July 8, 2020

Wood Environment & Infrastructure Solutions, Inc.
7 Southside Drive, Suite 201
Clifton Park, New York 12065
Phone: 518.372.0905
www.woodplc.com

Ms. Jennifer Kotch, Environmental Manager
109th Airlift Wing
New York Air National Guard
Schenectady County Airport
1 Air National Guard Road
Schenectady, New York 12302

Subject: **Final Site Closeout Work Plan**
Monitoring Well Decommissioning
Stratton Air National Guard Base
Schenectady County Airport
Schenectady, New York 12302
Contract No. W9133L-19-R-0053
Wood Project No. 3487190048.4000.2010

Dear Ms. Kotch:

On behalf of the Air National Guard (ANG), Wood Environment & Infrastructure Solutions, Inc. (Wood) has prepared this site closeout (SCO) work plan (WP) to outline the activities associated with the decommissioning of seven monitoring wells located at the 109th Airlift Wing (AW), New York ANG, Stratton Air National Guard Base (ANGB), Schenectady County Airport in Schenectady, New York (**Figure 1**).

This SCO WP will be initiated with the goal of preventing monitoring wells from serving as conduits through which surface contaminants can enter groundwater. The field activities are planned to commence during the third quarter of 2020 pending National Guard Bureau (NGB)/A4VR approval.

This SCO WP has been prepared by Wood under Contract W9133L-19-R-0053 and describes the objectives, procedures, and activities to be conducted at the Stratton ANGB Sites ZZ007, TU008, and TU009 (**Figure 2**). The August 16, 2019 Performance Work Statement defines a total of seven monitoring wells to be decommissioned at Sites ZZ007, TU008, and TU009. Based on Wood's review of historical data, one well is located at Site ZZ007, five wells are located at Site TU008, and one well is located at TU009.

Wood completed a site walk with Stratton ANGB environmental personnel on March 5, 2020 to verify the existence and location of the seven wells planned for decommissioning. The one well associated with Site ZZ007 could not be located during the site walk and is reported to have potentially been removed during building construction activities within that area in 2019. An additional attempt to locate the well was completed at a later date by Stratton ANGB personnel using a metal detector; however, the well was not located.

BACKGROUND

Background information for the site was adapted from the following documents:

- Final Third, Fourth, and Fifth Semiannual Monitoring Reports for Installation Restoration Program Site 6 (Suspected Spill Area), 109th Airlift Wing, Stratton Air National Guard Base, Scotia, New York, prepared by Leidos, dated August 14, 2018, May 22, 2019, and October 25, 2019
- Final No Further Response Action Planned Decision Document Sites ZZ007, TU008, and TU009 at Schenectady Air National Guard Base, Scotia, New York, prepared by TEC-Weston Joint Venture (TEC), dated February 19, 2018
- Final Remedial Investigation Report ZZ007, TU008, and TU009 at Schenectady Air National Guard Base, Scotia, New York, prepared by TEC, dated June 2017
- Final Regional Compliance Restoration Program Preliminary Assessment/Site Inspection Schenectady Air National Guard Base, Scotia, New York, prepared by AECOM, dated August 2015
- Final Work Plan for the Regional Compliance Restoration Program Preliminary Assessment/Site Inspection Schