update medical examinations are required for persons working at hazardous waste sites.
- b. All physicals must be completed and documented prior to assignment to the site.
- c. All physical exams will be conducted following parameters established by the respective employee's Corporate Physicians.
- d. The ERRS contractor and all permanent team subcontractors must adhere to the Drug Free Workplace Act of 1988.

### 20.2 Site-Specific Physical Examination

- a. No site-specific physical examination is required for planned project activities.
- b. A current Fitness for Duty statement can be provided if requested for all personnel.
- c. Current health and safety training certificates can be provided if requested for all personnel.

### 20.3 Annual Physical Exam

A medical examination must have been completed within a 12-month period prior to on-site activity and repeated annually.

### 20.4 Accidental/Suspected Exposure Physical

- a. Following any accidental or suspected uncontrolled exposure to site contaminants, personnel should be scheduled for a special physical examination.
- b. The physical examination will be specific for the contaminants and the associated target organs or physiological system.
- c. Exposure to blood/body fluids requires adherence to 29 CFR 1910.1030 (Blood borne Pathogens).
- d. Questions regarding the type of physical can be directed to the employer's Director of Health and Safety or their Corporate Physician. See Section 11.2 for their respective phone numbers.

### 20.5 Contractor Physical Examination Requirements

All subcontractors entering the Contamination Reduction Zone or Exclusion Zone will have adequate medical surveillance satisfying 29 CFR 1910.1209(f).

### MAPS

Attached are the following separate maps:

Site Specific Maps Included			
X Hospital Route (M-1)	X Site Map (M-2)	X Work Zones (M-3)	Emergency Response (M-4)
X Decontamination Step Locations (M-5)	Environmental Monitoring (M-6)	Other (M-X)	Other (M-X)

Copies should be prominently displayed.

## 21.0 Emergency Equipment Available On-Site

### Communication Equipment

Private Telephones:

### Location

ERRS contractor office trailer or EPA Command Post

Two-Way Radios:

Command Post, CRZ and EZ

Emergency Alarms/Horns:

Command Post, CRZ and EZ

### Medical Equipment

First Aid Kits: Command Post and CRZ

Inspection Date: \_\_\_\_\_ By:

Stretcher/Backboard: Command Post

Eye Wash Station: CRZ

### Fire-Fighting Equipment

Fire Extinguishers: Command Post, CRZ and EZ

Inspection Date: \_\_\_\_\_ By:

Other:

### Spill or Leak Equipment

Absorbent booms/pads and

Dry absorbent: CRZ and EZ

Additional Emergency Equipment



### 21.1 Accident Reporting/Investigation

See **Attachment N** for process for reporting an accident/incident (E&E Incident Report Form), and EPA Region 10 Questionnaire for Reporting Suspect or Confirmed Illness (COVID-19).

**HASP ACKNOWLEDGEMENT AND PRE-ENTRY BRIEFING**

A pre-entry briefing is required by HAZWOPER at 29 CFR 1910.120(b)(4)(iii). The following individuals have received a pre-entry briefing.

Name	Date

## **Attachment A**

Health & Safety Plan Addendum Form

Ecology & Environment, Inc.			
<b>EXISTING HASP ADDENDUM FORM</b>			
Site Name:		Project Number:	
Date of original HASP:			
Date of amendment:			
Date of proposed new work:			
Added activities and hazard evaluations:			
Added monitoring activities:			
Level of protection:    A        B        C        D			
Reason for up/downgrading:			
PPE:			
Decontamination:			
Team Members		Responsibility	
Equipment	Quantity	Equipment	Quantity
Prepared by:		Date:	
Reviewed by:		Date:	

INSTRUCTIONS: This form must be approved through normal channels and attached to original HASP.  
Form HASP-AD

## **Attachment B**

COVID-19 Guidance Plans/Guidelines

U. S. EPA

WA State

START contractor

ERRS contractor

# Interim EPA COVID-19 Health & Safety Guidelines for Field Activities – July 6, 2020

## **Introduction and Applicability**

These COVID-19<sup>1</sup> Health and Safety (H&S) Guidelines for Field Activities<sup>2</sup> represent an integrated set of safety and health guidance that provide timely and consistent information for employees conducting field activities. These Guidelines merge several Agency program-specific COVID-19 H&S guidance documents into an overall document to address COVID-19 safety concerns applicable to field activities.

These guidelines are specific to COVID-19 only and are not intended to supersede existing health and safety requirements or hazard assessments, such as Health and Safety Plans (HASP), the [Emergency Responder Health and Safety Manual](#), [Personal Protective Equipment \(PPE\) hazard assessment guidelines](#), [Job Hazard Analysis \(JHA\)](#), [Job Safety Analysis \(JSA\)](#), and [mobile/vessel laboratory Chemical Hygiene Plans \(CHP\)](#).

These H&S Guidelines for Field Activities are a supplement to the national COVID-19 official guidance provided by the Centers for Disease Control and Prevention (CDC), the National Institute for Occupational Safety and Health (NIOSH), Occupational Safety and Health Administration (OSHA), and Federal Emergency Management Agency (FEMA). This document was developed based on the current COVID-19 guidance from [CDC](#), including [NIOSH](#), and [OSHA](#), as of the date of this document. It is intended for internal use by EPA employees and may apply to EPA contractors and grantees depending on program or contract requirements. These Guidelines may be provided to federal, state, local, territorial and tribal organizations and applies as per existing agreements. The Agency will review and update these Guidelines when new information is received or the COVID-19 situation changes.

In addition, management should incorporate the U.S. Equal Employment Opportunity Commission (EEOC) Technical Assistance Questions and Answers document -- "[What you Should Know about COVID-19 and the ADA, the Rehabilitation Act, and Other EEO Laws](#)" -- into their safety and health decisions.

The management decision to conduct field work during the COVID-19 public health emergency should be made pursuant to applicable program guidance. All such field work is then conducted consistent with these Guidelines. These Guidelines should be integrated into existing field health and safety planning. These Guidelines are not intended to apply to work inside EPA facilities.

The main body of the H&S Guidelines for Field Activities are arranged in the following order:

1. [Respiratory Protection](#)
2. [Safety Training and Medical Clearance](#)
3. [Pre-Travel Considerations](#)
4. [Travel Related Recommendations](#)
5. [Additional General Recommendations](#)

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<sup>1</sup> The term "COVID-19" will be used throughout this document even though in some cases it is referring to the virus (SARS-CoV-2) that causes the disease (COVID-19).

<sup>2</sup> In general, field activities are defined as EPA program activities that are conducted by EPA employees outside of EPA administered facilities (EPA Order 1440.2). Consult with the local Safety, Health and Environmental Management Program Manager to determine applicability to the Region's or Program's field activities. These Guidelines do not apply to field work performed in support of a criminal investigation or the protective service detail.

6. [Workplace Illness and Injuries](#)
7. [Resources, including the EPA COVID-19 Job Hazard Analysis/Job Safety Analysis Template](#)

The appendices provide specific recommendations applicable to various EPA programs and supplement the main body of these guidelines. The respective appendices are:

- [Appendix A – Civil Inspections, On-site Compliance Monitoring, Compliance and Technical Assistance for all programs except programs covered in Appendix B](#)
- [Appendix B – Conducting Superfund Site, Resource Conservation and Recovery Act \(RCRA\) Corrective Actions, Oil, and Emergency Response Work](#)

## **1. Respiratory Protection<sup>3</sup>**

For on-going Agency work, all PPE previously required to safely conduct work during normal circumstances (prior to the current COVID-19 health emergency) is still required as outlined in other official Agency [PPE hazard assessments](#). If an EPA-coordinated work activity involves direct contact to a known COVID-19 source or presents a high potential for exposure to a COVID-19 source ([OSHA defined high risk for COVID-19](#)), field staff, supervisors, and the local Safety, Health and Environmental Management Program (SHEMP) managers should follow OSHA guidelines, which have been integrated into this document, for conducting a hazard assessment<sup>4</sup> to determine if respirator usage or additional PPE is required (See the EPA COVID-19 Job Hazard Analysis/Job Safety Analysis Template found in the [Resources Section](#)).

[Table 1](#) summarizes the various OSHA requirements for the use of respirators, disposable surgical masks and cloth face coverings when required by the Agency or used voluntarily, and either provided by the employer or provided by the employee.

### **a. Disposable Surgical Masks and Cloth Face Coverings**

- i. EPA requires the use of cloth face coverings or disposable surgical masks for EPA employees where state or local jurisdictions or facilities require their use. When a hazard assessment shows respirator use is not required and at least six feet social distancing cannot be easily and consistently maintained, EPA requires face coverings or disposable surgical masks for all operations (indoor and outdoor). Disposable surgical masks or cloth face coverings may not be used when a respirator is required.
- ii. Cloth face coverings and the use of disposable surgical masks (in lieu of cloth face coverings) for source control are not considered PPE. However, Agency-required disposable surgical masks used for worker protection during specific tasks are considered PPE and have additional training requirements (see [Table 1](#) below). [CDC is advising the use of cloth face coverings](#) to slow the spread of the virus by helping people who may have the virus and do not know it from transmitting it to others.
- iii. Employees should consult with their supervisors about acquiring clear masks for interaction with others who may need to lipread to communicate. More information is

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<sup>3</sup> Adapted from the June 19, 2020 EPA Safety, Health and Environmental Management Program – Interim Guidance on the Employee Use of Respiratory Protection Equipment During the COVID-19 Pandemic.

<sup>4</sup> “Hazard assessment” will be used throughout the document as the term to encompass job hazard analysis (JHA), job safety analysis, task hazard analysis, activity hazard analysis and any other formal workplace safety hazard assessment and risk analysis.

available through the [Job Accommodation Network \(JAN\)](#), including free, expert, and confidential guidance on workplace accommodations.

- iv. A cloth face covering is not a substitute for social distancing, so employees wearing cloth face coverings should continue to maintain at least six feet between themselves and others. Face coverings (or respirators used as face coverings) with an exhalation valve may not minimize the potential transmission of COVID-19. [Cloth face coverings](#) can be fashioned from household items or made from common materials (multiple layers of fabric) at low cost and are now readily available for purchase and do not require training or medical clearance. [Cloth face coverings should be laundered after each use](#), if possible.
- v. Face coverings or disposable surgical masks should not be worn when they create a new hazard (e.g., heat and physical stress while performing strenuous work). In that case, they should be replaced with different PPE that provides protection (e.g., face shields), administrative and/or engineering controls. Additionally, if face coverings or disposable surgical masks become wet, soiled or visibly contaminated during a work shift, they should be exchanged for clean items. At the end of the work shift or when leaving the Site, employees should remove the face covering or disposable surgical mask and don clean ones.

**b. N95 Respirators**

- i. An N95 respirator represents one of the nine types of [NIOSH-approved filtering facepiece respirators \(FFR\)](#). Recommendations and requirements outlined in this document for N95 respirators also apply to the use of other filtering facepiece respirators. Disposable surgical masks or face coverings are not N95 respirators. An N95 respirator is certified by NIOSH to filter at least 95 percent of airborne particles and may or may not possess an exhalation valve depending on the specific respirator.
- ii. As a respirator, required use of an N95 respirator by EPA employees as part of their assigned duties requires enrollment in the Agency's Respiratory Protection Program (RPP), medical clearance, fit testing and proper training prior to use. (Note that in the case of employees who maintain facial hair either based on a disability or religious practice, supervisors should be prepared to offer such employees a reasonable accommodation, which may include supplying the employee with an alternative respirator that fits properly over facial hair, e.g. Powered Air Purifying Respirators (PAPRs)).
- iii. N95 respirators should not be recommended for use without being identified through a hazard assessment. Based on the hazard assessment, N95s or other types of respirators may be appropriate, such as during some emergency response operations or missions directly involving COVID-19.
- iv. Voluntary use of a respirator is defined as the use of respirators by employees even when an exposure/hazard assessment shows respirator use is not required. Voluntary use of N95 respirators in atmospheres which are not considered hazardous does not require fit testing, medical clearance, or other components of the agency's RPP to be in place. Voluntary use of an N95 filtering facepiece respirator and other FFRs by an employee is covered under [Appendix D of the OSHA Respiratory Protection Standard](#). Before an employee can voluntarily use a respirator, the Agency must ensure that the respirator is cleaned, stored, and maintained so that its use does not present a health



hazard to the user ([1910.134\(c\)\(2\)\(ii\)](#)), whether or not the respirator was provided by the employer or provided by the employee. Voluntary use of an employee-provided N95 respirator requires pre-approval by the local SHEMP manager.

- To meet the requirements of Appendix D of the OSHA Respiratory Protection Standard, EPA's Safety and Sustainability Division (SSD) has developed online training that employees must take. The training is available at [U.S. EPA Voluntary Filtering Facepiece \(e.g. N95 Respirator\) User Training](#). The training includes all the requirements found in Appendix D of the OSHA Respiratory Protection Standard.
- v. For decontamination and reuse of N95 respirators and other FFRs, see [OSHA's Enforcement Guidance on Decontamination of Filtering Facepiece Respirators in Healthcare During the COVID-19 Pandemic](#) and the [Enforcement Guidance for Respiratory Protection and the N95 Shortage Due to the COVID-19 Pandemic](#).
  - Extended use or reuse of N95 respirators may be permitted if the respirator maintains its "structural and functional integrity and the filter material is not physically damaged, soiled, or contaminated." The primary hazard of extended use and reuse of respirators is risk of contact transmission during donning and doffing; therefore, it is important that the user follows the [NIOSH guidance for extended use and limited reuse of N95 respirators](#).

**c. Air Purifying Respirators (APRs) and Powered Air Purifying Respirators (PAPRs)**

- Many EPA field employees, Special Agents, and emergency responders are enrolled in the RPP and are medically cleared to wear a respirator. Some of these EPA employees have been fit tested, trained and provided elastomeric APRs and PAPRs as part of their duties. Voluntary use of an employee-provided elastomeric respirator requires pre-approval by the local SHEMP manager, medical clearance and [U.S. EPA Voluntary Filtering Facepiece User Training](#).
- When used in conjunction with the proper filtering cartridge (e.g., P100), these types of respirators offer the wearer superior protection over wearing N95 respirators. However, unlike an N95 respirator without an exhalation valve, a standard APR or PAPR with a P100 cartridge does not provide filtration upon exhalation, so if the wearer is already infected with COVID-19 and is contagious, that person may potentially expose those around them to the virus. Wearing a respirator is not a substitute for social distancing, so employees should continue to maintain at least six feet between themselves and others whenever possible while wearing a respirator.

**d. EPA Recommendations**

- For most field activities, the use of a cloth face covering or a disposable surgical mask is sufficient. Respirators generally are not needed to meet the [CDC recommendations for COVID-19 protection](#) and the [OSHA Guidance on Preparing Workplaces for COVID-19](#). EPA will follow OSHA guidance for identifying COVID-19 risk levels in the workplace and determining appropriate control measures, including reserving the use of N95 respirators for high exposure risk jobs to COVID-19 (e.g., an EPA Emergency Support

Function (ESF)-10 COVID-19 related response or Special Agents in close personal contact to individuals).

- EPA employees should be assigned respirators (e.g., N95s, APRs or PAPRs) for a specific field activity if the hazard assessment indicates respirator use is necessary. However, the employee must meet all the OSHA regulatory prerequisites. As previously noted, there are many EPA employees who already meet the prerequisites to wear specific respirators; therefore, no further action is needed to use their assigned respirators.
- Do not cover an exhalation valve or place a face covering/disposable surgical mask over the respirator since this can alter the function of the respirator.
- Task specific hazard assessments must be completed by the field employee, supervisor, and the local SEMP manager, following the [OSHA Guidance on Preparing Workplaces for COVID-19](#), which have been incorporated into this document, and using the EPA COVID-19 Job Hazard Analysis/Job Safety Analysis Template found in the [Resources Section](#).

**TABLE 1 - OSHA Requirements for Respirators, Surgical Masks and Cloth Face Coverings**

	<b>Respirator</b> <b>N95, APR, PAPR</b>  Agency Provided and Required Use	<b>Respirator</b> <b>N95, APR, PAPR</b>  Employee Provided and Voluntary Use	<b>Surgical Mask</b> <b>FDA or non-FDA</b> <b>Approved</b>  Agency Provided and Required Use	<b>Surgical Mask</b> <b>FDA or non-FDA</b> <b>Approved</b>  Agency Provided and Voluntary Use	<b>Surgical Mask</b> <b>FDA or non-FDA</b> <b>Approved</b>  Employee Provided and Voluntary Use	<b>Cloth Face Covering</b>  Agency or Employee Provided, Voluntary or Required Use
<b>Medical Clearance Required (OSHA)</b>	Yes	No (N95 filtering facepiece/dust mask)  Yes (Elastomeric facepiece, APR/PAPR)	No	No	No	No
<b>User Training Required (OSHA)</b>	Yes  Doffing/Donning Minimize Cross Contamination	Yes <sup>5</sup>  Supply OSHA Appendix D and SSD Training	Yes  Minimize Cross Contamination	No  Recommended correct use	No  Recommended correct use	No
<b>Respirator Fit Test Required (OSHA)</b>	Yes	No (N95 filtering facepiece/dust mask)  No (Elastomeric facepiece, APR/PAPR)	No	No	No	No
<b>Job/Hazard Analysis (OSHA)</b>	Yes	No <sup>6</sup>	Yes	Yes	No	No

<sup>5</sup> OSHA does not require training; however, EPA is requiring the SSD Online training for the voluntary use of all respirators.

<sup>6</sup> Although not required for employee provided voluntary use under the OSHA Respiratory Protection Standard, EPA still requires field work to have a hazard assessment / JHA completed as per the OSHA PPE Standard.

## **2. Safety Training and Medical Clearance for Field Activities**

Field personnel must be properly trained for field activities:

- a. Field Health and Safety Training: Initial 24-hour Field Health and Safety Training is required. If the annual 8-hour Field Health and Safety Refresher Training could not be completed due to the COVID-19 Public Health Emergency, annual certifications are temporarily extended by six months as determined by EPA in consultation with OSHA.
- b. HAZWOPER Regulated Activities: Initial 24-hour or 40-hour HAZWOPER training is required for field personnel working on Superfund and RCRA Corrective Action Sites and for field personnel responding to the release or threat of release of hazardous substances. If the annual 8-hour HAZWOPER Refresher Training could not be completed due to the COVID-19 Public Health Emergency, annual certifications were also temporarily extended by six months.

Some field personnel may also need medical clearances:

- a. Medical Clearance: Field employees enrolled in the Occupational Medical Surveillance Program (OMSP) had their medical clearances temporarily extended by six months from date of expiration due to the COVID-19 public health emergency as determined by EPA in consultation with the Office of Federal Occupational Health (FOH). If an employee's health status changes significantly during the extended clearance period, the employee is expected to self-report the change to the SHEMP manager and their supervisor.
- b. RPP Enrollment: Field employees who are enrolled in the RPP must also receive a respiratory medical clearance. These clearances have been temporarily extended by six months. [Annual respiratory protection training and current respirator fit tests are also extended by six months for FFRs.](#)
- c. Vaccinations: Currently, there is no vaccine or medical prophylaxis for COVID-19. Check with local SHEMP manager for any other vaccine requirements.

## **3. Pre-Travel Considerations**

- a. [Local, state, territorial or tribal governments may have more stringent requirements](#) than those found in these guidelines (e.g., 14-day quarantine upon arrival). Field staff traveling to areas outside their home jurisdictions should check for additional requirements and include them in their field work planning and in the hazard assessment process.
- b. Follow the steps outlined in the [EPA Self-Assessment to Stop the Spread of COVID-19](#) tool to make sure employees are not ill or symptomatic. Please perform this self-assessment prior to departing and daily before reporting to work.
- c. [CDC Interim Guidance for Businesses and Employers Responding to Coronavirus Disease 2019 \(COVID-19\), May 2020](#) also provides **guidance for general workers who may have had a potential exposure to COVID-19 but are asymptomatic.** If field employees believe they were exposed to COVID-19 (close personal contact with a person symptomatic or confirmed positive for COVID-19), follow the [CDC Public Health Recommendations for Community-Related Exposure](#):
  - Stay home until 14 days after last exposure and maintain social distance (at least six feet) from others at all times.
    - [Self-monitor for symptoms.](#)

- Check temperature twice a day.
  - Avoid contact with [people at higher risk for severe illness](#).
  - Follow [CDC guidance](#) if symptoms develop.
  - Follow the [CDCs Discontinuation of Isolation for Persons with COVID -19 Not in Healthcare Settings Guidance](#) prior to conducting field work if were previously ill.
- d. For emergency response and Superfund/RCRA corrective action site work, CDC has issued Interim Guidance for [Implementing Safety Practices for Critical Infrastructure Workers Who May Have Had Exposure to a Person with Suspected or Confirmed COVID-19](#). This CDC **guidance applies to critical workers, including hazardous material responders from government and private sector, who may have been potentially exposed to COVID-19**. To ensure continuity of operations of essential functions, CDC advises that critical infrastructure workers may be permitted to continue work following potential exposure to COVID-19, provided they remain asymptomatic and additional precautions are implemented to protect them and the community. A potential exposure means being a household contact or having close contact within six feet of an individual with confirmed or suspected COVID-19. The timeframe for having contact with an individual includes the period of 48 hours before the individual became symptomatic. See [Appendix B](#) for specific practices and screening information.
- e. COVID-19 is a new disease and there is limited definitive information regarding risk factors. Based on currently available information and clinical expertise, [older adults and people of any age who have serious underlying medical conditions](#) might be at higher risk for severe illness from COVID-19. Consider underlying medical conditions during field activity assignments. Any health screening of personnel must be compliant with [CDC guidance](#) and [EEOC guidance](#). [Follow Health Insurance Portability and Accountability Act of 1996 \(HIPAA\) requirements to safeguard medical and personal identifiable information \(PII\)](#). General recommendations for employees and supervisors handling protected medical information include:
- If possible, rely on self-assessments/self-reporting and do not record the information.
  - If documentation is required, only record the needed information (e.g. COVID-19 symptom status, temperature checks).
  - All records that are created must be kept on a password protect computer or under lock and key. After completion of field activities, consult local records management specialists for retention of records.
- f. Prior to performing field work at a specific location, the field staff, their supervisor and the local SEMP manager must perform a supplemental hazard assessment addressing COVID-19. An example of such a supplemental hazard assessment is provided in the [Resources Section](#) below. If an EPA-coordinated work activity involves direct contact with a known COVID-19 source or presents a high potential for exposure to a COVID-19 source the supervisor and local SEMP manager must follow OSHA guidelines for conducting a hazard assessment to determine if respirator usage or additional PPE is required. [OSHA Guidance on Preparing Workplaces for COVID-19](#) provides four exposure risk categories. The level of risk depends in part on the industry type, need for contact within six feet of people known to be, or suspected of being, infected, and the need for repeated or extended contact with persons known to be, or suspected of being, infected. To help employers determine



appropriate precautions, OSHA has divided job tasks into four risk exposure levels: very high, high, medium, and lower risk. **Most EPA field activities will likely fall in the lower exposure risk (caution) category** and, less frequently, will fall into the medium risk category in areas where there is ongoing community transmission and contact with the general public. Review the EPA COVID-19 Job Hazard Analysis/Job Safety Analysis Template found in the [Resources Section](#) and integrate, as appropriate, into existing safety plans and JHAs.

- g. Prior to travel, assess the prevalence of COVID-19 in the area(s) that employees are traveling to or performing field work.
  - Specific COVID-19 information can be found on state/territorial/local government and health department websites. Available sources include the [CDC State, Territorial, Local and Tribal Health Department Search Tool](#), [CDC COVID-19 Tracker](#), [Johns Hopkins University Coronavirus Resource Center](#)<sup>7</sup>, the [COVID Tracking Project](#)<sup>7</sup>, the [U.S. Census Bureau's Coronavirus \(COVID-19\) Pandemic Site](#) and other expert sources.
  - EPA also developed the [EPA Facility Status Dashboard](#) to aid in facility reopening decisions. The Dashboard provides information on the status of each gating criterion in the commuting area surrounding our facility locations.
  - Consider both work-related and community exposure potential. Further information for considering ongoing community transmission of COVID-19 is contained in the EPA COVID-19 Job Hazard Analysis/Job Safety Analysis Template found in the [Resources Section](#).
- h. Consult with the SHEMP manager to determine what additional PPE may be required, such as gloves, Tyvek suits, eye protection, and, if necessary, respiratory protection.
- i. Cloth face coverings or disposable surgical masks are required to be worn in the field when social distancing cannot be maintained and/or when respiratory protection is not being worn to address field hazards. When planning field work, a sufficient number of cloth face coverings or disposable surgical masks should be available to the field employee to account for required change-out at the end of the shift and if they become wet, dirty or contaminated.
- j. PPE should be selected to address all hazards present, including COVID-19.
- k. Employees should identify and obtain all PPE needed to complete the task. Employees should not use or wear shared or borrowed PPE (e.g. flame-retardant coveralls supplied by a facility).
- l. Nitrile or similar disposable gloves may afford some COVID-19 protection for the employee when hand sanitizer is not available, or when hand washing is not feasible.
- m. All EPA staff should take extra care not to touch their faces, especially after any time they touch a known or potentially contaminated surface.

#### **4. Travel Related Recommendations**

- a. Supervisors and SHEMP managers should encourage all personnel to drive rather than fly when possible. Consider staffing field work with personnel that can get to the site by vehicle, because it affords additional flexibility to adjust plans based on changing conditions in the local area or work site. Attempt to maintain one person per vehicle; if not practical, consider separating passengers in the vehicle as much as possible (e.g., front seat/back seat) and don face

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<sup>7</sup> Non-federal sites are included for informational purposes only and do not constitute any endorsement by EPA or its employees.

coverings. Ensure that face coverings do not impair visibility when driving. Maximize fresh air flow in the vehicle.

- b. If driving to the site/facility is practical, EPA employees may wish to use their personally owned vehicle (POV) to minimize the need to disinfect fleet or rental car vehicles. This also may be more efficient if it eliminates the need for field staff to travel to a downtown location to pick up a fleet or rental car. Per recent Office of General Counsel determination, employees driving POVs should be able to claim the higher mileage rate even if a rental or fleet vehicle was available.
- c. Field staff should:
  - 1. Review criteria in the [EPA Self-Assessment to Stop the Spread of COVID-19](#) tool daily while on travel or conducting field work.
  - 2. Prior to departing, obtain [EPA COVID-19 registered disinfectants](#)<sup>8</sup> and [FDA approved hand sanitizers](#)<sup>9</sup>. Use EPA's [List N Tool: COVID-19 Disinfectants web-based tool](#) to quickly identify disinfectant products that meet EPA's criteria. Read and follow the label instructions on these products, for example disinfectant contact times, PPE requirements, etc.
  - 3. Prior to travel by air, review and follow all airline-specific and Transportation Security Administration (TSA) requirements and guidance. This could include required use of face coverings during the entire flight, social distancing while seated, and the use of disinfectants. See the [TSA COVID-19 information](#) for details.
  - 4. Disinfect vehicles (wipe down commonly-touched surfaces, such as the steering wheel, door handles, touch screens, etc.) prior to checking out or renting a vehicle. See the EPA Office of Mission Support (OMS)-SSD Vehicle Utilization, Cleaning and Disinfection Recommendations in the [Resources Section](#) for more information.
  - 5. Seek out lodging facilities with in-room food storage and food preparation options (e.g., refrigerator, microwave oven, etc.).
  - 6. Disinfect hotel room. Use the "No Housekeeping" sign to limit access to hotel room.
  - 7. Avoid hotel breakfast buffets or only consume unopened food items (wash any fresh fruit prior to eating).
  - 8. Minimize trips to the grocery stores and cook meals in the hotel room with in-room food storage and food preparation options (e.g., refrigerator, microwave oven, etc.). If in-room facilities are not available, consider a meal delivery service, takeout, or curbside pickup. Consider alternatives to indoor seating at restaurants if possible.
  - 9. Change out field clothing and launder in hot water immediately upon returning home.
  - 10. Keep any work-related gear that cannot be easily laundered (e.g., safety boots, high visibility vests, coats, hard hats, etc.) outside the residence or lodging (e.g., in a plastic bag in a vehicle or garage) and consider donning disposable coveralls (e.g., Tyvek) to reduce clothing contamination. Work-related gear or equipment that cannot be easily

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<sup>8</sup> "Disinfectant" and "Disinfect" will be used throughout the document and refers to use of products found on the [EPA List N: Disinfectants for Use Against SARS-CoV-2 \(COVID-19\)](#).

<sup>9</sup> "Hand sanitizer" will be used throughout the document and refers to [FDA approved hand sanitizers](#) or alcohol-based hand sanitizer that contains at least 60 percent alcohol (also referred to as ethanol or ethyl alcohol).



disinfected should remain bagged for three to seven days in an unoccupied area when possible based on similar guidance.

## **5. Additional General Recommendations for Staff to Follow While in the Field**

- a. Avoid large crowds or groups.
- b. Practice social distancing – maintain six-foot distance from others.
- c. If field employees encounter a potentially unsafe situation (e.g., improper social distancing, large crowds, areas with ongoing COVID-19 transmission, etc.), they should remove themselves from that situation, if possible, and contact their supervisor and SHEMA manager for additional guidance.
- d. Make sure all personnel wash their hands frequently, prior to taking a break, prior to eating, after use of the bathroom, upon leaving the field for the day, etc. Encourage adherence to prescribed handwashing guidelines, see the [CDC handwashing guidance](#).
- e. Augment field handwashing equipment. Ensure that soap and water handwashing facilities are available in the field. If handwashing facilities are not immediately available, use hand sanitizer that contains at least 60% alcohol.
- f. Limit restroom use in convenience stores, gas stations and public facilities.
- g. Do not use shared coolers for field hydration fluids. Encourage employees to bring and use their own coolers for drinking water.
- h. Do not shake hands. Use other forms of non-contact greeting.
- i. Avoid sharing items (e.g., pens, cameras, clipboards, tape measure) with others as much as possible. Do not pass around a clipboard and pen.
- j. Conduct [initial check-in/screening](#) for all personnel entering the site. Use one person to log in personnel or use virtual tools that may be available in MS Teams, SharePoint, etc.
- k. Keep meetings to a minimum; update federal partners, state, local, territorial and tribal personnel via conference calls/emails rather than site (face-to-face) visits.
- l. If the field activities involve work at multiple different locations, doff PPE and disinfect prior to moving to the next location.
- m. When field equipment is handled by multiple people, disinfect the equipment, following manufacturer recommendations, between uses.
- n. Follow manufacturer's instructions and use an approved disinfectant when cleaning sensitive equipment such as air monitoring instrumentation.
- o. Clean or disinfect work areas daily or as needed based on use. Focus cleaning on common touchpoints.
- p. Disinfect vehicles (wipe down the steering wheel, door handles, touchpoints, etc.) daily, including when checking the vehicle out and when returning. During fueling operations, consider disinfecting touch screens and pump handles, or use hand sanitizer post fueling. See the EPA OMS-SSD Vehicle Utilization, Cleaning and Disinfection Recommendations in the [Resources Section](#) for more information.
- q. Respiratory aerosols, secretions, perspiration, and other potentially infected body fluids can accumulate in PPE. Coach crews to pay closer attention to disinfecting respirators. Emphasize social distancing while donning and doffing PPE and a thorough hand, arm, and face wash after each entry. Attempt to don PPE without an attendant. If an attendant is necessary, the attendant should don respiratory protection or a face covering and protective gloves.



- r. In general, used cleaning supplies (wipes, paper towels, etc.) and PPE used solely for COVID-19 protection are not considered regulated medical waste. These items are typically disposed as municipal solid waste. Review and follow the waste disposal procedures listed on the disinfectant/cleaning product label. Review and follow any special waste disposal procedures found in the field specific HASP. See the [CDC Waste Disposal Guidance](#) for further details.

## **6. Workplace Illness and Injuries**

The following procedures should be followed for illness or injuries (COVID-19 and non-COVID-19 related):

- a. Contractors and employees should call 911 immediately if they are experiencing a life-threatening medical emergency.
- b. If a contractor or employee becomes ill or is injured while on travel, he or she must follow the procedures listed in the HASP or other field work safety document.
- c. Contractors and employees should contact their supervisors/safety officers (SHEMP manager) to report their illness status. EPA supervisors and SHEMP managers should follow [EPA COVID-19 Guidance for Contact Tracing and Employee Notifications for EPA Managers and Supervisors](#).
- d. EPA personnel, who require medical treatment from a workplace injury or illness, should seek initial emergency medical assistance immediately and contact supervisor and local SHEMP manager as soon as possible. The [Department of Labor \(DOL\) Form CA-16](#) is completed by supervisor, local SHEMP manager, or site supervisor and submitted to the medical facility to initiate payment for work-related injury or illness. Most medical facilities now have these forms electronically or the supervisor or the Agency can provide a hard copy. The employee should not provide their private health insurance to the medical provider when a DOL Form CA-16 is used.
- e. If field employees experience symptoms related to COVID-19, they should self-isolate at home or in their hotel room until given instructions to do otherwise (Contact the supervisor and medical provider). **If an employee is ill or experiencing symptoms of COVID-19, he or she should return to work only after following [CDC guidelines](#) or as advised by a physician.** Follow [CDC guidance](#) as required. EPA employees should refer to [EPA COVID-19 intranet site](#) for Agency-specific procedures.
- f. If symptoms become severe, such as shortness of breath or respiratory distress, the individual should contact 911 or proceed immediately to the nearest hospital.
- g. EPA employees experiencing symptoms of an illness that may be workplace-related should contact their supervisors immediately. Employee and supervisors should complete the [OSHA/EPA 301 – Accident, Illness and Near Miss Report](#), in consultation with their SHEMP manager.
- h. If an employee returns from field work and begins to experience COVID-19 symptoms, they should contact their primary care physician for instructions and notify his or her supervisor. It is required to self-isolate at home (avoiding close contact with family members). EPA employees should not report to an FOH clinic (who would likely refer the individual to his or her personal physician or local health department in accordance with CDC guidance.)

**OSHA recordkeeping requirements (29 CFR Part 1904) mandate covered employers record certain work-related injuries and illnesses on their OSHA 300 log.**

Under OSHA's recordkeeping requirements, COVID-19 is a recordable illness, and employers are responsible for recording cases of COVID-19, if:

1. The case is a confirmed case of COVID-19 (see CDC information on persons under investigation and presumptive positive and laboratory-confirmed cases of COVID-19);
2. The case is work-related, as defined by 29 CFR 1904.5; and
3. The case involves one or more of the general recording criteria set forth in 29 CFR 1904.7 (e.g. medical treatment beyond first-aid, days away from work).

Determining whether an employee who contracted COVID-19 did so due to exposures at work may be difficult. Employees should contact their SHEMP manager to determine if a COVID-19 illness is recordable on their OSHA 300 log.

### **DOL Information on Federal Employees' Compensation Act (FECA) Coverage for COVID-19**

DOL has created new procedures to specifically address COVID-19 claims. Employees filing a claim for workers' compensation coverage as a result of COVID-19 should file [Form CA-1, Federal Employee's Notice of Traumatic Injury and Claim for Continuation of Pay/Compensation](#), and FECA has provided guidance for [Federal Employees Contracting COVID-19 in Performance of Duty](#).

All federal employees who develop COVID-19 while in the performance of their federal duties are entitled to workers' compensation coverage pursuant to FECA.

An employee or their supervisor with questions about a potential worker's compensation claim related to COVID-19, should contact their [Worker's Compensation Coordinator](#) in their Office or Region.

## **7. Resources**

- EPA COVID-19 Job Hazard Analysis/Job Safety Analysis Template (includes a list of considerations to assess local conditions prior to travel and an example JHA)
- [EPA OMS-SSD Vehicle Utilization, Cleaning, and Disinfecting Recommendations 4/27/20](#)
- [U.S. EPA Voluntary Filtering Facepiece \(e.g. N95 Respirator\) User Training](#)
- [OSHA Guidance](#)

## **Appendix A**

### **Civil Inspections, On-site Compliance Monitoring, Compliance and Technical Assistance**

#### **Applicability**

Appendix A applies to EPA employees and contractors, states, tribes, and Senior Environmental Employees (SEE) grantees and other entities as follows:

- Anyone with EPA inspector credentials performing an inspection. Such persons are designated as “credentialed EPA inspectors” in this Appendix.
- Any EPA employee conducting other non-inspection compliance activities, including on-site compliance monitoring activities, and on-site compliance (or technical) assistance, such as Drinking Water sanitary surveys and other site visits. Such persons are designated as EPA compliance staff in this Appendix.

This Appendix applies to both routine compliance field work and non-routine field work, such as responding to an acute situation to address a potential or known imminent and substantial threat to human health or the environment.

#### **Identifying Appropriate Inspections and Inspectors**

The management decision to do an inspection should be consistent with applicable Agency priorities, which include:

- 1 To address acute threats to human health or the environment where there is a risk of, or a known acute or imminent threat to human health or the environment and an inspection is necessary to understand the problem and address it.
- 2 Statutory requirements.
- 3 Regional Strategic Plans.
- 4 [National Compliance Initiative \(NCI\) Strategies](#);
- 5 One of the five [Compliance Monitoring Strategies](#);
- 6 Agreements with states pursuant to [Office of Enforcement and Compliance Assurance’s \(OECA\) Partnership Policy](#), including both periodic inspection planning and more immediate requests from our partners;
- 7 Tips and complaints from the public.
8. Inspector training: Senior inspectors providing inspectors-in-training with their required on the job training so they can become credentialed, or senior inspectors training junior inspectors.
9. Priorities established by other National Program Managers with inspection authority and resources

A site-specific hazard assessment shall be conducted before an employee is sent into the field following the EPA COVID-19 Job Hazard Analysis/Job Safety Analysis Template provided in the [Resources Section](#) above. If the site-specific hazard assessment shows that respirator usage or additional PPE is required, then the supervisor should confirm that the on-site activity (e.g., inspection) is still necessary or whether off-site compliance monitoring or other alternatives may be more appropriate. If an on-site activity is still warranted, EPA compliance staff must meet all the prerequisites (medical clearance, fit testing, training, etc.) to use that PPE. If the employee does not

meet all requirements for use of the required PPE, then the supervisor should identify a different employee who does meet all the requirements. If the employee is part of a high-risk group as defined by the CDC and has any reservations about conducting the on-site activity, those situations should be addressed by the supervisor on an individual basis.

### **Facility Notification of Inspection or Other Compliance Related Site Visit**

At least 24 hours before the expected start of the compliance field work, EPA compliance staff should contact the facility unless there is a compelling reason not to, or it is not practical (e.g., stormwater construction inspections). This advance communication is intended for EPA to determine what COVID-related risks may be at the facility, such as whether the facility is practicing social distancing, using face coverings for their employees and had recent confirmed COVID-19 cases among its employees on-site. EPA can also inform the facility that EPA will be taking precautions as well. EPA should ask the facility what protective measures the facility is using for its employees and visitors so that EPA can know in advance whether these are reasonable requests and, if reasonable, how EPA can follow the requests.

### **Facility Access for Inspections and other compliance visits (including health screens and protective equipment)**

EPA is not changing its long-standing policy on facility access and PII for inspections. With limited exceptions, EPA compliance staff shall not provide any PII as a condition to gaining entry to a facility to conduct field work.<sup>10</sup> Credentialed EPA inspectors are expected only to show their EPA-issued inspector credentials to gain access to a facility to conduct an inspection. Further, per EPA Order 3510, credentialed EPA inspectors are prohibited from relinquishing physical control of these credentials to another entity, such as allowing facilities to make copies of their credentials.

The [May 2020 CDC guidance](#) states that employers opening their business should consider conducting daily in-person or virtual health checks (e.g., symptom and/or temperature screening) of employees before they enter the facility, in accordance with state and local public health authorities and, if available, occupational health services.

If a facility requests a COVID-related health screening of EPA compliance staff prior to granting access to enter its facility and this request is the same health screen the facility applies to all its employees or visitors, then EPA compliance staff should comply with this request, if reasonable. If the screening is more rigorous for EPA than for employees or visitors who enter the facility, then the EPA compliance staff may decline the screening (after consulting with his or her supervisor) and consider this a denial of access. If the EPA compliance staff is not comfortable with completing the standard COVID-19 health screening that the facility uses for all its employees/visitors, then the EPA compliance staff may choose not to conduct the inspection/site visit after discussing the situation with his or her supervisor and this is not considered a denial of access.

If the facility requests that the EPA compliance staff take specific protective measures to reduce the spread of COVID-19, such as use a cloth face covering, wear gloves, sanitize their hands upon entering the facility and periodically thereafter, or use PPE, the EPA compliance staff should comply with these requests if such requests are consistent with practices done for all visitors and staff, and the facility

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<sup>10</sup> There may be limited exceptions when additional information is necessary for inspections at federal facilities. Updated guidance from OECA for federal facility inspections will be available in late June 2020 with additional protocols to follow at federal facilities with military, intelligence, nuclear-related functions or other special security and access requirements necessitated by their mission.

provided EPA with advance notice of this requirement. In general, EPA compliance staff should not share PPE. EPA compliance staff, in certain circumstances, have discretion to use facility-provided hand sanitizer and don clean/disinfected PPE in certain sterile/cleanroom environments. EPA compliance staff should consult with supervisor and SHEMP manager for additional guidance.

### **Site Safety Plan**

As required with all inspections, credentialed EPA inspectors shall complete an ECAD Site Safety Plan. Considerations for COVID-19 should be placed in the Biological Hazards section of the Site Safety Plan. See the [National Quality Assurance Field Activity Procedures SharePoint site](#) for more information on each region's Site Safety Plan.

For wastewater facility inspections and other compliance visits, EPA compliance staff should review and follow the [CDC compiled wastewater operator workplace safety information](#) as required.

For non-inspection compliance visits, such as Drinking Water Sanitary Surveys, there has not been a National expectation for completing a Site Safety Plan. If the EPA COVID-19 Job Hazard Analysis indicates that the COVID-19 exposure risk is above the low exposure level, as described in [OSHA Guidance on Preparing Workplaces for COVID-19](#), the SHEMP manager may require a Site Safety Plan.

### **General Recommended Inspection and Other Compliance Visit Precautions**

1. EPA compliance staff (such as the inspector) should consider conducting opening and closing conferences by conference call, video conference or outdoors, rather than in confined spaces where social distancing may not be possible (make sure to document time and date in field notes if they take place apart from the on-site field work). EPA compliance staff may conduct the opening conference, or elements of it, in advance, of the inspection.
2. To the extent practicable, the EPA compliance staff should review relevant facility documents prior to an inspection. If the EPA compliance staff must review paperwork on-site, they should come prepared with questions and avoid reviewing documents in a small confined space that does not promote social distancing, when possible. EPA compliance staff should wash their hands or use hand sanitizer after touching any documents, files or materials provided by the facility.
3. The EPA compliance staff should plan in advance to limit the number of personnel present during the compliance site visit from EPA, the facility, and other parties to a minimum and talk with the facility in advance how to do such meetings outdoors or in large indoor spaces where social distancing of at least six feet.

## **Appendix B**

### **Conducting Superfund Site, RCRA Corrective Actions, Oil, and Emergency Response Work**

EPA recommends that its field staff and contractor personnel follow these practices while responding to emergency incidents, oil spills and conducting work on Superfund and RCRA Corrective Action sites. To start, all field staff and supervisors should review the [Office of Land and Emergency Management \(OLEM\)/OECA Interim Guidance on Site Field Work Decisions Due to Impacts of COVID-19](#) prior to planning field activities.

CDC has issued interim guidance on [Implementing Safety Practices for Critical Infrastructure Workers Who May Have Had Exposure to a Person with Suspected or Confirmed COVID-19](#). This guidance applies to critical workers, including hazardous material responders from government and the private sector, who may have been potentially exposed to COVID-19.

To ensure continuity of operations of essential functions, CDC advises that critical infrastructure workers may be permitted to continue work following potential exposure to COVID-19, provided they remain asymptomatic and additional precautions are implemented to protect them and the community.

A potential exposure means being a household contact or having close contact within six feet of an individual with confirmed or suspected COVID-19. The timeframe for having contact with an individual includes the period of 48 hours before the individual became symptomatic.

**Hazardous material responders from government and the private sector (Critical Infrastructure Workers)** who have had an exposure but remain asymptomatic should adhere to the following practices prior to and during their work shift:

1. **Pre-screen:** Employers should measure the employee's temperature and assess symptoms prior to them starting work. Ideally, [temperature checks](#) should happen before the individual enters the facility ([Follow HIPAA requirements to safeguard medical and other PII](#)).
2. **Regular monitoring:** If the employee doesn't have an elevated temperature or symptoms, he or she should self-monitor under the supervision of the employer's occupational health program.
3. **Wear a face covering:** The employee should always wear a face covering while in the workplace for 14 days after last exposure. Employers can issue face coverings or can approve employees' supplied cloth face coverings in the event of shortages.
4. **Social distance:** The employee should maintain at least six feet and practice social distancing as work duties permit in the workplace.
5. **Disinfect and clean workspaces:** Clean and disinfect all areas, such as offices, bathrooms, common areas, and shared electronic equipment, routinely.

### **Monitor for Illness and Enforce Safety Measures**

It is critical that all response personnel are continuously monitored daily and strictly follow the site HASP. Depending on the size, duration, scope of the hazards, and number of personnel involved with the site, an effort should be made to have an Emergency Medical Technician (EMT) or access to an EMT on site. Possible sources of personnel with EMT training include response contractors, the U.S.

Coast Guard (USCG) Strike Team, and local fire departments. The EMT or Site Safety Officer should make daily observations of COVID-19 safety compliance and consider monitoring response workers for symptoms.

### **Additional Considerations and Safety Best Practices**

1. Suspend after-hours recreational activities involving gathering of others (no cookouts, sports, etc.).
2. Mobilize bathroom facilities even if Site activities are a short duration.
3. Do not hold in-person public meetings. Cancel, postpone or reschedule face-to-face meetings, or consider the use of virtual meeting tools if meetings are necessary. See the [Comprehensive Environmental Response, Compensation, and Liability Act \(CERCLA\) Interim Guidance on Public Engagement During COVID-19](#) for details.
4. Secure a large place or area to facilitate social distancing during briefings. Break up safety and other operational briefings into small groups. Use MS Teams, Skype or other virtual communication tools for Unified Command meetings.
5. For incidents involving numerous response personnel, consider assigning a special safety team that focuses on health status screening, social distancing, handwashing protocol compliance, and other COVID-19 risk reduction protocols. Consider staffing a healthcare professional on this designated special safety team.
6. If trailers are needed, use multiple office trailers/command posts to aid in social distancing as needed. Maximize outside air flow. Consider multiple trailers for EPA and contractors to separate workers.
7. Clean or disinfect site trailers, command posts, porta johns, handwash stations, etc. daily and as needed. Focus on common touchpoints.
8. Do not share respirators (PAPRs, SCBAs, SARs). Issue the PAPRs, SCBAs, SARs to personnel for the duration of the response. All site workers must be fit tested on the specific respirator they are issued. Conduct thorough decontamination and disinfection, following manufacturer recommendations, and inspect respirator components for cracked, damaged and missing parts prior to returning equipment.
9. EPA's Chemical Management Advisory Division (CMAD) has developed additional information on precautions, PPE, decontamination, cleanup and waste management: SARS-CoV-2 Information for On-Scene-Coordination. This document is located on [CMAD's 2019 Novel Coronavirus Information](#) for OSCs, on Response.epa.gov.
10. [CDC has developed coronavirus waste management information that is listed on their website.](#)

### **Residential Site Work and Emergency Response Safety Best Practices**

Consider these best practices, in addition to all other discussed previously, when site work or emergency response activities require direct interaction with the public.

1. Ensure that only essential personnel enter homes and/or communities, keep the personnel resources to a minimum.
2. Limit face-to-face interactions to only those necessary.
3. Maintain at least six feet distance.
4. Call via phone instead of knocking/ringing doorbell if possible. When knocking on doors, knock, and step back from the door entryway at least six feet. Consider temporarily removing any face coverings/respirator while introductions are made.

5. It is preferred that written documents, such as an access agreement, are acquired via email. If this is not possible, place completed documents into a plastic bag and disinfect the outer plastic bag.
6. During the actual removal/remedial action, if the resident needs to engage with the crew, do it from a safe distance.
7. Final building/property walk-throughs should be cancelled unless the property owner wants to meet to talk about something. If everything is satisfactory, consider using email to document approval.
8. If relocation is recommended, encourage relocation with family or friends with whom the residents have already had close contact. Consult with the Agency for Toxic Substances and Disease Registry or public health officials on relocation guidelines.



# Phase 2 Construction

## COVID-19 Job Site Requirements

***Phase 2: All construction, including new work, is now allowed.***

***All construction, including those activities for which social distancing may not be maintained and the start of new construction projects, is authorized to resume. Adherence to the health and safety points below will be strictly enforced.***

**Prior to commencing work all contractors are required to develop for each job site a comprehensive COVID-19 exposure control, mitigation, and recovery plan.** The plan must include policies regarding the following control measures: PPE utilization; on-site social distancing; hygiene; sanitation; symptom monitoring; incident reporting; site decontamination procedures; COVID-19 safety training; exposure response procedures; and a post-exposure incident project wide recovery plan. **The plan must also include a Job Hazard Analysis (JHA)**, including a list of engineering controls and proper Personal Protective Equipment (PPE), for all jobsite activities defined by Washington State Department of Labor & Industries (L&I) as medium and high transmission risk.

**A copy of the COVID-19 exposure control, mitigation, and recovery plan must be available on each job site during any construction activities** and available for inspection by state and local authorities. Workers must be trained on the safety protocols listed below before the activity begins.

**All contractors have a general obligation to keep a safe and healthy worksite in accordance with state and federal law and must comply with the following COVID-19 worksite-specific safety practices**, as outlined in Gov. Jay Inslee's "Stay Home, Stay Healthy" Proclamation 20-25, and in accordance with the Washington State Department of Labor & Industries [General Requirements and Prevention Ideas for Workplaces](#) and the Washington State Department of Health Workplace and Employer Resources & Recommendations at <https://www.doh.wa.gov/Coronavirus/workplace>. Failure to follow these requirements will be considered a violation of these duties and be penalized accordingly. Under RCW 49.17.060, "each employer shall furnish to each of their employees a place of employment free from recognized hazards that are causing or likely to cause serious injury or death to his or her employees and shall comply with the rules, regulations, and orders promulgated under this chapter."

All contractors must specifically ensure operations follow the main L&I COVID-19 requirements to protect workers, including:

- Educate workers in the language they understand best about coronavirus and how to prevent transmission and the employer's COVID-19 policies.
- Maintain minimum six-foot separation between all employees (and customers) in all interactions at all times. When strict physical distancing is not feasible for a specific task, other prevention measures are required, such as use of barriers, minimize staff or customers in narrow or enclosed areas, stagger breaks, and work shift starts.
- Provide personal protective equipment (PPE) such as gloves, goggles, face shields and face masks as appropriate or required to employees for the activity being performed. **Cloth facial coverings must be worn by every employee not working alone (with no chance of human interaction) on the jobsite unless their exposure dictates a higher level of protection under Department of Labor & Industries safety and health rules and guidance.** Refer to [Coronavirus Facial Covering and Mask Requirements](#) for

additional details. A cloth facial covering is described in the Department of Health guidance, <https://www.doh.wa.gov/Portals/1/Documents/1600/coronavirus/ClothFacemasks.pdf>.

- Ensure frequent and adequate hand washing with adequate maintenance of supplies. Use disposable gloves where safe and applicable to prevent transmission on tools or other items that are shared.
- Establish a housekeeping schedule that includes frequent cleaning and sanitizing with a particular emphasis on commonly touched surfaces.
- Screen employees for signs/symptoms of COVID-19 at start of shift. Make sure sick employees stay home or immediately go home if they feel or appear sick. Cordon off any areas where an employee with probable or confirmed COVID-19 illness worked, touched surfaces, etc. until the area and equipment is cleaned and sanitized. Follow the [cleaning guidelines set by the CDC](#) to deep clean and sanitize.

A worker may refuse to perform unsafe work, including hazards created by COVID-19. And, it is unlawful for their employer to take adverse action against a worker who has engaged in safety-protected activities under the law if their work refusal meets certain requirements.

Employees who choose to remove themselves from a worksite because they do not believe it is safe to work due to the risk of COVID-19 exposure may have access to certain leave or unemployment benefits. Employers must provide high-risk individuals covered by Proclamation 20-46 with their choice of access to available employer-granted accrued leave or unemployment benefits if an alternative work arrangement is not feasible. Other employees may have access to expanded family and medical leave included in the Families First Coronavirus Response Act, access to use unemployment benefits, or access to other paid time off depending on the circumstances. Additional information is available at <https://www.lni.wa.gov/agency/outreach/paid-sick-leave-and-coronavirus-covid-19-common-questions>.

#### **COVID-19 Site Supervisor**

1. A site-specific COVID-19 Supervisor shall be designated by the contractor at every job site to monitor the health of employees and enforce the COVID-19 job site safety plan. A designated COVID-19 Supervisor must be present at all times during construction activities, except on single-family residential job sites with 6 or fewer people on the site. The name and contact information for the site specific COVID-19 Supervisor must be clearly displayed on all jobsite COVID-19 required postings.

#### **COVID-19 Safety Training**

2. A Safety Stand-Down/toolbox talk/tailgate training must be conducted on all job sites on the first day of returning to work, and weekly thereafter, to explain the protective measures in place for all workers. Social distancing must be maintained at all gatherings.
3. Attendance will be communicated verbally and the trainer will sign in each attendee.

#### **Social Distancing**

4. Social distancing of at least 6 feet of separation must be maintained by every person on the worksite at all possible times. In instances where the 6 feet separation cannot be maintained, the Job Hazard Analysis shall be thoroughly reviewed by all workers performing the work prior to commencing those tasks.
5. Gatherings of any size must be precluded by taking breaks and lunch in shifts. Any time two or more persons must meet, ensure minimum 6 feet of separation.

6. Identify “choke points” and “high-risk areas” on job sites where workers typically congregate and control them so social distancing is always maintained.
7. Minimize interactions when picking up or delivering equipment or materials, ensure minimum 6-foot separation.

#### **Personal Protective Equipment (PPE) – Employer Provided**

8. Appropriate eye protection for all hazards must be worn at all times by every employee while on the worksite.
9. If appropriate PPE cannot be provided, the work is not authorized to commence, recommence, or the site must be shut down.

#### **Sanitation and Cleanliness**

10. Hand-washing stations, with soap and running water, shall be abundantly provided on all job sites for frequent handwashing. When running water is not available, portable washing stations, with soap, are required.
11. Workers should be encouraged to leave their workstations to wash their hands regularly, before and after going to the bathroom, before and after eating and after coughing, sneezing or blowing their nose.
12. Alcohol-based hand sanitizers with greater than 60% ethanol or 70% isopropanol can also be used, but are not a replacement for the water requirement.
13. Post, in areas visible to all workers, required hygienic practices, including not to touch face with unwashed hands or with gloves; washing hands often with soap and water for at least 20 seconds; use hand sanitizer with at least 60% alcohol; cleaning and disinfecting frequently touched objects and surfaces such as workstations, keyboards, telephones, handrails, machines, shared tools, elevator control buttons, and doorknobs; covering the mouth and nose when coughing or sneezing as well as other hygienic recommendations by the U.S. Centers for Disease Control (CDC).
14. Make disinfectants available to workers throughout the worksite and ensure cleaning supplies are frequently replenished.
15. Frequently clean and disinfect high-touch surfaces on job sites and in offices, such as shared tools, machines, vehicles and other equipment, handrails, doorknobs, and portable toilets. If these areas cannot be cleaned and disinfected frequently, the jobsite shall be shut down until such measures can be achieved and maintained.
16. Shared tools and other equipment must be wipe sanitized between users.
17. When the worksite is an occupied home, workers should sanitize work areas upon arrival, throughout the workday and immediately before they leave, and occupants should keep a personal distance of at least 10 feet.
18. If an employee reports feeling sick and goes home, the area where that person worked should be immediately disinfected.

#### **Employee Health/Symptoms**

19. Create policies which encourage workers to stay home or leave the worksite when feeling sick or when they have been in close contact with a confirmed positive case. If they develop symptoms of acute respiratory illness, they must seek medical attention and inform their employer.

20. Have employees inform their supervisors if they have sick family member at home with COVID-19. If an employee has a family member sick with COVID-19, that employee must follow the isolation/quarantine requirements as established by the State Department of Health.
21. Screen all workers at the beginning of their day by asking them if they have a fever, cough, shortness of breath, fatigue, muscle aches, or new loss of taste or smell.
22. Ask employees to take their temperature at home prior to arriving at work or take their temperature when they arrive. Thermometers used shall be 'no touch' or 'no contact' to the greatest extent possible. If a 'no touch' or 'no contact' thermometer is not available, the thermometer must be properly sanitized between each use. Any worker with a temperature of 100.4°F or higher is considered to have a fever and must be sent home.
23. Instruct workers to report to their supervisor if they develop symptoms of COVID-19 (e.g., fever, cough, shortness of breath, fatigue, muscle aches, or new loss of taste or smell). If symptoms develop during a shift, the worker should be immediately sent home. If symptoms develop while the worker is not working, the worker should not return to work until they have been evaluated by a healthcare provider.
24. Failure of employees to comply will result in employees being sent home during the emergency actions. For example, if an employee refuses to wear the appropriate facial covering they would be sent home.
25. Any worker performing construction craft work in Washington from any state that is not contiguous to Washington must self-quarantine for 14 days to become eligible to work on a job site in Washington.
26. If an employee is confirmed to have COVID-19 infection, employers should inform fellow employees of their possible exposure to COVID-19 in the workplace but maintain confidentiality as required by the Americans with Disabilities Act (ADA). The employer should instruct fellow employees about how to proceed based on the CDC [Public Health Recommendations for Community-Related Exposure](#).

**No jobsite may operate until the contractor can meet and maintain all requirements, including providing materials, schedules and equipment required to comply.**

These COVID-19 job site safety practices are required as long as the "Stay Home, Stay Healthy" Gubernatorial Proclamation 20-25 is in effect or if adopted as rules by a federal, state or local regulatory agency. All issues regarding worker safety and health are subject to enforcement action under L&I's Division of Occupational Safety and Health (DOSH).

- Employers can request COVID-19 [prevention advice and help](#) from L&I's Division of Occupational Safety and Health (DOSH).
- Employee Workplace safety and health complaints may be submitted to the L&I DOSH Safety Call Center: (1-800-423-7233) or via e-mail to [adag235@lni.wa.gov](mailto:adag235@lni.wa.gov).
- General questions about how to comply with the agreement practices can be submitted to the state's Business Response Center at <https://coronavirus.wa.gov/how-you-can-help/covid-19-business-and-worker-inquiries>.
- All other violations related to Proclamation 20-25 can be submitted at <https://bit.ly/covid-compliance>.

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## Ecology and Environment, Inc.

### Novel Coronavirus 2019 (COVID-19) Action Plan – EPA R10 START Projects

#### Confidential Business Information – Do Not Disseminate Beyond E & E and Clients

Ecology and Environment Inc. (E & E) has prepared this plan in response to the COVID-19 pandemic in the United States. E & E is committed to complying with the requirements and recommendations of recognized national and international health organizations such as the Centers for Disease Control and Prevention and the World Health Organization. Also, E & E shall comply with all federal, state and local mandates associated with the COVID-19 pandemic. The health and safety of our employees, clients and community is of paramount importance, therefore E & E shall adhere to the following practices and restrictions through the course of this pandemic. This plan shall be updated as needed.

#### 1.0 Travel - General

International travel is prohibited, and domestic travel is highly restricted. All travel requests are routed to E & E's Regional Directors and corporate health and safety for consideration. Only critical business travel shall be considered for approval. Travel to Level 3 risk zones (i.e., high-risk zones) is prohibited.

#### 2.0 Work Practices

The work practices listed in this section are intended to reduce the likelihood of contracting COVID-19 or spreading the virus if diagnosed with COVID-19.

- All personnel must perform a daily self-assessment prior to conducting work outside the home (fieldwork or office work). Personnel may complete the self-assessment by answering the questions on the **Health Status and Body Temperature Screening** or using electronic means developed by WSP (ie. WSP's **Work Together Web Application**).
- The site safety officer (SSO) is required to ensure that employees have completed the Health Status Body Temperature Screening. Personnel that cannot certify satisfactory answers for the questions should not complete the questionnaire, and should not enter the site, and should contact E&E Health and Safety personnel and consult with contracted medical professional (Dr. O'Donnell).
- Stay home if you are sick. If COVID-19 symptoms present (fever, cough, sore throat, shortness of breath or difficulty breathing, chills, repeated shaking with chills, muscle pain, headache, sore throat and new loss of taste or smell) contact your healthcare provider (HCP). Employees that do not have a primary HCP or if employees cannot get in contact with their primary HCP should contact E & E's Corporate Medical Director (see Section 4.0). COVID-19 self-quarantine protocol is presented in Exhibit 1.
- Work from home where possible. Make arrangements with your supervisor to work from home to avoid potential contact with others in the workplace and community.
- If feeling sick while at work, notify your supervisor, leave the workplace and isolate at home. If COVID-19 symptoms present (fever, cough, sore throat, shortness of breath or difficulty breathing) contact your HCP.
- Avoid close contact with others, especially with sick people. Maintain at least 6 feet of separation from others around you where possible and do not shake hands.
- Avoid assembling in large groups. All meetings should be held using remote technology (e.g., conference calls, Teams).

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- Practice good hand-washing hygiene. Wash your hands with soap and water for at least 20 seconds frequently. This should be done after touching common surfaces, going to the bathroom, blowing your nose, coughing or sneezing. If hand soap and water is not available, use hand sanitizer with at least 60% alcohol.
- Avoid direct hand contact with frequently touched common surfaces (e.g., door handles, stairway railings, elevator buttons). Use a tissue or other disposable material as a barrier.
- Avoid hand to face contact, especially hand contact with eyes, nose or mouth.
- Cover your mouth with a tissue when coughing or sneezing and dispose of the tissue in the trash. If tissues are not available, cough or sneeze into the crook of your elbow.
- Routinely clean and disinfect frequently touched common surfaces. Disinfecting wipes or solutions shall be the type that is effective against a broad spectrum of pathogens including bacteria, antibiotic resistant bacteria, viruses and fungi. If these types of disinfecting wipes or solutions are not commercially available, employees may use a 10% bleach to 90% water solution.
- Ensure that disinfecting procedures follow U.S. Environmental Protection Agency (USEPA) guidance. These guidelines include information about how long each treatment needs to be in contact with a surface before it can be considered disinfected. Disinfecting guidelines are available on the USEPA website (search List N: Disinfectants for Use Against SARS-CoV-2).
- Make sure you are aware of and comply with any customer requirements regarding COVID-19 prior to working at their project sites.

### 3.0 Fieldwork Guidance

Fieldwork must be client-required and should be minimized whenever possible. If you are uncomfortable traveling or conducting fieldwork, please contact your manager for options. No employee will be forced to conduct fieldwork. Traveling (not including commute) more than 1 hour or 60 miles for fieldwork must be approved by your Regional Director. Air travel for fieldwork must also be approved by your Regional Director. The Regional Director shall issue E & E's Essential Services letter to project team members for all approved fieldwork. Project team members shall maintain this letter in their possession to show to enforcement agencies upon request.

#### Your Safety

- Before heading out, consider all risks associated with the work you will be performing.
- If visiting a client site, ask the client what their current plan is for pandemic response and if they have any positive cases.
- Determine if the client requires specific PPE for the site before you go.
- The CDC recommends wearing facial coverings when travelling outside of the home. While not normally considered PPE, you should determine if your client will want you to wear one while working or travelling.
- Assess your health. If you are not well, stay home and contact your manager and Human Resources. Do not attempt fieldwork if you are not well.
- Practice good personal hygiene and social distancing of 6 feet or more.
- Health compromised employees should consider not conducting fieldwork.
- If at any point during fieldwork or travel the employee feels ill, they must self-isolate and contact Human Resources. Avoid any contact with other people.

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- Employees should practice good hygiene practices while in the office or in the field. Don't shake hands.
- Employees will wear face coverings when working nearby any other people.

#### Travel

- Limit all travel. Postpone or delay if possible.
- Project managers should attempt to find local resources to complete the work. Talk with local offices and sectors to see if other employees can perform the work.
- If possible, avoid air travel and staying in hotels. Hotels and other travel necessities can close without notice.
- If staying in a hotel, verify that the hotel is thoroughly cleaning and disinfecting the rooms between each guest. The hotel should post what they are doing on their website.
- Avoid all hotel common spaces such as bars, restaurants, pools, and hot tubs.
- If airline travel is necessary, situation-specific safety plans will be developed and must be followed.
- Check out restaurants that offer carry out and verify their hours of operation. Meals may be difficult to acquire in some areas.

#### Vehicle Use

- When driving to and from the field location, no more than two employees should be in the same vehicle. Neither employee should have any symptoms of illness. This should be communicated between employees to confirm. If two vehicles are available, take both vehicles.
- If two people need to ride in the same vehicle, both employees should wear a facial covering. Staff will be permitted to upgrade respiratory protection if desired.
- All work vehicle interiors shall be cleaned with a disinfecting agent before and after use. When cleaning, staff shall focus on high use items such as steering wheels, gear shifters, blinkers, armrests, radio/AC controls, and door handles.
- If the field staff can remain in their vehicle to observe work, then do so.

#### Field Equipment

- When loading equipment used for fieldwork, practice social distancing. Consider loading and unloading equipment at times that will minimize contact.
- Equipment should not be used by multiple people if possible.
- Any equipment that will be handled by employees should be cleaned and disinfected before and after each use. If this is impractical during use, nitrile, vinyl, or latex gloves should be worn whenever handling equipment. Even if disinfection before each use is practical, gloves should still be worn.
- When working around heavy equipment (forklifts, skid steers, excavators, etc.) employees should consider wearing respiratory protection (e.g., N95 filtering facepiece respirator). Exposure to airborne particles generated by these activities can result in respiratory irritation (e.g., coughing or sneezing). Wearing respiratory protection can also protect employees from breathing in respirable particulates that can carry the COVID-19. Where applicable, implement dust suppressions measures and avoid working downwind of heavy equipment to the extent practicable.

#### Field Offices



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- Staff should clean their work areas, to include testing or inspection equipment, daily at the start and end of their day.
- Clean offices, including restrooms, nightly (conclusion of each shift), contact surfaces wiped down with a disinfecting agent.
- We should not have any in-person staff, group, or client meetings. We will conduct all meetings using a conference call or Teams whenever possible. Daily site safety meetings are required at all project sites. Participants shall maintain social distancing of 6 feet from other meeting attendees.
- Employees maintain social distancing of 6 feet from people while in the field and in the office, whenever possible.
- Where we control a field office, minimize visitors into the office, and attempt to conduct meetings using a conference call or Teams. Where possible, arrange for field office/trailer for E & E staff only to avoid working in a shared office setting.
- If an employee has a potential exposure, they shall work from home, if possible, and avoid coming into the office. Staff shall monitor their health for 14 days. Should any symptoms develop, employees shall contact Human Resources.
- Staff shall not come into an office if they are showing symptoms.
- Refer to the corporate guidelines for time charges related to self-quarantine, illness or remote working. If you have any questions speak with your manager and Human Resources.

#### 4.0 Key Contacts

- Human Resources ([humanresources@ene.com](mailto:humanresources@ene.com))
- Regional Directors:
  - Dhroov Shivjiani, START Manager ([dshivjiani@ene.com](mailto:dshivjiani@ene.com))
  - Bill Richards, Western Region ([wrichards@ene.com](mailto:wrichards@ene.com))
- Tom Vroman, START Health and Safety Coordinator ([tvroman@ene.com](mailto:tvroman@ene.com))
- Mike Donaldson, Health and Safety Director, WSP Water and Environment ([michael.donaldson@wsp.com](mailto:michael.donaldson@wsp.com))
- Patricia O'Donnell, Corporate Medical Director ([podonnell@ene.com](mailto:podonnell@ene.com))



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## Exhibit 1

### Self-Quarantine Protocol

Self-quarantine is required for employees that have been diagnosed with COVID-19, have been in close contact with another that has been diagnosed with COVID-19, have traveled to a COVID-19 high-risk region or experiences COVID-19 symptoms (fever, cough, sore throat, shortness of breath or difficulty breathing, chills, repeated shaking with chills, muscle pain, headache, sore throat and new loss of taste or smell). Self-quarantine protocol is described in the following scenarios.

Employee diagnosed with COVID-19	Employee shall recover at home and follow their HCP directions. Employee may return to their workplace only after being cleared by their HCP and shall forward a return to work note from their HCP to their workplace prior to their return.
Employee in close contact with another diagnosed with COVID-19	Employee shall self-quarantine for 14 days and monitor for COVID-19 symptoms. If symptoms present during the self-quarantine period, employee shall contact their HCP and follow their directions. If the employee is subsequently diagnosed with COVID-19, the employee shall recover at home and follow their HCP directions. Employee may return to their workplace only after being cleared by their HCP and shall forward a return to work note from their HCP to their workplace prior to their return. If employee does not experience COVID-19 symptoms during the 14-day quarantine period and no other person(s) in the quarantine setting has symptoms, the employee may return to the workplace.
Employee traveled to high-risk region	Employee that returns from personal travel to high-risk regions shall self-quarantine for 14 days and monitor for COVID-19 symptoms (international travel for business purposes is prohibited). If symptoms present during the self-quarantine period, employee shall contact their HCP and follow their directions. If the employee is subsequently diagnosed with COVID-19, the employee shall recover at home and follow their HCP directions. Employee may return to their workplace only after being cleared by their HCP and shall forward a return to work note from their HCP to their workplace prior to their return. If employee does not experience COVID-19 symptoms during the 14-day quarantine period and no other person(s) in the quarantine setting has symptoms, they may return to the workplace.
Employee has COVID-19 symptoms	Employee should stay home, or if at work, remove themselves from the workplace, contact their HCP and follow their directions. The HCP will determine if a COVID-19 test is relevant. If the employee is subsequently diagnosed with COVID-19, the employee shall recover at home and follow their HCP directions. Employee may return to their workplace only after

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	being cleared by their HCP and shall forward a return to work note from their HCP to their workplace prior to their return.
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Any employee that discovers they have been in the same general area (e.g., supermarket, waiting room), but not in close contact (within 6 feet), where a COVID-19 case has been confirmed shall monitor themselves for COVID-19 symptoms. Self-quarantine would only be required under these conditions if employee has symptoms or if required by the local health organization or their HCP.

Employees shall immediately notify the Corporate Health and Safety Director if directly or potentially affected by COVID-19. Employees shall disclose their recent direct contacts (e.g., coworkers, customers) and locations as this information will allow E & E to make appropriate notification to others potentially affected and to implement appropriate sanitization measures.

Ecology and Environment, Inc.		
Novel Coronavirus 2019 (COVID-19) Action Plan Acceptance Form		
Project:		
Project No.:		
Project Location:		
Project Manager:		Project Director:
The undersigned acknowledge that they have read and understood and agree to abide by the site-specific COVID-19 Action Plan Requirements.		
Name (Printed)	Name (Signature)	Dates on Site


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Site Name:						Normal Body Temperature: <99.5 - >96.4 °F <sup>4</sup>
						Possible Fever: >100.4 <sup>5</sup>
<b>Health Status and Body Temperature Screening</b> Answer <b>Yes</b> or <b>No</b> . If <b>Yes</b> or <b>have a possible fever</b> , see the current version of the <a href="https://www.cdc.gov/coronavirus/2019-ncov/safety-best-management-practices.html">ERRPPB COVID-19 Safety Best Management Practices</a> for recommendations						
Name	Date	Have you been non-compliant with social distancing? <sup>1</sup>	Have you had close contact w/ COVID-19 + or ill person? <sup>2</sup>	Are you ill, have a cough, having difficulty breathing? <sup>3</sup> Any loss of sense of smell?	Have you been tested + or are being tested for COVID-19?	Start of Shift Temperature
<sup>1</sup> During previous 14 days, maintained CDC social distancing recommendations/stayed at home - <a href="https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/social-distancing.html">https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/social-distancing.html</a>						
<sup>2</sup> Close contact means having been within six (6) feet of a COVID-19 + person or being exposed to their cough or sneeze						
<sup>3</sup> <a href="https://www.cdc.gov/coronavirus/2019-ncov/symptoms-testing/symptoms.html">https://www.cdc.gov/coronavirus/2019-ncov/symptoms-testing/symptoms.html</a>						



# **Travel and Remediation Personnel Guidance Plan For COVID-19 Northport Removal, Northport, Washington Contract No. 68HE0720D0002, ERRS 5 R10 Task Order No. F0105 EQM Project No. 030343.0002.000**

## **1.0 Work Guidance Plan Goals**

The primary goal of the document is to provide additional considerations in the performance of Remediation and Travel to and from the site location and their actions as they relate to SARS-CoV-2 (hereinafter referred to as COVID-19) exposures. The information presented herein as a Guidance plan may support a standalone document or supplement existing plans to communicate risk and provide awareness discussions. This plan is to communicate standard guidelines to protect EQM and its subcontracted personnel, reduce the risk of impact of COVID-19 and other infectious disease outbreak conditions posed in association with travel and job tasks that workers perform at this site. To reduce the risk and provide resource sustainability, a combination of the tasks outlined in the following sections should be considered. Further, local community isolation and distancing considerations shall be considered to minimize all impacts to local communities by incoming response personnel. Communications with EPA personnel of any potential exposure or symptoms will be made immediately.

Immediate Reporting will be satisfied at multiple points within the performance of the scope of work. Steps have been established to evaluate potential exposures of personnel prior to mobilization and again later. Each team employee will certify / attest / disclose any contact with known or suspected individuals having flu like symptoms, fever and or travel related inquiries. EQM utilizes a check form to ensure the continuity of the questions asked and answered. Whether personnel travel by air or drive, all precautions to avoid contact with COVID-19 will be taken. These include adhering to Social Distancing, limiting contact with high traffic areas and contact surfaces, and cleaning hands often. Continuous review of CDC Guidelines will be made by EQM Management and communicated to personnel by written and verbal form. EQM is in the process of establishing the protocols described herein across all national response members. Current Team members are directed to be aware of and communicate:

- Where, how, and to what sources of COVID-19 might workers be exposed, including:
  - The general public, customers, and coworkers;
  - Sick individuals or those at particularly high risk of contracting COVID-19; and

- Healthcare workers who have had unprotected exposures to people known to have, or suspected of having, COVID-19.
- Non-occupational risk factors at home and in community settings.
- Workers' individual risk factors (e.g., older age; presence of chronic medical conditions, including immunocompromising conditions; pregnancy).
- Controls necessary to address those risks.

All required Health and Safety COVID-19 related training will be completed for all personnel. Project Health and Safety information will be reviewed and acknowledged by personnel prior to mobilization to sites minimizing potential hazards and synergistic impacts to responding site personnel. Additionally, each employee shall self-report wellness and fit for duty each day prior to commuting to the project site. Only staff that have completed the required training and have been cleared for any potential COVID-19 exposure will be assigned to projects.

## **2.0 Pre-deployment**

EQM and subcontractors will prepare employees for travel to the site by stressing the COVID-19 safety measures that include avoiding large crowds, social distancing, appropriate PPE while out in public, cleaning and securing lodging if needed and complete COVID-19 awareness training.

The supervisor shall have each employee fill out the pre-deployment questionnaire, sign and forward to the RM for review before being authorized to travel to the site. The supervisor shall look for COVID-19 symptoms, take employee temperatures with a non-touch thermometer during this period and report any possible exposure to the RM and take action to isolate the individual from other personnel.

## **3.0 Deployment**

All personnel will meet at a designated meeting place before traveling to the site. The supervisor shall select the number of personnel to provide the most efficient work force to complete the tasks while minimizing the amount of personnel to exposure for the tasks to be completed. All personnel will complete the Daily Health Assessment Check List and forward to the RM for approval before gathering for travel to the site. They shall have their temperatures taken with a non-touch thermometer. Any personnel with a temperature of 100.4 degrees (F) or higher will not be allowed to travel to the site and recommended to self-isolate and monitor their symptoms.

## **4.0 Travel**

To conduct social distancing the following procedures should be followed when traveling to the site. It is recommended that only one person per vehicle during travel to the site. However, if two

travel together proper PPE shall be worn during travel, such as face coverings, safety glasses and nitrile gloves.

- Vehicles shall be fueled the night before departure using the proper PPE (face coverings, safety glasses, nitrile gloves)
- Vehicle high touch areas shall be disinfested before departure to the site and upon returning (door handles, steering wheel etc.)
- Travel shall be continuous from the designated meeting place to and from the site (no stopping for food, coffee)
- Follow all Local Directives for travel (curfews, road closers)
- Although certain restaurants may be open or with drive-thru/take-out service it is recommended that personnel take their lunches prepared at home for consumption rather than possibly exposing themselves to the virus at these locations.

## **5.0 Arrival**

Upon arrival to the site, EQM and subcontractor personnel should not interact with local residents while conducting their work assignment. Arrival procedures are to include:

- Call RM upon arrival and provide updates (questions) throughout the day
- Practice social distancing during work activities
- Wash hands or use hand sanitizer regularly
- Wear proper PPE
- Use buddy system
- Visually monitor personnel for symptoms

Stop work authority is granted to address potential cross-infection between workers or to preclude contacting infectious materials onsite. If any person suspects or observes a worker, client, vendor, or visitor exhibiting symptoms of SARS-CoV-2, they are to alert the site manager (e.g., Project Manager, Response Manager, Site Superintendent, etc.) and call for a “Stop Work”. The site manager will address the situation and manage it accordingly. Workers may resume work only when the site manager and client have determined the site is safe to do so.

## **6.0 Departure/Return to Office**

Upon completion of the daily work task, EQM and subcontracted personnel should:



- Disinfect high touch areas (doorknobs, windows)
- Clean-up work area
- Bag used PPE for disposal
- Follow instructions in 4.0 Travel when returning to office

## **7.0 Lodging**

EQM has received the following information from a number of hotels in regard to safe practices for COVID-19.

- Hotels that have been contacted are ok with not having room cleaning services. Some hotels are not providing in-room cleaning services for stayover guests.
- Local area hotel rooms have microwaves and refrigerators. Kitchenettes are not available at any of the locally contacted hotels.
- Hotel cleaning protocols are as listed below:
  - All hotel staff are wearing masks and gloves.
  - Common areas are cleaned with Clorox and other cleaning solutions multiple times per day.
  - No lingering or congregating in lobby/common areas is requested.
  - Rooms are vacated 24-36 hours in between each new guest.
  - Rooms are thoroughly cleaned between each new guest.
  - All linen changes, trash service or other items need to be communicated through the front desk.

## **8.0 Guidance Documents to Support Response Actions**

Documents supporting the above text are presented below. EQM has developed COVID-19 specific procedures and has performed updates to our current Policies and Standard Operating Procedures. EQM will consistently monitor CDC and OSHA information for updates to the COVID-19 specific procedures implemented. These Policies and Procedures have had programmatic reviews and approvals. EQM can make all final documents available, if requested. All documents and subsequent revisions are provided to all employees and applicable Teaming Subcontractors.


### **Attachments**

- A. EQM HASP Addendum - SARS-CoV-2 Response
- B. EQM AHA 103 SARS-CoV-2 Field Operations; WI312A SARS-CoV-2 Infection Response Protocols
- C. EQM WI 322A SARS-CoV-2 Decontamination Procedures

- D. Standardized Health Check Questionnaires for staff. Daily Self-Check compliance documented on Sign-In Sheet
- E. COVID-19 FAQ and Guidance

# **ATTACHMENT A**

## **EQM HASP Addendum 1 SARS-CoV-2 Response**

<b>HEALTH AND SAFETY PLAN AMENDMENT FORM</b>		
AMENDMENT NUMBER: <b>Addendum 1</b>	AMENDMENT DATE: <b>March 24, 2020</b>	PROJECT NUMBER:
SITE NAME: <b>For all EQM projects and worksites.</b>		
AMENDMENT TYPE: <b>Special Addendum to address the SARS-CoV-2 virus</b>		
REASON FOR AMENDMENT: <b>This addendum is presents traditional infection prevention and industrial hygiene practices for all EQM operations to implement to reduce the potential for SARS-CoV-2 infection by employees and the resultant COVID-19 respiratory illness, which can be fatal.</b>		
ALTERNATE SAFEGUARD PROCEDURES: <b>None, except as necessary for individual sites. The HASP, AHA, and other documents may be augmented, supplemented, or otherwise modified to address local site and workplace requirements.</b>		
REQUIRED PPE CHANGES: (As necessary) <b>Latex/nitrile gloves N95 filtering facepiece respirator</b>		
EQM SITE MANAGER:		DATE:
EQM CORPORATE HEALTH AND SAFETY MANAGER: <b>David Arthur</b> 		DATE: <b>March 24, 2020</b>
CLIENT COORDINATOR:		DATE:

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## APPENDICES

### APPENDIX E: Hazard Information

## 1. ACRONYMS & SYMBOLS

§	Section	OSHA	Occupational Safety and Health Administration
CDC	Center for Disease Control	PM	Project/Program Manager
CFR	Code of Federal Regulations	PPE	personal protective equipment
COVID-19	the disease caused by the SARS-CoV-2 virus	RM	Response Manager or Site Superintendent
EPA	Environmental Protection Agency	SARS-CoV-2	severe acute respiratory syndrome coronavirus 2
EQM	Environmental Quality Management, Inc.	SDS	Safety Data Sheet(s)
HASP	Health and Safety Plan	SOP	Standard Operating Procedure
HAZCOM	Hazard Communication	USACE	U.S. Army Corps of Engineers
HAZWOPER	Hazardous Waste Operations and Emergency Response	WHO	World Health Organization
HSO	Health and Safety Officer	WI	Work Instruction

## 2. ADDENDUM DESCRIPTION AND SCOPE

This addendum supplements EQM's HASPs and other operational plans to address the SARS-CoV-2 virus and to curb the spread of Covid-19 viral disease. Place this addendum directly within these documents to provide the instructions, without regard to amending tables of contents or other sections within these documents.

### 2.1 Addendum Description

This addendum does not alter basic operational safety. Therefore, workers are advised to continue operating according to the standard safety practices noted in the HASP, amending only those aspects of each operation where they relate to contact with potentially SARS-CoV-2 virus infected materials.

### 2.2 Scope

This plan establishes a framework applicable to all affected personnel to alleviate active and potential health risks posed by body fluids, infectious materials, and/or other hazardous materials onsite in accordance with (IAW) all local, state, and federal guidelines. The addendum applies information taken from the OSHA Publication 3990-03 2020, *Guidance on Preparing Workplaces for COVID-19*, the Center for Disease Control and Prevention Publications (CDC) website <https://www.cdc.gov/coronavirus/2019-ncov/publications.html>, and from the World Health Organization (WHO) website <https://www.who.int/emergencies/diseases/novel-coronavirus-2019>.

#### 2.2.1 Daily Safety Meetings

The RM, PM and/or HSO, or designate, will ensure the following is briefed during regular tailgate safety meetings:

- Updated information on operational changes and practices
- Current information regarding the disease's spread
- Government closures, bans, and restrictions
- Restate the standard precautions noted in the worksite's SARS-CoV-2 AHA

#### 2.2.2 Health and Safety Inspection Modification/Suspension

Regular health and safety inspections, such as for medical kits, may be modified or suspended if there is the possibility the inspection process will contaminate these items.

Do not suspend normal site safety inspections (e.g., daily vehicle checks, equipment checks, etc.). If necessary, wear appropriate personal protective equipment (PPE) while performing the inspection to protect from encountering potentially infectious materials.

### **2.2.3 Addendum Acceptance/Acknowledgment**

The RM, PM and/or HSO will inform all persons who enter the site of this addendum and ensure read it and sign the attached acknowledgment form. Persons who sign this form acknowledge the site's potential infection hazards and agree to follow the policies and procedures within this addendum.



### 3. HAZARD ANALYSIS AND MITIGATION

#### 3.1 Assessing Hazards

EQM assesses operational hazards through Activity Hazard Analysis (AHA) which address each work element noted in Section 2.2, *Scope*. AHA 103, *SARS-CoV-2 Decontamination Operations*, addresses the onsite operations in relation to potential viral infection. Consult and modify this AHA as onsite operations change.

##### 3.1.1 Specific Biological Hazards

The primary focus of this addendum regards the SAR-CoV-2 virus. To guard against infection, based on what is currently known about the virus, it spreads from person-to-person most frequently among close contacts (within approximately 6 feet to up to 27 ft). This type of transmission occurs via non-infected persons breathing in aerosol droplets liberated when an infected person coughs or sneezes. Transmission of SAR-CoV-2 may also come from individuals touching contaminated surfaces, then touching one's mouth, nose, or eyes because the virus can survive for hours, to up to seven days depending on the surface. Cleaning suspected contaminated surfaces followed by disinfection is a best practice for preventing COVID-19 and other viral respiratory illnesses in community settings.

**Note:** "SAR-CoV-2" is the official name for the virus that causes the "COVID-19" respiratory illness. The references in this document are about controlling the virus which will also control the spread of the disease. This disease is sometimes also simply called the "corona virus". Because, there are a group of corona viruses that are related and cause diseases in mammals and birds, for the sake of specificity, this document will only use the official names for the SAR-CoV-2 virus and COVID-19 respiratory illness respectively.

The best means of protection from contracting the COVID-19 disease is to avoid contacting infected persons. Workers should limit their amount of travel to only that which is necessary to conduct project business. Also, workers should avoid gathering in public locations, such as bars, restaurants, shopping malls, etc. While staying in hotels, it is best to remain in the room and not venture into pool, spa, exercise, or other public areas where groups of people are likely to gather. For meals, when possible, use a delivery service or drive-through to limit the amount of personal interaction. Also, personnel are restricted to one person within EQM vehicles (which includes personal vehicles used for company operations), with the recommendation for workers to practice the same for their personal vehicles on personal time.

The RM, PM and/or HSO should ensure that the site is restricted to only those personnel who are involved in the work process, restricting or eliminating visitors to the greatest degree possible.

While working in areas of suspected infection, workers should wear disposable gloves and gowns for all tasks in the cleaning process, including handling trash, and ensure all PPE is compatible with the disinfectant products used.

Immediately report breaches in PPE (e.g., tears in gloves, protective suites, etc.) or any potential exposures to their supervisor.

The most beneficial means to avoid transmission is to clean hands often, especially after removing gloves or contacting potentially infectious surfaces, with soap and water for a minimum of 20 seconds. If soap and water are not available and hands are not visibly dirty, use an alcohol-based hand sanitizer that contains 60%-95% alcohol. However, if hands are visibly dirty, always wash with soap and water.

Follow normal preventive actions while at work and home, including cleaning hands and avoiding touching eyes, nose, or mouth with unwashed hands. Additional key practices include:

- Washing hands:
  - After blowing one's nose, coughing, or sneezing
  - After using the restroom
  - Before eating or preparing food
  - After contact with animals or pets
  - Before and after providing routine care for another person who needs assistance (e.g., a co-worker)
- When handling linens, clothing, and other items that go in the laundry:
  - Do not shake dirty laundry to minimize the possibility of dispersing virus through the air.
  - Wash items as appropriate in accordance with the manufacturer's instructions. If possible, launder items using the warmest appropriate water setting for the items and dry items completely. Dirty laundry that has been in contact with an ill person can be washed with other people's items.
  - Clean and disinfect hampers or other carts for transporting laundry according to guidance above for hard or soft surfaces.

In all workplaces where exposure to the SAR-CoV-2 may occur, prompt identification and isolation of potentially infectious individuals is a critical first step in protecting workers, visitors, and others at the worksite.

During operations, before using vehicles and/or heavy equipment, spray all interior surfaces with a disinfectant/anti-microbial spray to disinfect touchable surfaces. When exiting the equipment/vehicle after use, spray again to ensure it is prepared for the next occupant.

When working with potentially infectious materials, treat all waste in the same manner as medical waste, enclosing in bags, boxes, drums, or other closable containers, then disinfecting the exterior of the outer packaging.

### 3.1.2 Chemical Hazards

The chemical hazards involve those chemicals brought onsite to support disinfection during regular operations, to include:

- Bleach (sodium hypochlorite)
- Antiseptic and anti-microbial solutions
- Surfactants and detergents

Manage and communicate these hazards in accordance with the 29 CFR §1910.1200, *Hazard Communication* (HAZCOM), and EQM SOP 301, *Hazard Communication Program*. Appendix D, *Safety Data Sheets*, contains basic chemical exposure and avoidance information.

The primary contaminants of concern are surfaces contaminated with SARS-CoV-2. To clean these surfaces, workers will use various disinfectants and anti-microbial products which may cause dermatitis and/or eye, nose, and throat irritation. The project will also include industrial activity, therefore, personnel should remain alert for the signs and symptoms that may indicate possible chemical exposure, as noted in the HASP.

Report any of these symptoms and/or conditions immediately to the RM/SHSO!

## 3.2 Personnel Monitoring

The main concern for this project is the SARS-CoV-2 virus.

### 3.2.1 Air Monitoring

There is a form of air monitoring to determine the presence of SARS-CoV-2. However, the approach for this project will be to address the workspace with the most reasonably conservative PPE approach. However, if any of the following warning signs develop, isolate the worker and get them medical attention immediately. The warning signs include:

- Difficulty breathing or shortness of breath
- Persistent pain or pressure in the chest
- An elevated body temperature
- New confusion or inability to arouse
- Bluish lips or face

**Note:** This list is not all inclusive, and if there are further questions, consult EQM's Medical Case Manager for any other symptoms that are severe or concerning.

For the various cleaning and disinfectant products, follow all precautions noted in each product's SDS.

### 3.2.2 Medical Surveillance

Because the concern involves an active virus that has a five to fourteen-day quarantine, persons may be infected but without any physical signs or symptoms (asymptomatic). Therefore, supervisors and field managers at all levels must remain vigilant to monitor their workers for the signs and symptoms of potential infection. The disease does not require confirmation before a manager acts. Begin the isolation and cleanup process for those even suspected of being infected, and workers are advised to self-identify at the earliest possible time.

If there is suspicion a worker may be infected, isolate them immediately. For example, move potentially infectious people to a vacant room or vehicle and close the doors. In other worksites, move potentially infectious people to a location away from other workers, clients, vendors, and other visitors. Once isolated, contact EQM's Medical Case Manager for direction on addressing the quarantined worker.

**Note:** Workers who suspect they have been exposed to the virus are to self-quarantine in either their home, motel room, vehicle, or other personal space where they are isolated from other workers. They must inform their supervisor of the suspected exposure and detailed basis for their determination.

Restrict the number of persons entering work areas and protect workers from "close contact" with potentially infected persons by using additional engineering and administrative controls, safe work practices, and PPE. The CDC defines "close contact" as being no closer than approximately six (6) feet from a potentially infected person for a prolonged period while not wearing the recommended PPE. Close contact also includes direct contact with infectious secretions while not wearing the recommended PPE. Close contact generally does not include brief interactions, such as walking past a person.

Once the suspected infected worker is removed from the worksite, perform a cleanup and sanitation of all areas used in isolating the worker, to include break rooms and other gathering points used prior to the time the worker was identified.

### 3.3 Monitoring Records

Due to the highly infectious nature of this virus, workers who test positive for the SAR-CoV-2 virus, as per a test administered by a licensed healthcare provider, are to quarantine for up to two weeks (14 days). After that point, they must see a physician for a release prior to returning to work, to preclude the potential for further spreading infection. Keep one copy of the doctor's return to work notice, forwarding a copy to the CHSM for inclusion in the worker's medical files.

SARS-CoV-2 exposure, for this situation, is considered the same as any other form of occupational exposure. OSHA regulation 29 CFR §1926.1101(n)(2)(iii) requires the employer maintain this record for at least thirty (30) years, in accordance with 29 CFR §1910.20. Perform

an episodic examination if there is reason to believe an individual was exposed to the virus, targeting the examination to cover the specific CDC recommendations at the time of the exam.

### **3.4 Additional Personal Protective Equipment Requirements**

Do not deviate from wearing the prescribed PPE for the project addressed by the HASP. While there is a concern of SARS-CoV-2 infection, this does not supersede protecting from the contaminants noted for the project. Therefore, continue using the regular PPE in conjunction with any PPE necessary to protect from viral infection.

When work activities only involve disinfecting potentially infected areas or surfaces, or when dealing with potentially infected personnel, workers may opt to wear a N95 filtering facepiece respirator with a face shield or equivalent eye protection in place of a full-face respirator. The determination rests on the chemical nature of any contaminants or cleaning/disinfection products used within the operational process.

**Note:** Wearing any form of “mask” other than those rated as N95 or above should not be confused with PPE. Masks other than those with N95 or greater filtering capability only act to contain potentially infectious respiratory secretions at the source (i.e., an infected person’s nose and mouth).

### **3.5 Decontamination Procedures**

There is evidence the SAR-CoV-2 can spread through environmental exposures, such as contacting contaminated surfaces. However, because the viral transmission from contaminated surfaces and objects is not fully understood, the most prudent action in work areas occupied by persons suspected of being infected is to decontaminate. Use the same methodology as is being used to accomplish the project.

Workers who conduct decontamination tasks must avoid exposure to body fluids and other potentially infectious materials covered by OSHA’s Bloodborne Pathogens standard (29 CFR §1910.1030) and from the hazardous chemicals used in these tasks. Do not use compressed air or water sprays to clean potentially contaminated surfaces, as these techniques may create an aerosol of infectious materials.

For equipment, supply spray bottles with a disinfectant/anti-microbial solution on each piece of equipment and/or vehicle. Before operating the equipment/vehicle spray all interior surfaces with the disinfectant/anti-microbial solution. Perform this process at the end of each shift and before returning equipment/vehicles to parking/storage.

**Note:** Decontamination solutions utilized may include an EPA-registered, hospital-grade disinfectant, such as Accelerated Hydrogen Peroxide Surface Disinfectant, Accelerated Hydrogen Peroxide Tuberculocidal Surface Disinfectant or equivalent, based on discussions with your client.

### **3.6 Stop Work Authority**

Stop work authority is granted to address potential cross-infection between workers or to preclude contacting infectious materials onsite. If any person suspects or observes a worker, client, vendor, or visitor exhibiting symptoms of SARS-CoV-2, they are to alert the site manager (e.g., Project Manager, Response Manager, Site Superintendent, etc.) and call for a “Stop Work”. The site manager will address the situation and manage it accordingly. Workers may resume work only when the site manager and client have determined the site is safe to do so.

### **3.7 Methods for Handling Material at the Site**

Any collected wastes may contain the SAR-CoV-2 virus, follow the same procedures as noted for bloodborne pathogens (WI312B, *Bloodborne Pathogens*). Workers are advised to use universal precautions when handling potentially infectious wastes.

## **4. HAZARD COMMUNICATION AND TRAINING**

### **4.1 Hazard Communication**

The following is information that is in addition to what is required in the original HASP and specifically relates to SARS-CoV-2 response activities.

#### **4.1.1 COVID-19 Information**

The field manager will distribute the information sheet in Appendix E, *What You Need To Know About Coronavirus Disease 2019 (COVID-19)*, to all workers, subcontractors, vendors, and visitors who enter the site.

#### **4.1.2 Hazardous Chemicals List and Safety Data Sheets (SDS)**

EQM and attached subcontractors will maintain separate hazardous chemical lists and SDS for all hazardous chemicals used during field activities. Collect and combine them in Appendix D, *Safety Data Sheets*. All SDS must remain onsite during normal operations.

#### **4.1.3 Container Marking and Labeling**

Ensure all incoming chemical containers are marked and/or labeled IAW EQM SOP 301, *Hazard Communication Program*. The SHSO, or the subcontractor using the material, will inspect the containers to ensure the accuracy of the product marking/labeling, and must not remove or deface any existing markings/labels if they are accurate to the container's contents. This requirement also includes secondary containers if there is any potential for using the container then leaving it unattended by the original user for any length of time.

### **4.2 Training**

One of the key components of maintaining adequate safety and health is to ensure that the personnel working on the project are adequately trained. At a minimum, this training includes the specifications in OSHA Standards 29 CFR §1910.120, *HAZWOPER*, §1910.1030, *Bloodborne Pathogens*, §1910.1200, *HAZCOM*, and the National Incident Management System (NIMS). See EQM SOP 308, *Safety Training*, and WI 308A, *HAZWOPER Training*, for additional information.



#### 4.2.1 Pre-Project Training

Before they are permitted to enter the Site boundaries, all employees and subcontractors who work on site must successfully complete a formal training program that includes, at a minimum, the following topics:

- **Basic Safety Training** – Basic fundamentals such as the cause and prevention of slip, trip, and fall hazards; safe lifting techniques; and heat/cold stress illnesses and prevention.
- **Hazard Protection** – Identification, recognition, and safe work procedures for dealing with hazardous materials, and the use and limitations of protective clothing and decontamination procedures.
- **First Aid and Cardiopulmonary Resuscitation (CPR)** – A portion of employees, including all health and safety staff members, must complete the standard Red Cross First-Aid and CPR courses that must include the procedures to follow if a worker is exposed to blood or other body fluids.
- **Health Hazard Awareness** – Hazardous materials exposure routes, adverse health effects, PPE, medical surveillance, and specific work conditions where exposure to hazardous materials could occur.
- **Risk Assessment** – Work practices and engineering controls used to minimize risk.
- **Emergency Response Training** – Emergency procedures to follow during incidents and/or emergencies.
- **Hearing Conservation** – How to protect workers from noise exposure.
- **Respirator Training** – Use, limitation, and inspection of air-purifying respirators and SCBAs, and fit testing requirements.

In addition, for complete HAZWOPER certification, the SHSO must perform 3-days of worker observation before the worker is certified to work onsite. Supervisors must complete an additional eight (8) hours of specialized training, and PMs should also complete the OSHA 10-hour Construction Outreach training. Each of these courses also have refreshers – except for the OSHA 10-hour – where an actual and documented hazardous or toxic waste incident (or near-miss) can substitute for the refreshers.

#### 4.2.2 Additional Training

Additional training may include:

- Unique physical hazards (e.g., ponds or lakes, fall hazards, confined spaces, radiation, or other characteristics);
- Specialized safety equipment, (e.g., a specialized disinfecting spray unit);
- Proper respirator fitting and use;
- Specialized site operations;
- Specialized emergency response procedures; and
- Unique reporting and documentation requirements.

This project requires Bloodborne Pathogens training as noted in 29 CFR §1910.1030(e)(5). Train all workers about the sources of exposure to the virus, the hazards associated with that



exposure, and appropriate workplace protocols in place to prevent or reduce the likelihood of exposure. Training should include information about how to isolate individuals with suspected or confirmed SAR-CoV-2 or other infectious diseases, and how to report possible cases.

**Note:** If a facility has specific health and safety requirements, ensure any necessary training is given to the workers before operations begin.

Workers required to use PPE must be trained. This training includes when to use PPE; what PPE is necessary; how to properly don (put on), use, and doff (take off) PPE; how to properly dispose of or disinfect, inspect for damage, and maintain PPE; and the limitations of PPE. Applicable standards include the PPE (29 CFR §1910.132), Eye and Face Protection (29 CFR §1910.133), Hand Protection (29 CFR §1910.138), and Respiratory Protection (29 CFR §1910.134) standards. The OSHA website offers a variety of training videos on respiratory protection.

Make sure to document the required training in the AHAs.

#### **4.2.3 Training Records**

Document and keep all on-site training using the appropriate forms. Retain these forms on site in the employee's job file, and forward copies to the CHSM. This requirement includes subcontractors trained while working on the project, and the SHSO will forward the training documentation to their respective employer(s).

Along with each worker's training records, include the worker's work status report and most recent respirator fit test prior to employing personnel on the project.

**Note:** Because respirators are required for this project, all personnel must be medically qualified and have, at a minimum, a qualitative fit test on record before being assigned to work this project.

## 5. REFERENCES

The following references were used to develop this HASP or to supplement the information herein.

Center for Disease Control (CDC). 2020. *Coronavirus Disease 2019 (COVID-19)*. Retrieved from [oxcn](#).

Journal of the American Medical Association (JAMA), *Air, Surface Environmental, and Personal Protective Equipment Contamination by Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) From a Symptomatic Patient*, March 4, 2020, Retrieved from <https://jamanetwork.com/journals/jama/fullarticle/2762692>.

OSHA Pub 3990-03 2020. *2020 Guidance on Preparing Workplaces for COVID-19*.

World Health Organization (WHO). (2020). *Naming the coronavirus disease (COVID-19) and the virus that causes it*. Retrieved from [https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance/naming-the-coronavirus-disease-\(covid-2019\)-and-the-virus-that-causes-it](https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance/naming-the-coronavirus-disease-(covid-2019)-and-the-virus-that-causes-it).

## ADDENDUM ACKNOWLEDGMENT

I have been informed and understand and will abide by the procedures set forth in this addendum as it supplements the Site Health and Safety Plan, for the project.

[illegible]

**APPENDIX E:  
Hazard Information**

(This appendix relates to the same location in the original HASP)

# COVID CORONAVIRUS DISEASE 19

## What you need to know about coronavirus disease 2019 (COVID-19)

### What is coronavirus disease 2019 (COVID-19)?

Coronavirus disease 2019 (COVID-19) is a respiratory illness that can spread from person to person. The virus that causes COVID-19 is a novel coronavirus that was first identified during an investigation into an outbreak in Wuhan, China.

### Can people in the U.S. get COVID-19?

COVID-19 is spreading from person to person in China, and limited spread among close contacts has been detected in some countries outside China, including the United States. At this time, however, this virus is NOT currently spreading in communities in the United States. Right now, the greatest risk of infection is for people in China or people who have traveled to China. Risk of infection is dependent on exposure. Close contacts of people who are infected are at greater risk of exposure, for example health care workers and close contacts of people who are infected with the virus that causes COVID-19. CDC continues to closely monitor the situation.

### Have there been cases of COVID-19 in the U.S.?

Yes. The first case of COVID-19 in the United States was reported on January 21, 2020. The current count of cases of COVID-19 in the United States is available on CDC's webpage at <https://www.cdc.gov/coronavirus/2019-ncov/cases-in-us.html>.

### How does COVID-19 spread?

The virus that causes COVID-19 probably emerged from an animal source, but now it seems to be spreading from person to person. It's important to note that person-to-person spread can happen on a continuum. Some diseases are highly contagious (like measles), while other diseases are less so. At this time, it's unclear how easily or sustainably the virus that causes COVID-19 is spreading between people. Learn what is known about the spread of newly emerged coronaviruses at <https://www.cdc.gov/coronavirus/2019-ncov/about/transmission.html>.

### What are the symptoms of COVID-19?

Patients with COVID-19 have had mild to severe respiratory illness with symptoms of

- fever
- cough
- shortness of breath



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### What are severe complications from this virus?

Many patients have pneumonia in both lungs.

### How can I help protect myself?

The best way to prevent infection is to avoid being exposed to the virus that causes COVID-19.

### There are simple everyday preventive actions to help prevent the spread of respiratory viruses.

#### These include

- Avoid close contact with people who are sick.
- Avoid touching your eyes, nose, and mouth with unwashed hands.
- Wash your hands often with soap and water for at least 20 seconds. Use an alcohol-based hand sanitizer that contains at least 60% alcohol if soap and water are not available.

### If you are sick, to keep from spreading respiratory illness to others, you should

- Stay home when you are sick.
- Cover your cough or sneeze with a tissue, then throw the tissue in the trash.
- Clean and disinfect frequently touched objects and surfaces.

### What should I do if I recently traveled to China and got sick?

If you were in China within the past 14 days and feel sick with fever, cough, or difficulty breathing, you should seek medical care. Call the office of your health care provider before you go, and tell them about your travel and your symptoms. They will give you instructions on how to get care without exposing other people to your illness. While sick, avoid contact with people, don't go out and delay any travel to reduce the possibility of spreading illness to others.

### Is there a vaccine?

There is currently no vaccine to protect against COVID-19. The best way to prevent infection is to avoid being exposed to the virus that causes COVID-19.

### Is there a treatment?

There is no specific antiviral treatment for COVID-19. People with COVID-19 can seek medical care to help relieve symptoms.

For more information: [www.cdc.gov/COVID19](https://www.cdc.gov/COVID19)

## **ATTACHMENT B**

### **AHA 103 SARS-CoV-2 Field Operations WI312A SARS-CoV-2 Infection Response Protocols**

## ACTIVITY HAZARD ANALYSIS (AHA)

Activity/Work Task	SARS-CoV-2 Decontamination Ops	Overall Risk Assessment Code (RAC) (Use highest code)					H	
AHA Signature Log #								
Project Location		RAC MATRIX						
Contract Number			Probability					
Date Prepared		Severity	Frequent	Likely	Occasional	Seldom	Unlikely	
SSHO Signature		Catastrophic	E	E	H	H	M	
Superintendent Signature		Critical	E	H	H	M	L	
QC Manager Signature		Marginal	H	M	M	L	L	
Subcontractor (Foreman Name and Signature)		Negligible	M	L	L	L	L	
QA Reviewed by (Name/Title)		Step 1: Review each Hazard with identified safety "Controls." Determine RAC (see above).			RAC CHART			
Notes: (Field Notes, Review Comments, etc.) There are two aspects of this operation to consider; the SARS-CoV-2 virus as well as the disinfectants used in the decontamination process. For the latter, consult the SDS for each product used to determine the appropriate PPE and protective measures. Always adhere to Universal Precautions (as defined at the end).		Probability: Likelihood the activity will cause a Mishap (Near Miss, Incident, or Accident). as Frequent, Likely, Occasional, Seldom, or Unlikely. The outcome if a mishap occurred.			E = Extremely High Risk			
					H = High Risk			
		Identify as Catastrophic, Critical, Marginal, or Negligible			M = Moderate Risk			
					L = Low Risk			
		Step 2: Identify the RAC (probability vs. severity) as E, H, M, or L for each "Hazard" on AHA. Annotate the overall highest RAC at the top of the AHA.						
Job Steps (Work Sequences)		Specific Anticipated Hazards		Controls			RAC	
General Onsite Operations		All activities		<ul style="list-style-type: none"> <li><b>Note:</b> For hazards associated with general onsite activities, see AHA 001, <i>General Operations</i>.</li> <li>Don appropriate Level-C PPE according to WI 322A SARS-CoV-2, <i>Decontamination Procedures</i>, prior to beginning work activities, to include:               <ul style="list-style-type: none"> <li>N95, or greater, respirator</li> <li>Splash/Droplet protective eyewear (e.g., goggles, full-faced respirator, etc.)</li> <li>Full-body disposable coveralls</li> <li>Nitrile/Latex inner gloves</li> <li>Durable outer-gloves (gauntlet style)</li> <li>Durable and water-resistant boots with disposable boot covers</li> </ul> </li> </ul>			H	

## ACTIVITY HAZARD ANALYSIS (AHA)

		<ul style="list-style-type: none"> <li>• At a minimum wear disposable gloves when cleaning and disinfecting all surfaces or contacting suspect contaminated surfaces.</li> <li>• If a worker demonstrates signs and symptoms of exposure (e.g., fever, dizziness, coughing, sneezing, etc.), isolate them from the other workers and process them according to the medical monitoring, reporting, and handling within the HASP.</li> <li>• When transiting the site, make sure to avoid walking within six feet of other personnel and do not enter buildings, vehicles, or other structures unless performing official business.</li> <li>• When walking, do so alone, avoiding close contact with other persons (essentially, remain six feet from all other persons).</li> <li>• Remain outdoors as much as possible, weather permitting.</li> </ul>	
	Cross-exposure in offices, break areas, and sanitation	<ul style="list-style-type: none"> <li>• Ensure personnel are completely processing through the decontamination process when exiting the Exclusion Zone (EZ) before entering facilities, to include portable toilets.</li> <li>• As weather permits, have personnel take their breaks and lunches outside and at least six (6) feet from any entrance or personnel access point.</li> <li>• Avoid congregating in enclosed areas, structures, or facilities.</li> <li>• If workers must break/lunch inside of an office trailer or other facility: <ul style="list-style-type: none"> <li>◦ Reduce the time as much as possible.</li> <li>◦ Remind personnel to stay at least six (6) feet from one another.</li> <li>◦ Keep some disinfectant/anti-microbial spray nearby to decontaminate any surfaces used during the break/lunch. Wash hands before as well as after breaks/meals and prior to returning to work activities.</li> </ul> </li> </ul>	H



## ACTIVITY HAZARD ANALYSIS (AHA)

		<ul style="list-style-type: none"> <li>◦ If any potentially infectious material is noted on floors or other surfaces or a worker is suspected of being infected, close the trailer/facility and decontaminate immediately.</li> <li>◦ When using restroom facilities, keep a disinfectant within the facility (to include portable outhouses) and spray any surfaces intended for skin contact (door handles) both before and after use.</li> <li>◦ If sanitary wipes are provided, use them in place of spray disinfectants to sanitize surfaces.</li> <li>◦ Ensure that hand washing stations also have hand sanitizer available.</li> <li>• Limit the number of personnel within enclosed offices or other spaces to only those persons with direct need to conduct business within.</li> <li>• Ensure wiping of high touch areas such as bannisters, doors, vehicles, pens, etc. Avoid sharing of writing implements as much as possible.</li> </ul>	
	Cross-contamination from clients, vendors, and visitors	<ul style="list-style-type: none"> <li>• <b><i>DO NOT SHAKE HANDS WITH OTHERS!</i></b> Use an alternate non-contact form of greeting.</li> <li>• Remain no closer than six feet from other persons.</li> <li>• If the client, vendor, or visitor has items and/or equipment with them, have them leave their items outside of any facilities, and if they are leaving them, follow the <i>Cross-contamination from supplies and equipment</i> procedures below.</li> <li>• If possible, restrict meetings to outdoor locations, avoiding using office areas or other indoors or confined facilities.</li> </ul>	H
	Cross-contamination from supplies and	<ul style="list-style-type: none"> <li>• Use the following procedure when receiving</li> </ul>	M

## ACTIVITY HAZARD ANALYSIS (AHA)

	equipment	supplies: <ul style="list-style-type: none"> <li>○ Have the item(s) delivered outside of the facility.</li> <li>○ If possible, spray the exterior with a disinfectant/anti-microbial spray.</li> <li>○ With properly gloved hands (latex or nitrile) carefully open the outer packaging and remove any interior packages and/or items.</li> <li>○ If possible, spray the exterior of each package/item with a disinfectant/anti-microbial spray.</li> <li>○ If there is/are (an) interior package(s), and if possible, without damaging the item(s), spray the exterior of each item with a disinfectant/anti-microbial spray.</li> <li>○ The item(s) may then be taken into the facility and/or storage.</li> </ul>	
Prepare Disinfection and Antimicrobial Solutions, and Assemble Necessary Sanitization Equipment	Chemical exposure while preparing cleaning, disinfection, and antimicrobial solutions	<ul style="list-style-type: none"> <li>• Pre-mix all disinfectant solutions prior to entering work zones.</li> <li>• Read and apply the Safety Data Sheets (SDS) for each product while handling and preparing each for use.</li> <li>• Select and wear the appropriate PPE based on each product's SDS or label instructions.</li> <li>• Avoid spraying disinfectants onto outer garment.</li> </ul>	H
	Chemical contact due to spills or leaking cleaning, disinfection, and antimicrobial solutions	<ul style="list-style-type: none"> <li>• <b><i>DO NOT MIX CHEMICAL SOLUTIONS WITHOUT GOOD VENTILATION!</i></b></li> <li>• <b><i>DO NOT MIX CHEMICAL SOLUTIONS EXCEPT AS PER MANUFACTURER'S INSTRUCTIONS.</i></b></li> <li>• Read and apply the Safety Data Sheets (SDS) for each product while handling and preparing each for use.</li> <li>• Follow good housekeeping and segregate chemical containers so there is no possibility of a chain reaction spill.</li> </ul>	H

## ACTIVITY HAZARD ANALYSIS (AHA)

		<ul style="list-style-type: none"> <li>• Ensure all containers are kept closed when not in use.</li> <li>• Ensure all containers, including transit containers, are marked and labeled appropriately according to the HAZCOM requirements. (See SOP 301, <i>Hazard Communication Program</i>.)</li> </ul>	
	Slips, trips, and falls from spilled cleaning products	<ul style="list-style-type: none"> <li>• Follow good housekeeping practices.</li> <li>• Clean up spills immediately.</li> <li>• Use care when transferring solutions into subsequent or transfer containers to avoid spills.</li> <li>• Clean the outside of containers from solutions spilled on the container sides.</li> <li>• Be careful when using water to clean spills so as not to spread the cleaning solutions.</li> </ul>	M
	Minor injury due to improper tool use while assembling or using equipment	<ul style="list-style-type: none"> <li>• Use tools for their intended purpose only.</li> <li>• Do not use damaged tools.</li> </ul>	L
Establishing Work Zones	Contact with potentially contaminated surfaces while establishing each area	<ul style="list-style-type: none"> <li>• Perform all EZ enclosure setups in Level-C PPE as described in <i>General Onsite Operations, All activities</i>, above.</li> <li>• Use minimum 6-mil plastic sheeting to create air-tight enclosure at entrance to EZ.</li> <li>• Identify all critical barriers at entry/exit points and cover with 1 layer of 6-mil plastic sheeting duct taped to the surrounding surface(s).</li> <li>• Setup decontamination station at single entry/exit point with decontamination cleaning supplies, adequate disposal, laundry and reuse containers, extra outer gloves and disposable shoe covers, adhesive step-off pad</li> </ul>	H
	Cross-contaminating zones during establishment	<ul style="list-style-type: none"> <li>• Keep disinfectant materials close-by and spray all outer garments if there is a suspected crossing between the EZ and</li> </ul>	H

## ACTIVITY HAZARD ANALYSIS (AHA)

		Contamination Reduction Zone (CRZ). • Setup the decontamination station at the earliest possible time after identifying the EZ and CRZ.	
Entering the Exclusion Zone	Contact with potentially infectious materials due to improper PPE use	• Ensure all PPE is properly in place before entering the CRZ on the way into the HZ. • <b>Note: DO NOT ATTEMPT TO ADJUST, DON, OR DOFF PPE AFTER ENTERING AND WITHIN THE HZ!</b> • If it is necessary to adjust, don, or doff PPE after entry, exit the HZ through the decontamination station, and then adjust, don, or doff PPE. • Use the “Buddy System” to check one another’s PPE to ensure that the PPE is intact and worn properly. • Do not reuse disposable PPE, discarding it directly after use.	H
	Contact with potentially infectious materials due to a PPE failure	• <b><i>IF PPE BECOMES COMPROMISED, EXIT THE EZ IMMEDIATELY THROUGH THE CRZ!</i></b> Do not attempt repairs while in the EZ. • Ensure masks and eye protection remains in place during operations and while exiting the HZ to repair/replace failed PPE. • Do not reuse disposable PPE, discarding it directly after use.	H
	Slips, trips, and falls from spilled cleaning products	• <b>Note:</b> See <i>Slips, trips, and falls from spilled cleaning products</i> , above.	M
	Chemical exposure from disinfectant and antimicrobial solutions	• Ensure all PPE is correct for the cleaning, disinfection, and sanitization products being used. • Ensure all PPE is being worn appropriately. • Ensure all chemicals are compatible with one another.	M
Removing Gross Contamination (scraping, spraying, wiping, mopping, pressure-washing, etc.)	Contact with potentially infectious materials due to improper PPE use	• See <i>Contact with potentially infectious materials due to improper PPE use</i> in <i>Enter the Exclusion Zone</i> above.	H

## ACTIVITY HAZARD ANALYSIS (AHA)

	Contact with potentially infectious materials due to a PPE failure	<ul style="list-style-type: none"> <li>• See <i>Contact with potentially infectious materials due to PPE failure</i> in <i>Enter the Exclusion Zone</i> above.</li> <li>• If PPE fails during operations, exit the HZ at the earliest time through the Contaminant Reduction Zone (CRZ).</li> <li>• Do not remove or reposition face masks and/or eye protection, even if they are the source of the failure.</li> <li>• Exit the HZ and do not tape-over tears in outer garments and continue to work.</li> <li>• Ensure that there are no contaminants on any inner garments or protective equipment, and if there is any, decontaminate/dispose of as necessary.</li> </ul>	H
	Contact with potentially infectious materials during general operations	<ul style="list-style-type: none"> <li>• Do not touch your face at any time while in either the HZ or CRZ.</li> <li>• Wear all required PPE.</li> <li>• Do not readjust PPE while in the HZ or CRZ.</li> <li>• Avoid touching potentially infected surfaces with the hands.</li> <li>• Use care when pressure-washing to avoid splashing or spraying potentially infectious materials onto other surfaces.</li> <li>• Collect all residual liquids, especially used cleaning and disinfecting products, and dispose of them with the rest of the potentially infectious waste.</li> <li>• Avoid cleaning/disinfecting overhead, ensuring that any product or potentially infectious material will fall to the floor and not onto workers.</li> </ul>	H
	Transmitting infectious materials out of the containment area	<ul style="list-style-type: none"> <li>• Always process through the decontamination station in the CRZ.</li> <li>• Interact thoroughly with every step of the decontamination process while exiting the CRZ.</li> <li>• Dispose of all contaminated disposable PPE</li> </ul>	H

## ACTIVITY HAZARD ANALYSIS (AHA)

		<p>appropriately, treating it as every other form of medical waste (e.g., close all containers, decontaminate waste container exterior, etc.).</p> <ul style="list-style-type: none"> <li>• Thoroughly decontaminate all non-disposable PPE and equipment prior to their leaving the HZ.</li> </ul>	
	Dermatitis from contact with cleaning and disinfecting products	<ul style="list-style-type: none"> <li>• Obtain appropriate SDS for each of the cleaning and disinfecting products being used and comply with their recommendations.</li> <li>• Ensure the PPE is appropriate to the disinfectants and anti-microbial products used during operations.</li> <li>• Do not remove PPE while handling cleaning and disinfecting products.</li> <li>• Avoid inhaling mists and/or sprays.</li> <li>• Do not let liquid materials pool on surfaces.</li> </ul>	M
	Cuts and other injuries while scraping or cutting materials	<ul style="list-style-type: none"> <li>• Use all tools properly and according to their intended purpose and manufacturer's instructions.</li> <li>• Never cut toward the body, always pointing blades away.</li> <li>• Use utility knives with intrinsic protection systems.</li> <li>• When working overhead, keep from standing directly underneath where materials will fall.</li> <li>• Use caution so as not to press too hard while scraping and damage tools.</li> <li>• If a tool becomes damaged, discontinue use and obtain an unbroken tool.</li> <li>• As blades wear, consider replacing the tool instead of trying to change blades within the EZ.</li> <li>• Remove waste materials regularly so that they do not buildup and create other hazards (e.g., slips/trips/falls,</li> </ul>	M
	Chemical exposure while spraying disinfectants/antimicrobials	<ul style="list-style-type: none"> <li>• Be sure to use the correct PPE, particularly eye, face, and respiratory protection.</li> </ul>	

## ACTIVITY HAZARD ANALYSIS (AHA)

		<ul style="list-style-type: none"> <li>• Ensure the spray unit is working properly and that the nozzle is adjusted for the spray type and volume desired.</li> <li>• Never point a sprayer at another person or at one's self.</li> <li>• Ensure the spray unit is correct for the solution it contains.</li> <li>• Be accurate and avoid over-spraying the intended area.</li> </ul>	
	Scalds and burns from using a pressure washer	<ul style="list-style-type: none"> <li>• See SOP 346, <i>Hot Water Press Wash Operation</i></li> <li>• See AHA 011, <i>Power Wash</i></li> <li>• Wear protective outer garments (e.g., leather gloves) over inner garments to protect from PPE failure and exposure to burns and scalds.</li> </ul>	M
	Chemical/Infection exposure due to contact while wiping surfaces	<ul style="list-style-type: none"> <li>• Check outer gloves frequently for signs of tearing, cutting or puncture. If damaged gloves, return to exit point and remove gloves, perform decontamination of inner gloved hands and arms, apply new gloves to hands and duct tape to coverall sleeve.</li> <li>• Clean the entire surfaces without leaving gross contamination in cracks, breaks, joints, or other areas that potentially could collect infectious materials.</li> <li>• Discard disposable rags or paper towels once worn or significantly dirtied into plastic disposal bags.</li> <li>• Do not dip hands, even with gloves, into buckets or basins to recharge cleaning rags.</li> </ul>	M
	Chemical/Infection exposure due to contact while mopping floors	<ul style="list-style-type: none"> <li>• <b>Note:</b> See <i>Chemical/Infection exposure due to contact while wiping surfaces</i>, above.</li> <li>• Do not "slosh" mops in buckets and use only as much liquid solution as necessary, wringing the mop to remove as much free liquid as possible.</li> <li>• Mop as lightly as possible, without losing effectiveness, to keep from slip/trip/fall</li> </ul>	M

## ACTIVITY HAZARD ANALYSIS (AHA)

		hazards due to wet floors. <ul style="list-style-type: none"> <li>• Do not splash liquids on floors, using the mop to distribute solutions.</li> <li>• Do not store mops in buckets with liquid solutions present.</li> <li>• Always store mops “head down” to keep liquids from dripping onto the handle</li> <li>• When walking backward while using a mop, make sure the area where walking is clear and be aware of items that could become a tripping hazard.</li> <li>• Consider wearing rubber, neoprene, or other chemical resistant over-boots instead of disposable booties to preclude liquids from contacting worker’s feet.</li> </ul>	
	Transmitting infectious materials out of the containment area	<ul style="list-style-type: none"> <li>• See <i>Transmitting infectious materials out of the containment area</i> in <i>Removing Gross Contamination</i> above.</li> </ul>	H
	Dermatitis from contact with cleaning and disinfecting products	<ul style="list-style-type: none"> <li>• See <i>Dermatitis from contact with cleaning and disinfecting products</i> in <i>Removing Gross Contamination</i> above.</li> </ul>	M
Sanitizing Equipment/Wastes for Further Sterilization or Disposal	Cuts and PPE compromise while collecting sharps	<ul style="list-style-type: none"> <li>• <b>NEVER OPEN A SHARPS CONTAINER FOR ANY REASON!</b></li> <li>• Wear cut-resistant outer gloves while handling sharps.</li> <li>• Use forceps, pliers, or another tool for picking up uncapped needles, to include loaded syringes.</li> <li>• Use a whisk broom and dustpan to collect broken glass or other sharps that are not already containerized.</li> <li>• Use puncture-proof containers, preferably rated for containing sharps, for all collected items.</li> </ul>	H
	Contact with potentially infectious materials or chemicals due to a PPE failure from exertion	<ul style="list-style-type: none"> <li>• See <i>Contact with potentially infectious materials due to PPE failure</i> in <i>Removing Gross Contamination</i> above.</li> </ul>	H
	Contact with potentially infectious materials	<ul style="list-style-type: none"> <li>• See <i>Contact with potentially infectious</i></li> </ul>	H



## ACTIVITY HAZARD ANALYSIS (AHA)

	during operations	<i>materials during operations</i> in <i>Removing Gross Contamination</i> above.	
	Transmitting infectious materials out of the containment area	<ul style="list-style-type: none"> <li>• See <i>Transmitting infectious materials out of the containment area</i> in <i>Removing Gross Contamination</i> above.</li> <li>• Process all items removed from the EZ through the decontamination station before allowing it out of the controlled zones.</li> </ul>	H
	Dermatitis from contact with cleaning and disinfecting products	• See <i>Dermatitis from contact with cleaning and disinfecting products</i> in <i>Removing Gross Contamination</i> above.	M
Sanitizing Surfaces ( <i>wiping, spraying, fogging, vacuuming, etc.</i> )	Chemical exposure while spraying disinfectants/antimicrobials	• <b>Note:</b> See <i>Chemical exposure while spraying disinfectants/antimicrobials</i> , above.	H
	Chemical/Infection exposure due to contact while wiping surfaces	• <b>Note:</b> See <i>Chemical/Infection exposure due to contact while wiping surfaces</i> , above.	H
	Chemical exposure while fogging	<ul style="list-style-type: none"> <li>• <b>FOLLOW ALL MANUFACTURER'S INSTRUCTIONS WHILE APPLYING FOGS.</b></li> <li>• Wear a full-faced respirator to protect the entire face from exposure to chemical fogs. <ul style="list-style-type: none"> <li>◦ <b>DO NOT USE SAFETY GLASSES WHILE FOGGING.</b> Use a full-faced respirator for this operation.</li> <li>◦ When using an ammonia-based fogging solution, use a combination P100 and ammonia/methylamine (also called GMD) filtering cartridge.</li> </ul> </li> <li>• Do not over-apply chemical fogs, thus, over-exposing worker respiratory protection filters.</li> <li>• Ensure adequate visibility in areas when applying fogs so workers can see well enough to operate within the area.</li> <li>• Ensure the fog doesn't compromise the selected PPE.</li> <li>• Only employees trained to operate the Fogging machines shall operate them. <ul style="list-style-type: none"> <li>◦ Only Fogger Operator(s) will be permitted into the EZ during fogging.</li> </ul> </li> </ul>	H

## ACTIVITY HAZARD ANALYSIS (AHA)

		<ul style="list-style-type: none"> <li>• Complete all wet disinfection and cleaning tasks before starting fogging. (Surfaces within EZ must be dry to the touch.)</li> <li>• Ensure all doorways, HVAC diffusers and grilles, and electrical panels are sealed air-tight with plastic sheeting and duct tape before fogging so chemicals do not escape the EZ.</li> <li>• Certain fogging machines have a hydrogen peroxide or ammonia detection system which will measure the concentrations during fogging and settling. Remain outside of the fogging area until the time indicated for safe reentry.</li> <li>• Only reenter the decontaminated EZ in Level-C, and only when the chemical fog levels have reduced below the action levels. <ul style="list-style-type: none"> <li>◦ Hydrogen peroxide <math>\leq 1.4 \text{ mg/m}^3</math></li> <li>◦ Ammonia <math>\leq 27.0 \text{ mg/m}^3</math> (STEL)</li> </ul> </li> <li>• Discard and replace the outer over-garment after each hydrogen peroxide and/or ammonia fogging application.</li> </ul>	
	Potential contagion and particulate spread from vacuuming carpets	<ul style="list-style-type: none"> <li>• When vacuuming carpet, upholstered furniture, curtains and wall coverings, use vacuums fitted with HEPA filters.</li> <li>• Vacuuming should be a dry process only, allowing sufficient drying time if disinfectants/antimicrobials were used.</li> <li>• Perform HEPA filter change-outs in designated enclosed areas within the EZ only. <ul style="list-style-type: none"> <li>◦ Lay out plastic sheeting.</li> <li>◦ Thoroughly spray spent filters with disinfectant.</li> <li>◦ Remove pre-filters and HEPA filters and immediately wrap in plastic sheeting or discard into disposal bags.</li> <li>◦ Replace filters and reassemble vacuum.</li> <li>◦ Decontaminate gloved hands and wash</li> </ul> </li> </ul>	L

## ACTIVITY HAZARD ANALYSIS (AHA)

		vigorously before resuming other cleaning.	
	Contact with potentially infectious materials due to improper PPE use	• See <i>Contact with potentially infectious materials due to improper PPE use</i> in <i>Enter the Exclusion Zone</i> above.	H
	Contact with potentially infectious materials due to a PPE failure	• See <i>Contact with potentially infectious materials due to PPE failure</i> in <i>Removing Gross Contamination</i> above.	H
	Contact with potentially infectious materials during operations	• See <i>Contact with potentially infectious materials during operations</i> in <i>Removing Gross Contamination</i> above.	H
	Transmitting infectious materials out of the containment area	• See <i>Transmitting infectious materials out of the containment area</i> in <i>Removing Gross Contamination</i> above.	H
	Dermatitis from contact with cleaning and disinfecting products	• See <i>Dermatitis from contact with cleaning and disinfecting products</i> in <i>Removing Gross Contamination</i> above.	M
Decontaminating Equipment	Injuries while moving equipment and/or furniture	<ul style="list-style-type: none"> <li>• Use appropriate lifting procedures, as noted in AHA 001, <i>General Operations</i>.</li> <li>• Try and keep equipment/furniture in place and only move them when necessary.</li> <li>• Do not move equipment/furniture into walkways or other passageways where it impedes access/egress.</li> </ul>	H
	Electric shock from energized electrical equipment	<ul style="list-style-type: none"> <li>• When possible, unplug or disconnect any electrical medical devices or equipment from their power source before sanitizing.</li> <li>• De-energize hard-wired equipment at the device's power controller following standard lock-out/tag-out procedures. Do not attempt to sanitize hard-wired electrical wiring or conduit.</li> <li>• Sanitize wipe only control panels and knobs, and outer plastic or metal housings without sanitizing rear metal housings or covers where plugs or electrical connections are located.</li> <li>• Do not use alcohol-based solutions near electrical cords and plugs, using other</li> </ul>	H

## ACTIVITY HAZARD ANALYSIS (AHA)

		<p>disinfectant/antimicrobial types instead.</p> <ul style="list-style-type: none"> <li>• Do not disassemble any electrical controls or covers on medical devices. Wipe with non-alcohol-based solutions only.</li> <li>• Do not open electrical circuit breaker panels or spray them with liquid solutions. Instead, wipe their surfaces sparingly with disinfectants/antimicrobial solutions using extreme care not to drip liquids onto or into the panels.</li> <li>• Re-plug medical devices into wall electrical outlets on completion, but do not turn them on.</li> </ul>	
	Contact with potentially infectious materials due to improper PPE use	• See <i>Contact with potentially infectious materials due to improper PPE use</i> in <i>Enter the Exclusion Zone</i> above.	H
	Contact with potentially infectious materials due to a PPE failure	• See <i>Contact with potentially infectious materials due to PPE failure</i> in <i>Removing Gross Contamination</i> above.	H
	Contact with potentially infectious materials during operations	• See <i>Contact with potentially infectious materials during operations</i> in <i>Removing Gross Contamination</i> above.	H
	Transmitting infectious materials out of the containment area	• See <i>Transmitting infectious materials out of the containment area</i> in <i>Removing Gross Contamination</i> above.	H
	Dermatitis from contact with cleaning and disinfecting products	• See <i>Dermatitis from contact with cleaning and disinfecting products</i> in <i>Removing Gross Contamination</i> above.	M
Decontaminating Personnel	Infection during the decontamination process	<ul style="list-style-type: none"> <li>• See AHA 019, <i>Decontamination</i>.</li> <li>• See the HASP for any site-specific decontamination procedures.</li> </ul>	H
	Contact with potentially infectious materials due to improper PPE use	• See <i>Contact with potentially infectious materials due to improper PPE use</i> in <i>Enter the Exclusion Zone</i> above.	H
	Contact with potentially infectious materials due to a PPE failure	• See <i>Contact with potentially infectious materials due to PPE failure</i> in <i>Removing Gross Contamination</i> above.	H
	Contact with potentially infectious materials	• See <i>Contact with potentially infectious</i>	H

## ACTIVITY HAZARD ANALYSIS (AHA)

	during operations	<i>materials during operations</i> in <i>Removing Gross Contamination</i> above.	
	Transmitting infectious materials out of the containment area	• See <i>Transmitting infectious materials out of the containment area</i> in <i>Removing Gross Contamination</i> above.	H
	Dermatitis from contact with cleaning and disinfecting products	• See <i>Dermatitis from contact with cleaning and disinfecting products</i> in <i>Removing Gross Contamination</i> above.	M
Infectious Wastes Handling and Disposal	Contact with Potentially Infectious Materials	<ul style="list-style-type: none"> <li>• Classify all wastes disposal bags and containers generated during both Preventative Cleaning and Decontamination as “Potentially Infectious Wastes”.</li> <li>• Decontaminate waste bags/containers with a sanitizing solution upon exiting the EZ.</li> <li>• Double-bag decontaminated waste bags/containers either directly upon exiting the EZ or immediately transfer them to a designated waste disposal roll-off container or into a temporary storage area.</li> <li>• Collect sharps, putty knives, or other metal wastes in rigid plastic containers and seal them for disposal.</li> <li>• Use impermeable rigid plastic sharps disposal containers with a limited access opening for small medical sharps waste. These shall be wrapped and boxed on exiting EZ for immediate disposal as “potentially infectious medical wastes”.</li> <li>• Segregate medical wastes and disinfection wastes for containerization and disposal following the client’s protocol for waste collections, storage, and disposal.</li> </ul>	H
Vehicle and Heavy Equipment Operations	Cross-contamination while driving	<ul style="list-style-type: none"> <li>• Restrict vehicles to single occupants whenever possible.</li> <li>• Spray all “touchable” surfaces with a disinfectant/anti-microbial spray prior to operating the vehicle.</li> <li>• Only use vehicles when necessary, choosing</li> </ul>	H

## ACTIVITY HAZARD ANALYSIS (AHA)

		to walk when practical. <ul style="list-style-type: none"><li>• As feasible, avoid using public transportation offsite.</li></ul>	
	Contamination from infected sources while excavating	<ul style="list-style-type: none"><li>• Spray all “touchable” surfaces with a disinfectant/anti-microbial spray prior to operating the equipment.</li><li>• Operators should remain in an enclosed cab to the greatest extent.</li><li>• Use dust suppression methods to ensure that potentially infected materials will transit the Exclusion Zone.</li><li>• Properly decontaminate equipment prior to returning it to parking and/or storage.</li></ul>	M


## ACTIVITY HAZARD ANALYSIS (AHA)

EQUIPMENT TO BE USED	TRAINING REQUIREMENTS AND COMPETENT OR QUALIFIED PERSONNEL NAME(S)	INSPECTION REQUIREMENTS
Fire Extinguisher	Fire extinguisher training for those personnel who are tasked to put out fires.	Periodic Fire Extinguisher Checks (Assumed Monthly)
First Aid Kit	CPR/First Aid Training for at least one person onsite.	Weekly, or after use, inspection of supplies
Hand Tools, as necessary	No specific training for shovels and other manual tools.	Visual inspection to ensure viability
Excavator(s), Grader(s), Front-End Loader(s), Crane(s), Forklift(s), Bobcat(s), and etc.	<p>Operators must be trained to operate each specific piece of equipment prior to operating the equipment onsite.</p> <p><b>Note:</b> Workers employed in disinfecting other personnel and equipment should have bloodborne pathogens training to understand the requirements of universal precautions.</p>	Inspect and document the inspection items for each piece of equipment daily or at the beginning of each shift where the equipment is being used.

UFGS 013526 11/15 1.9 Government reserves the right to require the Contractor to revise and resubmit the AHA if it fails to effectively identify the work sequences; specific anticipated hazards, site conditions, equipment, materials, personnel and the control measures to be implemented.

UFGS 013526 1.9.1 - Review the AHA list periodically (at least monthly) at supervisory safety meetings; update when procedures, scheduling or hazards change.

UFGS 013526 1.9.2 - Each employee performing work...must review the AHA and sign a signature log for that AHA prior to starting work. The SSHO must maintain a signature log on site for every AHA.

		WI No.	312A
		Date:	April 2020
Title: <b>SARS-CoV-2 Infection Response Protocols</b>			
Approved by:	David Arthur, Corporate Health & Safety Mgr.	Revision No.	0

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### 1. PURPOSE

The purpose of this Work Instruction is to establish a standardized response protocol for personnel who were potentially exposed to, exhibit symptoms of, or have a verified case of COVID-19.



## **2. SCOPE**

This procedure applies to all EQM personnel, both full and part-time as well as persons temporarily contracted to complete specific projects or tasks.

## **3. RESPONSIBILITIES**

### **3.1. Director of Human Resources (HR)**

The Director of HR is responsible to manage the worker's compensation program and tracks employee work status, to include return-to-work requests. The Director of HR is responsible for the following:

- Ensure policies and practices are consistent with public health recommendations and are consistent with existing state and federal workplace laws, and that the Company fulfills its employer duties.
- Receive the incoming information regarding potentially infected workers.
- Coordinate with the EQM medical case manager.
- Review and approve return to work requests.

### **3.2. Director of Quality Assurance (QA)**

The Director of QA coordinates EQM's health and safety program with other corporate systems and policies, and is responsible for the following:

- Review and approve monitoring procedures and clearing them for release.
- Coordinate the records for personnel medical and exposure files.
- Review and comment on investigatory and recordkeeping documents.
- Review and report health and safety statistics to upper management.
- Provide resources to the corporate health and safety program.

### **3.3. Corporate Health and Safety Manager (CHSM)**

The CHSM manages EQM's safety programs, which includes supporting the project worksites. The CHSM is responsible for the following:

- Develop necessary guidance materials.
- Develop or review site emergency action plans (EAP).
- Coordinating and assist in appropriate personal protective equipment (PPE) selection and application.
- Obtain the most up-to-date information regarding COVID-19 and disseminating that information to the Project and Field Managers.

### 3.4. Managers

Managers at all levels are responsible for disseminating and coordinating all corporate management and the EQM workforce. Managers are responsible for the following:

- Coordinate with the client to develop the project parameters
- Ensure the projects remains on-time and on-track with each project's requirements.
- Ensure projects have the necessary PPE to continue operations.
- Direct all onsite/workplace safety operations and practices.
- Procure any necessary disinfection equipment and PPE for their site's operations.
- Designate the appropriate office, break, storage, and operations areas.
- Monitor assigned personnel for potential infection, isolating them if there is any infection potential.
- Coordinate with clients regarding specific project safety concerns.
- Restrict the workplaces to only those personnel directly supporting operations

### 3.5. Supervisors

Supervisors are the key to ensuring assigned personnel follow all requisite safe procedures and practices. Supervisors are responsible for the following:

- Monitor assigned personnel for infection symptoms.
- Isolate suspected workers that show infection symptoms.
- Coordinate PPE requirements and work practice controls with their manager.

### 3.6. All Personnel

All EQM staff are responsible for notifying their direct supervisor and/or manager to advise them of their health status.

## 4. PROCEDURES

There are various names used to describe the virus and subsequent disease associated with the SARS-CoV-2 virus (e.g., "COVID-19" and "corona virus"). Within this document the emphasis will be on the virus itself and not the disease created by the virus. These procedures identify the methods being employed to eliminate infection by the SARS-CoV-2 virus.

### 4.1. Work Practices

Social distancing, including increasing the space between employee work areas and decreasing the possibility of contact by limiting large or close contact gatherings should be considered.

Non-essential business travel shall be evaluated for suspension. Additionally, the Company shall consider cancelling large congregate settings such as meetings, events and conferences to facilitate social distancing.

Practice good hand hygiene protocols to avoid exposure to droplets, infected blood and body fluids, contaminated objects, or other contaminated environmental surfaces. Hand hygiene consists of washing with soap and water or using alcohol-based hand rubs containing at least 60% alcohol. Soap and water are best for hands that are visibly soiled. Perform hand hygiene before and after any contact with a patient with suspected or confirmed COVID-19, after any contact with potentially infectious material, and before putting on and upon removal of PPE, including gloves.

Routinely clean all frequently touched surfaces in the workplace such as workstations, countertops, doorknobs and tools. All areas that are likely to have frequent hand contact, such as work surfaces, should also be cleaned frequently using normal cleaning products following the directions provided on the label.

#### 4.2. Pre-Infection Preparation

Managers in the field should confirm any specific instructions from clients regarding work restrictions or potential infection situations. Also confirm EQM's procedures will not interfere with the client's project and/or operations.

Managers and supervisors will determine and confirm the communication lines and points of contact to report information as it flows between the various management levels.

**Note:** Employees should use this form as a daily self-evaluation, completing a second hard-copy and forwarding to the Director of HR if symptoms appear.

#### 4.3. Infected Workspaces

In the event of an outbreak within a workplace, a manager may need to isolate a specific workspace. In that event, use caution tape or a physical barrier (e.g., close and lock a door) to warn workers to not enter the area until it is appropriately cleaned. This may involve entire facilities. Make sure to identify the area is off-limits from every entry point.

To decontaminate areas where there is a potential SARS-CoV-2 contamination, follow Work Instruction (WI) 322A, *SARS-CoV-2 Decontamination Procedures*.

#### 4.4. Procedures for Potentially Infected Personnel

If someone suspects they have potentially encountered the virus, either directly or indirectly, they should immediately contact their manager/supervisor. Managers and supervisors may also direct personnel to complete these procedures if they suspect the employee is potentially infected.

- Notify the Director of HR to begin assessment.
- Complete the COVID-19 screening form (Appendix A) and forward it to EQMs Medical Case Manager, 1Source OHS, [coronavirus@1sourceohs.com](mailto:coronavirus@1sourceohs.com)
- Begin performing daily health checks, monitoring:
  - Temperature
  - Cough
  - Breathing difficulty
  - Nausea and/or diarrhea
- Begin a fourteen (14) day quarantine:

- Stay at home
- Consult a physician (the Director of HR may advise contacting EQM's Medical Case Manager)
- Notify your manager/supervisor and the CHSM concerning any diagnosed infection to track the disease progression within the company and complete any other questionnaires if needed.

Remain quarantined until receiving a clearance from the Director of HR to return to work.

#### 4.5. Return to Work Procedures

The decision to discontinue home quarantine is based on local vs. nationwide circumstances. Additionally, these guidelines now reflect several states' "Stay at Home" orders.

There are two strategies used to determine when it's safe to discontinue home quarantine:

- A "time-since-illness-onset" with "time-since-recovery" strategy.
- A test-based strategy.

For the "time-since-illness-onset" with "time-since-recovery" strategy, employees with suspected or confirmed COVID-19 symptoms and were directed to care for themselves at home, may discontinue home isolation under the following conditions:

- Wait for at least 3 days (72 hours) after recovery, which is defined as a return to a normal body temperature without using fever-reducing medications and reduced respiratory symptoms (e.g., cough, shortness of breath); and
- At least seven (7) days have passed since the symptoms first appeared.

**Note:** Not all persons will suffer severe disease symptoms to the same degree. Therefore, do not try and differentiate between severe and mild symptoms. Because the "time-since-illness-onset" with "time-since-recovery" strategy is not based on any clinical diagnosis, therefore, treat all symptoms as a potential COVID-19 case.

The test-based strategy is contingent on the availability of testing supplies and laboratory capacity, as well as convenient access to testing locations. The jurisdiction offering the test will provide instructions on performing the test at the time the test is offered or administered.

Persons who test positive for COVID -19, have symptoms, and were directed to care for themselves at home, they may discontinue home isolation under the following conditions:

- Fever resolution without using fever-reducing medications.
- Improvement in respiratory symptoms (e.g., cough, shortness of breath).
- A negative result to an FDA Emergency Use Authorized molecular assay for COVID-19 from at least two consecutive nasopharyngeal swab specimens collected  $\geq 24$  hours apart (total of two negative specimens).

**Note:** Individuals with laboratory confirmed COVID -19 who are asymptomatic may discontinue home isolation after at least seven days after the first positive diagnostic test and have had no subsequent illness or symptoms.

#### 4.6. PPE

The key to avoiding infection is to maintain a barrier between potentially contaminated materials and the workers. This is done by proper PPE selection, wear, and disposal which must balance the threat of infection as well as protecting against any hazardous characteristics within the disinfection and cleaning materials. However, EQM will only provide the PPE necessary to support field operations. Workers assigned to non-field workplaces (e.g., the corporate offices, working at home, etc.) wishing to use PPE may do so at their own discretion and at their own cost.

### 5. RECORDS

Due to the Health Insurance Portability and Accountability Act (HIPAA), the information collected on forms and in conversations with managers is considered protected information and are subject to the HIPAA requirements. For this reason, the Director of HR will collect and contain all documentation generated during this process. From there, the Director of HR may disseminate documents that do not contain HIPAA protected information as necessary to reporting and tracking these cases.

### 6. TRAINING

While the SARS-CoV-2 virus is not a bloodborne contagion and is therefore not covered under 29 CFR §1910.1030, *Bloodborne Pathogens*, rules, OSHA requires training for workers with reasonably anticipated occupational exposure to COVID-19, as follows:

- Describe the sources of exposure to the virus, the hazards associated with that exposure, and appropriate workplace protocols in place to prevent or reduce the likelihood of exposure.
- Include information about how to isolate individuals with suspected or confirmed COVID-19 or other infectious diseases, and how to report possible cases
- Train workers required to use PPE on the following;
  - When to use it,
  - What type(s) is/are necessary,
  - How to properly don, use, and doff it,
  - How to properly dispose of or disinfect it,
  - How to inspect for damage,
  - Proper maintenance, and
  - Any limitations for the specific type of PPE.
- Bloodborne Pathogens training when there is potential for exposure to human blood, certain body fluids, or other potentially infectious materials, including:
  - Information about how to recognize tasks that may involve exposure,
  - The methods, such as engineering controls, work practices, and PPE, to reduce exposure, and
  - Further information on needlestick prevention.

### 7. DEFINITIONS

**APR** – Air Purifying Respirator

**Bloodborne Pathogens** - These are pathogenic microorganisms that are present in human blood and can cause disease in humans and include, but are not limited to, hepatitis B virus (HBV) and human immunodeficiency virus (HIV).

**CDC** – Center of Disease Control and Prevention

**Close Contact** - Being about six (6) feet from an infected person for a prolonged period while not wearing recommended PPE. Close contact also includes instances where there is direct contact with infectious secretions while not wearing recommended PPE. Close contact generally does not include brief interactions, such as walking past a person

**Corporate Manager** – EQM’s upper-level management consisting of the President, Vice Presidents, Division Managers, and Directors.

**COVID-19** – This is the name of the disease caused by the SARS-CoV-2 virus.

**Cytotoxic** – Any material that is toxic to living cells.

**Field Manager** – EQM’s field management consisting of Project Managers (PM), Response Managers (RM), and Site Supervisors (SS).

**HBV** – hepatitis B virus

**HIPAA** – The Health Insurance Portability and Accountability Act of 1996.

**HIV** – human immunodeficiency virus

**SARS-CoV-2** – This is the official name for the virus that causes the COVID-19 disease.

**Social Distancing** - Remaining out of congregate settings where close contact with others may occur and maintaining a distance of approximately six feet from others.

**Supervisor** – Manager below the level of Field Manager who supervises work crews or individuals on one or more specific worksites.

## 8. FORMS

- 1 SourceOHS Form CV-1

## 9. REVISION HISTORY

The EQM Document Control Officer shall ensure this procedure is reviewed at least every 3 years and all revisions are tracked. If the Approver listed on the document is no longer responsible for the contents of this document, the VP of the Division will assign a new approver. The highlighted section may make more sense in the document control SOP.

REVISION HISTORY			
Date	Purpose/Description	Pages Affected	Authorized By
04/15/2020	Initial Issue	All	D. Arthur

## 10. REFERENCES

Centers for Disease Control and Prevention (CDC). 2020a. *Interim Infection Prevention and Control Recommendations for Patients with Suspected or Confirmed Coronavirus Disease 2019 (COVID-19) in Healthcare Settings*. March 10. Retrieved from <https://www.cdc.gov/coronavirus/2019-ncov/hcp/dental-settings.html>.

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## **APPENDIX A: COVID-19 SCREENING FORM**





## COVID-19 Screening Form

Form Number: CV-1

1 Source  
7501 West 15th Ave  
Gary, IN 46406  
Phone: (855) 517-6872  
Fax: (219) 228-8852



Due to the Coronavirus being classified as a pandemic, all employees, visitors and contractors will be screened using the following questionnaire.

Please answer the following questions:

1. Do you have any flu-like symptoms, i.e. fever (100.4 or greater), sore throat, headache, runny nose, cough, difficulty breathing, etc.? ☐ YES ☐ NO
2. Do you know if you have been in contact with someone who is suspected or confirmed as having COVID-19 in the last 14 days? ☐ YES ☐ NO
3. Have you or any of your close contacts traveled from outside the contiguous United States in the past 14 days? ☐ YES ☐ NO
4. Specifically, have you or any of your close contacts traveled to or from any of the following countries in the past 14 days: China, Taiwan, Hong Kong, Singapore, South Korea, Japan, Thailand, Italy or Iran, or any hot spots with concentrated Coronavirus in the US.\*? ☐ YES ☐ NO

Thank you for your cooperation as we continue to provide ongoing safety precautions.

Employer Name

Employee Name  Date of Birth

Contact Phone  Contact Email

Please sign and date that you understand and have answered the above questions.

Signature (Typing your name in the above field is sufficient)

Date

If you answer 'YES' to any of the questions above, you may not enter the premises until a medical clearance is received. You may also be contacted by a licensed medical provider from 1 Source.

\* This is the current list of countries and regions that have been categorized as high risk. This list is dynamic and will be adjusted accordingly.

For 1Source Use Only

Version 1

Reviewer  Date  Units

## **ATTACHMENT C**

### **WI 322A SARS-CoV-2 Decontamination Procedures**

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### 1. PURPOSE

The purpose of this Work Instruction (WI) is to establish a standardized facility decontamination protocol that will ensure the safe decontamination of areas impacted or potentially impacted with the Coronavirus COVID-19, specifically to contain or abate the COVID-19 disease.

**Note:** “SAR-CoV-2” is the official name for the virus that causes the “COVID-19” disease. The references in this document are about controlling the virus which will also control the spread of the disease. This disease is sometimes also simply called the “coronavirus”. Because, there are a group of corona viruses that are related and cause diseases in mammals and birds, for the sake of specificity, this document will only use the official names for the SAR-CoV-2 virus and COVID-19 disease respectively.

## **2. SCOPE**

This procedure applies to all EQM personnel and persons temporarily assigned to complete specific projects or tasks, relating to decontaminating areas (potentially) contaminated with the Coronavirus, known as COVID-19. These are personnel involved in performing decontamination and final surface treatment activities at indoor facilities which maintain rigidly-controlled environmental standards for air quality, contaminant control, clean-room and quarantine conditions typically found in, but not limited to, hospitals, biotechnology, research and development-based facilities, and public facilities.

## **3. RESPONSIBILITIES**

### **3.1. Corporate Health and Safety Manager (CHSM)**

The CHSM manages EQM's safety programs, which includes supporting the project worksites. The CHSM is responsible for the following:

- Develop necessary guidance materials.
- Develop or review Health and Safety Plans (HASPs).
- Coordinating and assist in appropriate personal protective equipment (PPE) selection.
- Obtain the most up-to-date information regarding the virus and disseminating that information to the Project and Field Managers.

### **3.2. Project Managers**

Project managers are responsible for developing and coordinating all project planning, pre-operations documentation, and coordination between EQM senior managers, the client, and/or government representatives and the Field Manager. Corporate Managers are responsible for the following:

- Coordinate with the client to develop the project parameters
- Ensure the project remains on-time and on-track to complete the project's requirements.
- Ensure all necessary resources are obtainable and appropriate for the project.
- Ensure the project's PPE and safety equipment remains within the budget.

### **3.3. Field Managers**

Field managers are the onsite management function that deals with the day-to-day operations. Field Managers are responsible for the following:

- Direct all onsite safety operations and practices.
- Procure the necessary disinfection equipment and PPE.
- Designate the appropriate office, break, storage, and operations areas.
- Monitor onsite personnel for potential infection, isolating them if there is any question they could be infected.
- Coordinate with the client and/or Project Manager regarding safety issues onsite.
- Restrict the work zones to only those personnel directly supporting operations
- Terminate the project once all disinfection processes are complete.

### **3.4. Supervisors**

Supervisors are the key to ensuring assigned personnel hold the training requisite to their position. Supervisors are responsible for the following:

- Monitor assigned personnel for infection symptoms
- Isolate suspected workers that show infection symptoms
- Coordinate PPE requirements and work practice controls with the Field Manager

### **3.5. All Personnel**

All EQM staff are responsible to notify their manager/supervisor if they suspect they have been exposed to the SARS-CoV-2 virus, and to self-quarantine if they suspect they are suffering symptoms. They are then to follow the provisions of this WI.

## **4. PROCEDURES**

There are various names being used to describe the virus and subsequent disease associated with the SARS-CoV-2 virus. Within this document the emphasis will be on the virus itself and not the disease created by the virus. These procedures identify the methods being employed to eliminate the SARS-CoV-2 virus from facilities.

### **4.1. Project Preparation**

Proper pre-planning is critical in determining the equipment and supplies that will be necessary to address the cleanup actions. The Project Manager and/or Field Manager will make these determinations and ensures personnel comply with the procedures noted below.

#### **4.1.1. Project Planning**

The Project Manager and/or Field Manager will confirm any specific instructions from the client or the equipment manufacturer regarding equipment disassembly/reassembly to access surfaces for disinfection without causing damage to the equipment. Also confirm any numeric cleanliness levels to achieve and define those requirements prior to operations, if necessary.

The Field Manager will determine and confirm the communication lines and points of contact to utilize during the work process.

The Field Manager will then confirm the presence and location of facility safety showers, eyewash stations, fire extinguishers, first aid kits, and other emergency resources prior to starting work, obtaining and employing safety equipment and other assets to augment the existing infrastructure as needed.

#### **4.1.2. PPE**

The key to avoiding infection is to maintain a barrier between potentially contaminated materials and the workers. This is done by proper PPE selection, wear, and disposal which must balance the threat of

infection as well as protecting against any hazardous characteristics within the disinfection and cleaning materials.

#### 4.1.2.1. Selection

Because this virus is extremely virulent, it is essential for field managers to select the appropriate PPE to keep it from contaminating the workers' clothing and other personal items, while, at the same time, ensuring workers are also protected from the antiseptics and anti-microbial chemicals used in cleaning. For this reason, it is important to enter potentially contaminated areas in Level C. This will involve:

- Disposable water-resistant outer garment with hood (or equivalent)
- Disposable boot covers over work boots
- Durable long pants
- Durable long sleeve shirt

There are two strategies for respiratory, eye, and hand protection, depending on the expected contamination load, the intended cleaning/disinfection products, the weather conditions, and the condition of the facility in which the project will take place.

- Option 1 (when performing precautionary sanitization)
  - N95 filtering face piece
  - Safety Goggles, to preclude aerosolized droplets from reaching eye tissues
  - Latex surgical or nitrile gloves, as necessary based on the specific decontaminants and anti-microbials
- Option 2 (when performing full cleaning and decontamination)
  - Full-face air purifying respirator (APR) with P-100 filters attached
  - Full gauntlet chemical resistant gloves as necessary to address specific decontaminants and anti-microbials

The Project/Field Manager should assess the worksite for potential overhead hazards, and if the worksite has no potential for injury from an overhead hazard, wearing a hardhat is optional based on contract and/or client requirements.

When determining if a specific PPE item is appropriate, use the following guidelines.

- Outer garments and protective gear should be fluid-resistant, splash-proof, and chemical-resistant. Other PPE that does not have this capability is still usable, but only use it after re-accomplishing the Activity Hazard Analysis (AHA) to determine it is appropriate.
- The CDC currently recommends standard contact and airborne precautions, since respiratory droplets produced when an infected person coughs or sneezes are suspected to play a significant role in transmitting the virus.
- Use a properly fit-tested, NIOSH-approved, Chemical, Biological, Radiological, Nuclear (CBRN) Self Contained Breathing Apparatus (SCBA), full-face Powered Air Purifying Respirator (PAPR), Air Purifying Respirator (APR) with appropriate particulate or combination cartridges, or disposable N95/N100 Filtering Facepiece Respirator suitable for any decontaminants (e.g., 10% bleach solution, alcohol-based disinfectants, hydrogen peroxide, etc.).
- Along with protecting from the virus, PPE selection should also consider the following:
  - Chemical exposure hazards,

- Outer garment fabric performance data (i.e., material thickness, fluid resistance, etc.),
- Outer garment seam construction, and
- Other hazards within the workspace (e.g., sharps).
- All gloves (other than additional outer task-specific work gloves) must be National Fire Protection Association (NFPA) 1999 compliant for medical use.
- Pre-incident training and exercises on the proper use of PPE are recommended.
- Because the products used for cleaning biohazard materials are potentially hazardous when used without PPE, therefore, reference each product's Safety Data Sheet (SDS) to assist in selecting appropriate PPE.

#### 4.1.2.2. Donning and Doffing Protocols

While the Field Manager will assemble the decontamination station, all personnel must follow the steps below, in sequence.

**Donning PPE** – Perform the following steps to don appropriate PPE:

1. Step into disposable water-resistant outer garment
2. Place disposable boot covers over the boots
3. Insert hands into latex/nitrile inner gloves
4. Duct tape over the junctures between the coverall sleeves and inner gloves and between the coverall pants and the boots
5. Don the respirator with the straps inside of the hood (Do not let the coverall hood interfere with the respirator facepiece)
6. Secure the coverall hood over the head and respirator straps
7. Don outer protective gloves, as needed
8. Enter and proceed through the entry control point and into the Exclusion Zone (EZ)

**Doffing PPE** – Proceed to the Contamination Reduction Zone (CRZ) and process through each of the decontamination station. The time required in each station depends on the process as well as the disinfectants used. See the product manufacturer's recommendations. (Specific chemicals are noted here: <https://www.epa.gov/pesticide-registration/list-n-disinfectants-use-against-sars-cov-2>.)

1. Ensure qualified individual is in place to monitor doffing protocol.
2. Remove each boot cover at a time, stepping onto a chemical mat or compatible surface after removing the cover.
3. Sanitize non-disposable outer protective gloves, when worn.
4. Sanitize the outside of the non-disposable respirator, when worn.
5. Remove the outer gloves and set them aside on a non-contaminated surface or into a sealed bag.
6. Remove the tape from the junctures between the suit and the gloves/boots without removing them.
7. Remove the outer garment by pulling them out and away from the body, pulling the arms and legs inside out into the empty torso of the outer garment.
8. Sanitize inner gloves and boots without removing them.
9. Remove the respirator and set aside for cleaning and further sanitization.
10. Remove the inner-gloves one hand at a time, pulling them inside out (breaking method).
11. Step into a decontamination solution to ensure boot soles are free of contamination, using a brush if necessary.
12. Wash/scrub hands and forearms for at least 20 seconds with soap and warm water after removing PPE.

### 13. Exit the decontamination area

#### 4.1.3. Procuring Specialized Equipment, Tools, and Supplies

Procure the equipment necessary for performing the disinfection process. The following are the more common items used.

- Roll-around supply carts
- Razor and paint scrapers
- Non-metallic abrasive scouring pads
- Manually operated Hudson Sprayers
- Spray bottles
- Lint-free (micro-fiber) wiping cloths, towels and other dust-free media and mops
- Storage containers for mixed chemical cleaning products
- Disinfection/Antiseptic/Antimicrobial cleaning compounds
  - 10% bleach solution (1 part [10%] sodium hypochlorite solution to 9 parts [90%] water)
  - 70% isopropanol solution
  - Quaternary ammonium solution

**Note:** Consult the US Environmental Protection Agency's (USEPA) *List N: Disinfectants for Use Against SARS-CoV-2* website (<https://www.epa.gov/pesticide-registration/list-n-disinfectants-use-against-sars-cov-2>) for recommendations on cleaning and disinfection products.

- Mild surfactant and water solutions (soap, detergent, or equivalent) for cleaning gross contamination

Ensure buckets, pails, and scrub brushes are available for use within the decontamination stations. Try to procure items with non-porous surfaces (e.g., plastic, stainless steel, glass, etc.).

#### 4.1.4. Identifying Zones

Develop a disinfection strategy by designating contaminated areas into several broad categories:

- Surfaces or “hotspots”
- Large volumetric spaces
- Sensitive and irreplaceable items
- Liquids containing potentially infectious materials.

Treat each area using one or more disinfection techniques in a tiered approach to the overall site-specific disinfection process.

Begin by confirming the location and size of the area to be decontaminated with the client and identify any equipment present to be decontaminated or expended. Much the same as any cleanup process, it is necessary to setup, at a minimum, an EZ, CRZ, and a clean Support Zone (SZ). Set them up as follows.

Establish the EZ by delineating the work zone along natural borders (e.g., walls, ceilings, windows, and other partitions) to other rooms or hallways where there is suspected or verified viral contamination. If



there are openings into other areas where the virus could migrate during operations, close them off with plastic sheeting or another physical barrier.

Determining the CRZ depends on the operations occurring within the EZ. If the operations only require light misting and wiping surfaces, the CRZ need only be approximately six feet from the EZ, while allowing for a complete decontamination station. If there is the possibility gross contaminants could be aerosolized, expand the CRZ by the distance such materials are expected to fall.

The SZ is the area outside of the CRZ into which there is no potential for infection to spread. The SZ should be large enough to encompass the outside site borders, as well as allowing for stockpiling equipment, supplies, break areas, a support office (if utilized.) Ensure there is an entry control point on the exterior of the SZ to ensure persons not affiliated with the project do not inadvertently enter any of the controlled zones.

#### 4.2. Antiseptic and Disinfection Procedures

These procedures are those employed to accomplish the project and are not the same as the decontamination procedures for personnel and equipment used to accomplish the process.

Before entering the entering the CRZ on the way to the EZ, ensure that all PPE is in place and worn correctly. Once in the EZ, perform the following:

- Assemble and containerize the routine cleaning solution to remove gross decontamination prior to entering the CRZ on the way into the EZ.
- After entering the EZ, begin removing any gross contamination present. This may require power washing, scraping, or other more aggressive cleaning methods. When this is the case, do so in such a manner as to keep from spreading the material outside of the EZ.
- After removing the gross contamination, bag or containerize it for disposal.
- Apply an EPA-registered, hospital-grade disinfectant to potentially contaminated areas, surfaces and/or objects for the contact times as indicated on the product's label and are appropriate for the SARS-CoV-2 virus in healthcare settings, as noted on the USEPA's website *List N: Disinfectants for Use Against SARS-CoV-2*.

**Note:** Refer to the list of approved EPA-registered disinfectants, located on the EPA's website ([www.epa.gov](http://www.epa.gov)) for disinfectants that have qualified under EPA's emerging viral pathogens program for use against the SARS-CoV-2 virus.

Some items or areas cannot be disinfected, such as porous materials (fabric furniture, beds, carpet, etc.). In this event, cut them into small enough pieces for disposal in an appropriate closable receptacle and dispose of them appropriately.

**Note:** Decontaminate the exterior of every bag, drum, or other disposal container prior to leaving the CRZ to ensure potentially infectious material is not transmitted out of the EZ.

During the operations, take photographs (if applicable) during and after cleanup activities to document the project's progress. Do not use a personal/corporate cellphone to take these pictures without completely decontaminating it prior to its next use.

### 4.3. Waste Disposal

All waste materials generated during operations is considered Class 6 – Infectious Substances. Collect, package and prepare them for shipment, then transport them in closed containers marked and labeled according to the Department of Transportation’s (DoT) hazardous materials regulations (49 CFR).

**Note:** Some municipalities may enforce additional precautions, routes, or disposal methods on the wastes originating from these projects. Project and Field Managers should coordinate with local authorities to determine if they exist and what affects they will place on the operation.

### 4.4. Terminating Operations

Once the area has been cleaned, the Project and/or Field Manager will visually inspect the area(s) to confirm that conditions meet the decontamination criteria. All persons involved in this inspection must wear the appropriate PPE as if the area were still contaminated until such time as the area is declared clear. Once clear, terminate the operation and return the area to the client.

The Project Manager should terminate the operation when all decontamination/clean-up activities are complete and verified by the client. Upon termination, it is essential to account for all personnel before securing the site operations by recording the names and telephone numbers of each person who may have been exposed to hazardous materials during the operation.

Before leaving the site, the Project Manager will ensure all equipment and supplies used during the operation have been properly decontaminated and readied for storage.

Debrief all personnel who were involved in the operation to address the potential that personnel may not experience infection symptoms for up to two weeks after project termination. Advise the workers on how to contact EQM to report an infection after project termination as part of an ongoing medical surveillance process.

## 5. RECORDS

If a worker becomes infected during operations, is isolated, recovers prior to project termination, and requests to return to work, they must present a doctor’s note stating the worker is negative for the virus and is not infectious to other workers.

Medical waste does not require disposal in an “approved” landfill, beyond those requirements for an approved solid waste landfill or incinerator. Medical waste does not require using a Uniform Hazardous Waste Manifest, so transport them on a standard hazardous materials bill of lading.

## 6. TRAINING

Personnel working these projects must attend the 40-hour Hazardous Waste Operations and Emergency Response (HAZWOPER) normally required for performing remediation and environmental cleanups.

Because the DoT regulates medical waste, all persons involved in handling, packaging, preparing, marking, labeling, and potentially certifying these materials must have at least 24 hours of hazardous materials transportation training according to 49 CFR §173.1(b).

While the SARS-CoV-2 virus is not a bloodborne contagion and is therefore not covered under 29 CFR §1910.1030, *Bloodborne Pathogens*, rules, OSHA requires training for workers with reasonably anticipated occupational exposure to COVID-19, as follows:

- Describe the sources of exposure to the virus, the hazards associated with that exposure, and appropriate workplace protocols in place to prevent or reduce the likelihood of exposure.
- Include information about how to isolate individuals with suspected or confirmed COVID-19 or other infectious diseases, and how to report possible cases
- Train workers required to use PPE on;
  - When to use it,
  - What type(s) is/are necessary,
  - How to properly don, use, and doff it,
  - How to properly dispose of or disinfect it,
  - How to inspect for damage,
  - Proper maintenance, and
  - Any limitations for the specific type of PPE.
- Bloodborne Pathogens training when there is potential for exposure to human blood, certain body fluids, or other potentially infectious materials, including:
  - Information about how to recognize tasks that may involve exposure,
  - The methods, such as engineering controls, work practices, and PPE, to reduce exposure, and
  - Further information on needlestick prevention.

Workers are advised to complete the EQM COVID-19 Awareness training, which meets OSHA's training and hazard communication requirements.

## 7. DEFINITIONS

**APR** – Air Purifying Respirator

**Bloodborne Pathogens** - These are pathogenic microorganisms that are present in human blood and can cause disease in humans and include, but are not limited to, hepatitis B virus (HBV) and human immunodeficiency virus (HIV).

**CDC** – Center of Disease Control and Prevention

**Corporate Manager** – EQM's upper-level management consisting of the President, Vice Presidents, Division Managers, and Directors.

**COVID-19** – Coronavirus Infectious Disease-2019 is the name of the disease created by the SARS-CoV-2 virus.

**Field Manager** – EQM's field management consisting of Project Managers (PM), Response Managers (RM), and Site Supervisors (SS).

**HBV** – hepatitis B virus

**HIV** – human immunodeficiency virus

**Potentially Infectious Materials** – For this instruction, this is any material, regardless of origin, that may contain the SARS-CoV-2 virus.

**SARS-CoV-2** – Severe Acute Respiratory Syndrome Coronavirus 2 is the official name for the virus that causes the COVID-19 disease.

**Sharps** – This includes any object used or encountered in the work environment that can reasonably penetrate the skin or any other part of the body, and to result in an exposure incident, including, but not limited to, needle devices, scalpels, lancets, broken glass, broken capillary tubes, exposed ends of dental wires and dental knives, drills and burs.

**Self-Quarantine** – This is when an individual decides to restrict their personal movement and isolate themselves to their home to prevent the spread of disease. This includes those who may have been exposed to a communicable disease but do not have a confirmed medical diagnosis.

**Supervisor** – Manager below the level of Field Manager who supervises work crews or individuals on one or more specific worksites.

**Universal Precautions** – An approach to infection control to treat all human blood, human body fluids, and other potentially infectious material as if they were known to be infectious for HIV, HBV and other bloodborne pathogens.

## 8. FORMS

- None

## 9. REVISION HISTORY

The EQM Document Control Officer shall ensure this procedure is reviewed at least every 3 years and all revisions are tracked. If the Approver listed on the document is no longer responsible for the contents of this document, the VP of the Division will assign a new approver. The highlighted section may make more sense in the document control SOP.

REVISION HISTORY			
DATE	PURPOSE/DESCRIPTION	PAGES AFFECTED	AUTHORIZED BY
04/15/2020	Initial Issue	All	D. Arthur

## 10. REFERENCES

Centers for Disease Control and Prevention (CDC). 2020a. *Interim Infection Prevention and Control Recommendations for Patients with Suspected or Confirmed Coronavirus Disease 2019 (COVID-19) in Healthcare Settings*. March 10. <https://www.cdc.gov/coronavirus/2019-ncov/hcp/dental-settings.html>.

CDC. 2020b. *Show Me the Science - How to Wash Your Hands*. <https://www.cdc.gov/handwashing/show-me-the-science-handwashing.html>

U.S. Department of Labor. 2020. *Guidance on Preparing Workplaces for COVID-19*. OSHA Publication 3990-03 2020.

World Health Organization (WHO). 2020. *Naming the Coronavirus Disease (COVID-19) and the Virus That Causes It*. Retrieved from [https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance/naming-the-coronavirus-disease-\(COVID-2019\)-and-the-virus-that-causes-it](https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance/naming-the-coronavirus-disease-(COVID-2019)-and-the-virus-that-causes-it).

## **APPENDIX A: HOW TO WASH YOUR HANDS**

## How to Wash Your Hands

**Note:** As adapted from the CDC website, *Show Me the Science - How to Wash Your Hands*.

Keeping hands clean is one of the most important steps we can take to avoid getting sick and spreading germs to others. Many diseases and conditions are spread by not washing hands with soap and clean, running water. CDC recommends cleaning hands in a specific way to avoid getting sick and spreading germs to others. The guidance for effective handwashing and use of hand sanitizer was developed based on data from several studies.

Microbes are tiny living organisms that may or may not cause disease and germs, or pathogens, are types of microbes that can cause disease.

Begin by wetting your hands with clean, running water (warm or cold), turn off the tap, and apply soap.

**Why?** Because hands could become re-contaminated if placed in a basin of standing water that has been contaminated through previous use. Always use clean running water. However, washing with non-potable water, when necessary, may still improve health. The temperature of the water does not appear to affect microbe removal; however, warmer water may cause more skin irritation and is more environmentally costly.

Next, turn off the faucet after wetting hands to save water, and there are few data to prove whether significant numbers of germs are transferred between hands and the faucet.

Then, use soap to wash hands is more effective than using water alone because the surfactants in soap lift soil and microbes from skin, and people tend to scrub hands more thoroughly when using soap, which further removes germs.

To date, studies have shown that there is no added health benefit for consumers (this does not include professionals in the healthcare setting) using soaps containing antibacterial ingredients compared with using plain soap. As a result, FDA issued a final rule in September 2016 that 19 ingredients in common “antibacterial” soaps, including triclosan, were no more effective than non-antibacterial soap and water and thus these products may no longer be marketed to the general public. This rule does not affect hand sanitizers, wipes, or antibacterial products used in healthcare settings.

Next, lather your hands by rubbing them together with the soap. Be sure to lather the backs of your hands, between your fingers, and under your nails.

**Why?** Lathering and scrubbing hands creates friction, which helps lift dirt, grease, and microbes from skin. Microbes are present on all surfaces of the hand, often in particularly high concentration under the nails, so the entire hand should be scrubbed 11-15.

Then, scrub your hands for at least 20 seconds. Need a timer? Hum the "*Happy Birthday*" song from beginning to end twice.

**Why?** Determining the optimal length of time for handwashing is difficult because few studies about the health impacts of altering handwashing times have been done. Of those that exist, nearly all have measured reductions in overall numbers of microbes, only a small proportion of which can cause

illness, and have not measured impacts on health. Solely reducing numbers of microbes on hands is not necessarily linked to better health. The optimal length of time for handwashing is also likely to depend on many factors, including the type and amount of soil on the hands and the setting of the person washing hands. For example, surgeons are likely to contact disease-causing germs and risk spreading serious infections to vulnerable patients, so they may need to wash hands longer than a woman before she prepares her own lunch at home. Nonetheless, evidence suggests that washing hands for about 15-30 seconds removes more germs from hands than washing for shorter periods.

Accordingly, many countries and global organizations have adopted recommendations to wash hands for about 20 seconds (some recommend an additional 20-30 seconds for drying).

Next, 4inse your hands well under clean, running water.

**Why?** Soap and friction help lift dirt, grease, and microbes—including disease-causing germs—from skin so they can then be rinsed off hands. Rinsing the soap away also minimizes skin irritation. Because hands could become re-contaminated if rinsed in a basin of standing water that has been contaminated through previous use, clean running water should be used. While some recommendations include using a paper towel to turn off the faucet after hands have been rinsed, this practice leads to increased use of water and paper towels, and there are no studies to show that it improves health.

Finally, dry your hands using a clean towel or air dry them.

**Why?** Germs can be transferred more easily to and from wet hands; therefore, hands should be dried after washing. However, the best way to dry hands remains unclear because few studies about hand drying exist, and the results of these studies conflict. Additionally, most of these studies compare overall concentrations of microbes, not just disease-causing germs, on hands following different hand-drying methods. It has not been shown that removing microbes from hands is linked to better health. Nonetheless, studies suggest that using a clean towel or air-drying hands are best



## **ATTACHMENT D**

**ERRS Pre-Deployment Questionnaire**  
**ERRS Daily Health Questionnaire**  
**Sign-In / Sign-Out Log**



## **ERRS Personnel Pre-Deployment Questionnaire**

This questionnaire is required to be completed by all EQM personnel and EQM subcontractors prior to mobilizing to an EQM ERRS Project Site. Submit this questionnaire back to the EQM RM who will evaluate responses against both EPA and CDC guidelines and provide a determination as to whether the respondent can mobilize to the site.

1. **Are you currently experiencing a fever?** Current CDC guidelines state that a fever is defined as an oral temperature of 100.4 degrees F or higher.  
☐ Yes ☐ No
2. **Are you currently experiencing any other symptoms of COVID 19 infection or any signs of illness in the last 14+ days?** Shortness of breath, coughing, etc.  
☐ Yes ☐ No
3. **Have you been practicing social distancing?** i.e. you have not attended any large gatherings of more than 10 people, staying 6-feet apart from people when conducting normal activities, etc.  
☐ Yes ☐ No
4. **Has a medical professional or local health department recommended that you self-isolate or self-quarantine for any reason?**  
☐ Yes ☐ No
5. **Have you been in contact with anyone that was told by a medical professional to self- quarantine or self-isolate for any reason?**  
☐ Yes ☐ No
6. **Is any member of your household currently exhibiting symptoms of an illness?**  
☐ Yes ☐ No
7. **When was the last time you were deployed for work and where?**  
Date: \_\_\_\_\_ Location: \_\_\_\_\_
8. **Were you informed if anyone from your last job assignment reported any illness or exhibited signs of COVID 19 infection?**  
☐ Yes ☐ No

\_\_\_\_\_  
Print Name

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

\_\_\_\_\_  
Print Name

\_\_\_\_\_  
RM Signature

\_\_\_\_\_  
Date

### ***Watch for Symptoms***

People with COVID-19 have had a wide range of symptoms reported, ranging from mild symptoms to severe illness. Symptoms may appear **2-14 days after exposure to the virus**. People with these symptoms may have COVID-19.

- Cough
- Shortness of breath or difficulty breathing
- Fever
- Chills
- Muscle pain
- Sore throat
- New loss of taste

This list is not all inclusive. Other less common symptoms have been reported, including gastrointestinal symptoms like nausea, vomiting, or diarrhea.



## **ERRS Personnel Daily Health Check Questionnaire**

**This questionnaire is required to be completed by all EQM personnel prior to mobilizing to an EQM ERRS Project Site. Communicate this questionnaire back to the EQM Supervisor who will evaluate responses against both EPA and CDC guidelines and recommendations and provide a determination as to whether the respondent can mobilize to the site.**

During the on-going COVID-19 pandemic, EQM will take special precautions to reduce risk for field personnel, including EPA staff, contractors, local responders, and stake-holders. As such, prior to deploying to an incident, please respond to the following questions:

1. **Are you currently experiencing a fever?** Current CDC guidelines state that a fever is defined as an oral temperature of 100.4 degrees F or higher.  
☐ Yes      ☐ No
2. **Are you currently experiencing any other symptoms of COVID 19 infection or any signs of illness in the last 14+ days?** Shortness of breath, coughing, etc  
☐ Yes      ☐ No
3. **Have you been in contact with anyone who currently is exhibiting symptoms of an illness in the last 14+ days?**  
☐ Yes      ☐ No
4. **Have you been practicing social distancing?** i.e. you have not attended any large gatherings of more than 10 people, staying 6-feet apart from people when conducting normal activities, etc.  
☐ Yes      ☐ No

### ***Watch for Symptoms***

People with COVID-19 have had a wide range of symptoms reported, ranging from mild symptoms to severe illness.

Symptoms may appear **2-14 days after exposure to the virus**. People with these symptoms may have COVID-19:

- Cough
- Shortness of breath or difficulty breathing
- Fever
- Chills
- Muscle pain
- Sore throat
- New loss of taste or smell

This list is not all inclusive. Other less common symptoms have been reported, including gastrointestinal symptoms like nausea, vomiting, or diarrhea.



**ATTACHMENT E**

**COVID-19 FAQ and Guidance**

**Q: Can we ask an employee to stay home or leave work if they exhibit symptoms of the COVID-19 coronavirus or the flu?**

A: Yes, you are permitted to ask them to seek medical attention and get tested for COVID-19. The CDC states that employees who exhibit symptoms of influenza-like illness at work during a pandemic should leave the workplace. The Equal Employment Opportunity Commission (EEOC) confirmed that advising workers to go home is permissible and not considered disability-related if the symptoms present are akin to the COVID-19 coronavirus or the flu.

**Q: An employee of ours has tested positive for COVID-19. What is our response?**

A: We are sending home all employees who worked closely with that employee for a 14-day period of time to ensure the infection does not spread. Before the employee departs, ask them to identify all individuals who worked in close proximity (three to six feet) with them in the previous 14 days to ensure you have a full list of those who should be sent home. When sending the employees home, do not identify by name the infected employee or you could risk a violation of confidentiality laws. If the employee worked in a shared workspace, you should arrange for immediate cleaning and sanitization of the work area following joint CDC – AIS guidelines.

**Q: One of our employees has a suspected but unconfirmed case of COVID-19. What should we do?**

A: Take the same precautions as noted above. Treat the situation as if the suspected case is a confirmed case for purposes of sending home potentially infected employees. Communicate with your affected workers to let them know that the employee has not tested positive for the virus but has been exhibiting symptoms that lead you to believe a positive diagnosis is possible.

**Q: One of our employees self-reported that they came into contact with someone who had a presumptive positive case of COVID-19. What should we do?**

A: Take the same precautions as noted above. Treat the situation as if the suspected case is a confirmed case for purposes of sending home potentially infected employees. Communicate with your affected workers to let them know that the employee is asymptomatic for the virus, but you are acting out of an abundance of caution.

**Q: One of our employees has been exposed to the virus but only found out after they had interacted with clients and customers. What should we do?**

A: Take the same precautions as noted above with respect to coworkers, treating the situation as if the exposed employee has a confirmed case of COVID-19 and sending home potentially infected employees that he came into contact with. As for third parties, you should

communicate with customers and vendors that came into close contact with the employee to let them know about the potential of a suspected case.

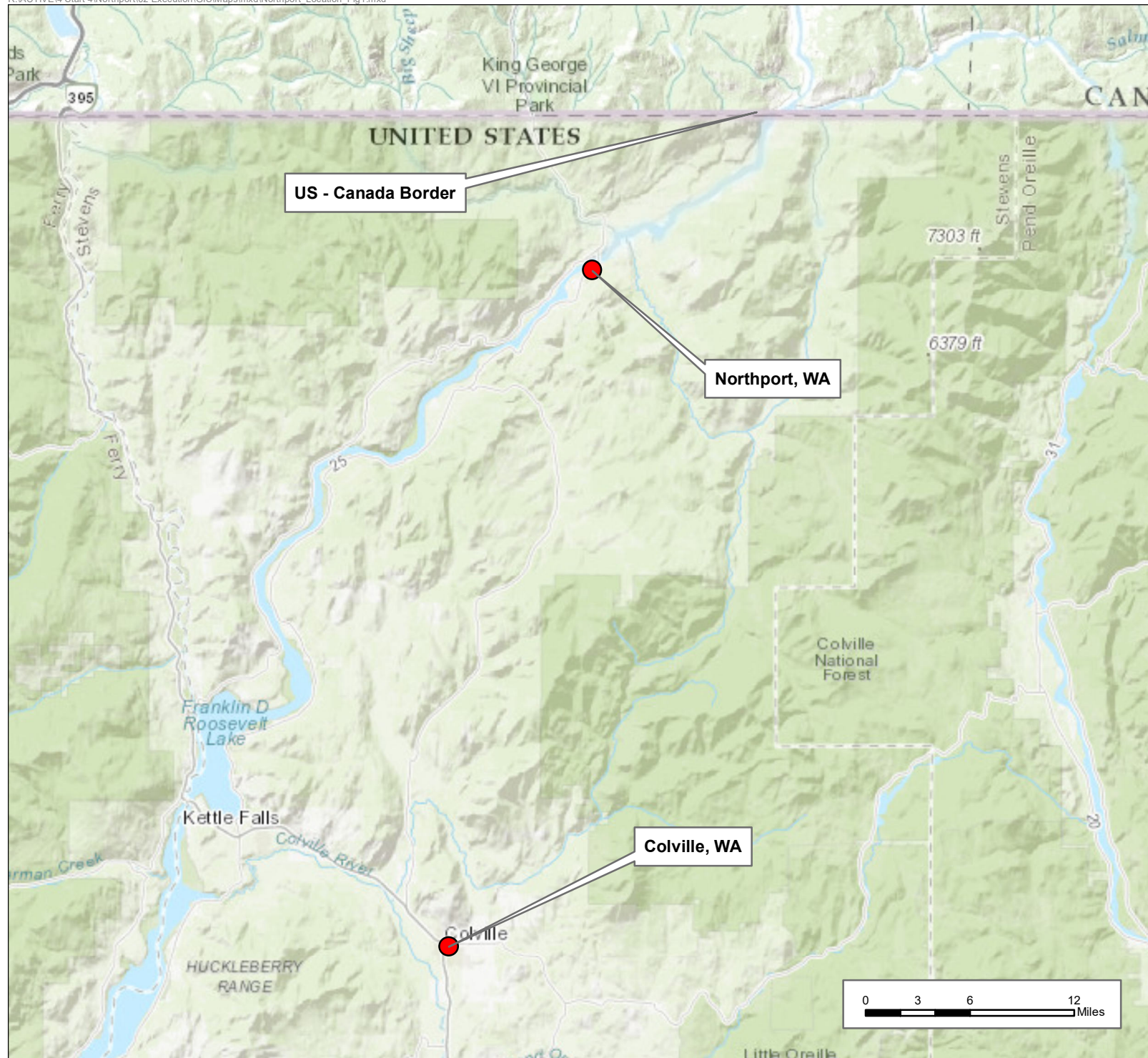
**Q: When may an employee who was sent home for exhibiting symptoms returning to work?**

A: The CDC has indicated that there are three options for determining when a person may end home isolation, using either (1) a time-since-illness-onset option of 7 days, (2) a time-since-recovery option of 72 hours, or (3) a test-based option. Doctor's evaluation will be required.

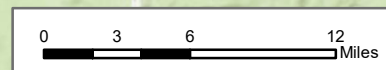
## **Attachment C**

### Vicinity and Location Maps

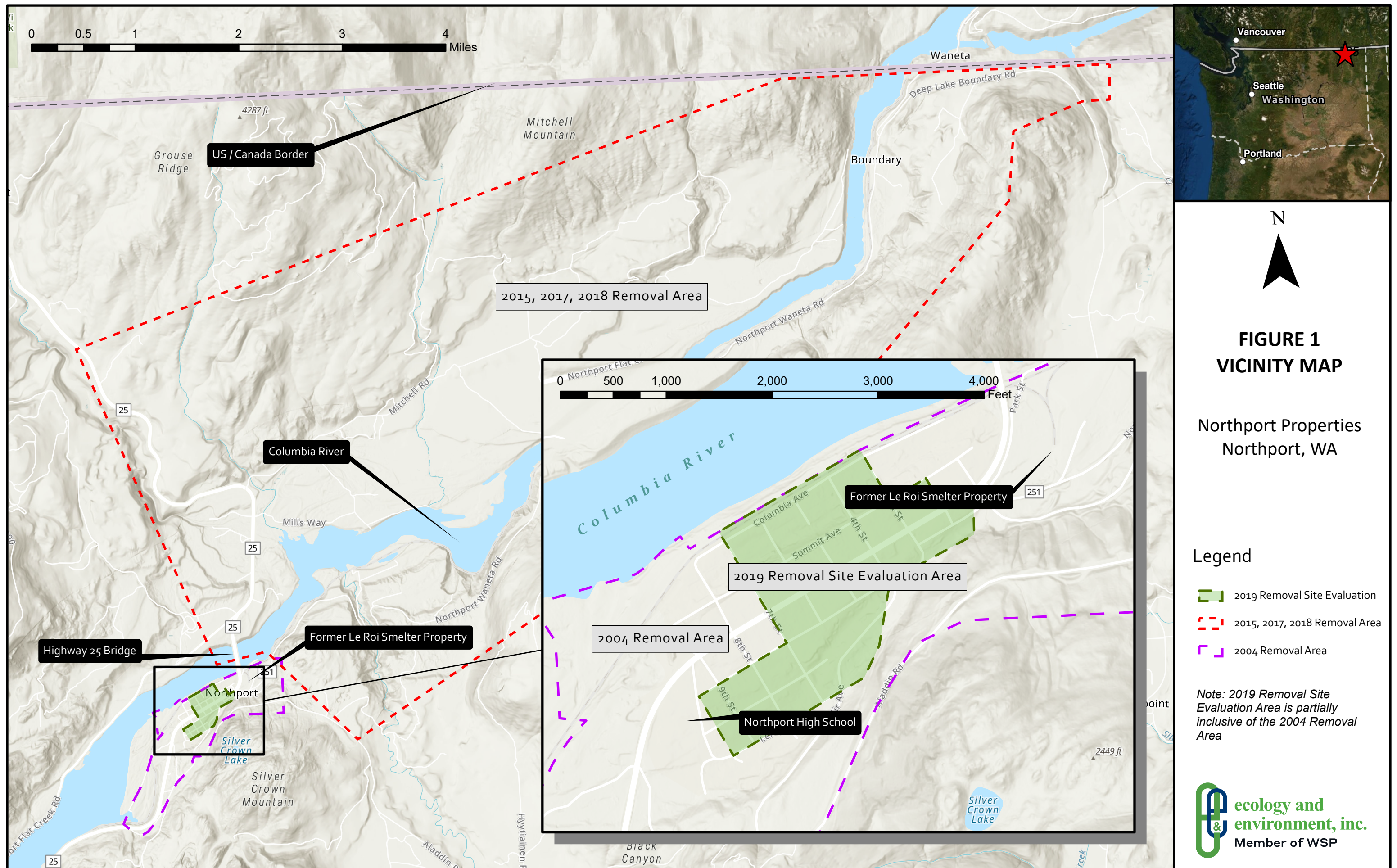




**LOCATION MAP  
NORTHPORT  
REMOVAL ACTION**  
Northport, WA









## **Attachment D**

EPA Region 10 COVID-19 Health Status and  
Temperature Screening for Site Workers Form

	<b>COVID-19 Health Status and Body Temperature Screening</b> <b>**Do not share pens, do not pass around a clip board**</b>	Page ____ of ____
R4 Created: 04/07/2020, R10 Updated:4/24/2020, 6/30/2020		

Site Name:		Normal Body Temperature: <99.5 - >96.4 °F <sup>4</sup>
		Possible Fever: >100.4 <sup>5</sup>

**Health Status and Body Temperature Screening**

Answer **Yes** or **No**. If **Yes** or **have a possible fever**, see the current version of the [ERRPPB COVID-19 Safety Best Management Practices](#) for recommendations

Name	Date	Have you been non-compliant with social distancing? <sup>1</sup>	Have you had close contact w/ COVID-19 + or ill person? <sup>2</sup>	Are you ill, have a cough, having difficulty breathing? <sup>3</sup> Any loss of sense of smell?	Have you been tested + or are being tested for COVID-19?	Start of Shift Temperature

<sup>1</sup> During previous 14 days, maintained CDC social distancing recommendations/stayed at home - <https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/social-distancing.html>

<sup>2</sup> Close contact means having been within six (6) feet of a COVID-19 + person or being exposed to their cough or sneeze

<sup>3</sup> <https://www.cdc.gov/coronavirus/2019-ncov/symptoms-testing/symptoms.html>

## **Attachment E**

EPA COVID-19 Job Hazard Analysis (JHA) Supplement



## Job Hazard Analysis (JHA) COVID-19 Supplement

**Supervisor Name:**

**Supervisor Signature:**

**SHEM Name:**

**SHEM Signature:**

**Date:**

**Job/Activity Name:** COVID-19 Supplement – Attach the job specific JHA used for the job task to this supplemental JHA to document the OSHA risk level provided below for the job.

**JHA #:** COVID Supplement to existing OSC JHA (please attach)

**Division/Branch:**  
SEMD/EMB

**Area /Location (s):** Removal/ER Sites,  
COVID-19 Medium Risk

**Other Information (JHA participating employees):**

This JHA covers EPA OSCs and other EPA field employees working at HAZWOPER/Emergency Response Sites

### REQUIRED PERSONAL PROTECTIVE EQUIPMENT FOR ENTIRE JOB

☒ Appropriate Basic PPE, (Safety glasses, safety shoes, hard hat, gloves)

<input type="checkbox"/> Safety glasses	<input type="checkbox"/> Respirator, Type _____	<input type="checkbox"/> Welding gloves/ leathers	<input checked="" type="checkbox"/> Safety shoes
<input checked="" type="checkbox"/> Goggles	<input checked="" type="checkbox"/> Hard hat	<input checked="" type="checkbox"/> Protective suit	<input type="checkbox"/> Other rubber boots _____
<input type="checkbox"/> Face shield	<input type="checkbox"/> Hearing protection	<input type="checkbox"/> Lab Coat &/or Apron	<input type="checkbox"/> Portable GFCI
<input checked="" type="checkbox"/> facial covering (cloth or disposable)	<input checked="" type="checkbox"/> Appropriate gloves	<input type="checkbox"/> Fall protection	<input checked="" type="checkbox"/> High visibility vest
<input type="checkbox"/> Other _____	<input type="checkbox"/> Other _____	<input type="checkbox"/> Other _____	<input type="checkbox"/> Other _____

Follow the steps outlined in the [EPA Self-Assessment to Stop the Spread of COVID-19](#) tool to make sure employees are not ill or symptomatic. Perform this self-assessment prior to departing and daily before reporting to work.

**Always consider Engineering or Administrative Controls before use of PPE.** These controls were considered: ☒ YES, ☐ NO, if not feasible explain why:

Basic Tasks or Steps	Hazards	Corrective Action or Hazard Controls
1. Vehicle Travel	Contact with person infected with COVID-19, potential spread to others <b>(Note:</b> Same hazard for all activities)	<ul style="list-style-type: none"> <li>a) For EPA or rental vehicle, follow EPA Disinfection Guidance (<a href="#">EPA OMS-SSD Vehicle Utilization, Cleaning, and Disinfecting Recommendations 4/27/20</a>).</li> <li>b) Obtain adequate EPA-registered disinfectants and hand sanitizers for duration of project (vehicle disinfection kits) from Regional or Program equipment/supply managers.</li> <li>c) Clean and disinfect “common touch” vehicle surfaces, e.g., door handles, console, touch screen, steering wheel, inside of door, before and after use. Disinfect/sanitize before and after use by new driver.</li> <li>d) For EPA-owned or rental vehicle, document name and date of initial disinfection/sanitization.</li> <li>e) Travel should be limited to one person per vehicle. If the project requires multiple personnel in one vehicle, don cloth face covering or disposable surgical mask, maximize outside air flow and attempt to separate occupants by at least six feet.</li> <li>f) Minimize fuel fill-ups: wear nitrile gloves and use cloth face cover or disposable surgical masks, when within six-feet of another person; if not wearing gloves, use disinfectant wipe on gas station touch screen before and after use.</li> </ul>
2. Air Travel		<ul style="list-style-type: none"> <li>a) Purchase online electronic ticket to limit unnecessary social interactions in airport.</li> <li>b) Practice social distancing and use a cloth face covering in airport and on plane.</li> <li>c) Avoid touching surfaces but when necessary use hand sanitizer or wash hands with soap and water if available.</li> <li>d) Social distancing may not be possible due to proximity of other passengers in plane. When possible choose window seat and try to sit at least two rows or two seats away from other passengers.</li> <li>e) Limit trips to bathroom.</li> <li>f) Wipe down common touch surfaces, e.g., seat cover, tray table, armrest, seat-back pocket, headrest, seat-back screen, overhead air vent, in-flight entertainment screen with <a href="#">EPA List N approved disinfectant</a> or wear gloves. Travel kits should be provided to employees on official government travel.</li> <li>g) Current information supports directing air from air vent directly at you in order to create positive pressure envelope (Commercial aircraft use HEPA filter zones).</li> <li>h) For other public travel (cab, bus, and train, etc.), wearing a cloth face covering is required to help protect others and carrying approved disinfectant for</li> </ul>





Basic Tasks or Steps	Hazards	Corrective Action or Hazard Controls
Site Work, continued	<p>Contact with person infected with COVID-19, potential spread to others  <b>(Note:</b> Same hazard for all activities)</p>	<ul style="list-style-type: none"> <li>h) Require face coverings for all outdoor operations where social distancing cannot be consistently maintained. Similar to administrative and engineering controls implement during Level A, B and C PPE use, if the face covering causes a hazard to a worker (e.g. heat and physical stress while performing strenuous work), implement administrative or engineering controls to limit the hazard caused by the face covering. If field activities prevent social distancing (e.g. assisting in donning and doffing of PPE, composite water sampling), use of a cloth face covering is recommended.</li> <li>i) Even when social distancing is maintained, EPA recommends following the respective state or local jurisdiction.</li> <li>j) Site personnel should always routinely carry a small container of hand sanitizer with at least 60% alcohol, a face covering that covers the nose and mouth, and nitrile gloves.</li> <li>k) In indoor residential environments, site personnel cannot control actions of resident(s). Face coverings are required for all work in residential properties. Site personnel should avoid surface contact whenever possible and should wear nitrile gloves. With the permission of residents, site personnel should wipe down all surfaces that were touched by them before departing residence.</li> <li>l) For site work that involves multiple locations, disinfect or replace equipment, PPE, and personal items before moving to next location.</li> <li>m) Do not shake hands. Use other forms of non-contact greeting.</li> <li>n) Avoid touching face.</li> <li>o) Site personnel should be attentive to handwashing upon arrival at the site, after exiting exclusion zone, prior to taking a break, prior to eating lunch, after use of the bathroom, using shared items and upon leaving the site for the day, etc. Encourage adherence to prescribed <a href="#">handwashing guidelines</a>.</li> <li>p) Augment site handwashing equipment. Make sure soap and water handwashing facilities are readily available onsite. Do not rely on hand sanitizer alone.</li> <li>q) Avoid sharing items with others. This includes personal items such as pen and paper.</li> <li>r) When equipment must be shared (e.g., monitoring and sampling equipment), disinfect touch surfaces (following manufacturer's instructions) before providing to other individual for use and wear nitrile gloves.</li> </ul>

Basic Tasks or Steps	Hazards	Corrective Action or Hazard Controls
	Contact with person infected with COVID-19, potential spread to others <b>(Note:</b> Same hazard for all activities)	s) Whenever PPE such as protective suits, boots, air-purifying respirators are needed, attempt to don PPE without an attendant. If an attendant is needed, the attendant should wear a face covering and nitrile gloves. t) When trailers are necessary, separate smaller trailers are preferable to single large trailers in order to facilitate separate space and social distancing of personnel. u) When weather permits, store equipment outside to limit confinement of personnel and number of entries and exits from trailers. v) When possible, use Skype, MS Teams or other virtual communications tools to limit personnel meetings. w) Site trailers, command post, port-a-johns, handwash stations, etc. must be cleaned and disinfected with <a href="#">an EPA List N approved disinfectant</a> daily or more frequently with high use, with special attention to common touch points. x) For rental of select items (e.g. port-a-johns), periodic disinfection may be included. When this is not the case, select site personnel will be designated with this responsibility. y) Do not share respirators or cartridges.
If recommended actions indicated in this JHA are not being followed on-site, please point out importance of following JHA to non-compliant workers. Report any incidents of non-compliance to the Site Safety Officer and/or Site Supervisor.		

**Comments:** This JHA is a supplement to the standard JHA that has been previously completed for typical work activities and is to be used to establish the level of COVID-19 risk. This should be used with a site Health and Safety Plan, Field Work Control Plan, Vessel Float Plan, Dive Safety Plan, etc. The level of risk determined by using this form helps to identify if additional protective equipment or work practice controls are needed due to COVID-19 risk.

## **Attachment F**

### General Information Sheets

Lead

Arsenic

<b>CHEMICAL IDENTIFICATION</b>			
Chemical Name: LEAD (INORGANIC, DUSTS & FUMES), as Pb			
CAS #: 7439-92-1		UN No: NA	Formula: Pb
Synonyms: Lead metal, Plumbum			
<b>PHYSICAL PROPERTIES</b>			
Physical Description: A heavy, ductile, soft, gray solid.			
BP: 3164°F	MW: 207.2	LEL: NA	NFPA Fire Rating: NA
MLT: 621°F	VP: 0 mmHg (approx)	UEL: NA	NFPA Health Rating: NA
Fl.P: NA	VD: NA		NFPA Reactivity Rating: NA
Sp. Gr.: 11.34	IP: NA		NFPA Sp. Inst.: NA
<b>EXPOSURE GUIDELINES</b>			
<b>OSHA</b>	<b>NIOSH</b>	<b>ACGIH</b>	<b>Related Information</b>
PEL-TWA ppm: NA	REL-TWA ppm: NA	TLV-TWA ppm: NA	AIHA Emergency Response Planning Guidelines (ERPGs)EPRG-1/EPRG-2/EPRG-3: NA  Carcinogen Classifications: TLV-A3*, EPA-B2, NTP-R, IARC-2A* *inorganic compounds
PEL-TWA mg/m3: 0.05	REL-TWA mg/m3: 0.1	TLV-TWA mg/m3: 0.05	
PEL-STEEL ppm: NA	REL-STEEL ppm: NA	TLV-STEEL ppm: NA	
PEL-STEEL mg/m3: NA	REL-STEEL mg/m3: NA	TLV-STEEL mg/m3: NA	
PEL-C ppm: NA	REL-C ppm: NA	TLV-C ppm: NA	
PEL-C mg/m3: NA	REL-C mg/m3: NA	TLV-C mg/m3: NA	
Skin Notation: <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Notes: SEE 29 CFR 1910.1025	Notes: AIR CONCENTRATIONS SHOULD BE MAINTAINED SO THAT WORKER BLOOD LEAD REMAINS BELOW 0.06 mg Pb/100 g WHOLE BLOOD	Notes: BEI	
IDLH Notes: NA			
IDLH ppm: NA		IDLH mg/m3: 100	
<b>HEALTH INFORMATION</b>			
Symptoms: weakness, lassitude; insomnia; facial pallor; eye irritation; anorexia, low-weight, malnutrition; constipation; abdominal pain; colic; hypotension, anemia; gingival lead line; tremors, paralysis of wrist, ankles; encephalopathy; neuropathy			
Health Effects: cumulative blood effects; cumulative neurologic effects; reproductive hazards			
Target Organ: eyes, gastrointestinal tract, central nervous system, kidneys, blood, gingival tissue			
<b>EMERGENCY RESPONSE INFORMATION</b>			
First Aid: EYES: First check the victim for contact lenses and remove if present. Flush victim's eyes with water or normal saline solution for 20 to 30 minutes while simultaneously calling a hospital or poison control center. Do not put any ointments, oils, or medication in the victim's eyes without specific instructions from a physician. IMMEDIATELY transport the victim after flushing eyes to a hospital even if no symptoms (such as redness or irritation) develop. SKIN: IMMEDIATELY flood affected skin with water while removing and isolating all contaminated clothing. Gently wash all affected skin areas thoroughly with soap and water. If symptoms such as redness or irritation develop, IMMEDIATELY call a physician and be prepared to transport the victim to a hospital for treatment. INHALATION: IMMEDIATELY leave the contaminated area; take deep breaths of fresh air. IMMEDIATELY call a physician and be prepared to transport the victim to a hospital even if no symptoms (such as wheezing, coughing, shortness of Breathing, or burning in the mouth, throat, or chest) develop. Provide proper respiratory protection to rescuers entering an unknown atmosphere. Whenever possible, Self-Contained Breathing Apparatus (SCBA) should be used; if not available, use a level of protection greater than or equal to that advised under Protective Clothing. INGESTION: Some heavy metals are VERY TOXIC POISONS, especially if their salts are very soluble in water (e.g., lead, chromium, mercury, bismuth, osmium, and arsenic). IMMEDIATELY call a hospital or poison control center and locate			
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activated charcoal, egg whites, or milk in case the medical advisor recommends administering one of them. Also locate Ipecac syrup or a glass of salt water in case the medical advisor recommends inducing vomiting. Usually, this is NOT RECOMMENDED outside of a physician's care. If advice from a physician is not readily available and the victim is conscious and not convulsing, give the victim a glass of activated charcoal slurry in water or, if this is not available, a glass of milk, or beaten egg whites and IMMEDIATELY transport victim to a hospital. If the victim is convulsing or unconscious, do not give anything by mouth, assure that the victim's airway is open and lay the victim on his/her side with the Headache lower than the body. DO NOT INDUCE VOMITING. IMMEDIATELY transport the victim to a hospital. OTHER: Since this chemical is a known or suspected carcinogen you should contact a physician for advice regarding the possible long term health effects and potential recommendation for medical monitoring. Recommendations from the physician will depend upon the specific compound, its chemical, physical and toxicity properties, the exposure level, length of exposure, and the route of exposure. (NTP, 1992)

Reactivity: CHEMICAL PROFILE: In the presence of carbon, the combination of chlorine trifluoride with aluminum, copper, lead, magnesium, silver, tin, or zinc results in a violent reaction (Mellor 2, Supp. 1: 1956). A solution of sodium azide in copper pipe with lead joints formed copper and lead azide, both are detonating compounds (Klotz 1973). (REACTIVITY, 1999)

Nonfire Spill Response: STORAGE PRECAUTIONS: You should store this chemical under refrigerated temperatures, and keep it away from oxidizing materials. (NTP, 1992)

Fire Response: Fires involving this material can be controlled with a dry chemical, carbon dioxide, foam, or Halon extinguisher. (NTP, 1992)

<b>CHEMICAL IDENTIFICATION</b>			
Chemical Name: ARSENIC METAL AND INORGANIC COMPOUNDS, as As			
CAS #: 7440-38-2		UN No: 1558	Formula: As
Synonyms: Arsenic metal: Arsenia Other synonyms vary depending upon the specific As compound.			
<b>PHYSICAL PROPERTIES</b>			
Physical Description: Metal: Silver-gray or tin-white, brittle, odorless solid.			
BP: Sublimes	MW: 74.9	LEL: NA	NFPA Fire Rating: 2
MLT: NA	VP: NA	UEL: 1135°F (Sublimes)	NFPA Health Rating: 3
Fl.P: NA	VD: NA		NFPA Reactivity Rating: 0
Sp. Gr.: 5.73 (metal)	IP: NA		NFPA Sp. Inst.: NA
<b>EXPOSURE GUIDELINES</b>			
<b>OSHA</b>	<b>NIOSH</b>	<b>ACGIH</b>	<b>Related Information</b>
PEL-TWA ppm: NA	REL-TWA ppm: NA	TLV-TWA ppm: NA	AIHA Emergency Response Planning Guidelines (ERPGs)EPRG-1/EPRG-2/EPRG-3: NA  Carcinogen Classifications: IARC-1, NIOSH-Ca*, NTP-K*, OSHA-Ca, TLV-A1, EPA-A, *INORGANIC COMPOUNDS
PEL-TWA mg/m3: 0.01	REL-TWA mg/m3: NA	TLV-TWA mg/m3: 0.01	
PEL-STEEL ppm: NA	REL-STEEL ppm: NA	TLV-STEEL ppm: NA	
PEL-STEEL mg/m3: NA	REL-STEEL mg/m3: NA	TLV-STEEL mg/m3: NA	
PEL-C ppm: NA	REL-C ppm: NA	TLV-C ppm: NA	
PEL-C mg/m3: NA	REL-C mg/m3: 0.002	TLV-C mg/m3: NA	
Skin Notation: <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Notes: as As; TWA=0.5 mg/m3 FOR ORGANIC COMPOUNDS. SEE 29 CFR 1910.1018	Notes: CARCINOGEN (Ca); as As;15 MINUTE CEILING	Notes: BEI	
IDLH Notes: Ca			
IDLH ppm: NA		IDLH mg/m3: 5	
<b>HEALTH INFORMATION</b>			
Symptoms: ulceration of nasal septum, dermatitis, gastrointestinal disturbances, peripheral neuropathy, respiratory irritation, hyperpigmentation of skin, [potential occupational carcinogen]			
Health Effects: NA			
Target Organ: liver, kidneys, skin, lungs, lymphatic system			
<b>EMERGENCY RESPONSE INFORMATION</b>			
First Aid: Eye: If this chemical contacts the eyes, immediately wash the eyes with large amounts of water, occasionally lifting the lower and upper lids. Get medical attention immediately. Contact lenses should not be worn when working with this chemical. Skin: If this chemical contacts the skin, immediately wash the contaminated skin with soap and water. If this chemical penetrates the clothing immediately remove the clothing and wash the skin with soap and water. Get medical attention promptly. Breathing: If a person breathes large amounts of this chemical, move the exposed person to fresh air at once. If breathing has stopped, perform mouth-to-mouth resuscitation. Keep the affected person warm and at rest. Get medical attention as soon as possible. Swallow: If this chemical has been swallowed, get medical attention immediately. (NIOSH, 1997)			
Reactivity: CHEMICAL PROFILE: Even at 10C, bromine trifluoride reacts with antimony incandescently. Bromine trifluoride reacts similarly with arsenic, boron, bromine, iodine, phosphorus, and sulfur (Mellor 2:113 1946-47). Bromoazide explodes on contact with antimony, arsenic, phosphorus, silver foil or sodium. When antimony or arsenic and solid potassium permanganate are ground together, the metals ignite (Mellor 12:322 1946-47). Sodium peroxide oxidizes antimony, arsenic, copper, potassium, tin, and zinc with incandescence (Mellor 2:490-93 1946-47). A combination of finely divided arsenic with finely divided bromates (also chlorates and iodates) of barium, calcium, magnesium, potassium, sodium, or zinc can explode by heat,			
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percussion, and friction (Mellor 2:310 1946-47). Bromine pentafluoride reacts readily in the cold with arsenic ignition usually occurs. A few drops of the liquid falling in water produces an explosion. Fluorine vigorously reacts with arsenic and arsenic trioxide at ordinary temperatures (Mellor 9:34 1946-47). (REACTIVITY, 1999)

Nonfire Spill Response: Keep material out of water sources and sewers. Land spill: Dig a pit, pond, lagoon, holding area to contain liquid or solid material. Cover solids with a plastic sheet to prevent dissolving in rain or fire fighting water. Dike surface flow using soil, sand bags, foamed polyurethane, or foamed concrete. Water spill: Use natural barriers or oil spill control booms to limit spill travel. Use natural deep water pockets, excavated lagoons, or sand bag barriers to trap material at bottom. Remove trapped material with suction hoses. ( AAR, 1999)

Fire Response: Extinguish fire using agent suitable for type of surrounding fire. (Material itself does not burn or burns with difficulty.) Use water in flooding quantities as fog. Use foam, dry chemical, or carbon dioxide. ( AAR, 1999)

## **Attachment G**

Safety Data Sheets



# SAFETY DATA SHEET

## 1. Identification

**Product identifier:** NITRIC ACID

**Other means of identification**

**Synonyms:** Aqua Fortis, Azotic Acid

**Product No.:** 9604, V471, V231, V230, V077, 6623, 2712, 2707, 2706, 2704, H988, 5876, 5856, 5801, 5796, 1409, 9761, 9670, 9618, 9617, 9616, 9615, 9612, 9607, 9606, 9601, 9598, 9597, 5371, 20758, 20754, 20752, 20750

**Recommended use and restriction on use**

**Recommended use:** Not available.

**Restrictions on use:** Not known.

**Manufacturer/Importer/Supplier/Distributor information**

**Manufacturer**

Company Name: Avantor Performance Materials, Inc.  
Address: 3477 Corporate Parkway, Suite 200  
Center Valley, PA 18034

Telephone: Customer Service: 855-282-6867

Fax:  
Contact Person: Environmental Health & Safety  
e-mail: info@avantormaterials.com

**Emergency telephone number:**

24 Hour Emergency: 908-859-2151

Chemtrec: 800-424-9300

## 2. Hazard(s) identification

**Hazard classification**

**Physical hazards**

Oxidizing liquids	Category 3
Corrosive to metals	Category 1

**Health hazards**

Skin corrosion/irritation	Category 1A
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**Unknown toxicity**

Acute toxicity, oral	65 %
Acute toxicity, dermal	65 %
Acute toxicity, inhalation, vapor	100 %
Acute toxicity, inhalation, dust or mist	100 %

**Unknown toxicity**

Acute hazards to the aquatic environment	65 %
Chronic hazards to the aquatic environment	65 %

**Label elements**

**Hazard symbol:**



**Signal word:** Danger

**Hazard statement:** May intensify fire; oxidizer.  
May be corrosive to metals.  
Causes severe skin burns and eye damage.

**Precautionary statement**

**Prevention:** Wear protective gloves/protective clothing/eye protection/face protection. Wash hands thoroughly after handling. Keep only in original container. Keep away from heat. Keep/Store away from clothing/combustible materials. Take any precaution to avoid mixing with combustibles. Use only outdoors or in a well-ventilated area.

**Response:** In case of fire: Use water spray, foam, dry powder or carbon dioxide for extinction. Immediately call a POISON CENTER/doctor. IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. Wash contaminated clothing before reuse. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Absorb spillage to prevent material damage.

**Storage:** Store locked up. Store in corrosive resistant container with a resistant inner liner. Store in a well-ventilated place. Keep container tightly closed.

**Disposal:** Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

**Other hazards which do not result in GHS classification:** None.

### 3. Composition/information on ingredients

**Mixtures**

Chemical identity	Common name and synonyms	CAS number	Content in percent (%)*
NITRIC ACID		7697-37-2	65 - 70%

\* All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

### 4. First-aid measures

**General information:** Get medical advice/attention if you feel unwell. Show this safety data sheet to the doctor in attendance.

**Ingestion:** Call a physician or poison control center immediately. Do NOT induce vomiting. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs.

<b>Inhalation:</b>	Move to fresh air. Call a physician or poison control center immediately. If breathing stops, provide artificial respiration. If breathing is difficult, give oxygen.
<b>Skin contact:</b>	Immediately flush with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Call a physician or poison control center immediately. Wash contaminated clothing before reuse. Destroy or thoroughly clean contaminated shoes.
<b>Eye contact:</b>	Immediately flush with plenty of water for at least 15 minutes. If easy to do, remove contact lenses. Call a physician or poison control center immediately. In case of irritation from airborne exposure, move to fresh air. Get medical attention immediately.

#### **Most important symptoms/effects, acute and delayed**

<b>Symptoms:</b>	Corrosive to skin and eyes. Causes digestive tract burns. Spray mists may cause respiratory tract irritation.
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#### **Indication of immediate medical attention and special treatment needed**

<b>Treatment:</b>	Treat symptomatically. Symptoms may be delayed.
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### **5. Fire-fighting measures**

<b>General fire hazards:</b>	Strong oxidizer - contact with other material may cause fire.
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#### **Suitable (and unsuitable) extinguishing media**

<b>Suitable extinguishing media:</b>	Water spray, fog, CO2, dry chemical, or regular foam.
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<b>Unsuitable extinguishing media:</b>	None known.
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<b>Specific hazards arising from the chemical:</b>	Oxidizing Contact with combustible material may cause fire. Fire may produce irritating, corrosive and/or toxic gases.
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#### **Special protective equipment and precautions for firefighters**

<b>Special fire fighting procedures:</b>	Move containers from fire area if you can do so without risk. Use water spray to keep fire-exposed containers cool. Cool containers exposed to flames with water until well after the fire is out.
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<b>Special protective equipment for fire-fighters:</b>	Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA. Self-contained breathing apparatus and full protective clothing must be worn in case of fire.
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### **6. Accidental release measures**

<b>Personal precautions, protective equipment and emergency procedures:</b>	Keep unauthorized personnel away. ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Use personal protective equipment. See Section 8 of the MSDS for Personal Protective Equipment. Ventilate closed spaces before entering them. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.
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**Methods and material for containment and cleaning up:**

Keep combustibles (wood, paper, oil, etc.) away from spilled material. Stop leak if possible without any risk. Do not absorb in sawdust or other combustible materials. Absorb spill with vermiculite or other inert material. Collect in a non-combustible container for prompt disposal. Clean surface thoroughly to remove residual contamination. Dike far ahead of larger spill for later recovery and disposal.

**Notification Procedures:**

Dike for later disposal. Prevent entry into waterways, sewer, basements or confined areas. Stop the flow of material, if this is without risk. Inform authorities if large amounts are involved.

**Environmental precautions:**

Do not contaminate water sources or sewer. Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground.

## 7. Handling and storage

**Precautions for safe handling:**

Keep away from combustible material. Do not get in eyes, on skin, on clothing. Wash hands thoroughly after handling. Do not eat, drink or smoke when using the product. Do not taste or swallow. Never add water to acid! Never pour water into acid/base. Dilute by slowly pouring the product into water while stirring.

**Conditions for safe storage, including any incompatibilities:**

Do not store in metal containers. Store away from heat and light. Keep away from combustible material. Keep containers closed when not in use. Store in a cool, dry place. Keep container in a well-ventilated place.

## 8. Exposure controls/personal protection

**Control parameters**
**Occupational exposure limits**

Chemical identity	Type	Exposure Limit values	Source
NITRIC ACID	TWA	2 ppm	US. ACGIH Threshold Limit Values (2011)
	STEL	4 ppm	US. ACGIH Threshold Limit Values (2011)
	STEL	4 ppm 10 mg/m3	US. NIOSH: Pocket Guide to Chemical Hazards (2010)
	REL	2 ppm 5 mg/m3	US. NIOSH: Pocket Guide to Chemical Hazards (2010)
	PEL	2 ppm 5 mg/m3	US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000) (02 2006)
	TWA	2 ppm 5 mg/m3	US. OSHA Table Z-1-A (29 CFR 1910.1000) (1989)
	STEL	4 ppm 10 mg/m3	US. OSHA Table Z-1-A (29 CFR 1910.1000) (1989)

**Appropriate engineering controls**

No data available.

**Individual protection measures, such as personal protective equipment**
**General information:**

Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. An eye wash and safety shower must be available in the immediate work area.

**Eye/face protection:**

Wear safety glasses with side shields (or goggles) and a face shield.

**Skin protection**
**Hand protection:**

Chemical resistant gloves

<b>Other:</b>	Wear suitable protective clothing.
<b>Respiratory protection:</b>	In case of inadequate ventilation use suitable respirator. Chemical respirator with acid gas cartridge.
<b>Hygiene measures:</b>	Provide eyewash station and safety shower. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing to remove contaminants. Discard contaminated footwear that cannot be cleaned.

## 9. Physical and chemical properties

### Appearance

<b>Physical state:</b>	Liquid
<b>Form:</b>	Liquid
<b>Color:</b>	Colorless to slightly yellow
<b>Odor:</b>	Pungent
<b>Odor threshold:</b>	No data available.
<b>pH:</b>	1 (0.1 molar aqueous solution)
<b>Melting point/freezing point:</b>	-42 °C
<b>Initial boiling point and boiling range:</b>	122 °C
<b>Flash Point:</b>	Not applicable
<b>Evaporation rate:</b>	No data available.
<b>Flammability (solid, gas):</b>	No data available.
<b>Upper/lower limit on flammability or explosive limits</b>	
<b>Flammability limit - upper (%):</b>	No data available.
<b>Flammability limit - lower (%):</b>	No data available.
<b>Explosive limit - upper (%):</b>	No data available.
<b>Explosive limit - lower (%):</b>	No data available.
<b>Vapor pressure:</b>	6.4 kPa
<b>Vapor density:</b>	2.5
<b>Relative density:</b>	1.41 (20 °C)
<b>Solubility(ies)</b>	
<b>Solubility in water:</b>	Soluble
<b>Solubility (other):</b>	No data available.
<b>Partition coefficient (n-octanol/water):</b>	No data available.
<b>Auto-ignition temperature:</b>	No data available.
<b>Decomposition temperature:</b>	No data available.
<b>Viscosity:</b>	No data available.

## 10. Stability and reactivity

<b>Reactivity:</b>	Reacts violently with strong alkaline substances.
<b>Chemical stability:</b>	Material is stable under normal conditions.
<b>Possibility of hazardous reactions:</b>	Hazardous polymerization does not occur. Decomposes on heating.
<b>Conditions to avoid:</b>	Reacts violently with strong alkaline substances. Avoid contact with strong reducing agents. Excessive heat. Contact with incompatible materials.
<b>Incompatible materials:</b>	Alcohols. Reducing agents. Metals. Alkalies.
<b>Hazardous decomposition products:</b>	Nitrogen Oxides By heating and fire, corrosive vapors/gases may be formed.

## 11. Toxicological information

### Information on likely routes of exposure

<b>Ingestion:</b>	May cause burns of the gastrointestinal tract if swallowed.
<b>Inhalation:</b>	May cause damage to mucous membranes in nose, throat, lungs and bronchial system.
<b>Skin contact:</b>	Causes severe skin burns.
<b>Eye contact:</b>	Causes serious eye damage.

### Information on toxicological effects

#### Acute toxicity (list all possible routes of exposure)

<b>Oral Product:</b>	No data available.
<b>Dermal Product:</b>	No data available.
<b>Inhalation Product:</b>	No data available.
<b>Specified substance(s): NITRIC ACID</b>	LC 50 (Rat, 4 h): 65 mg/l

<b>Repeated dose toxicity Product:</b>	No data available.
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<b>Skin corrosion/irritation Product:</b>	Causes severe skin burns.
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<b>Serious eye damage/eye irritation Product:</b>	Causes serious eye damage.
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<b>Respiratory or skin sensitization Product:</b>	Not a skin nor a respiratory sensitizer.
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<b>Carcinogenicity Product:</b>	This substance has no evidence of carcinogenic properties.
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**IARC Monographs on the Evaluation of Carcinogenic Risks to Humans:**  
No carcinogenic components identified

**US. National Toxicology Program (NTP) Report on Carcinogens:**  
No carcinogenic components identified

**US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050):**  
No carcinogenic components identified

## Germ cell mutagenicity

### In vitro

**Product:** No mutagenic components identified

### In vivo

**Product:** No mutagenic components identified

## Reproductive toxicity

**Product:** No components toxic to reproduction

## Specific target organ toxicity - single exposure

**Product:** None known.

## Specific target organ toxicity - repeated exposure

**Product:** None known.

## Aspiration hazard

**Product:** Not classified

**Other effects:** None known.

## 12. Ecological information

### Ecotoxicity:

#### Acute hazards to the aquatic environment:

##### Fish

**Product:** No data available.

##### Specified substance(s):

NITRIC ACID LC 50 (Fish, 48 h): 100 - 330 mg/l Mortality

##### Aquatic invertebrates

**Product:** No data available.

##### Specified substance(s):

NITRIC ACID LC 50 (Cockle (*Cerastoderma edule*), 48 h): 330 - 1,000 mg/l Mortality  
LC 50 (Green or European shore crab (*Carcinus maenas*), 48 h): 180 mg/l Mortality

#### Chronic hazards to the aquatic environment:

##### Fish

**Product:** No data available.

##### Aquatic invertebrates

**Product:** No data available.

##### Toxicity to Aquatic Plants

**Product:** No data available.

### Persistence and degradability

#### Biodegradation

**Product:** Expected to be readily biodegradable.

#### BOD/COD ratio

**Product:** No data available.

### Bioaccumulative potential

#### Bioconcentration factor (BCF)

**Product:** No data available on bioaccumulation.

**Partition coefficient n-octanol / water (log Kow)****Product:** No data available.**Mobility in soil:** The product is water soluble and may spread in water systems.**Other adverse effects:** The product may affect the acidity (pH-factor) in water with risk of harmful effects to aquatic organisms.**13. Disposal considerations****Disposal instructions:** Discharge, treatment, or disposal may be subject to national, state, or local laws.**Contaminated packaging:** Since emptied containers retain product residue, follow label warnings even after container is emptied.**14. Transport information****DOT**

UN number:	UN 2031
UN proper shipping name:	Nitric acid
Transport hazard class(es)	
Class(es):	8, 5.1
Label(s):	8, 5.1
Packing group:	II
Marine Pollutant:	No

**IMDG**

UN number:	UN 2031
UN proper shipping name:	NITRIC ACID
Transport hazard class(es)	
Class(es):	8, 5.1
Label(s):	8, 5.1
EmS No.:	F-A, S-Q
Packing group:	II
Marine Pollutant:	No

**IATA**

UN number:	UN 2031
Proper Shipping Name:	Nitric acid
Transport hazard class(es):	
Class(es):	8, 5.1
Label(s):	8, 5.1
Marine Pollutant:	No
Packing group:	II

**15. Regulatory information****US federal regulations****TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)****US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)**

None present or none present in regulated quantities.

**CERCLA Hazardous Substance List (40 CFR 302.4):**

NITRIC ACID Reportable quantity: 1000 lbs.



## Superfund amendments and reauthorization act of 1986 (SARA)

### Hazard categories

☒ Acute (Immediate)
 ☒ Chronic (Delayed)
 ☒ Fire
 ☐ Reactive
 ☐ Pressure Generating

### SARA 302 Extremely hazardous substance

Chemical identity	RQ	Threshold Planning Quantity
NITRIC ACID	1000 lbs.	1000 lbs.

### SARA 304 Emergency release notification

Chemical identity	RQ
NITRIC ACID	1000 lbs.

### SARA 311/312 Hazardous chemical

Chemical identity	Threshold Planning Quantity
NITRIC ACID	500lbs

### SARA 313 (TRI reporting)

Chemical identity	Reporting threshold for other users	Reporting threshold for manufacturing and processing
NITRIC ACID	10000 lbs	25000 lbs.

### Clean Water Act Section 311 Hazardous Substances (40 CFR 117.3)

NITRIC ACID Reportable quantity: 1000 lbs.

### Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130):

NITRIC ACID Threshold quantity: 15000 lbs

## US state regulations

### US. California Proposition 65

No ingredient regulated by CA Prop 65 present.

### US. New Jersey Worker and Community Right-to-Know Act

NITRIC ACID Listed

### US. Massachusetts RTK - Substance List

NITRIC ACID Listed

### US. Pennsylvania RTK - Hazardous Substances

NITRIC ACID Listed

### US. Rhode Island RTK

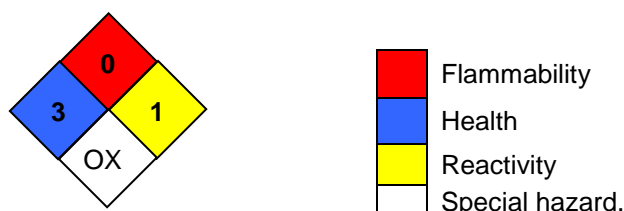
NITRIC ACID Listed

### Inventory Status:

Australia AICS:	On or in compliance with the inventory
Canada DSL Inventory List:	On or in compliance with the inventory
EINECS, ELINCS or NLP:	On or in compliance with the inventory
Japan (ENCS) List:	On or in compliance with the inventory
China Inv. Existing Chemical Substances:	Not in compliance with the inventory.
Korea Existing Chemicals Inv. (KECI):	On or in compliance with the inventory
Canada NDSL Inventory:	Not in compliance with the inventory.
Philippines PICCS:	On or in compliance with the inventory
US TSCA Inventory:	On or in compliance with the inventory
New Zealand Inventory of Chemicals:	On or in compliance with the inventory
Japan ISHL Listing:	Not in compliance with the inventory.
Japan Pharmacopoeia Listing:	Not in compliance with the inventory.

### 16. Other information, including date of preparation or last revision

### NFPA Hazard ID



Hazard rating: 0 - Minimal; 1 - Slight; 2 - Moderate; 3 - Serious; 4 - Severe  
 OXY: Oxidizer

<b>Issue date:</b>	06-04-2014
<b>Revision date:</b>	No data available.
<b>Version #:</b>	2.0
<b>Further information:</b>	No data available.

**Disclaimer:**

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## **Attachment H**

EPA Region 10 COVID-19 Questionnaire for Work Site Visitors

Please Wear A Properly Fitting Cloth Face Mask/Covering At All Times

## COVID-19 Screening Questions for Worksite Visitors

### **Overview**

This screening protocol is a tool to help prevent the spread of COVID-19 at the worksite.

### **Screening protocol: What to do**

*Visitors (e.g., media, state and/or local government) should answer the questions before entering the worksite.*

*“YES or NO, since your last visit to this worksite, have you had any of the following:”*

- 1. A new fever (100.4°F or higher), or a sense of having a fever?\**
- 2. A new cough that you cannot attribute to another health condition?\**
- 3. New shortness of breath that you cannot attribute to another health condition?\**
- 4. A new sore throat that you cannot attribute to another health condition?\**
- 5. New muscle aches (myalgias) that you cannot attribute to another health condition, or that may not have been caused by a specific activity (such as physical exercise)?\**
- 6. In the last 14 days, have you had close contact with a person who was known to be COVID-19 positive at the time you had close contact with them?*

***\*If a visitor answers YES to any of the screening questions, then:***

- EPA Personnel must ask the visitor to please leave the worksite.

## **Attachment I**

Visitor Log

## Visitor Log

Site Name: Northport properties soil removal action, Northport, Stevens County, WA

EPA On-Scene Coordinator: Monica Tonel, cell ph (206) 348-2692

[illegible]

## **Attachment J**

Hospital Route Map

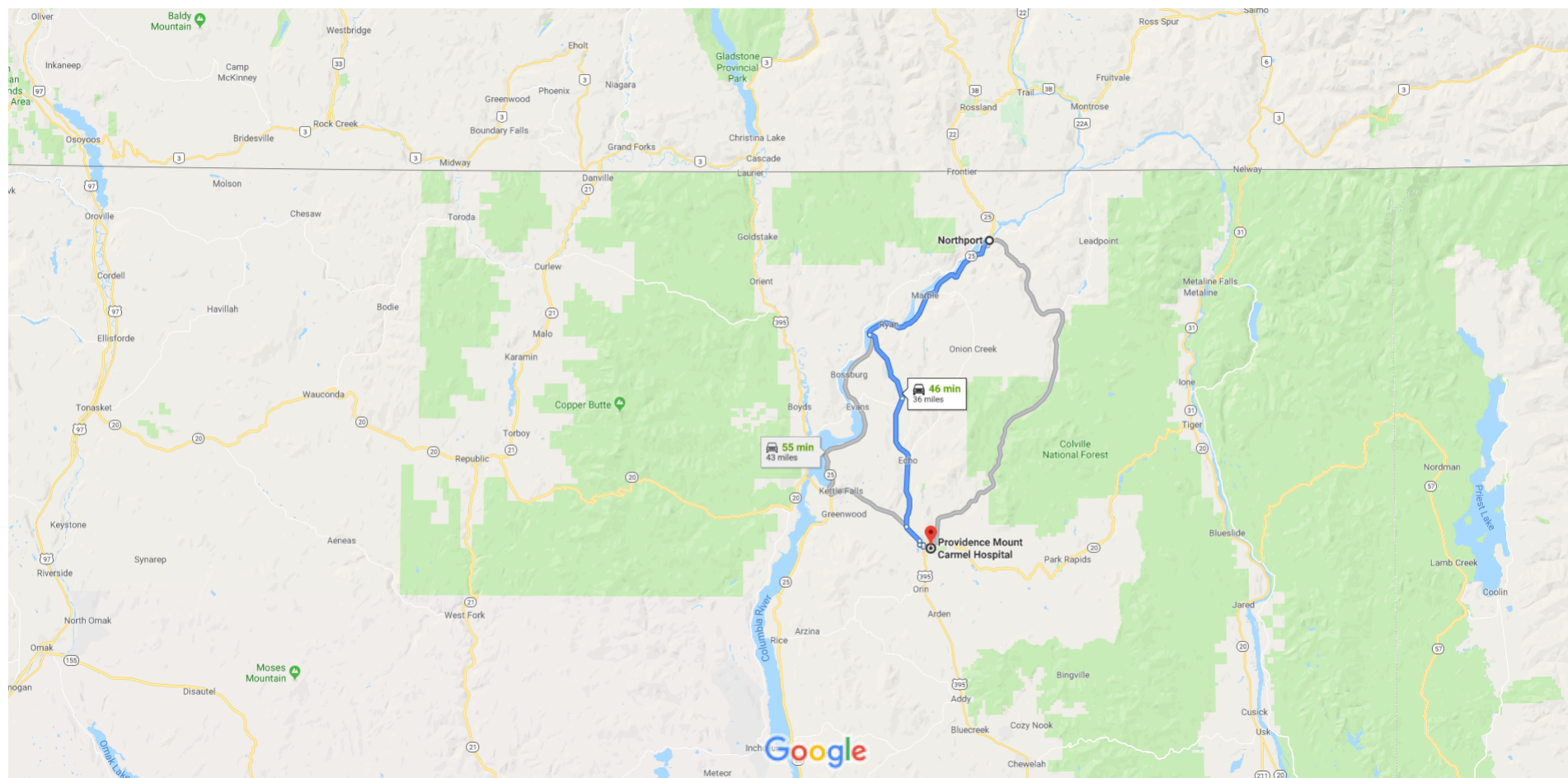




## Northport, Washington to Providence Mount Carmel Hospital

Drive 36.0 miles, 46 min

Hospital Route Map




Map data ©2019 Google 5 mi

## Northport


Washington

Follow WA-25 S and Williams Lake Rd to E Birch Ave in  
Colville

43 min (35.2 mi)

- ↑ 1. Head southwest on WA-25 S/Center Ave toward 5th St  
 Continue to follow WA-25 S  
14.9 mi
- ↩ 2. Turn left onto Williams Lake Rd  
6.4 mi
- ⤴ 3. Merge onto Williams Lake Rd  
11.5 mi
- ↩ 4. Turn left onto US-395 S  
1.6 mi
- 🔄 5. At the traffic circle, take the 1st exit onto N Louis Perras Rd  
0.4 mi
- ↩ 6. Turn left onto W 1st Ave  
0.3 mi
- ➡ 7. Turn right onto S Main St  
0.2 mi

**Continue on E Birch Ave to your destination**

- ↩ 8. Turn left onto E Birch Ave  
3 min (0.8 mi)
- ➡ 9. Turn right onto S Madison St  
0.7 mi
- ↩ 10. Turn left  
344 ft  
 Destination will be on the left  
220 ft

**Providence Mount Carmel Hospital**

982 E Columbia Ave, Colville, WA 99114

These directions are for planning purposes only.  
You may find that construction projects, traffic,  
weather, or other events may cause conditions to

10/8/2019

Northport, Washington to Providence Mount Carmel Hospital - Google Maps

differ from the map results, and you should plan your route accordingly. You must obey all signs or notices regarding your route.

## **Attachment K**

Wildfire Smoke Guide, Revised July 2008  
(with 2012 AQI Values)

# Wildfire Smoke

A Guide for Public Health Officials

Revised July 2008

(With 2012 AQI Values)



**Please Note:**

Due to the 2012 revisions to the Air Quality Index (AQI) breakpoints based on 24-hr average for particulate matter (PM<sub>2.5</sub>) concentration, Table 3 (page 31) of this version of the Wildfire Smoke Guide has been updated to reflect the new values. Please note that the 1-3 hr and 8 hr average concentrations have not yet been revised.

More information on the US Environmental Protection Agency (US EPA) updates to the AQI and the 24-hr average for particulate matter may be found at <http://www.epa.gov/airquality/particlepollution/actions.html#dec12>.

For questions, please email [carpa@arb.ca.gov](mailto:carpa@arb.ca.gov).

## Acknowledgements

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# Introduction

Smoke rolls into town, blanketing the city, turning on streetlights, creating an eerie and choking fog. Switchboards light up as people look for answers. Citizens want to know what they should do to protect themselves. School officials want to know if outdoor events should be cancelled. The news media want to know how dangerous the smoke really is.

Smoke events often catch us off guard. This guide is intended to provide local public health officials with information they need when wildfire smoke is present so they can adequately communicate health risks, and precautions to the public. This guide is the product of a collaborative effort by scientists, air quality specialists and public health professionals from federal, state, and local agencies.



## Composition of smoke

Smoke is a complex mixture of carbon dioxide, water vapor, carbon monoxide, particulate matter, hydrocarbons and other organic chemicals, nitrogen oxides, and trace minerals. The individual compounds present in smoke number in the thousands. Smoke composition depends on multiple factors, including the fuel type and moisture content, the fire temperature, wind conditions and other weather-related influences, whether the smoke is fresh or “aged,” and other variables. Different types of wood and vegetation are composed of varying amounts of cellulose, lignin, tannins and other polyphenols, oils, fats, resins, waxes, and starches, which produce different compounds when burned.

Particulate matter is the principal pollutant of concern from wildfire smoke for the relatively short-term exposures (hours to weeks) typically experienced by the public. Particulate matter is a generic term for particles suspended in the air, typically as a mixture of both solid particles and liquid droplets. The characteristics, sources, and potential health effects of particulate matter depend on its source, the season, and atmospheric conditions. Additionally, the size of particles affects their potential to cause health effects. Particles larger than 10 micrometers do not usually reach the lungs, but can irritate the eyes, nose, and throat. For purposes of comparison, a human hair is about 60 micrometers in

diameter. Small particles with diameters less than or equal to 10 micrometers, also known as particle pollution or  $PM_{10}$ , can be inhaled deep into the lungs; exposure to the smallest particles can affect the lungs and heart. Particle pollution includes "coarse particles," also known as  $PM_{10-2.5}$ , with diameters from 2.5 to 10 micrometers and "fine particles," also known as  $PM_{2.5}$ , with diameters that are 2.5 micrometers and smaller.

Particles from smoke tend to be very small, with a size range near the wavelength of visible light (0.4 – 0.7 micrometers), and are therefore nearly completely within the fine particle ( $PM_{2.5}$ ) fraction. Thus, smoke particles efficiently scatter light and reduce visibility. Moreover, such small particles can be inhaled into the deepest recesses of the lung and may represent a greater health concern than larger particles.

Another pollutant of concern during smoke events is carbon monoxide, which is a colorless, odorless gas produced by incomplete combustion of wood or other organic materials. Carbon monoxide levels are highest during the smoldering stages of a fire, especially in very close proximity to the fire.

Other air pollutants, such as the potent respiratory irritants acrolein and formaldehyde, as well as the carcinogen benzene, are present in smoke, but at much lower concentrations than particulate matter and carbon monoxide.

## Characteristics of wildfire smoke

A number of factors, including weather, the stage of the fire, and terrain can all influence fire behavior and the impact of the smoke plume on the ground. In general, windy conditions contribute to lower smoke concentrations because the smoke mixes into a larger volume of air. However, regional weather systems can spread fires quickly and result in large fires and even greater impacts. Strong regional weather systems can dominate a fire's behavior for days and be the determining factor of where and how smoke will affect an area. Santa Ana winds in California, for example, reverse the typical onshore flow patterns and blow strongly toward the coast from inland areas, which can result in smoke from mountain fires inundating the heavily populated communities to the west. Chinook winds in the Rocky Mountains represent another example of a well-entrenched system that can significantly affect fire behavior and smoke dispersion.

The intense heat, especially early in a fire, lofts smoke high into the air, where it remains until it cools and begins to descend. Initial fire plumes tend to be wind-driven events, which can facilitate prediction of the smoke impact area. As the smoke moves downwind, it becomes more dilute and often more widespread, eventually reaching ground level. The amount and type of fuel and its moisture content affect smoke production, as does the stage of fire suppression. The smoldering phase of a fire, for example, can sometimes result in very high particle emissions due to less complete combustion than when flames are present.



**Figure 1 Discrete smoke plumes early in fire's evolution**



**Figure 2 Less dense but more widespread smoke after days of air movement**

Terrain affects weather, as well as fire and smoke behavior, in several ways. For example, as the sun warms mountain slopes, air is heated and moves upslope, bringing smoke and fire with it. After sunlight passes from a slope, the terrain cools and the air begins to descend. This creates a down-slope airflow that can alter the smoke dispersal pattern seen during the day.

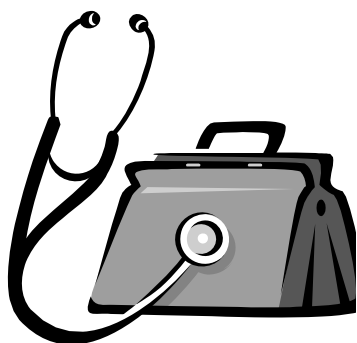
In the evening, especially in mountain valleys and low-lying areas, temperature inversions are common, in which the air near the ground is cooler than the air above. This prevents upward air movement. The lid effect of inversions, coupled with a drop in wind speed, can favor smoke and pollutant accumulation in valleys at night.



Thus, smoke behavior depends on many factors. Smoke levels in populated areas can be unpredictable: a wind that usually clears out a valley may simply blow more smoke in, or may fan the fires, causing a worse episode the next day. Smoke concentrations change constantly. Sometimes by the time public health officials can issue a warning or smoke advisory, the smoke may already have cleared. National Weather Service satellite photos, weather and wind forecasts, and knowledge of the area can all help in predicting how much smoke will come into an area, but predictions may not be accurate for more than a few hours. The National Weather Service's website has a lot of information, including satellite photos that are updated throughout the day. For the western United States, the Web address is [www.wrh.noaa.gov](http://www.wrh.noaa.gov). Other useful websites include: <http://www.fs.fed.us/fcamms/> and [http://marlin.cfr.washington.edu/website/bsr\\_cansac](http://marlin.cfr.washington.edu/website/bsr_cansac), as well as other sites listed under "Resources/Links" at the end of this Guide.

# Health effects of smoke

The effects of smoke range from eye and respiratory tract irritation to more serious disorders, including reduced lung function, bronchitis, exacerbation of asthma, and premature death. Studies have found that fine particles are linked (alone or with other pollutants) with increased mortality and aggravation of pre-existing respiratory and cardiovascular disease. In addition, particles are respiratory irritants, and exposures to high concentrations of particulate matter can cause persistent cough, phlegm, wheezing, and difficulty breathing. Particles can also affect healthy people, causing respiratory symptoms, transient reductions in lung function, and pulmonary inflammation. Particulate matter can also affect the body's immune system and the physiological mechanisms that remove inhaled foreign materials from the lungs, such as pollen and bacteria. As noted earlier, particulate matter exposure is the principal public health threat from short-term exposures to wildfire smoke.



Carbon monoxide (CO) enters the bloodstream through the lungs and reduces oxygen delivery to the body's organs and tissues. CO concentrations typical of population exposures related to wildfire smoke do not pose a significant hazard, except to some sensitive individuals and to firefighters very close to the fire line. Individuals who may experience health effects from lower levels of CO are those who have cardiovascular disease: they may experience chest pain and cardiac arrhythmias. At higher levels (such as those that occur in major

structural fires), CO exposure can cause headache, weakness, dizziness, confusion, nausea, disorientation, visual impairment, coma, and death, even in otherwise healthy individuals.

Wildfire smoke also contains significant quantities of respiratory irritants, which can act in concert to produce eye and respiratory irritation and potentially exacerbate asthma. Formaldehyde and acrolein are two of the principal contributors to the cumulative irritant properties of smoke.

One concern that may be raised by members of the general public is whether they run an increased risk of cancer or of other chronic health conditions (e.g. heart disease) from short-term exposure to wildfire smoke. People exposed to toxic air pollutants at sufficient concentrations and durations may have slightly increased risks of cancer or of experiencing other chronic health problems. However, in general, the long-term risks from short-term smoke exposures are quite low. Short-term elevated exposures to wildfire carcinogens are also small relative to total lifetime exposures to carcinogens in diesel exhaust and other combustion sources. Epidemiological studies have shown that urban firefighters exposed to smoke over an entire working lifetime have about a three-fold increased risk of developing lung cancer (Hansen 1990). This provides some

perspective on the magnitude of potential risks from short-term wildfire events. The major known carcinogenic components of smoke are polycyclic aromatic hydrocarbons (PAHs). Although other known carcinogens, such as benzene and formaldehyde, are also present in smoke, they are thought to present a lesser risk.

Not everyone who is exposed to thick smoke will have health problems. The level and duration of exposure, age, individual susceptibility, including the presence or absence of pre-existing lung or heart disease, and other factors play significant roles in determining whether someone will experience smoke-related health problems.

## Sensitive populations

Most healthy adults and children will recover quickly from smoke exposure and will not suffer long-term consequences. However, certain sensitive populations may experience more severe short-term and chronic symptoms. Much of the information about how particulate matter affects these groups has come from studies involving airborne particles in cities, though a few studies examining the effects of exposure to smoke suggest that the health effects of wildfire smoke are likely to be similar (Naeher et al. 2007). More research is needed to determine whether particles from wildfires affect susceptible subpopulations differently.

**Individuals with asthma and other respiratory diseases.** More than 35 million people in the US suffer from chronic lung diseases such as asthma and chronic obstructive pulmonary disease (COPD) (American Lung Association 2008). Levels of pollutants that may not affect healthy people may cause breathing difficulties for people with asthma, COPD, or other chronic lung diseases. Asthma is a condition characterized by chronic inflammation of the bronchi and smaller airways, with intermittent airway constriction, causing shortness of breath, wheezing, chest tightness, and coughing, sometimes accompanied by excess mucus production. During an asthma attack, the muscles tighten around the airways and the lining of the airways becomes inflamed and swollen, constricting the free flow of air. Because children's airways are narrower than those of adults, irritation that might create minor problems for an adult may result in significant obstruction in the airways of a young child. However, this disease affects all age groups: the highest mortality rates from asthma occur among older adults.

A significant fraction of the population may have airway hyperresponsiveness, an exaggerated tendency of the large and small airways (bronchi and bronchioles, respectively) to constrict in response to respiratory irritants, cold dry air, and other stimuli. While airway hyperresponsiveness is considered a hallmark of asthma, this tendency may also be found in many individuals without asthma as well; for example, during and following a lower respiratory tract infection. In such individuals, smoke exposure may cause asthma-like symptoms.

Individuals with COPD, which is generally considered to encompass emphysema and chronic bronchitis, may also experience worsening of their conditions because of

exposure to wildfire smoke. Patients with COPD often have an asthmatic component to their condition, which may result in their experiencing asthma-like symptoms. However, because their lung capacity has typically been seriously compromised, additional constriction of the airways in individuals with COPD may result in symptoms requiring medical attention. Researchers have reported that individuals with COPD run an increased risk of requiring emergency medical care after exposure to particulate matter or forest fire smoke. Exposure to smoke may also depress the lung's ability to fight infection. People with COPD may develop lower respiratory infections after exposure to wildfire smoke, which may require urgent medical care as well. In addition, because COPD is usually the result of many years of smoking, individuals with this condition may also have heart disease, and are potentially at risk from both conditions.

**Individuals with cardiovascular disease.** Diseases of the circulatory system include high blood pressure, cardiovascular diseases, such as coronary artery disease and congestive heart failure, and cerebrovascular conditions, such as hardening of the arteries (atherosclerosis) that bring blood to the brain. These chronic conditions can render individuals susceptible to attacks of angina pectoris (transient chest pain), heart attacks, sudden death due to a cardiac arrhythmia, acute congestive heart failure, or stroke. Cardiovascular diseases are the leading cause of mortality in the United States: about 30 to 40 percent of all deaths each year. The vast majority of these deaths occur in people over age 65. Studies have linked urban particulate matter to increased risks of heart attacks, cardiac arrhythmias, and other adverse effects in those with cardiovascular disease. People with chronic lung or heart disease may experience one or more of the following symptoms: shortness of breath, chest tightness, pain in the chest, neck, shoulder or arm, palpitations, or unusual fatigue or lightheadedness. Chemical messengers released into the blood because of particle-related lung inflammation may increase the risk of blood clot formation, angina episodes, heart attacks, and strokes.

**The elderly.** Researchers have estimated that tens of thousands of elderly people die prematurely each year from exposure to particulate air pollution, as older adults are more likely to have pre-existing lung and heart diseases, and therefore are more susceptible to particle-associated effects. The elderly may also be more affected than younger people because important respiratory defense mechanisms decline with age. Particulate air pollution can compromise the function of cells involved in immune defenses in the lungs, potentially increasing susceptibility to bacterial or viral respiratory infections, which may carry a worse prognosis in older adults.

**Children.** Children, even those without any pre-existing illness or chronic conditions, are considered a sensitive population because their lungs are still developing, making them more susceptible to air pollution than healthy adults. Several factors lead to increased exposure in children compared with adults: they tend to spend more time outside; they engage in more vigorous activity; and they inhale more air (and therefore more smoke constituents) per pound of body weight. These are all reasons to try to limit children's vigorous outdoor activities during smoky conditions. Studies have shown that particle pollution is associated with increased respiratory symptoms and decreased lung function in children, including symptoms such as episodes of coughing and difficulty

breathing. These can result in school absences and other limitations of normal childhood activities.

**Pregnant women.** While there have not been studies of the effects of exposure to wildfire smoke on pregnancy outcomes, there is substantial evidence of adverse effects of repeated exposures to cigarette smoke, including both active and passive smoking. Wildfire smoke contains many of the same compounds as cigarette smoke. In addition, recent data suggest that exposures to ambient air pollution in cities may result in low birth weight, preterm birth, and possibly other more serious adverse reproductive effects, including infant mortality. Therefore, it would be prudent to consider pregnant women as a potentially susceptible population as well.

**Smokers.** People who smoke, especially those who have smoked for many years, have compromised lung function. However, due to adaptation of their lungs to ongoing irritation, smokers are generally less likely to report symptoms from exposure to irritant chemicals than are nonsmokers. Nevertheless, they may still be injured by wildfire smoke. Therefore, because they may not experience the same degree of irritation from wildfire smoke as nonsmokers, some smokers may unwittingly put themselves at greater risk of potentially harmful wildfire smoke exposures.

## Specific strategies to reduce smoke exposure

### Stay indoors

The most common advisory issued during a smoke episode is to stay indoors. The usefulness of this strategy depends on how well the building limits smoke from coming in from outdoors and on minimizing indoor pollution sources. Staying indoors may therefore provide some protection, especially in a tightly closed, air-conditioned home in which the air conditioner re-circulates indoor air. Generally, newer homes are “tighter” and keep ambient air pollution out more effectively than older homes.



Staying inside with the doors and windows closed can usually reduce exposure to ambient air pollution by about a third or more. Homes with central air conditioning generally re-circulate indoor air, though some outdoor smoky air can still be drawn inside (e.g., when people enter or exit). In homes without air conditioning, indoor concentrations of fine particles can approach 70 to 100 percent of the outdoor levels. In very leaky homes and buildings, outdoor particles can easily infiltrate indoors, so guidance to stay inside may



offer little protection. In any home, if doors and windows are left open, particle levels indoors and outdoors will be about the same.

Sometimes smoke events can last for weeks or (rarely) months. These longer events are usually punctuated by periods of relatively clean air. When air quality improves, even temporarily, residents should “air out” their homes to reduce indoor air pollution. People may also wish to clean their residences during such reduced smoke intervals, including damp mopping or dusting, and vacuuming (preferably with a high efficiency particulate air [HEPA] filter-equipped vacuum), in order to reduce subsequent re-suspension of particles that may have settled when the smoke was thicker.

An important drawback of advising people to stay inside during smoke events is the increased risk of heat stress. In many parts of the country, the fire season typically extends from mid-summer through the early fall, when high outside temperatures are common. In homes without air conditioning, in which individuals depend on open windows and doors for ventilation, remaining inside with everything closed can be dangerous. Older individuals and others in frail health run the risk of heat exhaustion or heat stroke, which could have dire consequences. If outdoor temperatures are very high, it would be prudent to advise those without air conditioning to stay with friends or with family members who do, to go to a cleaner air shelter in their community, or to leave the area. These and other options are discussed below.

Guidance on protecting workers in offices and similar indoor workplaces from wildfire smoke has been developed by the California Division of Occupational Safety and Health (Cal/OSHA), in consultation with technical staff from several other California agencies. This document (attached as Appendix A) addresses how to maximize the protection provided by heating, ventilating and air-conditioning (HVAC) systems common in public and commercial buildings, as well as other steps to protect occupants.



## Reduce activity

Reducing physical activity is an effective strategy to lower the dose of inhaled air pollutants and reduce health risks during a smoke event. During exercise, people can increase their air intake as much as 10 to 20 times over their resting level. Increased breathing rates bring more pollution deep into the lungs. Furthermore, people tend to breathe through their mouths during exercise, bypassing the natural filtering ability of the nasal passages, again delivering more pollution to the lungs. They also tend to breathe more deeply, modifying the usual patterns of lung particle deposition.

## Reduce other sources of indoor air pollution

Many indoor sources of air pollution can emit large amounts of pollutants, some of which are also present in wildfire smoke. Smoking cigarettes, using gas, propane and wood-burning stoves and furnaces, spraying aerosol products, frying or broiling meat, burning candles and incense, and vacuuming can all increase particle levels in a home and should be avoided when wildfire smoke is present.



For instance, in a standard room of 125 square feet, it takes only 10 minutes for the side-stream smoke of 4 cigarettes to generate indoor levels of particles in the hazardous ranges (644 micrograms of particles per cubic meter of air or  $\mu\text{g}/\text{m}^3$ ). Frying or broiling some foods can produce even higher levels of particles in the kitchen and dining areas. Some of these sources can also increase the levels of polycyclic aromatic hydrocarbons (PAHs), carbon monoxide, and nitrogen oxides. Besides cigarette smoke, combustion sources that do not properly vent to the outdoors (including “room-vented” or “vent-free” appliances) contribute most to indoor pollutant levels, and are of greatest concern. Thus, reducing indoor air pollutant emissions during smoke events can decrease indoor particle levels, which may partially compensate for the increased particle loading from the outdoor air.

## Air conditioners and filters

Little is known about the impact of using various types of room air conditioners and air filters on indoor smoke concentrations in homes. However, homes with central air conditioners generally have lower amounts of outdoor particles indoors compared to homes that use open windows for ventilation.

Most air conditioners are designed by default to re-circulate indoor air. Those systems that have both “outdoor air” and “re-circulate” settings need to be set on “re-circulate” during fire/smoke events.

Also, central air conditioners (and some room air conditioners) contain filters that can remove some airborne particles with different degrees of efficiency. If possible, one should replace the air-conditioner filter with a pleated medium- or high-efficiency particle filter. Higher efficiency filters are preferred as they can capture most of the fine particles associated with smoke and can further reduce the amount of outside air pollution that gets indoors. However, caution must be taken to assure that the air conditioning system is able to handle the increased airflow resistance from a higher efficiency filter. Filters need to be cleaned or replaced regularly, and should fit the filter slot snugly.

In addition to high- and medium-efficiency filters, electrostatic precipitators (ESPs) can sometimes be added by a technician to central air conditioning systems to keep particle levels in indoor air within acceptable levels during a prolonged smoke event.

For newer air conditioners with a "fresh air ventilation system" that brings in outdoor air continuously or semi-continuously, the "fresh air" component of the system should be turned off during smoke events. This may require closing the outdoor air damper, setting the system on "re-circulate" only, or turning off the energy- or heat-recovery ventilator or exhaust fans that are part of the system. If the control system instructions are not clear or accessible, residents should contact their builder or heating and cooling contractor to help temporarily adjust the system. However, residents should also place a reminder tag in a visible spot so that they reset the system once the smoke clears. Many newer homes currently have such mechanical ventilation systems and, starting in 2009, new homes in California will be required to have such systems. Mechanical ventilation systems used in public and commercial buildings differ, and are discussed further in Appendix A.

## Room air cleaners

Choosing to buy an air cleaner is a decision that ideally should be made *before* a smoke emergency occurs. During a smoke emergency, it may be hazardous to go outside or drive in an attempt to locate an appropriate device, which may be in short supply. It is unlikely that local health officials will be able to buy or supply air cleaners to those who might need them.

HEPA filter air cleaners and ESPs can help reduce indoor particle levels, provided the specific air cleaner is properly matched to the size of the indoor environment in which it is placed. There are wide ranges of air cleaners and prices to choose from: air cleaners are available as either less expensive portable units designed to clean the air in a single room (\$90 - \$900) or as larger central air cleaners intended to clean the whole house (\$450 - \$1500). Central air cleaners have been shown to be more effective than room air cleaners, although a good portable air cleaner may improve the air in a bedroom, for example, which may be helpful to an individual with asthma or COPD. Most air cleaners are not effective at removing gases and odors. The two basic types for particle removal include:

(a) Mechanical air cleaners, which contain a fiber or fabric filter. The filters need to be sealed tightly in their holders, and cleaned or replaced regularly. HEPA filters (and ULPA or ultra-HEPA filters, which are not generally available for residential use) are most efficient at removing particles.

(b) Electronic air cleaners, such as electrostatic precipitators (ESPs) and ionizers. ESPs use a small electrical charge to collect particles from air pulled through the device. Ionizers, or negative ion generators, cause particles to stick to materials (such as carpet and walls) near the device. Electronic air cleaners usually produce small amounts of ozone (a respiratory irritant) as a byproduct, though some,

especially those that are combined with other technologies, may produce substantial levels of ozone (see next section on Ozone Generators).

Room air cleaner units should be sized to filter at least two or three times the room volume per hour. Most portable units will state on the package the unit's airflow rate, the room size it is suitable for, its particle removal efficiency, and perhaps its Clean Air Delivery Rate, or CADR. The CADR is a rating that combines efficiency and airflow.

The Association of Home Appliance Manufacturers (AHAM) maintains a certification program for air cleaners. The AHAM seal on the air cleaner's box lists three CADR numbers – one for tobacco smoke, one for pollen, and one for dust. The higher the numbers, the faster the unit filters the air. Choose a unit with a tobacco smoke CADR at least 2/3 of the room's area. For example, a 10' x 12' room (120 square feet) would require an air cleaner with a tobacco smoke CADR of at least 80. If the ceiling is higher than 8', an air cleaner rated for a larger room will be needed.

Consumer Reports recently published an educational review of air cleaning devices, which can be accessed at: <http://www.arb.ca.gov/research/indoor/cr-12-2007.pdf>. This article provides ratings for both portable and whole house air cleaners.

Devices that remove gases and odors are relatively costly, both to purchase and maintain. They force air through materials such as activated charcoal or alumina coated with potassium permanganate. However, the filtering medium can become quickly overloaded and may need to be replaced often. Nevertheless, such devices may be useful for sensitive individuals, and new models that combine particle and gas removal are available in both portable and in-duct models.

**For more information about residential air cleaners:**

<http://www.epa.gov/iaq/pubs/airclean.html>  
<http://www.arb.ca.gov/research/indoor/acdsumm.pdf>  
<http://www.arb.ca.gov/research/indoor/ozone.htm>  
<http://www.cadr.org/consumer.htm>

## Ozone generators – a choice to avoid

Some devices, known as ozone generators, personal air purifiers, “super-oxygen” air purifiers, and “pure air” generators, are sold as air cleaners, but the position of public health agencies, including the California Air Resources Board and U.S. Environmental Protection Agency, is that they do more harm than good. These devices are designed to intentionally produce large amounts of ozone gas. Ozone generator manufacturers claim that ozone can remove mold and bacteria from the air, but this occurs only when ozone is released at levels many times higher than those that are known to harm human health.

Relatively low levels of ozone can irritate the airways, causing coughing, chest pain and tightness, and shortness of breath. It can also worsen chronic respiratory diseases such as asthma, as well as compromise the body's ability to fight respiratory infections. As a

result, using an ozone generator during a smoke event may actually increase the adverse effects from the smoke. In addition, ozone gas does not remove particles from the air, and would therefore not be effective during smoke events. (Some ozone generators include an ionizer to remove particles, but it would be far safer to buy the ionizer by itself or a filter-based air cleaner.)

**For more information about ozone generators marketed as air cleaners:**

<http://www.arb.ca.gov/research/indoor/ozone.htm>

[www.epa.gov/iaq/pubs/ozonegen.html](http://www.epa.gov/iaq/pubs/ozonegen.html)

## Create a clean room at home

People who live in areas that are regularly affected by smoke from wildfires would be well advised to create a “clean room” in their home. A good choice is an interior room, with as few windows and doors as possible, such as a bedroom. Some suggestions for maintaining a clean room:

- Keep windows and doors closed.
- Set up a properly sized room air cleaner (see above), which will help remove particles from the air while emitting no or minimal levels of ozone.
- Run an air conditioner or central air conditioning system if you have one. If the air conditioner provides a fresh air option, keep the fresh-air intake closed to prevent smoke from getting inside. Make sure that the filter is clean enough to allow good air flow indoors.
- Do not vacuum, because vacuuming stirs up particles.
- Do not smoke or burn anything, such as candles or incense, anywhere in the house.
- Keep the room clean.
- If it is too warm to stay inside with the windows closed, or if you are very sensitive to smoke, seek shelter elsewhere. Keep in mind that many particles will enter your home even if you take all of these steps.

## Humidifiers

Humidifiers are not air cleaners, and will not significantly reduce the amount of particles in the air during a smoke event. Nor will they remove gases like carbon monoxide. However, humidifiers and dehumidifiers (depending on the environment) may slightly reduce pollutants through condensation, absorption and other mechanisms. In an arid environment, one possible benefit of running a humidifier during a smoke event might be to help the



mucous membranes remain comfortably moist, which may reduce eye and airway irritation. However, if not properly cleaned and maintained, some humidifiers can circulate mold spores. In any case, the usefulness of humidification during a smoke event has not been studied.

## Inside vehicles

Individuals can reduce the amount of smoke in their vehicles by keeping the windows and vents closed, and, if available, operating the air conditioning in “re-circulate” mode. However, in hot weather a car’s interior can heat up very quickly to temperatures that far exceed those outdoors, and heat stress or heat exhaustion can result. Children and pets should **never** be left unattended in a vehicle with the windows closed. The ventilation system of older cars typically removes a small portion of the particles coming in from outside, while newer models often have an air filter that removes most particles. Most vehicles can re-circulate the inside air, which will help keep the particle levels lower. Drivers should check the owner’s manual and assure that the system is set correctly to minimize entry of outdoor smoke and particles. However, recent research has shown that carbon dioxide levels can quickly accumulate to very high levels (more than 5000 parts per million) in newer cars when vents and windows are closed and the recirculation setting is used. Therefore, if driving a recent model vehicle for more than a short period of time, it may be a good idea to briefly open windows or vents occasionally to avoid becoming groggy from carbon dioxide build-up. Finally, vehicles should not be used as a shelter, but as means to get to one or to leave the area.

## Respiratory protection

This section addresses the use of masks and respirators by the public and workers to reduce inhalation of wildfire smoke, specifically harmful particles. Use of the term “mask” in this context may cause confusion for both public health officials and the general public, as it can refer to one-strap paper masks and surgical masks, which provide little if any protection, as well as N95 (defined below) and other respirators, which can be beneficial. This discussion emphasizes appropriate usage of the term “respirator;” however, in Appendix B, which provides guidance in lay language to the public on respiratory protection, the term “mask” is used.

In order for a respirator to provide protection, it must be able to filter very small particles and it must fit well, providing a tight seal around the wearer’s mouth and nose. For example, adequate seals cannot be obtained for men with beards or for most children. Without having had a “fit test” while wearing a respirator, the individual user cannot be sure that it fits well enough to provide the expected protection. However, because disposable respirators (N95 or P100) are increasingly available in hardware and home repair stores and pharmacies, many people will purchase these devices and use them, either when going outdoors during smoke events or during fire ash cleanup. Therefore, health officials should consider providing guidance on the proper selection and use of respirators, which can provide some level of protection despite the lack of formal fit testing and training.

**Respirators should only be used after first implementing other, more effective methods of exposure reduction, including staying indoors, reducing activity, and using HEPA air cleaners to reduce overall smoke exposure. Another option that should be considered for sensitive individuals is temporary relocation out of the smoky area if possible.**

Filtering facepiece respirators are a type of respiratory protection in which the entire respirator is comprised of filter material. The most common types are called N95 (used in health care settings to protect against inhalation of infectious particles) and P100 (used to protect against toxic dusts such as lead or asbestos). Filter material rated “95” will capture at least 95% of very small particles, while material rated “100” filters out at least 99.97%. These respirators must be certified by the National Institute for Occupational Safety and Health (NIOSH), with the words “NIOSH” and the designation “N95” or “P100” appearing on the filter material. P100 respirators are more expensive than N95 respirators and will have somewhat higher resistance to airflow. The cost difference may make people reluctant to change them out when necessary, so N95 respirators may be preferable in wildfire smoke situations. Leakage around the respirator will result in more particles inhaled by someone wearing a respirator than passage through the filter material. Therefore, in practice, particularly without formal fit testing, N95s and P100s will provide similar levels of protection against wildfire smoke.



**Figure 4 Two types of recommended N95 Disposable Particulate Respirators. Note the presence and placement of the two straps above and below the ears.**

Other nondisposable NIOSH-certified respirators, such as those used by painters, may also be beneficial; they have a tight-fitting flexible facepiece and replaceable filter cartridges. These would provide similar protection from particles if they are used with N95 particulate filters or purple (P100 or HEPA) filter cartridges. This type of respirator may also be purchased with a combination filter and organic vapor cartridge, which can reduce exposure to irritating gases in smoke, such as aldehydes.

One drawback to the use of respirators by the public in an area affected by wildfire smoke is that people may not select or use them correctly and won't understand the importance of having a tight seal around the face. A one-page fact sheet, "Protect Your Lungs from Wildfire Smoke," which is designed for the general public, appears at the end of this Guide as Appendix B. In lay terms (including using the term "mask" instead of "respirator"), it describes how to correctly choose and use a disposable N95 or P100 particulate respirator. Guidance to the public on using respirators should include the following points:

#### How to Choose the Right Respirator:

- Disposable particulate respirators are sold at many hardware and home repair stores and pharmacies. These respirators only filter out particles. They do not protect against gases or vapors, and do not provide oxygen.
- Select a NIOSH-certified N95 or P100 particulate respirator with two straps that go around your head. The words "NIOSH" and either "N95" or "P100" will be printed on the filter material.
- Choose a size that will fit over your nose and under your chin. It should seal tightly to your face. If you cannot get a close face seal, try a different model or size. Fit testing is the best way to determine if the respirator fits you, but even without fit testing a respirator will provide some protection to most people.
- As of July 2008, respirators do not come in sizes that will fit young children. NIOSH does not certify any respirators for children.

#### How to Use the Respirator:

- Place the respirator over your nose and under your chin, with one strap below the ears and one strap above (see photo above). If you're wearing a hat, it should go over the straps.
- Pinch the metal nose clip tightly over the top of your nose.
- Facial hair will cause the respirator to leak, so you should be clean-shaven.
- It takes more effort to breathe through a respirator. It can also increase the risk of heat stress. If you are working outside while wearing a respirator, take frequent breaks, especially if you are working in the heat or doing heavy work.
- If you feel dizzy, lightheaded, or nauseated, tell someone, go to a less smoky area, remove your respirator, and get medical attention.
- People with heart or lung disease should consult with their doctor before using a respirator.
- Discard the respirator when: (1) it becomes more difficult to breathe through it, or (2) if the inside becomes dirty. If necessary, use a fresh respirator each day.
- Keep your respirator clean and dry. Be sure to read and follow the manufacturer's recommendations on use and storage.

As noted above, "mask" means different things to different people. For example, to some people "dust mask" describes a P100 particulate respirator used in the construction industry, and to others it means a one-strap paper mask that is NOT a respirator. A disposable particulate respirator has been certified by NIOSH to ensure that it can filter out harmful particles. Paper masks and surgical masks are not certified by NIOSH and



cannot provide the protection that respirators do. Commonly available one-strap paper dust masks, which are designed to keep larger particles out of the nose and mouth, typically offer little protection. The same is true for bandanas (wet or dry) and tissues held over the mouth and nose. Surgical masks are designed to filter air coming out of the wearer's mouth, and do not provide a good seal to prevent inhalation of small particles found in wildfire smoke. Incorrect use of respirators, or use of other, less protective face coverings, may give the wearer a false sense of security and encourage increased physical activity and time spent outdoors, resulting in increased exposures.



**Figure 5 A one-strap paper mask is not a respirator and would provide little or no protection from smoke particles.**



**Figure 6 A surgical mask, which is designed to capture infectious particles generated by the wearer, is not a respirator and would provide little or no protection from smoke particles.**

N95 and P100 respirators described in this section would also help to protect people involved in cleaning up fire ash. Additional guidance for the public on cleaning up ash safely appears as Appendix C. If respirators are not available during fire ash cleanup, simple paper masks or other face coverings may help keep grit and dust out of the nose and mouth, but they will not protect the lungs.

Use of respirators by workers generally must be under a comprehensive, OSHA-compliant respiratory protection program. These programs include medical evaluation of employees to ensure that it is safe and appropriate for them to use respirators; individual fit testing to select a model and size that fit; and training on respirator use. Employers who anticipate that their workers may need to wear respiratory protection are expected to put in place a full program prior to use. However, during emergency situations such as smoke events employees who work outdoors or indoors (who would not otherwise be required to wear respirators) may request to use respirators to protect against exposure to smoke, particularly when the local Air Quality Index (AQI) for PM is rated “unhealthy” or worse. As long as occupational particulate standards are not exceeded (which is unlikely for workers not performing firefighting duties), the OSHA respiratory protection standard permits employers to allow voluntary use of N95 or other disposable filtering facepiece respirators without requiring a medical evaluation or fit test. Employees must be provided with Appendix D of the federal OSHA respiratory protection standard (for workplaces under Cal/OSHA jurisdiction this is available at <http://www.dir.ca.gov/Title8/5144d.html>). Employers should also tell employees that the respirator will provide some protection against the particles in smoke, but without fit testing it may not provide the maximum level of protection. Although a medical evaluation is not required, the employer should advise employees to consult their doctor about potential exposures to smoke and respirator use, particularly if they have respiratory or heart disease.

## Cleaner air shelters

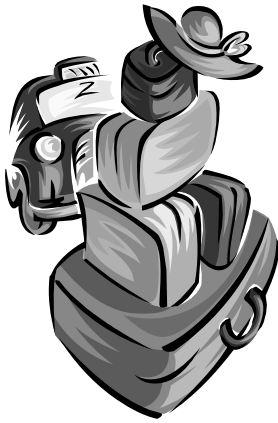
Public health officials in areas at risk from forest fires should identify and evaluate cleaner air shelters prior to the fire season. Guidance for identifying and setting up a Cleaner Air Shelter is provided in Appendix D. During severe smoke events, cleaner air shelters can be designated to provide residents with a place to get out of the smoke. Staying inside at home may not adequately protect sensitive individuals, since many houses and apartments do not have air conditioning, and depend on open windows and doors for cooling. Other homes may be so leaky that indoor pollution levels will quickly equal those outside. Cleaner air shelters can be located in large commercial buildings, educational facilities, shopping malls, or any place with effective air conditioning and particle filtration.

## Closures

The decision to close or curtail business activities and public events will depend upon predicted smoke levels and other local conditions. One factor to consider is whether

pollutant levels inside schools and businesses are likely to be similar to or lower than those in homes. Children's physical activity may also be better controlled in schools than in homes. On the other hand, in some school districts smoky conditions may make travel to school hazardous. In many areas it will not be practical to close businesses and schools, although partial closures may be beneficial. Closures and cancellations can target specific groups (e.g., the sensitive populations described earlier) or specific, high-risk activities, such as outdoor sporting events and practices. Curtailing outside activities can reduce exposures, as can encouraging people to stay inside and restrict physical activity. A decision to restrict industrial emissions should be based on local air pollution and the emission characteristics of particular industries. Curtailment may not be necessary if eliminating industrial emissions will not markedly reduce local air pollution.

## Evacuation



The most common call for evacuation during a wildfire is due to the direct threat of engulfment by the fire rather than by exposure to smoke. Leaving an area of thick smoke may be a good protective measure for members of sensitive groups, but it is often difficult to predict the duration, intensity, and direction of smoke, making this an unattractive option to many people. Even if smoky conditions are expected to continue for weeks, it may not be feasible to evacuate a large percentage of the affected population. Moreover, the process of evacuation can entail serious risks, particularly if poor visibility makes driving hazardous. In these situations, the risks posed by driving with reduced visibility need to be weighed against

the potential benefits of evacuation. Therefore, in areas where fires are likely to occur, public health officials are encouraged to develop plans for local protection of sensitive groups.

Where individuals are evacuated to a common center because of fire danger, public health officials need to pay particular attention to the potential for smoke to affect the evacuation center itself. It is not always possible to locate evacuation centers far away from smoky areas, or to expect that evacuees will be able to take the steps necessary to reduce their exposures in their new surroundings. Public health officials should consider advising incident commanders if this situation could arise and ensure that evacuees are provided with information and materials to further reduce exposures, including provision of a cleaner air shelter within the evacuation center, if possible, as well as other means of respiratory protection. (See "Respiratory Protection" above).

## Summary of strategies for exposure reduction

When wildfires are expected to create smoky conditions, people can pursue a number of strategies to reduce their exposure. Those with moderate to severe heart or lung disease might consider staying with relatives or friends who live away from the smoke during the fires. If smoke is already present in substantial quantities, such individuals may want to evaluate whether evacuation might actually cause greater exposure than staying at home using other precautions described above.

All people in a smoky area (except firefighters or emergency personnel) should avoid strenuous work or exercise outdoors. They should avoid driving whenever possible. If driving is necessary, people should run the air conditioner on the “recycle” or re-circulate mode to avoid drawing smoky air into the car.

Closing up a home by shutting windows and doors can give some protection from smoke. Most air conditioners are designed by default to re-circulate indoor air. Those systems that have both “outdoor air” and “re-circulate” settings need to be set on “re-circulate” during fire/smoke events to prevent smoke-laden air from being drawn into the building (note: this does not apply to HVAC systems in office and commercial buildings; see Appendix A).

Once people have closed up the building in which they live, they should avoid strenuous activity, which can make them breathe harder and faster. They should drink plenty of fluids to keep their respiratory membranes moist. They may even want to breathe through a moistened washcloth, as long as it does not interfere with their ability to breathe.

NIOSH-certified disposable respirators (N95 or P100) available in hardware or other stores may provide some level of protection from exposure to particles in smoke, as long as a close-fitting model and size is selected and they are used properly. One-strap paper masks, surgical masks, or other face coverings are likely to provide far less or no protection.

In preparation for the fire season or a smoke event, it is a good idea to have enough food on hand to last several days, so that driving can be minimized. It is also important to have at least a five-day supply of medication for the same reason. Foods stored for use during the fire season should not require frying or broiling, since these activities can add particles to indoor air. Vacuuming (except with HEPA filter-equipped vacuums) should also be avoided, since most vacuum cleaners disperse very fine dust into the air.

If smoke levels increase to very unhealthy or hazardous levels, it may be appropriate for some individuals to stay in a clean room in the home, relocate temporarily to a cleaner air shelter, or to leave the area entirely if it is possible and safe to do so.

# Estimating particulate matter levels

Particulate matter levels are measured as micrograms ( $\mu\text{g}$ ) of particles per cubic meter of air. Most particle monitoring devices measure either particulate matter with a median diameter of 10 micrometers or less ( $\text{PM}_{10}$ ) or smaller particles with median diameters of 2.5 micrometers or less ( $\text{PM}_{2.5}$ , also known as fine particles).

Jurisdictions with particulate monitors, whether they are filter-based or continuous methods, will get a good idea of how bad the smoke was *after* the event. However, the goal is to relay information to the public in a timely manner, so they can make decisions about how to protect their health when the smoke levels are high. Continuous PM monitors give an instant reading of particulate matter concentrations and usually provide a number of averaging periods (e.g., one-hour and running 24-hour averages). Areas without continuous monitors may be able to get temporary, portable measuring devices through their state air quality program or the Forest Service.

Many communities do not have access to continuous PM monitoring, and therefore need other ways to estimate particle levels. This is true even in areas which do have continuous monitors, because smoke concentrations can vary widely within a couple miles and can change rapidly. Visibility can sometimes serve as a good surrogate. In addition, a visibility index gives the public a quick way to assess smoke levels for themselves.

**Table 1 Estimating particulate matter concentrations from visibility assessment**

Categories	Visibility in Miles	Particulate Matter Levels* (1-hour average, $\mu\text{g}/\text{m}^3$ )
Good	11 miles and up	0 - 38
Moderate	6 to 10	39 - 88
Unhealthy for Sensitive Groups	3 to 5	89 - 138
Unhealthy	1 ½ to 2 ¾	139 - 350
Very Unhealthy	1 to 1 ¼	351 - 526
Hazardous	less than 1 mile	over 526

\*In wildfire smoke, most particles are less than one micrometer, so the values obtained by measuring either  $\text{PM}_{10}$  or  $\text{PM}_{2.5}$  are virtually interchangeable, and are treated as such in this document. Therefore, in the table above, the different particle levels can be measured using either  $\text{PM}_{10}$  or  $\text{PM}_{2.5}$  monitors.

When using the visibility index to determine smoke concentrations, it is important to:

- Face away from the sun.
- Determine the limit of your visibility range by looking for targets at known distances (miles). The visible range is the point at which even high-contrast objects (e.g., a dark forested mountain viewed against the sky at noon) totally disappear.
- After determining visibility in miles, use Tables 2 and 3 to identify potential health effects and appropriate cautionary statements.

At times, the visibility index may be hard to use, especially if specific landmarks at known distances are not available for judging visibility range, or at dawn or dusk. *Furthermore, the above visibility categories for PM levels only apply in dry air conditions. For a given PM level, visibility decreases substantially at relative humidity above 65%, therefore, this method of estimation should not be used under conditions of high humidity.* Work is being done to incorporate humidity as a factor in the visibility index, and will be included in this guide when it is available. For now, in humid conditions, individuals may have to rely on common sense in assessing smoke conditions (e.g., mild, moderate, heavy smoke) and the kinds of protective actions that might be necessary. At night or during periods when visibility cannot be used to estimate smoke levels, intense smoky odor can be used to indicate potentially harmful levels.

Once a procedure is in place to determine current smoke levels, the next step is to predict future levels of smoke in a way that is useful to the public. Smoke events follow different patterns – some events have high smoke levels for a few hours a day, others have sustained smoke over a number of hours, and still others have elevated levels over a number of days. How the smoke behaves depends on a number of factors, such as how large and far away the fire is, topography, expected winds, and other weather conditions.

There are a number of on-line resources to aid in making smoke predictions, including information about current wildfires, satellite images and the National Weather Service. These websites are listed under “Resources/Links” towards the end of this guide.

## Recommendations for public health actions

### Pre-season public service announcements

In areas where fires are likely to occur, state and local public health agencies should consider running pre-season public service announcements (PSAs) or news releases to advise the public on how to prepare for the fire season. PSAs should be simple (e.g., the season for wildfires is approaching; there are things you can do now to help protect your health and prepare your home in the event of a wildfire), and should list a contact phone number or website for further information.

News releases should be used to provide more detailed information, including information for the general public and for people with chronic diseases.

#### **General recommendations to the public should include at least the following:**

1. Have a several-day supply of nonperishable groceries that do not require cooking, since cooking (especially frying and broiling) can add to indoor pollutant levels.
2. If you develop symptoms suggesting lung or heart problems, consult a health care provider as soon as possible.

3. Be alert to PSAs.
4. Be aware that outdoor events, such as athletic games or competitions, may be postponed or cancelled if smoke levels become elevated.

**Recommendations for people with chronic diseases should include at least the following:**

1. Have an adequate supply of medication (more than 5 days).
2. People with asthma should have a written asthma management plan.
3. People with heart disease should check with their health care providers about precautions to take during smoke events. They should do this prior to the fire season if they live in an area that has the potential for wildfires.
4. If you plan to use a portable air cleaner, buy one appropriately matched to room size, as specified by the manufacturer, before a smoke emergency occurs.
5. Contact a health care provider if your condition worsens when you are exposed to smoke.
6. A news release could also include recommendations for preparing residences to keep smoke levels lower indoors, and on the appropriate use of respiratory protection. See Appendices B, D, and E.

## Public advisories and protective measures

Areas with established air quality programs generally have several ways to alert the public about air pollution events. One approach is to refer to the U.S. Environmental Protection Agency's (EPA's) Air Quality Index (AQI), which is used by states and many communities across the country ([http://www.epa.gov/airnow/aqi\\_cl.pdf](http://www.epa.gov/airnow/aqi_cl.pdf)). Other methods include websites, hotlines, press releases, as well as emails and faxes to interested parties (such as sports team coaches and daycare providers). Some rural areas have used door-to-door dissemination of the visibility index (Table 1) and the associated health effects (Table 2).

The AQI is a nationally uniform index required for reporting and forecasting daily air quality in large urban areas. It is used to report information about the most common ambient air pollutants, including particulate matter. The AQI tells the public how clean or polluted the air is using standard descriptors (Good, Moderate, Unhealthy for Sensitive Groups, Unhealthy, Very unhealthy, and Hazardous). This index converts sometimes difficult-to-interpret particulate mass per volume ( $\mu\text{g}/\text{m}^3$ ) numbers to an AQI category and number more easily understood by the public. The AQI uses a normalized scale from 0 to 500 and associated health-based descriptors. An AQI value of 100 corresponds to the level of the National Ambient Air Quality Standard for a given pollutant. An advantage of the AQI over the  $\mu\text{g}/\text{m}^3$  value for particulate matter is that the AQI level of 100 represents a clear demarcation between satisfactory and unhealthy air quality, at least with reference to the national standard, which is (in principle) established at a level that will protect public health. When AQI values exceed 100, air quality is considered to be unhealthy, at first for members of susceptible populations, then for everyone as AQI values increase.

One issue that public health officials may face is which averaging time to use when reporting smoke levels to the public. The AQI for particulate matter is based on predicted

or measured 24-hour average concentrations. However, using the 24-hour average does not adequately address very high, but short-term, peaks often associated with wildfire smoke. Health officials would like the public to reduce their exposure during these peaks because such transient pollutant spikes may cause some of the most serious health effects. Moreover, the public wants information to help make immediate decisions about whether to exercise, conduct athletic practice, or keep children indoors. On the other hand, several hours of very high levels may drive up the predicted 24-hour average; but the smoke may clear enough to safely allow outdoor activities. In addition, the 24-hour average does not mesh well with public perception. Since smoke is so effective at scattering light, visibility changes drastically as smoke concentrations increase. Even without being told, the public can tell when the smoke is getting worse, and they want authorities to respond to changes as they are happening. Therefore, this guide provides information related to shorter averaging times to give more flexibility in reporting smoke levels to the public (see below).

Table 2 provides a general list of health effects and cautionary statements for use in public advisories. The categories are based on the AQI, as well as on work done in Montana, California, and Washington. The recommended  $PM_{2.5}$  concentrations (1- to 3-hour and 8-hr averages) at which local officials may wish to consider issuing these advisories are listed in Table 3. *If only  $PM_{10}$  measurements are available during smoky conditions, it can be assumed that the  $PM_{10}$  is composed primarily of fine particles ( $PM_{2.5}$ ), and that therefore the AQI and associated cautionary statements and advisories for  $PM_{2.5}$  may be used. This assumption is reflected in the column headings in Table 3.*

Table 3 provides guidance to public health officials regarding measures that can be taken to protect public health at different AQI categories and the corresponding PM levels for several averaging times. This information is intended to help health officials, the media, and the general public make decisions regarding appropriate strategies to mitigate exposure to smoke. As noted above, the official AQI value for particulate matter is derived exclusively from estimated or measured 24-hr average concentrations: this AQI for  $PM_{2.5}$  is reported by the media. PM levels for shorter averaging times in Table 3 are therefore not “official” AQI values, but have been mathematically derived from the AQI breakpoints for 24-hr concentrations. Although Table 3 also provides the AQI numerical ranges encompassed by the standard descriptors, of “Good,” “Moderate,” and so forth, it is possible that concurrent publication of both the AQI numbers and the  $\mu g/m^3$  concentrations to describe air quality may lead to confusion among members of the public. To avoid such confusion, it may be preferable to publish just the AQI values.

There are no directly relevant epidemiological or controlled human exposure studies that offer guidance in the selection of particulate matter levels with averaging times less than 24 hours, in part because studies of short-term effects of particles generally have not been conducted and in part because the toxicity of smoke is related to gaseous as well as particulate components. However, these short-term levels (1- to 3-hr and 8-hr averages) were derived from the  $PM_{2.5}$  AQI levels, which are based on a strong body of epidemiological evidence associating 24-hour  $PM_{2.5}$  exposures with respiratory and cardiovascular morbidity and mortality.



The categories in Table 3 are tools that can be used as both descriptors and action levels. For example, when PM<sub>2.5</sub> levels have been 90 µg/m<sup>3</sup> for 2 or 3 hours, air quality can be described as “Unhealthy for Sensitive Groups.” Public health officials may also want to take some or all of the recommended actions associated with this air quality designation, based on a global assessment of the local situation. Some factors that might be considered include:

- Fluctuations in PM<sub>2.5</sub> levels. Do the peaks of PM<sub>2.5</sub> occur relatively infrequently, interspersed with longer periods of good air quality, or do they occur multiple times per day, superimposed on higher-than-usual PM<sub>2.5</sub> levels?
- Predicted duration of high PM<sub>2.5</sub> levels. For instance, if air quality is predicted to be in the “Unhealthy for Sensitive Groups” range or worse for an extended period of time, public health officials might consider evaluating sites for cleaner air shelters or recommending evacuation plans for individuals with chronic lung or heart disease who cannot take adequate personal protective actions to reduce exposures.
- Potential indirect effects. High PM<sub>2.5</sub> levels can impair visibility and increase the risk of traffic accidents. This may be reason enough to cancel an evening indoor event at a local high school, for example.

**Table 2 Health Effects and Cautionary Statements <sup>1</sup>**

Category (see Table 3)	Health Effects	Cautionary Statements <sup>1</sup>	Other Protective Actions
Good	None expected	None	None
Moderate	Possible aggravation of heart or lung disease	<p>Unusually sensitive individuals should consider limiting prolonged or heavy exertion.</p> <ul style="list-style-type: none"> <li>▪ People with heart or lung disease should pay attention to symptoms.</li> <li>▪ If you have symptoms of lung or heart disease, including repeated coughing, shortness of breath or difficulty breathing, wheezing, chest tightness or pain, palpitations, nausea, unusual fatigue or lightheadedness, contact your health care provider.</li> </ul>	<ul style="list-style-type: none"> <li>▪ If symptomatic, reduce exposure to particles by following advice in box below.</li> </ul>
Unhealthy for Sensitive Groups	Increasing likelihood of respiratory or cardiac symptoms in sensitive individuals, aggravation of heart or lung disease, and premature mortality in persons with cardiopulmonary disease and the elderly.	<p><i>Sensitive Groups:</i> People with heart or lung disease, the elderly, children, and pregnant women should limit prolonged or heavy exertion.</p> <ul style="list-style-type: none"> <li>▪ Limit time spent outdoors.</li> <li>▪ Avoid physical exertion.</li> <li>▪ People with asthma should follow asthma management plan.</li> <li>▪ If you have symptoms of lung or heart disease that may be related to excess smoke exposure, including repeated coughing, shortness of breath or difficulty breathing, wheezing, chest tightness or pain, heart palpitations, nausea, unusual fatigue or lightheadedness, contact your health care provider.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Keep doors and windows closed, seal large gaps as much as possible.</li> <li>▪ Avoid using exhaust fans (kitchen, bathrooms, clothes dryer, and utility room).</li> <li>▪ Keep the garage-to-home door closed.</li> <li>▪ If cooling is needed, turn air conditioning to re-circulate mode in home and car, or use ceiling fans or portable fans (but do not use whole house fans that suck outdoor air into the home).</li> <li>▪ Avoid indoor sources of pollutants, including tobacco smoke, heating with wood stoves and kerosene heaters, frying or broiling foods, burning candles, vacuuming, and using paints, solvents, cleaning products, and adhesives.</li> <li>▪ Keep at least 5-day supply of medication available.</li> <li>▪ Have supply of non-perishable groceries that do not require cooking.</li> </ul>

<sup>1</sup> Higher advisory levels automatically incorporate all of guidance offered at lower levels.

**Table 2 Health Effects and Cautionary Statements (continued)**

Category (see Table 3)	Health Effects	Cautionary Statements <sup>1</sup>	Other Protective Actions
Unhealthy	Increased aggravation of heart or lung disease and premature mortality in persons with cardiopulmonary disease and the elderly; increased respiratory effects in general population.	<p><i>Sensitive Groups:</i> should avoid prolonged or heavy exertion</p> <ul style="list-style-type: none"> <li>Stay indoors; avoid exertion.</li> </ul> <p><i>General Population:</i> should limit prolonged or heavy exertion</p> <ul style="list-style-type: none"> <li>Limit time spent outdoors.</li> <li>If you have symptoms of lung or heart disease that may be related to excess smoke exposure, including repeated coughing, shortness of breath or difficulty breathing, wheezing, chest tightness or pain, palpitations, nausea or unusual fatigue or lightheadedness, contact your health care provider.</li> </ul>	<p><i>Sensitive Groups:</i> Stay in a “clean room” at home (where there are no indoor smoke or particle sources, and possibly an air cleaner is used).</p> <ul style="list-style-type: none"> <li>Go to a “cleaner air” shelter (see Appendix D) or possibly out of area</li> </ul> <p><i>General Population:</i> Follow advice for sensitive groups in box above.</p> <ul style="list-style-type: none"> <li>Identify potential “cleaner air” shelters in the community (see Appendix D).</li> </ul>
Very Unhealthy	Significant aggravation of heart or lung disease, premature mortality in persons with cardiopulmonary disease and the elderly; significant increase in respiratory effects in general population.	<p><i>General Population:</i> should avoid prolonged or heavy exertion</p> <ul style="list-style-type: none"> <li>Stay indoors, avoid exertion</li> </ul>	<p><i>General Population:</i> If symptomatic, evacuate to cleaner air shelter or leave area, if safe to do so.</p>
Hazardous	Serious aggravation of heart or lung disease, premature mortality in persons with cardiopulmonary disease and the elderly; serious risk of respiratory effects in general population.	<p><i>General Population:</i> should avoid any outdoor activity.</p>	<p><i>General Population:</i> If symptomatic, evacuate to cleaner air shelter or leave area, if safe to do so.</p>

<sup>1</sup> Higher advisory levels automatically incorporate all of the guidance offered at lower levels.

**Table 3. Recommended Actions for Public Health Officials**<sup>2,3</sup>

AQI Category (AQI Values)	PM2.5 or PM10 Levels (ug/m <sup>3</sup> )			Visibility - Arid Conditions (miles)	Recommended Actions
	1-3hr avg	8 hr avg	24 hr avg <sup>1</sup>		
Good (0 to 50)	0 – 38	0 – 22	0 – 12	≥ 11	<ul style="list-style-type: none"> <li>• If smoke event forecast, implement communication plan</li> </ul>
Moderate (51 to 100)	39 – 88	23 – 50	12.1 – 35.4	6 – 10	<ul style="list-style-type: none"> <li>• Issue public service announcements (PSAs) advising public about health effects and symptoms and ways to reduce exposure</li> <li>• Distribute information about exposure avoidance</li> </ul>
Unhealthy for Sensitive Groups (101 to 150)	89 – 138	51 – 79	35.5– 55.4	3 – 5	<ul style="list-style-type: none"> <li>• If smoke event projected to be prolonged, evaluate and notify possible sites for cleaner air shelters</li> <li>• If smoke event projected to be prolonged, prepare evacuation plans</li> </ul>
Unhealthy (151 to 200)	139 – 351	80 – 200	55.5 – 150.4	1.5 – 2.75	<ul style="list-style-type: none"> <li>• Consider “Smoke Day” for schools (i.e., no school that day), possibly based on school environment and travel considerations</li> <li>• Consider canceling public events, based on public health and travel considerations</li> </ul>
Very Unhealthy (201 to 300)	352 – 526	201 – 300	150.5 – 250.4	1 – 1.25	<ul style="list-style-type: none"> <li>• Consider closing some or all schools (Newer schools with a central air cleaning filter may be more protective than older, leakier homes. See “Closures”, below.)</li> <li>• Cancel outdoor events (e.g., concerts and competitive sports)</li> </ul>
Hazardous (> 300)	> 526	> 300	> 250.5-500	< 1	<ul style="list-style-type: none"> <li>• Close schools</li> <li>• Cancel outdoor events (e.g., concerts and competitive sports)</li> <li>• Consider closing workplaces not essential to public health</li> <li>• If PM level is projected to remain high for a prolonged time, consider evacuation of sensitive populations</li> </ul>

<sup>1</sup>Revised 24 hour average breakpoints from the **Revised Air Quality Standards for Particle Pollution and Updates to the Air Quality Index**, US Environmental Protection Agency, December 14, 2012. Available at <http://www.epa.gov/airquality/particlepollution/actions.html#dec12>.

<sup>2</sup>These 1- and 8-hr PM2.5 levels are estimated using the 24-hr breakpoints of the PM2.5 Air Quality Index included in the February 7, 2007 issue paper ([http://www.epa.gov/airnow/aqi\\_issue\\_paper\\_020707.pdf](http://www.epa.gov/airnow/aqi_issue_paper_020707.pdf)) by dividing the 24-hr concentrations by the following ratios: 8-hr ratio is 0.7, 1-hr ratio is 0.4. Visibility is based on 1-hr values. If only PM10 measurements are available during smoky conditions, it can be assumed that the PM10 is composed primarily of fine particles (PM2.5), and that therefore the AQI and associated cautionary statements and advisories for PM2.5 may be used. This assumption is reflected in the column headings for Table 3.

<sup>3</sup> Washington and Montana have developed more precautionary breakpoints, which can be found at: <http://www.deq.mt.gov/FireUpdates/BreakpointsRevised.asp> and <http://www.ecy.wa.gov/programs/air/pdfs/WAQA.pdf>

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Available at: <http://www.arb.ca.gov/research/indoor/acdsumm.pdf>

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<http://www.arb.ca.gov/research/indoor/ozone.htm>

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## Additional Resources and Links

### Current active wildfire information

California Department of Forestry and Fire Protection. <http://www.fire.ca.gov/index.php>

Geographic Area Coordination Center's National Portal. <http://gacc.nifc.gov/links/links.htm> Provides links to regional geographic centers with specific information about fires in the region.

Incident Information Center. <http://www.inciweb.org/> Provides updates on all national fires, often several times a day.

Forest Service Wildland Fire Morning Report. <http://www.fs.fed.us/news/fire/>

### Satellite images of fires and smoke

NOAA Fire Events. <http://www.osei.noaa.gov/Events/Fires> Satellite images of fires

Geospatial Multi-Agency Coordination. <http://geomac.usgs.gov/#> A GIS-based site with the locations of fires throughout the country.

NASA images. <http://modis.gsfc.nasa.gov/> Satellite images of fires and smoke

Smoke prediction tools: <http://www.firedetect.noaa.gov/viewer.htm>  
<http://www.fs.fed.us/pnw/airfire/>  
<http://www.fs.fed.us/fcamms/>  
[http://marlin.cfr.washington.edu/website/bsr\\_cansac](http://marlin.cfr.washington.edu/website/bsr_cansac)

### Weather information

National Weather Service:

Western Region	<a href="http://www.wrh.noaa.gov/">http://www.wrh.noaa.gov/</a>
Eastern Region	<a href="http://www.erh.noaa.gov/">http://www.erh.noaa.gov/</a>
Southern Region	<a href="http://www.srh.noaa.gov/">http://www.srh.noaa.gov/</a>
Central Region	<a href="http://www.crh.noaa.gov/">http://www.crh.noaa.gov/</a>

### Websites that report information on wildfire smoke and health effects

Environmental Protection Agency Air Now: <http://airnow.gov/>

California: <http://www.fire.ca.gov/index.php>

Montana: <http://www.deq.state.mt.us/FireUpdates/index.asp>

Washington: <http://www.ecy.wa.gov/programs/air/pdfs/WAQA.pdf>

**Appendix A: Cal/OSHA Interim Guidance on Protecting Workers  
in Offices and Similar Indoor Workplaces from Wildfire Smoke**

## **Cal/OSHA Interim Guidance on Protecting Workers in Offices and Similar Indoor Workplaces from Wildfire Smoke (July 2008)**

Windborne wildfire smoke can be a hazard for people who work in office and commercial buildings many miles from evacuation zones. Environmental and public health agencies have advised people that they should consider setting air conditioners in their homes to recirculation mode, if possible, in order to reduce the intake of pollutants. Subsequently, people have asked whether this advice to limit the introduction of outdoor air applies to office and commercial buildings. Cal/OSHA does not generally recommend eliminating or substantially reducing the outdoor air supply in office buildings and other indoor workplaces as a first step to reduce exposure to smoke.

The ventilation systems in office buildings and other commercial buildings are more complicated than home air-conditioning systems. Changing the outdoor air supply in public and commercial buildings can adversely affect other essential functions of the building. These buildings typically have heating, ventilating and air conditioning systems (HVAC systems) that bring outside air into the building through filters, blend it with building return air, and thermally condition the air before distributing it throughout the building. These buildings also have exhaust air systems for restrooms and kitchens, and may also have local exhaust systems for garages, laboratory fume hoods, or other operations. These exhaust systems require makeup air (outdoor air) in order to function properly. Also, without an adequate supply of outdoor air, these systems may create negative pressure in the building. This negative pressure will increase the movement of unfiltered air into the building through any openings, such as plumbing/sewer vents, doors, windows, junctions between building surfaces, or cracks. In general, buildings should be operated at slight positive pressure in order to keep contaminants out, and to help exhaust air systems function properly.

Cal/OSHA regulations ([8 CCR 5142](#)) require that HVAC systems be operated continuously while occupied in order to provide the minimum quantity of outdoor air required by the state building code at the time the building permit was issued. (These regulations are currently found in the California Code of Regulations, Title 24, Section 121). For most buildings, this quantity is the largest of:

1. 15 cubic feet per minute (cfm) per person (it may be less in older buildings),
2. 0.15 cfm per square foot of conditioned floor space, or
3. The amount of air necessary to make up the air exhausted by exhaust ventilation systems in the building (such as restroom, kitchen, or local exhaust systems).

### Using the HVAC System to Protect Building Occupants from Smoke

As a first step to protect building occupants from outdoor air pollution, including the hazardous conditions resulting from wildfire smoke, building managers and employers should ensure that the HVAC system filters are not dirty, damaged, dislodged, or leaking around the edges. Before the wildfire season, or during smoke events if necessary, employers and building operators should ensure that a qualified technician inspects the



HVAC system, makes necessary repairs, and conducts appropriate maintenance. Filters should fit snugly in their frames, and should have gaskets or sealants on all perimeter edges to ensure that air does not leak around the filters.

Building operators should consider installation of the highest efficiency filters that do not exceed the static pressure limits of the HVAC system, as specified by the manufacturer or system designer.<sup>1</sup> Pressure gauges should be installed across the filter to indicate when the filter needs replacing, especially in very smoky or dusty areas. Indoor contaminants can be further reduced by using stand-alone High Efficiency Particulate Air (HEPA) filtering units. For more information on air cleaners, see the California Air Resources Board webpage at: <http://www.arb.ca.gov/research/indoor/particles.htm>.

Cal/OSHA recognizes that in some circumstances it may be helpful to reduce the amount of outdoor air in order to reduce smoke pollution inside the building, while still maintaining positive pressure in the building. Therefore, Cal/OSHA will not issue citations during smoke events for temporary reductions in outdoor air flow rates that are below the requirements of 8 CCR 5142 when all of the following conditions are met:

1. The local outdoor air quality for particulate matter meets the Environmental Protection Agency (EPA) Air Quality Index definition of Unhealthy, Very Unhealthy, or Hazardous due to wildfire smoke.
2. A qualified HVAC technician has inspected the HVAC system and ensured that the filters are functioning properly, that the filter bank is in good repair, and that the highest feasible level of filtration has been provided. This must be documented in writing.
3. A qualified HVAC technician or engineer has assessed the building mechanical systems and determined, in writing, the amount of outside air necessary to prevent negative pressurization of the building, and to sufficiently ventilate any hazardous processes in the building (such as enclosed parking garages or laboratory operations).
4. The HVAC system is operated continuously while the building is occupied to provide at least the minimum quantity of outdoor air needed, as determined by the HVAC technician or engineer in Item 3 above.
5. The employer or building operator ensures that the system is restored to maintain the outdoor air supply levels required by Section 5142 no later than 48 hours after the particulate matter levels fall below the levels designated by the EPA as Unhealthy.

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<sup>1</sup> California Air Resources Board staff has advised that most HVAC systems should be able to accommodate a pleated, medium-efficiency filter with particle removal ratings of MERV 6 to 11, and some may be able to use filters with ratings of MERV 13 or more. Consider a low-pressure HEPA filter (MERV 17 plus) if the building occupants have respiratory or heart disease conditions, or if the building experiences frequent wildfire episodes.

### Other Actions to Protect Employees from Wildfire Smoke

In addition to assessing and if necessary modifying the function of the HVAC system, employers are encouraged to take other reasonable steps to reduce employee exposure to smoke, including alternate work assignments or relocation and telecommuting. Some buildings rely on open windows, doors, and vents for outdoor air, and some may have mechanical ventilation systems that lack a functioning filtration system to remove airborne particles. In these cases, the employees may need to be relocated to a safer location. Employees with asthma, other respiratory diseases, or cardiovascular diseases, should be advised to consult their physician for appropriate measures to minimize health risks.

Respirators, such as N95s and other filtering facepiece respirators, may provide additional protection to some employees against environmental smoke. Employees whose work assignments require the use of respirators must be included in a respiratory protection program (including training, medical evaluations, and fit-testing). However, employers may provide filtering facepiece respirators to employees who voluntarily choose to use them to protect themselves against environmental smoke; in this situation employers are not required to provide a medical evaluation or fit-test. Employers should tell these employees that the respirator will provide some protection against the particles in smoke, but that it will not provide complete protection, and that a respirator that has not been fit-tested may not provide the maximum level of protection. Employees should be told that the respirator does not protect against gases or vapors. Although a medical evaluation is not required, the employer should advise employees to consult their doctor about potential exposures to smoke and respirator use, particularly if they have certain health problems such as respiratory or heart conditions. Employees should also be provided with a copy of Cal/OSHA Regulation, Title 8, Section 5144, Appendix D (<http://www.dir.ca.gov/Title8/5144d.html>). The California Department of Public Health has prepared a fact sheet on the use of N95 respirators called "Protect Your Lungs from Wildfire Smoke," which can be found at: <http://bepreparedcalifornia.ca.gov/epo/>.

### Additional Information

The Lawrence Berkeley National Laboratory has produced a multi-page summary of research results on the effectiveness, cost, and health benefits of filtration, which can be found at: [http://eetd.lbl.gov/iepviaq/v\\_filtration\\_1.html](http://eetd.lbl.gov/iepviaq/v_filtration_1.html).

## **Appendix B: Protect Your Lungs from Wildfire Smoke**

# Protect Your Lungs from Wildfire Smoke



N95 respirators can help protect your lungs from wildfire smoke. Straps must go above and below the ears.



A one-strap paper mask will NOT protect your lungs from wildfire smoke.



A surgical mask will NOT protect your lungs from wildfire smoke.

Wildfire smoke can irritate your eyes, nose, throat and lungs. It can make you cough and wheeze, and can make it hard to breathe. If you have asthma or another lung disease, or heart disease, inhaling wildfire smoke can be especially harmful.

If you cannot **leave** the smoky area, good ways to protect your lungs from wildfire smoke include staying indoors and reducing physical activity. Wearing a special mask called a “**particulate respirator**” can also help protect your lungs from wildfire smoke.

## How to Choose the Correct Mask to Protect Your Lungs

- Choose a mask called a “**particulate respirator**” that has the word “**NIOSH**” and either “**N95**” or “**P100**” printed on it. These are sold at many hardware and home repair stores and pharmacies.
- Choose a mask that has **two straps** that go around your head. **DO NOT** choose a mask with only one strap or with straps that just hook over the ears.
- Choose a size that will fit over your nose and under your chin. It should seal tightly to your face. These masks do not come in sizes that fit young children.
- Do not use bandanas (wet or dry), paper or surgical masks, or tissues held over the mouth and nose. These will not protect your lungs from wildfire smoke.

## How to Use a Mask

- Place the mask over your nose and under your chin, with one strap placed below the ears and one strap above.
- Pinch the metal part of the mask tightly over the top of your nose.
- The mask fits best on clean shaven skin.
- Throw out your mask when it gets harder to breathe through, or if the inside gets dirty. Use a new mask each day if you can.
- It is harder to breathe through a mask, so take breaks often if you work outside.
- If you feel dizzy or nauseated, go to a less smoky area, take off your mask and get medical help.
- If you have a heart or lung problem, ask your doctor before using a mask.

**For more information about protecting yourself from wildfire smoke, call your local health department.**

**Appendix C: Protect Yourself from Wildfire Ash**  
**and**  
**National Institute for Occupational Safety and Health Interim Fact Sheet: NIOSH Warns of Hazards during Cleanup Work Following Forest Fires**

## Protect Yourself from Wildfire Ash

**Ash from wildfires** can make you cough, and irritate your eyes, skin, nose, and throat. It is similar to ash in your fireplace, but may contain small amounts of chemicals that can cause cancer. If you need to clean up ash on your property, take these steps to protect yourself and your family:

- DO NOT let children touch, play in, or help clean up ash.
- Wear gloves, closed-toed shoes, long-sleeved shirts, long pants, and safety goggles. If you get ash on your skin or in your eyes, wash it off immediately. Change and clean your clothes and shoes after you finish.
- Wear a mask called a “particulate respirator” to help protect your lungs from ash.
  - Look for a mask that has two straps that go around your head and the words “NIOSH” and either “N95” or “P100” printed on the mask. These masks are sold at pharmacies, hardware, and home repair stores.
  - If you cannot get an N95 or P100 mask, one-strap dust masks or other face coverings may help keep ash out of your nose and mouth, but will not protect your lungs.
- Avoid doing anything that stirs up ash, including dry sweeping or using leaf blowers.
- Wet-mop floors and decks, and clean smaller areas with a wet cloth. Limit your use of vacuum cleaners unless they have a special “HEPA” or “high-efficiency” filter.
- With a wet cloth, gently clean toys, pet bedding and dishes, and any fruits and vegetables from your garden.
- DO NOT use a lot of water when cleaning and don’t wash ash into storm drains.
- Collect ash in plastic bags and place them in the trash can.

**Ash and debris from burned buildings, including houses**, can be especially harmful to your health. If you are allowed to reenter your burned property, spend as little time there as you can and follow this advice:

- Avoid burned items that may contain hazardous chemicals, including:
  - ☞ cleaning products ☞ paint and solvent containers ☞ pesticides ☞ batteries
  - ☞ plastics ☞ computers ☞ televisions ☞ other electronic devices ☞ melted metal
  - ☞ electrical wiring ☞ chemically treated wood ☞ ammunition ☞ cars ☞ tires
  - ☞ insulation and roofing material ☞ water heaters and furnaces ☞ appliances
- Ash from wooden decks, fences, and retaining walls treated with CCA (formerly used because it prevents dry rot and insects) may contain lethal amounts of arsenic.
- DO NOT touch the above items or wood that may have been treated with CCA before contacting your local hazardous waste agency or health department.
- If you find items you want to keep that are not burned or are not on the list above, put them in a plastic bag until you can clean them with a wet cloth.

For more advice on protecting yourself and your family when cleaning up wildfire ash, call the Department of Toxic Substances Control at (916) 445-2625, or go to:

[http://www.dtsc.ca.gov/HazardousWaste/upload/Fire\\_Emergency\\_Guidance\\_FS\\_1.pdf](http://www.dtsc.ca.gov/HazardousWaste/upload/Fire_Emergency_Guidance_FS_1.pdf)

<http://www.dtsc.ca.gov/HazardousWaste/upload/Emergency-Guidance-on-Wildfires-2.pdf>

## INTERIM FACT SHEET

### NIOSH Warns of Hazards during Cleanup Work Following Forest Fires

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The National Institute for Occupational Safety and Health (NIOSH) warns workers and volunteers of the potential dangers involved with cleanup operations following the devastation caused by forest fires. Because the level of experience varies among these workers, cleanup crews must work together and look out for one another to ensure safety. NIOSH urgently requests your assistance in disseminating the following warnings to all those involved in cleanup work following forest fires. The potential work-related hazards listed here are described below in greater detail: Fire, Electrical Hazards, Carbon Monoxide, Musculoskeletal Hazards, Thermal Stresses, Heavy Equipment, Structural Instability, Hazardous Materials, Confined Spaces, Power Line Hazards, Agricultural Hazards, Stress and Fatigue. Additional key resources on health and safety hazards related to fire fighting can be found on the NIOSH web site under the “spotlights” section titled “Fighting Wildfires” (<http://www.cdc.gov/niosh/topics/firefighting/>).

#### General Considerations

Before cleanup operations are initiated, local and State government emergency policies and guidelines should be checked to determine if any restrictions exist (e.g., water use, discharge of waste water, disposal of debris).

#### POTENTIAL DANGERS INVOLVED IN CLEANUP OPERATIONS

##### Fire

Heat sources may remain as a result of smoldering wood or other debris that could reignite if contact is made with a combustible material or if oxygen becomes available. Workers and employers must therefore take extra precautions. At least two fire extinguishers, each with a UL rating of at least 10A, should be provided at every cleanup activity.

##### Electrical Hazards

NIOSH has investigated several work-related electrocution deaths following natural disasters. To prevent future electrocutions, NIOSH urges those involved in cleanup activities to take the following steps:

- If water has been present anywhere near electrical circuits and electrical equipment, turn off the power at the main breaker or fuse on the service panel. Do not turn the power back on until electrical equipment has been inspected by a qualified electrician. Never enter flooded areas or touch electrical equipment if the ground is wet, unless you are certain that the power is off. **NEVER** handle a

downed power line. Do not use electrical equipment that has been exposed to heat from the fire until checked by an electrician.

- When using gasoline and diesel generators to supply power to a building, switch the main breaker or fuse on the building service panel to the "off" position prior to starting the generator. This will prevent inadvertent energization of power lines from backfeed electrical energy from the generators, and help to protect utility line workers from possible electrocution.
- If clearing or other work must be performed near a downed power line, contact the utility company to discuss de-energizing and grounding or shielding of power lines; maintain a safe distance from the power lines until they have been de-energized. Extreme caution is necessary when moving ladders and other equipment near overhead power lines to avoid inadvertent contact. If you are working on or near power lines, refer to the additional recommendations provided in that section below. Be aware of possible fire damage to poles and other structures carrying overhead power lines.

### Unstable Work Surfaces

Cleanup activities may involve walking on unstable surfaces such as construction debris, trees and other vegetation. Piles of debris and other unstable work surfaces create a risk for traumatic injury from slips, falls, puncture wounds from nails and sharp objects, and collapsing materials. Extreme caution is necessary when working on these surfaces. Protective equipment, such as hard hats, safety glasses, leather gloves, and steel toe boots should be considered to minimize the risk of injury.

### Carbon Monoxide

Cleanup activities may involve the use of gasoline- or diesel-powered pumps, generators, and pressure washers. Because these devices release carbon monoxide, a deadly, colorless, odorless gas, operate all gasoline-powered devices outdoors and **never** bring them indoors. It is virtually impossible to assess adequate ventilation. NIOSH has investigated several carbon monoxide poisoning deaths in the past caused by the use of gasoline-powered engines indoors or in confined spaces. Be aware that high levels of carbon monoxide may occur in confined spaces from the fires.

### Musculoskeletal Hazards

Cleanup workers are at risk for developing serious musculoskeletal injuries to the hands, back, knees, and shoulders. Special attention is needed to avoid back injuries associated with manual lifting and handling of debris and building materials. To help prevent injury, use teams of two or more to move bulky objects, avoid lifting any material that weighs more than 50 pounds (per person), and use proper automated-assist lifting devices.



## **Thermal Stresses**

**Heat:** Cleanup workers are at serious risk for developing heat stress. Excessive exposure to hot environments can cause a variety of heat-related problems, including heat stroke, heat exhaustion, heat cramps, and fainting. To reduce the potential for heat stress, drink a glass of fluid every 15 to 20 minutes and wear light-colored, loose-fitting clothing. Additionally, incorporate work-rest cycles into work routines, work during the cooler hours of the day, when possible, or distribute the workload evenly throughout the day. When air conditioning is unavailable, open windows and use fans.

**Cold:** If standing water is present from fire fighting be aware that working in water which is cooler than 75 degrees F (24 degrees C) will remove body heat more rapidly than it can be replaced, resulting in hypothermia. To reduce the risk of hypothermia, wear high rubber boots, ensure that clothing and boots have adequate insulation, avoid working alone, take frequent breaks out of the water, and change into dry clothing when possible.

## **Heavy Equipment**

Only those properly trained should operate heavy equipment such as bulldozers, backhoes, and tractors. If you are operating this type of equipment, make sure you turn it off and block it against motion when not in use. Operators should be aware of the activities around them to protect other workers on foot from being struck by moving equipment. Heavy equipment operators should not exceed the load capacity of cranes and other lifting equipment and ensure that workers do not walk under areas where cranes and other heavy equipment are being used to lift objects.

## **Structural Instability**

Fires can rearrange and damage natural walkways, as well as sidewalks, parking lots, roads, and buildings. Never assume that fire-damaged structures or ground are stable. Buildings that have been burned may have suffered structural damage and could be dangerous. Don't work in or around any building damaged by fire until it has been examined and certified as safe for work by a registered professional engineer or architect. Assume all stairs, floors, and roofs are unsafe until they are inspected. Leave immediately if you hear shifting or unusual noises as this may signal a possible collapse.

## **Hazardous Materials**

Fires to commercial and residential buildings and water used to fight the fire can dislodge tanks, drums, pipes, and equipment, which may contain hazardous materials such as pesticides or propane. Containers may be damaged by fire and heat. Do not attempt to move unidentified dislodged containers without first contacting the local fire department or hazardous materials team. If working in potentially contaminated areas, avoid skin contact or inhalation of vapors by wearing appropriate protective clothing and respirators. Contact NIOSH for more information on the proper safety equipment. Frequently and thoroughly wash skin areas that may have been exposed to pesticides and other hazardous chemicals.

## **PREVENTION MEASURES**

### **First Aid**

First aid, even for minor cuts and burns, is extremely important. Immediately clean out all open wounds and cuts with soap and clean water. Most cuts, except minor scratches, sustained during cleanup activities will warrant treatment to prevent tetanus. If you are injured, contact a physician to determine the necessary type of treatment.

### **Protective Equipment**

For most clean-up work activities, you will need the following personal protective equipment: hard hats, safety goggles, heavy work gloves, and watertight boots with steel toe and insole (not just steel shank). For information on what equipment you need for protection, contact your local OSHA office or NIOSH.

Excessive noise from equipment such as chain saws, backhoes, tractors, pavement breakers, blowers, and from heavy equipment (e.g., earth moving equipment, helicopters) may cause ringing in the ears and subsequent hearing damage. If working with any noise that you must shout over to be heard, you should wear earplugs or other hearing protection devices.

### **Working in Confined Spaces**

If you are required to work in a boiler, furnace, pipeline, pit, pumping station, septic tank, sewage digester, storage tank, utility vault, well, silo, or similar enclosed structures, you should be aware of the hazards of working in confined spaces. A confined space has one or more of the following characteristics:

- limited openings for entry or exit;
- unfavorable natural ventilation; or
- is not designed for continuous worker occupancy.

Toxic gases, a lack of oxygen, or explosive conditions may exist in the confined area, resulting in a potentially deadly atmosphere. Because many toxic gases and vapors cannot be seen or smelled, never trust your senses to determine if safe entry is possible. Never enter a confined space unless you have been properly trained, even to rescue a fellow worker! If you need to enter a confined space and do not have the proper training and equipment, contact your local fire department for assistance.

## **Working On or Near Power Lines [Recommendations for Utility Workers-ONLY]**

Several workers have died of electrocution following natural disasters. Workers and employers must take extreme caution while attempting to restore power or clear areas near downed power lines. In one instance, a worker lost his life while removing trees from a de-energized power line that had been knocked down by a storm. While inspecting the completed work, the man stepped on the line and was electrocuted by "feedback" energy from a portable backup generator at a nearby gas station. Feedback energy occurs when a de-energized line becomes energized by a secondary power source.

Another worker died cleaning branches from a power line, following a storm. He was electrocuted after falling from a tree onto a line thought to be de-energized. Although the workers had opened a fused switch on a transformer, the line remained energized through another transformer.

If you are working on or near power lines, the following steps may save your life:

- Treat all power lines as energized until you have followed the required procedures for personally de-energizing and testing them with an appropriate testing device. Do not rely on "fuzzing" to determine if a power line has been de-energized.
- Verifying that a line is not energized may not ensure your safety. You must also ground lines on both the load and supply sides of the work area. Grounding is necessary to protect you from the hazards of feedback electrical energy from a secondary power source, such as a portable generator.
- When restoring power in underground vaults, added precautions are necessary to avoid explosion hazards. As vaults containing electrical connections are drained or pumped out, and energized, potentially explosive gases may form. If you are required to work in a utility vault, refer to the Confined Spaces section of this Fact Sheet.

## **RESPIRATORY HAZARDS**

If you are involved in cleanup efforts you may be exposed to ash, soot and fire decomposition products that may cause irritation and other respiratory effects. Spoiled and/or wet vegetation and other organic/agricultural materials often grow large amounts of bacteria and mold during warm weather. Breathing these organisms and the organic dust produced may cause lung disease. Use proper engineering controls to exhaust and replenish adequate fresh air if working indoors. A high efficiency particulate air (HEPA)-type vacuum is recommended when cleaning surfaces contaminated with dust. The use of a typical household vacuum should be avoided since it will re-suspend the collected dust into the air. When exposure to dusts cannot be controlled or avoided, exposure can be reduced by routine use of a well-fitted NIOSH-certified air-purifying respirator (such as an N-95 or more protective respirator).

## **STRESS, LONG HOURS, AND FATIGUE MAY INCREASE THE RISKS FOR INJURY AND ILLNESS**

Continued long hours of work, combined with emotional and physical exhaustion and losses from damaged homes and temporary job layoffs, can create a highly stressful situation for cleanup workers. Workers exposed to these stressful conditions have an increased risk of injury and emotional crisis, and are more vulnerable to stress-induced illnesses and disease.

Emotional support from family members, neighbors, and local mental health professionals can help to prevent more serious stress-related problems in the difficult months ahead.

People working in all phases of cleanup work can reduce their risks of injury and illness in several ways:

- Set priorities for cleanup tasks and pace the work over several days (or weeks). Avoid physical exhaustion.
- Resume a normal sleep schedule as quickly as possible. Get plenty of rest and take frequent rest breaks BEFORE exhaustion builds up.
- Take advantage of disaster relief programs and services in your community.
- Be alert to emotional exhaustion or strain. When family members and neighbors are unavailable for emotional support, consult professionals at community health and mental health centers.

For more information about these or other occupational safety and health topics contact NIOSH at:

1-800-35-NIOSH (1-800-356-4674)

Fax: 513: 533-8573

E-mail: [pubstaft@cdc.gov](mailto:pubstaft@cdc.gov)

[www.cdc.gov/niosh](http://www.cdc.gov/niosh)

## **Appendix D: Identification and Preparation of Cleaner Air Shelters for Protection of the Public from Wildfire Smoke**

## **Identification and Preparation of Cleaner Air Shelters for Protection of the Public from Wildfire Smoke**

1. Identify one or more facilities with tight-sealing windows and doors and public access (for example, public schools, fire stations, or hospitals). As a rule of thumb, newer buildings will generally be more desirable than older ones.
2. At a minimum, a Cleaner Air Shelter should have a central air filtration system that is at least medium or high efficiency. If needed, filters should be upgraded prior to the fire season, after assuring that the system can handle the increased airflow resistance. Ideally, the ventilation system should also be capable of reducing outdoor air intake, if needed. For more information on operation of the HVAC system during smoke events, see Appendix A.
3. Install/inspect a room air cleaner or preferably a central air cleaner with sufficient capability, i.e., a Clean Air Delivery Rate (CADR) that is twice the room volume for room units, or ASHRAE filter efficiency greater than 80% for central air cleaners.\* Ensure proper maintenance of air cleaners, keep spare filters on hand, and provide instructions on changing the filter to trained personnel.
4. Assure that the facility can handle the increased cooling load due to high occupancy.
5. Install a properly calibrated carbon monoxide (CO) alarm that has a digital display and battery backup function (available at most hardware stores).
6. Provide a radio for updates on fire status and access to a telephone in case of emergency.

\* American Society of Heating, Refrigeration, and Air-conditioning Engineers (ASHRAE) Standard 52.1-1992. "Gravimetric and Dust-Spot Procedures for Testing Air-Cleaning Devices Used in General Ventilation for Removing Particulate Matter".

**Appendix E: Smoke alert examples: North Coast Unified Air Quality  
Management District, Northern California, July 2008**

## Air Quality Alert Issued 7-20-08 10:30AM

For the following areas:

Humboldt County: Willow Creek and all areas proximal to the wildfires.

Trinity County: Burnt Ranch, Junction City, Helena, Big Bar, Big Flat, Weaverville, Covington Mill, Hayfork, Hyampom, Mad River, Zenia, and all areas near the wildfires.

Smoke levels in these areas have been classified as **VERY UNHEALTHY**. Individuals in these areas should follow all health protective guidelines for smoke conditions, including limiting activity and staying indoors. Please see the guidelines listed on the general Public Service Announcement issued today.

Hayfork and Hyampom may reach Hazardous conditions today. Please stay alert for further updates.

**Lightning has ignited fires** in Humboldt, Del Norte and Trinity Counties. Smoke accumulation near the fires is expected to remain heavy today and tonight. Overnight temperature inversions may cause heavier smoke concentrations in lower elevations and valleys. Because of the increased pollution levels, the North Coast Unified Air Quality Management District is issuing an **Air Quality Alert** for **Saturday July 20, 2008**.

**All individuals, especially the elderly, young children, pregnant women, those with lung or heart disease, and anyone else who is sensitive to air pollution should limit outdoor activities today.**

*If you have symptoms of lung or heart disease that may have been worsened by smoke exposure, contact your health care provider immediately. These symptoms include repeated coughing, shortness of breath or difficulty breathing, wheezing, chest tightness or pain, palpitations, nausea, unusual fatigue or lightheadedness.*

*If you have lung disease (including asthma), heart disease, are elderly, or have children in your home, please consider a visit to your health practitioner now, to discuss any precautions you may wish to take should the smoke become worse in your area.*

For 24-hour Air Quality Advisory Information, call toll-free at (866) 287-6329 and press (5) on your touch tone phone. For additional local information, please visit the North Coast Unified Air Quality Management District's Website at [www.ncuaqmd.org](http://www.ncuaqmd.org) . Please visit the CAPCOA website at [www.airquality.org/smokeimpact](http://www.airquality.org/smokeimpact) for additional health information.



NORTH COAST UNIFIED AIR QUALITY MANAGEMENT DISTRICT  
2300 Myrtle Avenue, Eureka, CA 95501  
Phone: (707) 443-3093 Fax: (707) 443-3099

Saturday, July 20, 2008

## WILDFIRE SMOKE WARNING PUBLIC SERVICE ANNOUNCEMENT



**Unhealthy levels of wildfire smoke are expected in the following areas:**

- **Humboldt County** (Somes Bar, Orleans, Weitchpec, Hoopa)
- **Southern Del Norte County**
- **Trinity County**

**Areas of smoke are expected at the Coast today.**

Wildfire smoke has harmful chemicals that can affect your health. It can cause eye and throat irritation, coughing, and difficulty breathing. **People who are at greatest risk of experiencing symptoms due to smoke include those with chronic lung disease (such as asthma) and/or heart disease, young children, pregnant women, and older adults.** Even healthy adults can be affected by smoke. Seek medical help if you have symptoms that worsen or become severe.

**If you smell or see smoke, take these steps to protect your health:**

- ✓ Minimize or stop outdoor activities, especially exercise.
- ✓ Stay indoors with windows and doors closed.
  - Do not run any fans that bring smoky outdoor air inside, including swamp coolers, “whole-house” fans or “fresh air ventilation systems.”
  - Run your air-conditioner only if it does not bring in smoke from outdoors. Change the standard air-conditioner filter to a medium or high efficiency filter. If you have a wall-unit or window-unit air conditioner, set it to “re-circulate.”
  - Do not smoke, fry food, or do other things that will create indoor air pollution.
- ✓ **If you have any chronic lung disease (including asthma) or heart disease, closely monitor your health and contact your doctor immediately if you have symptoms that worsen, including repeated coughing, shortness of breath or difficulty breathing, wheezing, chest**

tightness or pain, palpitations, nausea, unusual fatigue or lightheadedness. Consider going to an emergency shelter or leaving the area until smoke conditions improve.

**If you do not have air conditioning, take these additional steps to protect yourself and your family from heat exhaustion, which can be especially dangerous for infants, children, the elderly, and people with chronic disease.**

- ✓ Lower body temperature by using cold compresses, misting, and taking cool showers, baths, or sponge baths.
- ✓ Drink plenty of fluids. Don't wait until you're thirsty to drink. However, if your doctor has told you to limit the amount you drink or you are taking water pills, ask your doctor how much you should drink during the heat.
- ✓ Avoid drinks with alcohol or large amounts of sugar, as these can promote dehydration.
- ✓ Consider moving to location that has air conditioning.
- ✓ Do not exercise or do physical activity.
- ✓ Wear light-weight and light-colored clothing.
- ✓ Watch for signs of heat exhaustion, including fatigue, nausea, headache, and vomiting, and contact your doctor immediately if these occur.

**Stayed tuned for additional air quality emergency announcements**

**Contact your doctor** to discuss what you should do if smoke becomes worse in your area, especially if you have lung disease (including asthma), heart disease, are elderly, pregnant, or have children in your home.

For 24-hour Air Quality Advisory Information, call toll-free at (866) 287-6329 and press (5) on your touch tone phone.

For Further information, please visit the NCUAQMD website at [www.ncuaqmd.org](http://www.ncuaqmd.org)

## **Attachment L**

Respiratory Protection AVI-3000 Mask Instructions



## SCOTT AV-3000 HT FULL FACEPIECE (includes Optional SIGHT Imaging System)

### INSTALLATION AND OPERATION INSTRUCTIONS



AV-3000 HT



AV-3000 HT WITH  
SCOTT SIGHT COMPONENTS  
INSTALLED

### WARNING

THIS SCOTT AV-3000 HT FULL FACEPIECE ASSEMBLY IS INTENDED FOR USE AS PART OF A COMPLETE RESPIRATOR WHICH MAY SUPPORT HUMAN LIFE IN HAZARDOUS ATMOSPHERES. ADDITIONAL COMPONENTS ARE REQUIRED TO MAKE A COMPLETE RESPIRATOR. TRAINING IS REQUIRED BEFORE USE. REFER TO THE DONNING, USE, DOFFING, AND MAINTENANCE INSTRUCTIONS SUPPLIED WITH THE COMPLETE RESPIRATOR.

INSPECT THIS FACEPIECE AND HEAD HARNESS BEFORE EVERY USE. DO NOT USE WITH WORN, LOOSE, OR DAMAGED COMPONENTS. FAILURE TO READ, UNDERSTAND, AND CAREFULLY FOLLOW THESE INSTRUCTIONS WHEN USING AND/OR CLEANING THE FACEPIECE ASSEMBLY MAY RESULT IN SERIOUS INJURY OR DEATH.

THIS PRODUCT IS DESIGNED AND INTENDED TO FUNCTION PROPERLY IN REASONABLE/ORDINARY FIREFIGHTING CONDITIONS. LIKE ALL EQUIPMENT, THE FUNCTIONALITY OF THIS PRODUCT MAY BE COMPROMISED BY EXTREME FIRE CONDITIONS.

## CONDITIONS OF SAFE USE



### Scott SIGHT TIC

This equipment is listed as intrinsically safe by CSA Group to UL Std. UL-913 for use in the following hazardous locations:

- Class I, II, III Division I Groups C, D, E, F and G T3A
- This equipment is listed as intrinsically safe by CSA Group to CSA 60079-11 for Canada and UL 60079-11 for the USA for use in the following hazardous locations:
- Ex ia IIB T3A Ga (Canada)
- Class 1 Zone 0 AEx ia IIB T3 Ga (USA)
- IP66 / 67

### Scott SIGHT IMD

This equipment is listed as intrinsically safe by CSA Group to UL Std. UL-913 for use in the following hazardous locations:

- Class I, II, Division I Groups C, D, E, F and G T4
- This equipment is listed as intrinsically safe by CSA Group to CSA 60079-11 for Canada and UL 60079-11 for the USA for use in the following hazardous locations:
- Ex ia IIB T4 Ga (Canada)
- Class 1 Zone 0 AEx ia IIB T4 Ga (USA)
- IP66 / 67

To maintain the Intrinsic Safety Listing, inspect equipment regularly per the Regular Operational Inspection procedures in this instruction. Do not tamper with or substitute components in any manner. Use only batteries of the type indicated in the Battery Installation section of these instructions. Do not mix old batteries with unused batteries, or from different manufacturers. Open the battery compartments only in an area known to be free of flammable or explosive hazards. Due to the potential for electrostatic discharge, clean with dampened cloth only. Do not use dry cloth to clean the surface. Do not clean and maintenance device in an explosive environment.

### Scott SIGHT TIC

Cet équipement est classé comme étant sécuritaire de façon intrinsèque par le CSA Group en vertu de la norme UL UL-913 pour usage dans les emplacements dangereux suivants :

- Catégorie I, II, et III, division 1, groupes C, D, E, F et G T3A
- Cet équipement est classé comme étant sécuritaire de façon intrinsèque par le CSA Group en vertu de la norme CSA 60079-11 au Canada et UL 60079-11 aux États-Unis pour usage dans les emplacements dangereux suivants :
- Ex ia IIB T3A Ga (Canada)
- Catégorie I zone 0 AEx ia IIB T3 Ga (É.-U.)
- IP66 / 67

### Scott SIGHT IMD

Cet équipement est classé comme étant sécuritaire de façon intrinsèque par le CSA Group en vertu de la norme UL UL-913 pour usage dans les emplacements dangereux suivants :

- Catégorie I et II, division 1, groupes C, D, E, F et G T4
- Cet équipement est classé comme étant sécuritaire de façon intrinsèque par le CSA Group en vertu de la norme CSA 60079-11 au Canada et UL 60079-11 aux États-Unis pour usage dans les emplacements dangereux suivants :
- Ex ia IIB T4 Ga (Canada)
- Catégorie I zone 0 AEx ia IIB T4 Ga (É.-U.)
- IP66 / 67

Pour préserver la classification de sécurité intrinsèque, cet équipement doit être régulièrement inspecté selon les procédures d'inspection opérationnelle normales se trouvant dans ces directives. Aucun élément ne doit être modifié ni substitué d'aucune façon. N'utiliser que les piles du type indiqué dans la notice de remplacement des piles. Ouvrir les compartiments à piles uniquement dans un endroit reconnu comme étant exempt de dangers d'incendie ou d'explosion. La substitution de composants peut compromettre la sécurité intrinsèque. Afin de prévenir le risque d'inflammation dans une atmosphère inflammable, ne changer les piles que dans des endroits non inflammables. Afin de réduire le risque d'explosion, ne pas utiliser à la fois des piles usagées et des piles neuves ni des piles provenant de différents fabricants.

## APPROVED BATTERIES / PILES APPROUVÉES

### **Alkaline Batteries / Piles Alcalines:**

- Energizer® E92
- Energizer Industrial EN92
- Duracell® Copper Top MN2400
- Duracell ProCell PC2400
- Duracell Quantum QU2400
- Rayovac® 824

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## **SAFETY LISTINGS**

### **FCC COMPLIANCE**

#### **FCC Compliance Statement (Part 15.19)**

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference, and
2. This device must accept any interference received, including interference that may cause undesired operation.

#### **FCC Warning (Part 15.21)**

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This portable transmitter with its antenna complies with FCC's RF exposure limits for general population / uncontrolled exposure.

**Contains transmitter module FCC ID: QOQBT121**

### **CLASS B DIGITAL DEVICE**

**Note:** This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

1. Reorient or relocate the receiving antenna
2. Increase the separation between the equipment and receiver.
3. Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
4. Consult the dealer or an experienced radio/TV technician for help.

### **INDUSTRY CANADA COMPLIANCE**

#### **Industry Canada Statement**

The term "IC" before the certification / registration number only signifies that the Industry Canada technical specifications were met.

#### **Section 14 of RSS-210**

The installer of this radio equipment must ensure that the antenna is located or pointed such that it does not emit RF field in excess of Health Canada limits for the general population. Consult Safety Code 6, obtainable from Health Canada's web site: [www.hc-sc.gc.ca/rpb](http://www.hc-sc.gc.ca/rpb).

Operation is subject to the following two conditions:

- a) this device may not cause interference, and
- b) this device must accept any interference, including interference that may cause undesired operation of the device.

**IC ID: 5123A-BGTBT121**

### **LA DÉCLARATION DE CANADA D'INDUSTRIE**

L'« IC » de terme avant que la certification/le nombre d'enregistrement signifie seulement que le Canada d'Industrie spécifications techniques ont été rencontrées.

#### **Sectionner 14 de RSS-210**

Le programme d'installation de cet équipement de radio doit garantir que l'antenne est localisée ou tel est indiqué qu'il n'émet pas le champ de RF dépassant les limites de Canada de Santé pour la population générale. Consulter le Code de Sécurité 6, procurable du site Web de Canada de Santé : [www.hc-sc.gc.ca/rpb](http://www.hc-sc.gc.ca/rpb). L'opération est assujetti au suivre deux conditions :

- a) cet appareil ne peut pas causer l'intervention, et
- b) cet appareil doit accepter de l'intervention, y compris l'intervention qui peut causer l'opération non désirée de l'appareil.

**IC ID: 5123A-BGTBT121**

# **SCOTT AV-3000 HT FULL FACEPIECE**

*(INCLUDES OPTIONAL SCOTT SIGHT IMAGING SYSTEM)*

## **WARNING**

THIS SCOTT AV-3000 HT FULL FACEPIECE ASSEMBLY IS INTENDED FOR USE AS PART OF A COMPLETE RESPIRATOR WHICH MAY SUPPORT HUMAN LIFE IN HAZARDOUS ATMOSPHERES. ADDITIONAL COMPONENTS ARE REQUIRED TO MAKE A COMPLETE RESPIRATOR. TRAINING IS REQUIRED BEFORE USE. REFER TO THE DONNING, USE, AND MAINTENANCE INSTRUCTIONS SUPPLIED WITH THE COMPLETE RESPIRATOR.

INSPECT THIS FACEPIECE AND HEAD HARNESS BEFORE EVERY USE. DO NOT USE WITH WORN, LOOSE, OR DAMAGED COMPONENTS. FAILURE TO READ, UNDERSTAND, AND CAREFULLY FOLLOW THESE INSTRUCTIONS WHEN USING AND/OR CLEANING THE FACEPIECE ASSEMBLY MAY RESULT IN SERIOUS INJURY OR DEATH.

THIS PRODUCT IS DESIGNED AND INTENDED TO FUNCTION PROPERLY IN REASONABLE/ORDINARY FIREFIGHTING CONDITIONS. LIKE ALL EQUIPMENT, THE FUNCTIONALITY OF THIS PRODUCT MAY BE COMPROMISED BY EXTREME FIRE CONDITIONS.

**CAREFULLY READ ALL WARNINGS AND INSTRUCTIONS BEFORE USE**



---

## SCOTT AV-3000 HT FULL FACEPIECE

See the NIOSH approval label for the complete respirator for a full listing of approved part numbers and components.



**NIOSH approval AV-3000 HT** To maintain NIOSH approval, read and follow these special instructions:

- AV-3000 HT 5-Strap Facepiece P/N 805337-34 (Small), P/N 805337-35 (Medium), or P/N 805337-36 (Large) must be used **only** with DARK Gray Nose Cup P/N 201126 (Small), P/N 201127 (Medium), or P/N 201128 (Large).
- AV-3000 HT 4-Strap Facepiece P/N 805337-37 (Small), P/N 805337-38 (Medium), or P/N 805337-39 (Large) must be used only with DARK Gray Nose Cup P/N 201126 (Small), P/N 201127 (Medium), or P/N 201128 (Large).

### **NIOSH approval AV-3000 HT with Scott Sight**

- AV-3000 HT 5-Strap Facepiece P/N 805337-34 (Small), P/N 805337-35 (Medium), or P/N 805337-36 (Large) must be used **only** with IMD Nose Cup P/N 201476 (Small), P/N 201477 (Medium), or P/N 2201478 (Large).
- AV-3000 HT 4-Strap Facepiece P/N 805337-37 (Small), P/N 805337-38 (Medium), or P/N 805337-39 (Large) must be used **only** with IMD Nose Cup P/N 201476 (Small), P/N 201477 (Medium), or P/N 2201478 (Large).

If you are using an AV-3000 HT facepiece and do not have the correct Nose Cup, contact Scott or your authorized Scott distributor. Failure to comply with this requirement will void the approvals for your respirator. Use of a non-compliant configuration in a hazardous atmosphere may result in serious injury or death.



### **SCOTT SIGHT IMAGING SYSTEM**

Consists of a Mask-Mounted Thermal Image Camera (TIC), an In-Mask Display (IMD) and an alternate nose cup designed specifically for the IMD. Scott Sight is designed to be used **ONLY** with a Scott AV-3000 HT full facepiece.

Scott Sight has been designed to meet the applicable standards that govern SCBA accessories including NIOSH approval, NFPA 1981 approval, and approval as an intrinsically safe device.

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## GENERAL DESCRIPTION OF THE SCOTT AV-3000 HT FULL FACEPIECE

Refer to the USER INSTRUCTIONS for the complete respirator for full details of donning and use of the respirator. **ADDITIONAL DONNING INFORMATION IS INCLUDED IN YOUR COMPLETE RESPIRATOR USER INSTRUCTIONS.** Remember, the facepiece alone does not provide any protection against a hazardous atmosphere without the use of the other components which are required for operation of the complete respirator.

### **WARNING**

**THE FACEPIECE ALONE DOES NOT PROVIDE ANY PROTECTION AGAINST A HAZARDOUS ATMOSPHERE WITHOUT THE USE OF THE OTHER COMPONENTS WHICH ARE REQUIRED FOR OPERATION OF THE COMPLETE RESPIRATOR. FIT TESTING IS REQUIRED BEFORE USE OF THIS FACEPIECE WITH A RESPIRATOR. REFER TO THE USER INSTRUCTIONS PROVIDED WITH THE COMPLETE RESPIRATOR FOR FULL DETAILS OF DONNING AND USE OF THE RESPIRATOR. IMPROPER USE OF THE RESPIRATOR OR USE OF AN INCOMPLETE RESPIRATOR MAY RESULT IN SERIOUS INJURY OR DEATH.**

The AV-3000 HT full facepiece is made of heat resistant materials. When using the AV-3000 HT full facepiece in applications where high heat may occur, follow all training and operating procedures relating to heat exposure. To avoid possible injury, the respirator user must understand the hazards of heat exposure including temperature, duration and repeat exposure.

## FIT TESTING THE AV-3000 HT FULL FACEPIECE

### WARNING

**THE AV-3000 HT FULL FACEPIECE IS MADE OF HEAT RESISTANT MATERIALS. WHEN USING THE AV-3000 HT FULL FACEPIECE, FOLLOW ALL TRAINING AND OPERATING PROCEDURES RELATING TO HEAT EXPOSURE. THE RESPIRATOR USER MUST UNDERSTAND THE HAZARDS OF HEAT EXPOSURE INCLUDING TEMPERATURE, DURATION, AND REPEAT EXPOSURE. FAILURE TO DO SO MAY RESULT IN SERIOUS INJURY OR DEATH.**

Fit testing is required to determine the correct facepiece for each user. It is the responsibility of the Respiratory Protection Program Manager or Safety Coordinator to assist the user in selecting the correct respirator size relative to the user's facial features and dimensions. Greater detail of the requirements for fit testing and use are provided in the USER INSTRUCTIONS provided with the complete respirator.

**Prior to use, fit testing must be performed with any approved Scott accessory that will be installed on a facepiece, such as a communications devices or thermal imaging systems installed on the facepiece.**

Respirator fit tests are explained fully in the American National Standard Practices for Respiratory Protection, ANSI/NIOSH/ASSE Z88.10-2010 which is published by the American National Standards Institute (ANSI), 11 West 42nd Street, New York, New York, 10036, and in the Occupational Safety and Health Standards, OSHA 29 CFR 1910.134 Appendix A, which is published by the Occupational Safety and Health Administration (OSHA), 200 Constitution Avenue, NW, Washington DC, 20210.

Quantitative Fit Testing per OSHA Standard 29 CFR Part 1910.134 Appendix A, or ANSI/NIOSH/ASSE Z88.10-2010 requires testing in the negative pressure mode using equipment such as a Portacount<sup>1</sup> Respirator Fit Tester. For Quantitative Fit Testing, Scott facepieces require use of the appropriate negative pressure testing equipment such as the Portacount<sup>1</sup> Respirator Fit Tester along with the necessary Scott components and accessories.

The use of Mask Seal Kit P/N 805655-01 may be required to attain a proper fit. Refer to the INSTALLATION AND USE INSTRUCTIONS, Scott P/N 89462-01, included with the Mask Seal Kit. After installing the Mask Seal Kit, repeat the fit testing process to confirm a proper fit. The size of each AV-3000 HT facepiece is indicated with color inserts at the head harness anchors. The sizes are: SMALL (Green inserts), MEDIUM (Black inserts), and LARGE (Red inserts).

The DARK GRAY nose cups for the standard AV-3000 HT and the Scott Sight are also available in three sizes (S, M, and L). Users must verify that they have the correct size facepiece, the correct size nose cup, and the appropriate nose cup before use.

- For a standard AV-3000 HT facepiece **only use** DARK GRAY Nose Cups P/N 201126 (Small), P/N 201127 (Medium), or P/N 201128 (Large).
- For an AV-3000 HT facepiece equipped with Scott Sight **only use** DARK GRAY IMD Nose Cups P/N 201476 (Small), P/N 201477 (Medium), or P/N 2201478 (Large).

The AV-3000 HT Facepieces are equipped with either four (4) or five (5) head harness straps.

<sup>1</sup> Portacount Plus is a registered trademark of TSI Incorporated.

## REGULAR OPERATIONAL INSPECTION

Always inspect and clean a new facepiece before the first use. Remove and keep the label attached to the lens of a new facepiece. See “CLEANING AND STORAGE” on page 14.

Before each use of the respirator, perform the following INSPECTION of the facepiece as part of the REGULAR OPERATIONAL INSPECTION of the complete respirator as defined in the USER INSTRUCTIONS supplied with the respirator:

1. Inspect the facepiece seal and other rubber components for deformation, wear, damage, or cracks.
2. Inspect the lens and lens frame as follows:
  - a) Inspect the lens for scratches, gouges, cracks, crazing, distortion, melting, or any other damage or condition that could impair the user's vision or the operation of the facepiece.
  - b) Inspect the lens frame for damage such as cracks or distortion.
  - c) Verify that the lens frame screws are present and installed correctly.
3. Inspect the head harness as follows:
  - a) Check that all harness anchors are present and operating properly.
  - b) Inspect the head harness for correct installation with all straps oriented correctly.
  - c) Inspect the head harness for damage or worn components.
4. Inspect the voicemitter ducts as follows:
  - a) Verify that the voicemitter ducts are properly installed through the facepiece lens.
  - b) Verify that each voicemitter duct has an outer grill installed and the grills are not damaged.
  - c) If the facepiece has a communications bracket installed, verify that the bracket is not damaged and that it is properly installed and secure.
  - d) Inspect the voicemitters for damage and verify that the voicemitters are properly installed and secure in the voicemitter ducts.

### CAUTION

**ALWAYS VERIFY THAT THE PROPER NOSE CUP IS INSTALLED PRIOR TO DONNING THE AV-3000 HT FULL FACEPIECE. AV-3000 HT FULL FACEPIECES EQUIPPED WITH A THERMAL IN-MASK SCOTT SIGHT ASSEMBLY [P/N 201448-01, -02, -03] USE AN ALTERNATE STYLE NOSE CUP TO ACCOMMODATE THE IN-MASK DISPLAY (IMD). ALWAYS USE NOSE CUP P/Ns 201476 (SMALL), 201477 (MEDIUM), AND 201478 (LARGE) WHEN USING AN IMD. NEVER USE THE SCOTT SIGHT NOSE CUP WITHOUT THE IMD ATTACHED.**

5. Inspect the nose cup as follows:

*If using STANDARD NOSE CUP (non-IMD nosecup)*

- a) Inspect the nose cup for cuts or damage. Look for any signs of damage to the facepiece port side of the nose cup where the regulator attaches.
- b) Verify that both inhalation valves in the nose cup are present and properly installed. Inhalation valves must be clean and undamaged. Verify that the valve stems are secure and that the valves lay flat inside the nose cup. See FIGURE 1.
- c) Verify that the nose cup is properly installed. Check that the nose cup is properly seated between the flanges of the voicemitter ducts and over the chin cup. See FIGURE 3.

*If using standard nose cup proceed to step 8.*

*If using IMD NOSE CUP*

- a) Inspect the nose cup for cuts or damage. Look for any signs of damage to the facepiece port side of the nose cup where it attaches to the IMD.
- b) Verify that both inhalation valves in the nose cup are present and properly installed. Inhalation valves must be clean and undamaged. Verify that valve stems are secure and that the valves lay flat inside the nose cup. See FIGURE 2.



**FIGURE 1**  
CHECK INHALATION VALVES ON  
THE STANDARD NOSE CUP



**FIGURE 2**  
CHECK INHALATION VALVES  
ON THE IMD NOSE CUP

- c) Verify that the nose cup is properly installed. Check that the nose cup is properly seated between the flanges of the voicemitter ducts, over the chin cup, and firmly seated through the center of IMD. See FIGURE 3.

**If using IMD nose cup proceed to step 6.**



**FIGURE 3**  
**NOSE CUP OVER CHIN CUP**

6. Inspect the IMD Assembly as follows (*when installed*):
- Inspect the IMD housing for any damage, such as cracks, chips, discoloration, corrosion, missing or loose parts, or burned or melted components. Inspect for any signs of damage where the IMD attaches to the nose cup and where the IMD attaches to the facepiece port. Check that the retaining clips are not damaged or broken.
  - Verify that all IMD components are present and in working order including the power button and optics adjustment screw. Check that the display lens is clean.
  - Verify that the IMD is properly installed. IMD must be firmly secured to facepiece port opening and the IMD battery is firmly clipped in place and that it is behind the face seal.
  - Check battery condition. Press and hold the ON/OFF button for three (3) seconds to turn on the IMD. A Battery icon on the top left of the IMD screen will display the remaining battery life of the IMD. If low, Scott recommends that both batteries be changed before the facepiece is used. See *"REPLACING THE BATTERIES"* on page 22.
  - Leave the IMD ON to test the TIC assembly in the next step.
7. Inspect Mask-Mounted TIC Assembly as follows (*when installed*):
- Inspect the TIC housing for damage such as cracks, chips, discoloration, corrosion, missing or loose parts, or burned or melted components.
  - Verify that all TIC components are present and in working order including the power button, power LED indicator, bezel bracket and battery cover. Check that the camera lens is clean.
  - Verify that the Mask-Mounted TIC is firmly attached to the bezel and the top bezel bolt and bottom retaining bolt are tightly fastened.
  - Verify that the Mask-Mounted TIC is paired to the IMD. With the IMD turned ON, press and hold the ON/OFF power button on the Mask-Mounted TIC for three (3) seconds. The LED will flash RED to indicate that there is power to the unit and then flash GREEN when successfully paired with the IMD.
  - Check battery condition. A Battery icon on the top right of the IMD screen will display the remaining battery life of the IMD. If low, Scott recommends that both batteries be changed before the facepiece is used. See *"REPLACING THE BATTERIES"* on page 22.
8. Verify that the facepiece is clean. See *"CLEANING AND STORAGE"* on page 14.
9. Adjust the head straps to the full outward position. The facepiece must be complete and in serviceable condition with no worn, loose, or damaged components.

**If any damage is found, remove the facepiece from service and tag for repair by authorized personnel.**

## WARNING

RESPIRATORS SHALL NOT BE WORN WHEN CONDITIONS PREVENT A GOOD FACE SEAL. SUCH CONDITIONS MAY INCLUDE, BUT ARE NOT LIMITED TO, GROWTH OF BEARDS, SIDEBURNS, FACIAL HAIR OR LOW HAIRLINE THAT CROSSES OR INTERFERES WITH THE SEALING SURFACE, THICK OR PROTRUDING HAIRSTYLES SUCH AS PONY TAILS OR BUNS THAT INTERFERE WITH THE SMOOTH AND CLOSE FIT OF THE HEAD HARNESS TO THE HEAD, A SKULL CAP THAT PROJECTS UNDER THE FACEPIECE, TEMPLE PIECES ON CORRECTIVE EYE GLASSES, EXCESSIVE USE OF COSMETICS INCLUDING MOISTURIZERS, MAKE-UP, OR AFTER SHAVE, OR ANYTHING ELSE WHICH INTERFERES WITH THE FACE TO FACEPIECE SEAL. ALSO, THE ABSENCE OF ONE OR BOTH DENTURES CAN SERIOUSLY AFFECT THE FIT OF A FACEPIECE. USE OF AN IMPROPERLY FITTED FACEPIECE MAY LEAD TO EXPOSURE TO THE HAZARDOUS ATMOSPHERE WHICH COULD RESULT IN SERIOUS INJURY OR DEATH.

REFER TO THE USER INSTRUCTIONS FOR THE COMPLETE RESPIRATOR FOR ADDITIONAL INFORMATION.

## DONNING THE AV-3000 HT FULL FACEPIECE

The user must be familiar with and practice the prescribed donning and termination of use procedures prior to respirator use. Follow the donning instructions for the model facepiece you have. The AV-3000 HT facepiece can have either a FIVE or a FOUR strap head harness

### NOTE

REFER TO THE DONNING INSTRUCTIONS PROVIDED WITH YOUR COMPLETE SCOTT RESPIRATOR.

## WARNING

FAILURE TO DON THE FACEPIECE PROPERLY AND/OR FAILURE TO ADJUST THE HEAD HARNESS PROPERLY MAY RESULT IN A POOR FACE TO FACEPIECE SEAL OR MAY RESULT IN THE FAILURE OF THE FACE TO FACEPIECE SEAL DURING USE. A POOR OR FAILED FACE TO FACEPIECE SEAL MAY REDUCE THE DURATION OF USE OF THE RESPIRATOR AND/OR EXPOSE THE USER TO THE ATMOSPHERE THE RESPIRATOR IS INTENDED TO PROTECT AGAINST RESULTING IN SERIOUS INJURY OR DEATH.

An optional neck strap assembly (P/N 804088-XX) can be attached prior to donning the facepiece to allow hands free carry of the facepiece when not in use.

To attach the neck strap assembly, clip the snap springs at each end of the neck strap assembly to the D-rings on the temple strap of the facepiece. Check to make sure that the strap is not twisted and is securely fastened. See FIGURE 4.



**FIGURE 4**  
CLIP TO D-RING ON  
TEMPLE STRAP

## DONNING THE AV-3000 HT 4-STRAP FACEPIECE

1. Adjust the head straps to the full outward position.
2. Hold the facepiece in one hand. Either hold the head harness up and out of the way with the other hand or fold the head harness back over the lens. See FIGURES 5A and 5B.
3. Place the facepiece centered on the face with the chin properly positioned in the chin cup. Using the hand hold at the bottom of the netting, pull the head harness down over the crown of the head. Verify that no hair or clothing is interfering with the face to facepiece seal. If needed, long or loose hair (ie. pony tail, bun, etc.) can be pulled through the opening in head harness netting to obtain a close fit of the head harness to the head. Hold the facepiece in place with chin properly located in the chin cup throughout the donning process.



**FIGURE 5A**  
HOLD HARNESS  
OUT OF WAY



**FIGURE 5B**  
FOLD HARNESS  
BACK OVER  
FACEPIECE LENS

## NOTE

ENSURE THE CHIN IS PROPERLY LOCATED IN THE CHIN POCKET OF THE FACEPIECE THROUGHOUT THE DONNING PROCESS.

4. Stroke the head harness over the head and ensure that straps are lying smooth and flat against head and neck with no twists. Verify the head harness is centered and properly located at the back and base of head. Maintain the head harness in this position.
5. While holding the facepiece in place with one hand, tighten the neck straps evenly one at a time by pulling each neck strap end back toward the rear of the head. Alternate hands to maintain the facepiece position on the face. See FIGURE 6.
6. Verify the proper location of the face in the facepiece and the chin in the chin cup. While still holding the facepiece in place with one hand, tighten the temple straps evenly one at a time by pulling each temple strap end back toward the rear of the head. Alternate hands to maintain the facepiece position on the face. See FIGURE 7.
7. Verify the proper location of the face in the facepiece and the chin in the chin cup and retighten all straps as needed.
8. Stroke the head harness down the back of the head and make sure the net is flat against the head. If necessary, adjust the bottom of the head harness to sit below the crown of the head. See FIGURE 8.
9. Verify the proper location of the face in the facepiece and the chin in the chin cup. Retighten the straps if required. All straps must be snug and the facepiece should feel secure. See FIGURE 8.



**FIGURE 6**  
HOLD AND TIGHTEN



**FIGURE 7**  
HOLD AND TIGHTEN

## NOTE

VERIFY THAT THE TOP CENTER PORTION OF THE HEAD HARNESS IS POSITIONED OVER THE CROWN OF THE HEAD.

10. ALWAYS perform NEGATIVE PRESSURE LEAK TEST prior to use as described in USER INSTRUCTIONS for the complete respirator.



**FIGURE 8**  
CENTER HEAD HARNESS ON CROWN OF HEAD

## WARNING

FAILURE TO CHECK THE FACE TO FACEPIECE SEAL BEFORE USE MAY RESULT IN USE OF THE RESPIRATOR WITH A POOR FACE TO FACEPIECE SEAL. A POOR FACE TO FACEPIECE SEAL MAY RESULT IN LOSS OF AIR WHICH MAY CAUSE REDUCED DURATION OF USE AND/OR EXPOSURE OF THE USER TO THE HAZARDOUS ATMOSPHERE WHICH COULD RESULT IN SERIOUS INJURY OR DEATH.

## WARNING

WHEN DONNING A HOOD OVER A FACEPIECE EQUIPPED WITH SCOTT SIGHT, ENSURE THAT THE HOOD IS FULLY TUCKED BETWEEN THE TIC AND THE FACEPIECE SEAL. PULLING THE HOOD OVER THE TIC OR NOT FULLY TUCKING THE HOOD BEHIND THE TIC CAN ALLOW AN AIR GAP THAT COULD EXPOSE THE RESPIRATOR USER DIRECTLY TO HEAT OR FLAME AND LEAD TO SERIOUS INJURY OR DEATH.

**REFER TO THE USER INSTRUCTIONS FOR THE COMPLETE RESPIRATOR FOR PROPER USE OF THE RESPIRATOR WITH THIS FACEPIECE.**



## **DONNING THE AV-3000 HT 5-STRAP FACEPIECE**

1. Adjust the head straps to the full outward position.
2. Hold the facepiece in one hand while holding the head harness up and out of the way with other hand. If so equipped, use the Head Harness Pull Tab on the bottom rear of the head harness.

### **NOTE**

ENSURE THE CHIN IS PROPERLY LOCATED IN THE CHIN POCKET OF THE FACEPIECE THROUGHOUT THE DONNING PROCESS.

3. Place the facepiece centered on the face with the chin properly positioned in the chin cup. See FIGURE 9. Verify that no hair or clothing is interfering with the face to facepiece seal. Hold the facepiece in place with the chin properly located in the chin cup throughout the donning process.
4. Stroke the head harness over the head and ensure that straps are lying smooth and flat against the head and neck with no twists. Verify the head harness is centered and properly located at the back and base of the head. Maintain the head harness in this position.



**FIGURE 9**  
CHIN IN CHIN POCKET

5. While holding the facepiece in place with one hand, tighten the neck straps evenly one at a time by pulling each neck strap end back toward the rear of the head. Alternate hands to maintain the facepiece position on the face. See FIGURE 10.



**FIGURE 10**  
HOLD AND TIGHTEN

6. Verify the proper location of the face in the facepiece and the chin in the chin cup. While still holding the facepiece in place with one hand, tighten the temple straps evenly one at a time by pulling each temple strap end back toward the rear of the head. Alternate hands to maintain the facepiece position on the face. See FIGURE 11.



**FIGURE 11**  
HOLD AND TIGHTEN

7. Verify the proper location of the face in the facepiece and the chin in the chin cup. Tighten the forehead strap last by pulling the forehead strap toward back toward the rear of the head. Do not overtighten the forehead strap.
8. Verify that the head harness is centered on the crown of the head and lying flat against the back of the head. Verify the proper location of the face in the facepiece and the chin in the chin cup and retighten all straps as needed. See FIGURE 12.



**FIGURE 12**  
ADJUST HEAD HARNESS

9. Stroke the head harness down the back of the head and make sure the net is centered on your head. If necessary, adjust the head harness to the center of the crown of the head. See FIGURE 13.



**FIGURE 13**  
CENTER HEAD HARNESS ON CROWN OF HEAD

10. Verify the proper location of the face in the facepiece and the chin in the chin cup. Retighten the straps if required. All straps must be snug and the facepiece should feel secure.

**NOTE**

VERIFY THAT THE TOP CENTER PORTION OF THE HEAD HARNESS IS POSITIONED OVER THE CROWN OF THE HEAD.

11. ALWAYS perform NEGATIVE PRESSURE LEAK TEST prior to use as described in USER INSTRUCTIONS for the complete respirator.

**WARNING**

FAILURE TO CHECK THE FACE TO FACEPIECE SEAL BEFORE USE MAY RESULT IN USE OF THE RESPIRATOR WITH A POOR FACE TO FACEPIECE SEAL. A POOR FACE TO FACEPIECE SEAL MAY RESULT IN LOSS OF AIR WHICH MAY CAUSE REDUCED DURATION OF USE AND/ OR EXPOSURE OF THE USER TO THE HAZARDOUS ATMOSPHERE WHICH COULD RESULT IN SERIOUS INJURY OR DEATH.

**WARNING**

WHEN DONNING A HOOD OVER A FACEPIECE EQUIPPED WITH SCOTT SIGHT, ENSURE THAT THE HOOD IS FULLY TUCKED BETWEEN THE TIC AND THE FACEPIECE SEAL. PULLING THE HOOD OVER THE TIC OR NOT FULLY TUCKING THE HOOD BEHIND THE TIC CAN ALLOW AN AIR GAP THAT COULD EXPOSE THE RESPIRATOR USER DIRECTLY TO HEAT OR FLAME AND LEAD TO SERIOUS INJURY OR DEATH.

***REFER TO THE USER INSTRUCTIONS FOR THE COMPLETE RESPIRATOR FOR PROPER USE OF THE RESPIRATOR WITH THIS FACEPIECE.***



## CLEANING AND STORAGE OF THE AV-3000 HT

Supplies needed:

- Scott recommended sanitizing or disinfecting cleaner such as Wescodyne Plus. This is a dilute iodine solution.
- Drinking (potable) water - running or in a spray bottle
- Air supply of lubricant free, dry breathing air, maximum 30 psig, for drying

### NOTE

FOLLOW ALL THE INSTRUCTIONS AND THE MATERIAL SAFETY DATA SHEET (MSDS) PROVIDED WITH THE SANITIZING OR DISINFECTING CLEANER.

### NOTE

REMOVE IMD COMPONENTS PRIOR TO CLEANING. THESE COMPONENTS SHOULD BE CLEANED WHEN NECESSARY USING A CLOTH DAMPENED WITH A SOLUTION OF MILD DETERGENT AND WATER. IF THE IMD IS REMOVED FOR INSPECTION, MAKE CERTAIN IT IS REINSTALLED PROPERLY.

### NOTE

THE STANDARD NOSE CUP IS DESIGNED TO BE AN INTEGRAL PART OF THE FACEPIECE AND DOES NOT NEED TO BE REMOVED FOR CLEANING AND DISINFECTING. IF THE NOSE CUP IS REMOVED FOR INSPECTION, MAKE CERTAIN IT IS REINSTALLED PROPERLY.

1. Carefully wash the facepiece assembly with Scott recommended cleaner according to the instructions provided with the cleaner and thoroughly rinse in clean water.
2. If the facepiece is heavily soiled, it may be necessary to first wash the facepiece with a solution of mild soap or detergent in warm water (110° F / 43° C maximum).
  - a) If there is dirt or debris in the voicemitter ducts, remove the plastic Voicemitter Grill Covers and clean any trapped debris from the inside of the voicemitter ducts.
  - b) Rinse thoroughly and replace the Voicemitter Grill Covers.
3. To sanitize or disinfect the facepiece, use the Scott recommended sanitizing or disinfecting cleaner according to the instructions provided with the cleaner. Sanitizing or disinfecting may require a specific contact time of the cleaner prior to rinsing.

### NOTE

THE SCOTT RECOMMENDED CLEANER MAY NOT BE EFFECTIVE ON HEAD HARNESSSES MADE OF POROUS MATERIAL SUCH AS KEVLAR<sup>2</sup> OR POLYESTER.

1. Rinse with drinking water using a spray bottle or running water.
2. Shake excess water off of facepiece and then dry with a clean, lint free cloth or gently blow dry with clean, dry breathing air of 30 psig or less pressure. **DO NOT** use shop air or any other air containing lubricants or moisture.
3. Dry thoroughly before storage.
4. **DO NOT** store the facepiece with the regulator/adaptor attached.
5. Store the facepiece with nothing on top of it that could cause deformation or distortion of the facepiece lens, seals, or other parts.
  - **DO NOT** use abrasive cleaners.
  - **DO NOT** use bleach stronger than a 3% solution in water.
  - **DO NOT** use cleaners which contain quaternary ammonium compounds.
  - **DO NOT** use solvents such as acetone, paint and lacquer thinner, benzene, or dry cleaning fluid.
  - **DO NOT** polish with paper towels as most paper contains abrasives.
  - **DO NOT** autoclave or wash in an automatic washer.
  - **DO NOT** use a vapor degreaser/polisher.

<sup>2</sup>Kevlar is a registered trademark of E.I. du Pont de Nemours and Company, Wilmington, DE.

## CAUTION

THE LENS IN THIS FACEPIECE ASSEMBLY IS MOLDED OF POLYCARBONATE PLASTIC AND HARD-COATED TO RESIST ABRASION, BUT CARE IN HANDLING AND CLEANING IS STILL REQUIRED. THE LENS CAN BE DAMAGED BY ABRASIVE OR HARSH CLEANERS AND SOFTENED BY SOME SOLVENTS. WHILE MANY HOUSEHOLD CLEANERS, DISINFECTANTS, AND PLASTIC CLEANERS ARE ACCEPTABLE, FIRST TEST THE CLEANER ON THE EDGE OF A LENS OUTSIDE THE VIEWING AREA. IF THE CLEANER CAUSES ANY SCRATCHES OR ANY CHANGE IN THE APPEARANCE OF THE LENS, DO NOT USE THE CLEANER AS IT MAY CAUSE IRREPARABLE DAMAGE TO THE FACEPIECE.

If Wescodyne PLUS is not available or is not recommended in the manufacturer's label or instructions, facepiece can also be disinfected by immersing in one of the following solutions for two minutes:

- Hypochlorite solution (50 ppm of chlorine) made by adding approximately one milliliter of laundry bleach to one liter of water at 110° F / 43° C ; or,
- Aqueous solution of iodine (50 ppm iodine) made by adding approximately 0.8 milliliters of tincture of iodine (6-8 grams ammonium and/or potassium iodide/100 cc of 45% alcohol) to one liter of water at 110° F / 43° C.

## NOTE

SCOTT DOES NOT GUARANTEE THE EFFICACY OF ITS DISINFECTANT FOR SPECIFIC INFECTIOUS PATHOGENS.

## NOTE

PRIOR TO HANDLING OR USE OF ANY OF THE CLEANING AGENTS MENTIONED IN THIS INSTRUCTION, CONSULT THE MANUFACTURER'S MATERIAL SAFETY DATA SHEET (MSDS) FOR PRECAUTIONS AND IMPORTANT INSTRUCTIONS.

## WARNING

DUE TO THE POTENTIAL FOR ELECTROSTATIC DISCHARGE, CLEAN SCOTT SIGHT COMPONENTS WITH DAMPENED CLOTH ONLY. DO NOT USE DRY CLOTH TO CLEAN THE SURFACE.

CLEANING OR PROVIDING MAINTENANCE ON SCOTT SIGHT COMPONENTS IN AN EXPLOSIVE ENVIRONMENT MAY CAUSE AN IGNITION WHICH COULD RESULT IN SERIOUS INJURY OR DEATH.

## CAUTION

REGULARLY INSPECT THE AV-3000 HT FACEPIECE AND SCOTT SIGHT THERMAL IMAGING SYSTEM FOR LOOSE, WORN, OR DAMAGED COMPONENTS. IF ANY DAMAGE IS FOUND, REMOVE THE UNIT FROM SERVICE AND TAG FOR REPAIR BY AUTHORIZED PERSONNEL.

### **SCOTT SAFETY LIMITED WARRANTY FOR AV-3000 HT FACEPIECE**

Scott Safety (Scott) warrants AV-3000 HT FACEPIECE PRODUCTS (THE PRODUCTS) to be free from defects in workmanship and materials for a period of ten (10) years from the date of original manufacture by Scott. This warranty applies to all components of THE PRODUCTS including all accessories and optional equipment purchased and supplied at the time of original sale of THE PRODUCTS, EXCEPT electronically operated devices, consumable supplies, and storage bags. Scott's obligation under this warranty is limited to replacing or repairing (at Scott's option) THE PRODUCTS or components shown to be defective in either workmanship or materials.

Only personnel of Scott or, when directed by Scott, authorized Scott agents are authorized to perform warranty obligations. This warranty does not apply to defects or damage caused by any repairs of or alterations to THE PRODUCTS made by owner or any third party unless expressly permitted by Scott product manuals or by written authorization from Scott. To obtain performance under this warranty, and as a condition precedent to any duty of Scott, the purchaser must return such products to Scott, a Scott authorized distributor or a Scott authorized service center. Any product returned to Scott shall be sent to "Scott Safety" (Attn: Warranty Claim Dept.), P.O. Box 569, Monroe, NC 28111.

This warranty does not apply to any malfunction of or damage to THE PRODUCTS resulting from accident, alteration, misuse or abuse.

THIS WARRANTY IS MADE IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. IN ADDITION, SCOTT EXPRESSLY DISCLAIMS ANY LIABILITY FOR SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES IN ANY WAY CONNECTED WITH THE SALE OR USE OF SCOTT SAFETY PRODUCTS, AND NO OTHER FIRM OR PERSON IS AUTHORIZED TO ASSUME ANY SUCH LIABILITY.

## IMAGING SYSTEM FOR THE AV-3000 HT

### WARNING

THERMAL IMAGING SYSTEMS HAVE UNIQUE OPERATING CHARACTERISTICS. THEY ARE NOT NIGHT VISION CAMERAS. THE THERMAL IMAGE REPRESENTS THE RELATIVE TEMPERATURES OF OBJECTS AND DOES NOT DEPICT WHAT THE HUMAN EYE NORMALLY SEES. INTERPRETATION OF THE THERMAL IMAGE REQUIRES TRAINING AND EXPERIENCE. DO NOT USE THE THERMAL IMAGING SYSTEM IF YOU HAVE NOT BEEN PROPERLY TRAINED IN ITS USE AND OPERATION. DO NOT USE THE THERMAL IMAGING SYSTEM IF IT STOPS OPERATING OR OPERATES INCORRECTLY. USE OF THIS DEVICE WITHOUT PROPER TRAINING AND UNDERSTANDING OF ITS OPERATION MAY RESULT IN SERIOUS INJURY OR DEATH.

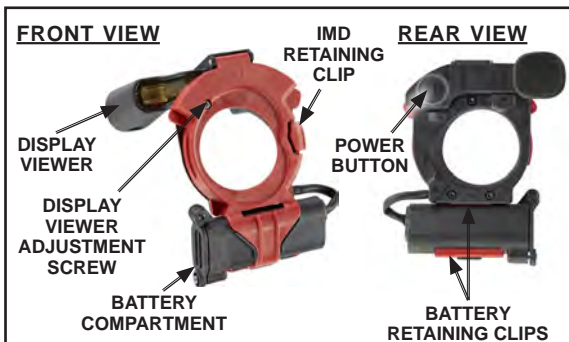
THIS PRODUCT IS DESIGNED AND INTENDED TO FUNCTION PROPERLY IN REASONABLE/ORDINARY FIREFIGHTING CONDITIONS. LIKE ALL EQUIPMENT, THE FUNCTIONALITY OF THIS PRODUCT MAY BE COMPROMISED BY EXTREME FIRE CONDITIONS.



**FIGURE 14**  
MASK-MOUNTED THERMAL  
IMAGING CAMERA (TIC)



**FIGURE 15**  
IN-MASK DISPLAY (IMD)  
NOSE CUP



**FIGURE 16**  
IN-MASK DISPLAY (IMD)

## GENERAL DESCRIPTION OF SCOTT SIGHT IMAGING SYSTEM

The Scott Sight is a rugged, mask-mounted thermal imaging system designed for hands free use with the AV-3000 HT as part of a complete respirator. Use of this equipment must be part of a complete respiratory protection program. The user must verify that the Scott Sight and AV-3000 HT are approved for use on the selected Scott respirator. Scott Sight operates independently of respirator electronics.

The Thermal Imaging Camera (TIC) uses highly sensitive infrared technology to determine even small differences in temperature, then transmits the information to the In-Mask Display (IMD) inside the facepiece, using BLUETOOTH<sup>®</sup> wireless technology. Rather than displaying colors that correspond to an actual value, the Scott Sight looks at the entire scene in the display and calculates the range of temperatures. The IMD viewer then displays the range of relative temperatures on the screen as a gradient scale from BLACK (lower temperatures) to WHITE (higher temperatures). Additionally, a RED overlay easily indicates the highest temperatures on the screen. This feature may be an aid in helping fire fighters direct operations.

Training is required before use. This assembly is NOT intended for use under water or for any purpose not specifically authorized by the user's organized respiratory protection program.

**Fit Testing must be performed with any approved Scott accessory that will be used with the respirator installed on the facepiece. See "FIT TESTING THE AV-3000 HT" on page 7.**

The Scott Sight thermal imaging system consists of the following components:

- Mask-Mounted Thermal Image Camera (P/Ns 201450 and 201451)
- In-Mask Display (P/N 201455)
- Nose cup designed to accommodate the IMD. (Small P/N 201476, Medium P/N 201477, and Large P/N 201478)

### CAUTION

**ALWAYS VERIFY THAT THE PROPER NOSE CUP IS INSTALLED PRIOR TO DONNING THE AV-3000 HT FULL FACEPIECE. AV-3000 HT FULL FACEPIECES EQUIPPED WITH A THERMAL IN-MASK SCOTT SIGHT ASSEMBLY [P/N 201448-01, -02, -03] USE AN ALTERNATE STYLE NOSE CUP TO ACCOMMODATE THE IN-MASK DISPLAY (IMD). ALWAYS USE NOSE CUP P/Ns 201476 (SMALL), 201477 (MEDIUM), AND 201478 (LARGE) WHEN USING AN IMD. NEVER USE THE SCOTT SIGHT NOSE CUP WITHOUT THE IMD ATTACHED.**

### WARNING

**READ AND UNDERSTAND THIS ENTIRE MANUAL. TRAINING IS REQUIRED BEFORE USE OF THIS EQUIPMENT IN A HAZARDOUS SITUATION. THE TRAINING MUST INCLUDE EXTENSIVE PRACTICE WITH THE THERMAL IMAGING SYSTEM IN A VARIETY OF ENVIRONMENTS AND A COMPLETE UNDERSTANDING OF HOW TO INTERPRET THE THERMAL IMAGE. BECAUSE DIFFERENT BRANDS AND MODELS OF THERMAL IMAGING SYSTEMS MAY OPERATE DIFFERENTLY, ALWAYS UPDATE TRAINING WITH EACH NEW PIECE OF EQUIPMENT. USE OF A THERMAL IMAGING SYSTEM WITHOUT PROPER TRAINING MAY RESULT IN SERIOUS INJURY OR DEATH.**

### WARNING

**NEVER BECOME WHOLLY DEPENDENT ON THE THERMAL IMAGING SYSTEM FOR PERSONAL NAVIGATION. IT IS NOT A NIGHT VISION CAMERA. ALWAYS MAINTAIN AWARENESS OF LOCATION AND ESCAPE ROUTES WHEN USING THIS DEVICE. FAILURE TO DO SO MAY RESULT IN SERIOUS INJURY OR DEATH.**

## OPERATIONAL ENVIRONMENT

Scott Sight is designed to operate within an internal core temperature range of up to +158 °F /+70 °C. The housing is waterproof and made of impact resistant thermoplastic.

### WARNING

**INTERNAL TEMPERATURES ABOVE +158 °F /+70 °C CAN COMPROMISE THE FUNCTIONALITY OF THE SCOTT SIGHT COMPONENTS. IF THIS OCCURS, DO NOT USE UNTIL PERFORMANCE HAS RETURNED TO NORMAL, AS THIS MAY RESULT IN SERIOUS INJURY OR DEATH.**

<sup>3</sup>The BLUETOOTH trademarks are owned by BLUETOOTH SIG, Inc. Other trademarks and trade names in this document are those of their respective owners. ©2013 BLUETOOTH SIG, Inc. Subject to change without prior notice.

## INSTALLING THE SCOTT SIGHT COMPONENTS

### WARNING

FAILURE TO INSTALL THE SCOTT SIGHT COMPONENTS PROPERLY AND/OR FAILURE TO INSPECT THE FACEPIECE AFTER INSTALLATION MAY RESULT IN A POOR FACE TO FACEPIECE SEAL OR MAY RESULT IN THE FAILURE OF THE FACE TO FACEPIECE SEAL DURING USE. A POOR OR FAILED FACE TO FACEPIECE SEAL MAY REDUCE THE DURATION OF USE OF THE RESPIRATOR AND/OR EXPOSE THE USER TO THE ATMOSPHERE THE RESPIRATOR IS INTENDED TO PROTECT AGAINST WHICH COULD RESULT IN SERIOUS INJURY OR DEATH.

**SCOTT SAFETY STRONGLY SUGGESTS THIS INSTALLATION IS COMPLETED BY OR SUPERVISED BY SOMEONE WITH EXPERIENCE IN ASSEMBLING AND DISASSEMBLING A FACEPIECE.**

### INSTALLING THE MASK-MOUNTED TIC ASSEMBLY

Supplies needed for installation:

- 8 in-lbs Torque wrench with 7/64" hex bit
- Scott Sight TIC
- Phillips screwdriver
- Scott AV-3000 HT full facepiece

Install the Mask-Mounted TIC as follows:

1. Use the hex wrench to remove upper bezel retaining screw from the right hand side (as worn) of the AV-3000 HT facepiece. **DO NOT** tamper with the bezel while the screw is removed as this may compromise the sealing of the mask.

### WARNING

**BE CAREFUL NOT TO MOVE BEZELS WHILE REMOVING THE BEZEL RETAINING SCREWS. MOVING THE BEZELS CAN COMPROMISE THE INTEGRITY OF THE FACE SEAL WHICH MAY LEAD TO EXPOSURE TO THE HAZARDOUS ATMOSPHERE WHICH COULD RESULT IN SERIOUS INJURY OR DEATH.**

2. Slide the lower bezel bracket of the TIC in place over the lower bezel mount on the facepiece. Do not add lower bezel screw at this time. See FIGURE 17A.
3. Rotate the TIC clockwise until the upper bezel housing of the TIC slides firmly in place over the upper bezel mount on the facepiece. See FIGURE 17B.

### CAUTION

**DO NOT RE-INSERT THE RETAINING BOLT SUPPLIED WITH THE STANDARD AV-3000 HT AS THIS DOES NOT HAVE SUFFICIENT LENGTH TO SUPPORT THE MASK-MOUNTED TIC.**

4. With the TIC in position, insert the upper bezel retaining screw supplied with the components into the upper bezel mount and tighten to 8 in-lb torque.
5. Check that the TIC upper bezel screw is fully seated and fastened properly.
6. Check that the lower bezel bracket of the TIC is located over the lower bezel mount on the facepiece.
7. Install lower bezel screw and washer onto the lower bezel mount and tighten with Phillips screwdriver until snug. **DO NOT OVERTIGHTEN.**
8. Verify that the TIC is firmly attached to the AV-3000 HT.



**FIGURE 17A**  
LOWER BEZEL



**FIGURE 17B**  
UPPER BEZEL



**FIGURE 17**  
ROTATE TIC OVER UPPER BEZEL

Remove the Mask-Mounted TIC as follows:

1. Use Phillips screwdriver to remove the lower bezel mount retaining screw and washer.
2. Use hex wrench to remove the TIC retaining screw from upper bezel mount. **DO NOT** tamper with bezel while the screw is removed as this may compromise sealing of the mask.
3. Rotate the TIC counterclockwise and slide back off of the upper bezel mount.
4. Slide the TIC lower bezel bracket from the lower bezel mount.

### WARNING

**BE CAREFUL NOT TO MOVE THE BEZEL WHILE REMOVING THE MASK-MOUNTED TIC. MOVING THE BEZEL CAN COMPROMISE THE INTEGRITY OF THE FACE SEAL WHICH MAY LEAD TO EXPOSURE TO THE HAZARDOUS ATMOSPHERE WHICH COULD RESULT IN SERIOUS INJURY OR DEATH.**

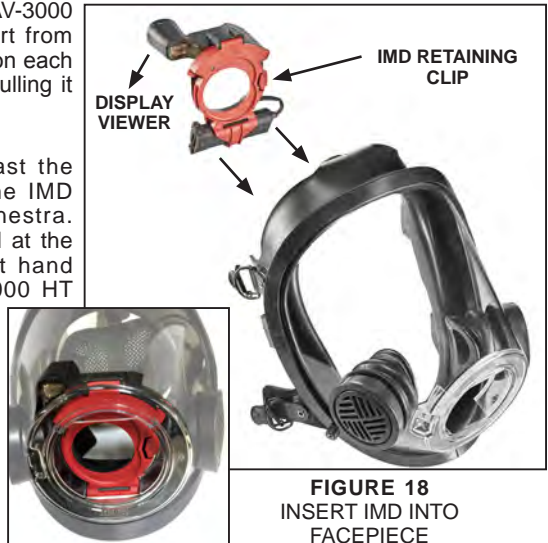
### INSTALLING THE IMD ASSEMBLY

Supplies needed for installation:

- Scott Sight IMD
- Scott AV-3000 HT full facepiece

Install the IMD as follows:

1. Remove the nose cup from the AV-3000 HT by lifting the voicemitter port from between the voicemitter flanges on each side of the nosecup and firmly pulling it out of the facepiece.
2. Insert the IMD Assembly.
  - a) Carefully guide the IMD past the voice ducts and position the IMD against the front of the fenestra. The viewer should be located at the top of the IMD on the right hand side (as worn) of the AV-3000 HT facepiece with the viewer display facing inside the facepiece.
  - b) Gently press the IMD forward into the facepiece port until the IMD retaining clip snaps into position. See FIGURE 18.
3. Check that the IMD is firmly seated against the facepiece port.



Remove the IMD Assembly as follows:

1. Remove IMD nose cup from mask. See *"INSTALLING THE IMD NOSE CUP"* on page 21.
2. Press the IMD retaining clip to unsnap it from facepiece port.
3. Carefully guide the IMD past the voice ducts and out of the facepiece.



## INSTALLING THE IMD NOSE CUP

Supplies needed for installation:

- Scott Sight IMD nose cup
- Scott AV-3000 HT full facepiece with IMD installed. See “INSTALLING THE IMD ASSEMBLY” on page 20.

### CAUTION

**ALWAYS VERIFY THAT THE PROPER NOSE CUP IS INSTALLED PRIOR TO DONNING THE AV-3000 HT FULL FACEPIECE. AV-3000 HT FULL FACEPIECES EQUIPPED WITH A THERMAL IN-MASK SCOTT SIGHT ASSEMBLY [P/N 201448-01, -02, -03] USE AN ALTERNATE STYLE NOSE CUP TO ACCOMMODATE THE IN-MASK DISPLAY (IMD). ALWAYS USE NOSE CUP P/Ns 201476 (SMALL), 201477 (MEDIUM), AND 201478 (LARGE) WHEN USING AN IMD. NEVER USE THE SCOTT SIGHT NOSE CUP WITHOUT THE IMD ATTACHED.**

Install the IMD nose cup as follows:

1. Carefully insert the IMD nose cup exhalation tube through the center of the IMD with end firmly seated against the front of the IMD. See FIGURE 19.
2. Seat the voicemitter port between voicemitter flanges on each side of the nosecup.
3. Check that the nose cup is positioned over the chin cup, and the end of the exhalation tube is firmly seated through the center of IMD Assembly.



**FIGURE 19**  
INSTALLING THE NOSE CUP

Remove the IMD nose cup as follows:

1. Remove the IMD nose cup by lifting voicemitter ports from around the voicemitter flanges.
2. Pull the nose cup exhalation tube from the center of the IMD and out of the facepiece.



## REPLACING THE BATTERIES

Both the Mask-Mounted TIC and the IMD require battery power to operate. The complete system requires a total of five (5) AAA batteries; three (3) for the Mask-Mounted TIC and two (2) for the IMD. The batteries for both the TIC and the IMD can be replaced without removing the device from the facepiece.

Do not mix battery types, old and new batteries, or batteries from different manufacturers. Scott does not recommend use of any other batteries except those listed below. The area must be known to be nonflammable and safe before opening the battery door.

Use only fresh batteries from the following list.

- |   |                            |
|---|----------------------------|
| – Energizer <sup>4</sup> E92              | – Duracell ProCell PC2400  |
| – Energizer Industrial EN92               | – Duracell Quantum QU2400  |
| – Duracell <sup>5</sup> Copper Top MN2400 | – Rayovac <sup>6</sup> 824 |

### WARNING

**THE USE OF BATTERIES OTHER THAN THOSE LISTED IN THESE INSTRUCTIONS OR REPLACING BATTERIES IN AN AREA WHICH IS NOT KNOWN TO BE FREE OF FLAMMABLE GASES AND VAPORS MAY CAUSE A FIRE OR EXPLOSION AND MAY LEAD TO SERIOUS INJURY OR DEATH.**

### WARNING

**TO REDUCE THE RISK OF EXPLOSION, USE BATTERIES ONLY FROM THE LIST PROVIDED. DO NOT MIX OLD BATTERIES WITH UNUSED BATTERIES AND DO NOT MIX BATTERIES FROM DIFFERENT MANUFACTURERS. UNAUTHORIZED SUBSTITUTION OF COMPONENTS MAY CAUSE AN EXPLOSION WHICH COULD LEAD TO SERIOUS INJURY OR DEATH.**

## REPLACING THE TIC BATTERIES

The batteries for the TIC can be replaced without removing the module from AV-3000 HT full facepiece

1. The battery compartment is located at the bottom of the TIC. Using a Phillips screwdriver, turn the battery door screw counterclockwise until the door is released. The screw cannot be fully removed, and will remain with the battery door once it is opened.
2. Inspect assembly for damage. Check contacts inside the battery compartment for dirt, corrosion, or damage. Clean as needed.
3. Place batteries in battery compartment. Check orientation of + and - polarity of batteries as marked on the outside of the battery door.
4. Close the battery door. Using a Phillips screwdriver, tighten the battery door bolt until it is snug. DO NOT OVERTIGHTEN.



**FIGURE 20**  
REPLACE BATTERY

### NOTE

SCOTT SIGHT WILL NOT OPERATE IF THE BATTERY IS NOT PROPERLY INSTALLED. IF THE TIC DOES NOT OPERATE OR IF THE BATTERIES DO NOT FIT AS DESCRIBED, VERIFY THAT THE BATTERIES ARE PROPERLY ORIENTED AND NOT DAMAGED.

**If any damage beyond the scope of this instruction is found or the TIC does not operate properly, do not use. Return to authorized Scott repair center for service.**

<sup>4</sup> Energizer is a registered trademark of Energizer Holdings, Inc., St. Louis, MO.

<sup>5</sup> Duracell is a registered trademark of The Procter & Gamble Company, Cincinnati, OH.

<sup>6</sup> Rayovac is a registered trademark of Spectrum Brands, Madison WI.

## REPLACING THE IMD BATTERIES

The IMD battery pack is clipped in place at the bottom of the IMD and can be accessed between the nose cup and the face seal without removing the IMD from the facepiece. See FIGURE 21. The battery pack will need to be unclipped and rotated outward to access the battery door.

1. Unclip the battery pack located at the bottom of the IMD assembly by holding the battery cover door hinge and gently rotating the battery pack outward from between the battery retaining clips.

DO NOT force the battery from between the battery retaining clips.



**FIGURE 21**  
UNCLIP BATTERY PACK

### CAUTION

**DO NOT FORCE THE BATTERY PACK FROM BETWEEN THE BATTERY RETAINING CLIPS. FORCING THE BATTERY FROM BETWEEN THE BATTERY RETAINING CLIPS, PULLING THE BATTERY PACK STRAIGHT OUT, OR PULLING THE BATTERY PACK FROM THE BOTTOM CAN CAUSE DAMAGE TO THE BATTERY RETAINING CLIPS RENDERING IT UNABLE TO HOLD THE BATTERY IN PLACE.**

**IF THE BATTERY RETAINING CLIP IS DAMAGED, DO NOT USE. RETURN TO AUTHORIZED SCOTT REPAIR CENTER FOR SERVICE.**

2. Rotate the battery pack out to access the battery door located at the end of the battery pack. See FIGURE 22.
3. Using a Phillips screwdriver, turn the battery door screw counterclockwise until the door is released. The screw cannot be fully unscrewed, and will remain with the battery door once open.
4. Inspect assembly for damage. Check contacts inside the battery compartment for dirt, corrosion, or damage. Clean as needed.
5. Place batteries in battery compartment. Check orientation of + and - polarity of batteries as marked on the inside of the battery door.
6. Close the battery door. Using a Phillips screwdriver, tighten the battery door bolt until it is snug. DO NOT OVERTIGHTEN.
7. Clip battery pack back in place under the IMD assembly.



**FIGURE 22**  
ROTATE BATTERY TO  
ACCESS BATTERY DOOR

### NOTE

SCOTT SIGHT WILL NOT OPERATE IF THE BATTERY IS NOT PROPERLY INSTALLED. IF THE IMD DOES NOT OPERATE OR IF THE BATTERIES DO NOT FIT AS DESCRIBED, VERIFY THAT THE BATTERIES ARE PROPERLY ORIENTED AND NOT DAMAGED.

If any damage beyond the scope of this instruction is found or the IMD does not operate properly, do not use. Return to authorized Scott repair center for service.

## OPERATING SCOTT SIGHT

### WARNING

BEFORE ENTERING A POTENTIALLY HAZARDOUS SITUATION, TURN ON AND TEST SCOTT SIGHT TO CONFIRM IT IS OPERATING PROPERLY. FAILURE TO CONFIRM THE DEVICE IS OPERATING PROPERLY MAY PLACE THE USER AT HIGHER RISK IN DANGEROUS SITUATIONS WHICH COULD RESULT IN SERIOUS INJURY OR DEATH.

### CAUTION

DO NOT POINT THE THERMAL IMAGING SYSTEM DIRECTLY AT THE SUN. DO NOT POINT THE SYSTEM AT HEAT SOURCES IN EXCESS OF 2700 °F / 1500 °C FOR EXTENDED PERIODS OF TIME. DOING SO MAY RESULT IN AN AFTER IMAGE ON THE DISPLAY THAT COULD CAUSE TEMPORARY REDUCTION IN PERFORMANCE OF THE SYSTEM. IF THIS OCCURS, DO NOT USE UNTIL PERFORMANCE HAS RETURNED TO NORMAL.

The Mask-Mounted TIC attaches to the outside of the facepiece and transmits the thermal image to the IMD viewer inside the facepiece. The IMD receives the data transferred from the TIC camera and displays the thermal image onto the IMD viewer inside the facepiece. The IMD and TIC units are preprogrammed to pair at the factory. If units are unable to pair or a new pairing is required, contact Scott Technical Support.

### NOTE:

BOTH THE TIC AND THE IMD MUST BE TURNED ON AND PAIRED FOR SCOTT SIGHT TO WORK PROPERLY.

### POWERING ON THE TIC AND IMD

To turn on the Scott Sight imaging system proceed as follows:

1. The power button for the IMD is accessible FROM THE INSIDE of the facepiece, opposite the display viewer. Press and hold the power button on the IMD for three (3) seconds, then release. See FIGURE 23.



**FIGURE 23**  
TURNING ON THE IMD

The Scott Safety splash screen will appear in the viewer followed by a spinning cursor indicating that the IMD is searching for a paired TIC device. The IMD battery icon will populate with current battery status. The TIC battery icon will not show status until the IMD and the TIC have established a connection. See FIGURE 24.



**FIGURE 24**  
SPINNING CURSOR INDICATES THE  
IMD IS SEARCHING FOR A PAIRED  
DEVICE.

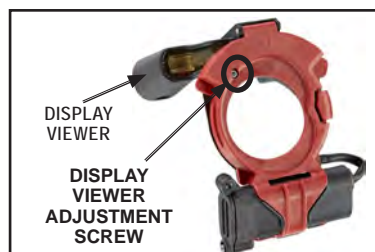
2. Turn the mask over to view the front of the TIC. Push and hold the TIC power button for three (3) seconds then release. See FIGURE 24.
3. The LED on the front of the TIC will flash RED to indicate that the power is on and flash GREEN once it has successfully paired to the IMD. The TIC battery icon will populate with the current battery status and the IMD display screen in the facepiece will show the image captured from the TIC. See *“READING THE IMD DISPLAY”* on page 26. See FIGURE 25.



**FIGURE 25**  
TURN ON THE TIC

### **ADJUSTING THE DISPLAY**

The angle of the display viewer on the IMD can be adjusted if needed, from the front of the facepiece without removing the IMD from the facepiece. Use 1.5 mm Allen wrench (supplied on universal tool) to gently turn the adjustment screw until optimal angle has been reached. See FIGURE 26. **DO NOT** use force to adjust the display viewer.



**FIGURE 26**  
ADJUSTING THE DISPLAY

### **CAUTION**

**DO NOT OVERTIGHTEN THE ADJUSTMENT SCREW. THE DISPLAY VIEWER HAS LIMITED ARTICULATION. OVERTIGHTENING THE SCREW OR USING FORCE MAY CAUSE DAMAGE TO THE DISPLAY VIEWER.**

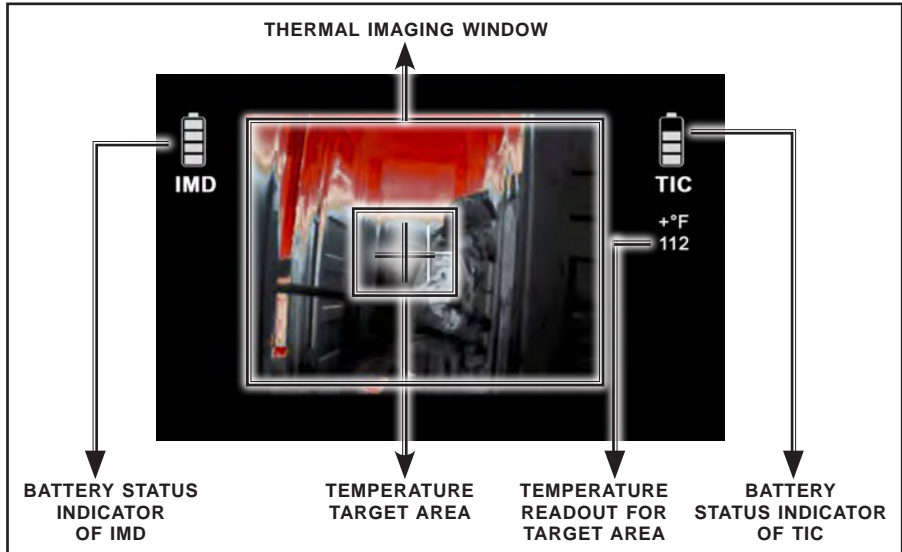
**IF THE DISPLAY VIEWER IS DAMAGED, DO NOT USE. RETURN TO AUTHORIZED SCOTT REPAIR CENTER FOR SERVICE.**

## READING THE IMD DISPLAY

The IMD display screen provides information on the scene being viewed as well as the status of the camera. Information includes:

- Thermal Imaging Window
- Temperature Target Area (Cross Hair)
- Battery Status Indicator for the TIC
- Battery Status Indicator for the IMD

**TRAINING IS REQUIRED BEFORE USE. DO NOT** use the temperature indicator readings as exact measurements. Be aware that different materials and different surface textures will not register temperature readings in the same way. Use the readings from the temperature indicator only to determine relative temperature differences. Training for this feature must include experience using the temperature indicator in actual incident situations. **DO NOT** make a critical decision based solely on a temperature reading.



**FIGURE 27**  
IMD DISPLAY SCREEN

- **Thermal Imaging Window:** The thermal imaging window shows the entire field of vision received from the mask-mounted TIC. The entire range of temperatures within the viewing screen is represented on screen as a gradient color scale showing BLACK at the lowest temperatures on the screen to WHITE at the higher temperatures. The highest temperatures on the screen will show RED.
- **Temperature Target Area (Cross Hair)/Temperature Readout:** The temperature target area provides a small target area in the center of the display screen and a readout of the approximate temperature of the object contained by the target area. The temperature of the target area appears in Fahrenheit in the upper right of the display screen under the TIC battery status icon.
- **Battery Status Indicators:** The battery status indicators are color coded to approximate the remaining battery charge of the IMD and the TIC batteries.
  - Four GREEN bars indicate that the battery is full
  - Three GREEN bars indicate that the battery is 3/4 full
  - Two YELLOW bars indicate that the battery is 1/2 full
  - One RED bar indicates that the battery is 1/4 full.

TIC battery indicator will only show bars when the unit is turned ON and paired with the IMD unit.

## CLEANING AND STORAGE OF THE SCOTT SIGHT

### CLEANING

See "CLEANING AND STORAGE OF THE AV-3000 HT" on page 14.

### STORAGE

Scott Sight components must be stored in temperatures between -4° F and 158° F (-20° C to +70° C) where relative humidity (RH) remains under 75%.

## MAINTENANCE

Except for cleaning, replacing the battery, and replacement parts listed in this manual, **no attempt shall be made to do maintenance or repairs beyond the scope of this instruction manual without proper training.**

### IMD REPLACEMENT PARTS

#### BATTERY DOOR REPLACEMENT

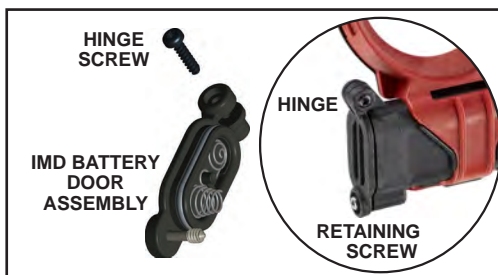
If the Scott Sight IMD battery door is damaged, replace with Battery Door Replacement Kit – Scott P/N 201590-01. This kit contains a battery door assembly and hinge screw. See Figure 28.

Supplies needed:

- Battery Door Replacement Kit
- T8 Torx driver with 5/16" bit (not supplied)

To replace the IMD battery door assembly.

1. Using a Phillips screwdriver, loosen the retaining screw from the battery door cover and open the battery door.
2. Using a T8 Torx driver, remove the screw from the existing battery door hinge and remove the battery door from the IMD.
3. Place the new battery door in position and secure with the new hinge screw. **DO NOT OVERTIGHTEN.**



**FIGURE 28**  
BATTERY DOOR  
REPLACEMENT KIT (P/N 201590-01)

### TIC REPLACEMENT PARTS

The following replacement parts and assemblies are available for the Scott Sight TIC. See FIGURE 29.

- Germanium Window Replacement Kit – Scott P/N 201587:
- TIC to Mask Bracket Spares Kit (Lower Bezel Bracket) – Scott P/N 201588-01
- TIC Battery Door Replacement Kit – Scott P/N 201589.



**FIGURE 29**  
REPLACEMENT KITS FOR SCOTT SIGHT TIC

GERMANIUM WINDOW REPLACEMENT

If the Scott Sight Germanium Window becomes damaged, it can be replaced with the Germanium Window Replacement Kit –Scott P/N 201587. This replacement must be performed in a clean work area. Be sure the camera is OFF before beginning any work. Clean the Thermal Imaging Camera according to the CLEANING section of this instruction, prior to installing new parts. This kit contains a germanium window, gasket, window bezel and the Scott Sight universal tool with bezel driver. See Figure 30.

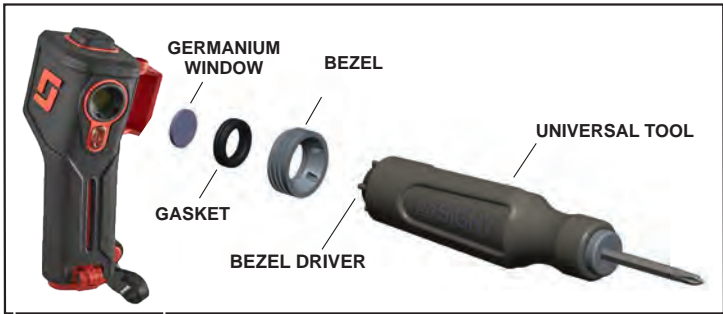


FIGURE 30  
GERMANIUM WINDOW REPLACEMENT KIT (P/N 201587)

Supplies needed:

- Germanium Window Replacement Kit with Universal Tool

Replace the TIC Germanium Window as follows:

1. Using the bezel driver on the end of the universal tool, unscrew the existing window bezel from the TIC. Remove the existing bezel, gasket, and the germanium window. Discard.
2. Carefully insert the new window into the gasket. See FIGURE 31A. Check to ensure it is seated properly between the flanges on the inside of the gasket.

NOTE

THE GERMANIUM WINDOW HAS A DARK SIDE AND AN IRIDESCENT BLUE COATED SIDE. THE IRIDESCENT BLUE SIDE OF THE WINDOW MUST BE FACING INTO THE CAMERA, THE DARK SIDE MUST BE FACING OUT FROM THE CAMERA. THE COLOR IS BEST DETERMINED WHEN ALLOWING LIGHT TO REFLECT OFF THE SURFACE OF THE WINDOW.

3. Gently press the window/gasket assembly into the new bezel. See FIGURE 31B. Ensure that the iridescent blue side of the window is facing in, towards the camera, and the dark side of the window is facing out.
4. Insert the new window assembly into the TIC. See FIGURE 31C.
5. Using window bezel driver on the end of the universal tool, tighten the window bezel until it is snug. DO NOT OVERTIGHTEN.

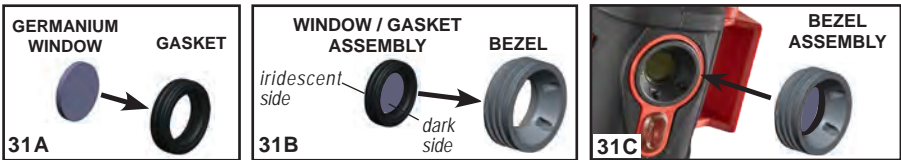


FIGURE 31  
ASSEMBLING THE WINDOW

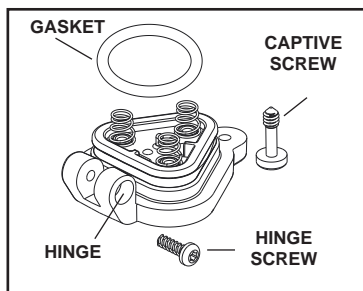


## TIC BATTERY DOOR REPLACEMENT

If the Scott Sight TIC battery door becomes damaged, it can be replaced with Battery Door Replacement Kit – Scott P/N 201589. This kit contains a battery door assembly, hinge screw, captive screw and O-ring. See Figure 32.

Supplies needed:

- TIC Battery Door Replacement Kit
- T8 Torx driver with 5/16" bit (not supplied)
- Parker Super-O-Lube<sup>7</sup> (not supplied)



**FIGURE 32**  
BATTERY DOOR KIT  
(P/N 201589-01)

Replace the TIC battery door assembly as follows:

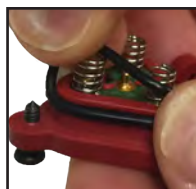
1. Using a Phillips screwdriver, loosen the captive screw from the battery door cover and open the battery door.
2. Using a T8 Torx driver, remove the screw from the existing battery door hinge and discard. See FIGURE 33.
3. Remove the battery door from the TIC and discard. See FIGURE 34.
4. Apply a thin film of Parker Super-O-Lube<sup>7</sup> lubricant to the new battery door O-ring and install it on the new battery door. Check to make sure that the gasket is seated properly in the groove. See FIGURE 35.
5. Using a Phillips screwdriver, apply pressure while turning the screw in order to bore the captive screw into the aperture on the battery door. See FIGURE 36.
6. Align the hinge knuckles of the cover door and the TIC and secure with new hinge screw (T8 Torx). DO NOT OVERTIGHTEN. See FIGURE 37.



**FIGURE 33**  
OPEN BATTERY  
DOOR COVER



**FIGURE 34**  
REMOVE HINGE  
SCREW



**FIGURE 35**  
INSTALL O-RING



**FIGURE 36**  
INSTALL CAPTIVE  
SCREW



**FIGURE 37**  
ALIGN HINGE  
AND INSTALL

<sup>7</sup> Super-O-Lube is a registered trademark of Parker Hannifin Co.

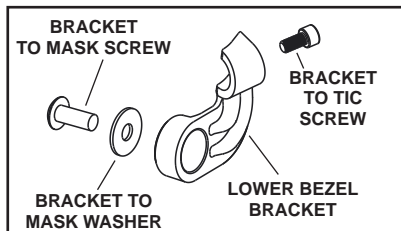


## TIC LOWER BEZEL BRACKET REPLACEMENT

If the Scott Sight Lower bezel bracket becomes damaged, it can be replaced with TIC to Mask Bracket Spares Kit. This kit contains a lower bezel bracket, bracket to TIC screw, bracket to mask screw, and bracket to mask washer. See FIGURE 38.

Supplies needed:

- TIC to Mask Bracket Spares Kit (Lower Bezel Bracket) – Scott P/N 201588-01
- Hex driver with 3/32" hex bit (not supplied)
- Phillips screwdriver.



**FIGURE 38**  
LOWER BEZEL BRACKET KIT  
(P/N 201588-01)

Replace the lower bezel bracket as follows:

1. Remove TIC from the facepiece. See *"REMOVE THE MASK-MOUNTED TIC AS FOLLOWS:"* on page 20.
2. Using the hex driver, remove the screw connecting the bracket to the TIC. Remove the bracket and discard. See FIGURE 39.
3. Place the new bracket in place and secure with the new bracket screw.
4. Reinstall the TIC onto the facepiece using the new mask screw and washer provided with the kit. See *"INSTALLING THE MASK-MOUNTED TIC ASSEMBLY"* on page 19.



**FIGURE 39**  
REMOVE BRACKET  
FROM TIC

## EXPORT AND IMPORT

The international transport of this equipment and portions thereof is regulated under United States export regulations and may be regulated by the import regulations of other countries. Failure to follow applicable export and import laws can result in civil and criminal prosecution. If you have any questions or concerns regarding these regulations, contact Scott at 1-800-247-7257 (or 704-291-8300 outside the continental United States).

## QUESTIONS OR CONCERNS

If you have any questions or concerns regarding use of this equipment, contact your authorized Scott distributor, or contact Scott at 1-800-247-7257 (or 704-291-8300 outside the continental United States) or visit our web site at [www.scottsafety.com](http://www.scottsafety.com).

## SCOTT SIGHT WARRANTY INFORMATION

### SCOTT SAFETY LIMITED WARRANTY FOR SCOTT SIGHT IMAGING SYSTEM

Scott Safety (Scott) warrants all Scott Sight devices, associated accessories, and unused consumables supplied with the product to be free from defects in workmanship and material under reasonable/ordinary conditions, use, and service for a period of two (2) years from the date of original manufacture by Scott. Scott's obligation under this warranty is limited to replacing or repairing (at Scott's option) or components shown to be defective in either workmanship or materials.

Only Scott or, when directed by Scott, authorized Scott agents are authorized to perform warranty obligations. This Warranty does not apply to defects or damage caused by any repairs of or alterations to made by the owner or any third party unless expressly permitted by Scott product manuals or by written authorization from Scott, defects or damage caused by failure to use and/or maintain the product and/or its accessories in accordance with Scott product manuals, defects or damage caused by use of a non-approved battery, non-service related defects or damages, and defects or damage cause by improper storage or transportation. To obtain performance under this warranty, and as a condition precedent to any duty of Scott, the purchaser must return such products to Scott, a Scott authorized distributor, or a Scott authorized service center. Any product returned to Scott shall be sent to: Scott Safety, (Attn: Warranty Claim Dept.), 4320 Goldmine Road, Monroe, NC 28110

THIS WARRANTY IS MADE IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. IN ADDITION, Scott EXPRESSLY DISCLAIMS ANY LIABILITY FOR SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES IN ANY WAY CONNECTED WITH THE SALE OR USE OF SCOTT PRODUCTS, AND NO OTHER FIRM OR PERSONS IS AUTHORIZED TO ASSUME ANY SUCH LIABILITY.

User acknowledges that User's acceptance and use of involves certain risks and that injury, death, or other harm could occur to User, User's employees or User's clients. User agrees that product and/or its accessories shall not be used by User or any of User's employees or User's clients without proper training. User accepts and voluntarily incurs all risks of any injuries, damages or harm which arise during or result from User's use of, regardless of whether or not caused in whole or in part by the negligence or other fault of Scott Safety, and/or its affiliates, employees, officers, agents, or attorneys (hereinafter "Released Parties").

User waives all claims against any of the Released Parties for any injuries, damages, losses or claims, whether known and unknown, which arise during or result from User's use of, regardless of whether or not caused in whole or part by the negligence or other fault of any of the Released Parties. User releases and forever discharges Released Parties from all such claims.

#### **YOUR ATTENTION IS DRAWN TO THE IMPORTANT CLAUSE BELOW**

User agrees to indemnify and hold the Released Parties harmless from all losses, liabilities, damages, cost or expenses, including but not limited to attorneys' fees and other litigation costs and expenses) incurred by any of the Released Parties as a result of any claims or suits User (or anyone claiming by, under or through User) may bring against any of the Released Parties to recover any losses, liabilities, costs, damages, or expenses which arise during or result from User's use of, regardless of whether or not caused in whole or part by the negligence or other fault of any of the Released Parties.



*A Tyco Business*

Scott Safety  
Monroe Corporate Center  
PO Box 569  
Monroe, NC 28111  
Telephone 1-800-247-7257  
Fax (704) 291-8330  
[www.scottsafety.com](http://www.scottsafety.com)

## **Attachment M**

### Decontamination Area Sketch

**From:** [Burford, David](#)  
**To:** [Tonel, Monica](#)  
**Cc:** [Renee Nordeen](#)  
**Subject:** RE: Decon location  
**Date:** Thursday, July 23, 2020 9:53:43 AM  
**Attachments:** [image001.png](#)

---

And here is a jpg, if this is preferable to use in the document.



---

**From:** Nordeen, Renee <[RNordeen@ene.com](mailto:RNordeen@ene.com)>  
**Sent:** Thursday, July 23, 2020 9:51 AM  
**To:** Tonel, Monica <[Tonel.Monica@epa.gov](mailto:Tonel.Monica@epa.gov)>  
**Cc:** Burford, David <[DBurford@ene.com](mailto:DBurford@ene.com)>  
**Subject:** Decon location

Monica,  
Attached is a map with a decon location.  
Please let me know if you have questions.  
Respectfully,  
Renee

**RENEE NORDEEN**  
START Environmental Scientist  
t: 206-624-9537 ext 3629 m: 206-419-9782  

---

**Ecology and Environment, Inc.**  
Member of WSP  
720 Third Avenue Suite 1700 Seattle, WA 98104  
[www.ene.com](http://www.ene.com)

## **Attachment N**

E&E Accident Reporting/Investigation Form

EPA Region 10 Questionnaire for Reporting Suspect or Confirmed Illness (COVID-19)

**ECOLOGY AND ENVIRONMENT, INC.**  
**INCIDENT REPORT FORM**

***A separate report is to be completed for each incident and submitted immediately to the Corporate Health and Safety Director.***

***CC: Office Health and Safety Coordinator, Regional Health and Safety Coordinator, and Office Manager***

Reason for report: ☐ Possible Exposure  
☐ Exposure  
☐ Personal Injury  
☐ Potential Near Miss  
☐ Motor Vehicle Accident (MVA)  
☐ Property Damage Incident

Completed By: [Click here to enter name.](#)

Job Title: [Click here to enter Job Title.](#)

Today's Date: [Click here to enter date.](#)

Case Number: [Click here to enter Case Number.](#)

Project/OVH #: [Click here to enter Project/OVH #.](#)

Location of Event: [Click here to enter Location.](#)

Date of Event: [Click here to enter date.](#)

Time of Event: [Click here to enter time.](#) ☐ AM ☐ PM  
☐ Check if time cannot be determined.

- ✓ Was the client notified? ☐ Yes ☐ No
- ✓ Was your office notified? ☐ Yes ☐ No
- ✓ Was headquarters notified? ☐ Yes ☐ No
- ✓ Was medical treatment sought? ☐ Yes ☐ No
- ✓ Did the employee miss any work? ☐ Yes ☐ No
- ✓ Has the employee returned to work? ☐ Yes ☐ No
- ✓ Was a site-specific health and safety plan for this specific activity prepared? ☐ Yes ☐ No  
(If yes, please attach – No? Please explain)  
[Click here to enter text.](#)

**Employee Information**

Full Name: [Click here to enter text.](#)

Employee #: [Click here to enter employee #.](#)

Home Address:

Street: [Click here to enter Street.](#)

City: [Click here to enter City.](#)

State: [Click here to enter State.](#)

Zip Code: [Click here to enter Zip Code.](#)

Phone: [Click here to enter Phone.](#)

Date of Birth: [Click here to enter a date.](#)

Gender: ☐ Male ☐ Female

Date Hired: [Click here to enter a date.](#)

Office: [Click here to enter Office.](#)

Job Title: [Click here to enter Job Title.](#)

**Information about the physician or other health care professional**

1. Date of treatment: [Click here to enter a date.](#)
2. Name of physician or other health care professional who provided assistance, if any:  
[Click here to enter text.](#)
3. If treatment was given away from the worksite, where was it given and by whom?  
[Click here to enter text.](#)
4. Was employee treated in an emergency room/urgent care facility?  
☐ Yes  
☐ No
5. Was employee hospitalized overnight as an in-patient?  
☐ Yes  
☐ No

**Information about the incident**

1. Date of Incident: [Click here to enter date.](#)
2. Weather conditions at time of incident:  
[Click here to enter text.](#)
3. Time employee began work:  
[Click here to enter text.](#) ☐ AM ☐ PM

4. What was the employee doing just before the incident occurred? Describe the activity, as well as the tools, equipment, or material the employee was using. Be specific.

[Click here to enter text.](#)

**ADDITIONAL COMMENTS:**

[Click here to enter text.](#)

**EMPLOYEE SIGNATURE:**

---

Signature

5. Where did the incident occur?

[Click here to enter text.](#)

---

Date

6. What happened? Tell us how the incident occurred.

[Click here to enter text.](#)

7. What was the injury? Tell us the part of the body that was affected and how it was affected; be more specific than "hurt", "pain", or "sore".

[Click here to enter text.](#)

**FIELD TEAM LEADER OR SUPERVISOR SIGNATURE:**

---

Signature

8. Were proper PPE and clothing being used the employee? If so, please describe.

[Click here to enter text.](#)

---

Date

9. Please list the names of those employees or contractors who witnessed the incident.

[Click here to enter text.](#)

10. Please list the names of those employees or contractors who were also affected by this incident.

[Click here to enter text.](#)

11. What object or substance directly harmed the employee, if applicable?

[Click here to enter text.](#)

☐ Check if no harm to employee.

12. If the employee died, when did the death occur?

Date of death:

[Click here to enter a date.](#)



## R10 Questionnaire for Reporting Suspect or Confirmed Illness

Location:		Floor:	
Date Reported:		Workstation:	

### PART 1: Initial Screening for Property Manager

Date last in EPA space:		Exposure Date:	
Sickness Type: (describe)		Symptoms Onset Date:	

Please list all last known EPA locations within building or other EPA facilities visited.

Is the employee under care of a Physician?			Yes	No
Has the employee been tested for COVID-19?			Yes	No
Is the employee self- quarantined?	Yes	No	Start Date:	End Date:
Has the employee reported their case to the local public health office?			Yes	No
Janitorial Services				
24 Hour Vacancy Date				
Date of Janitorial Services				
EPA Follow Up				
Other Notes:				

**PART 2: EPA Employee Wellness Screening    CONFIDENTIAL**

Employee:

Supervisor:

Division/Branch/Section:

Has the person recently traveled to an area with known local spread of Covid-19?

Yes

No

Has the person come into close contact (within 6 ft) with someone who has a laboratory confirmed Covid-19 diagnosis in the past 14 days?

Yes

No

Does the person currently have a fever (greater than 100.4) OR symptoms of lower respiratory illness such a cough, shortness of breath, or difficulty breathing?

Yes

No

Were any co-workers possibly exposed?

Yes

No

Which co-workers could have been exposed?

Tested?

Pending

Not Tested

Test Results

Negative

Positive

Test Date

Results Date:

Return to Work Date:

Return to Office Date:

Notes:

## Appendix A

### Map of Deisgnated Work Zone



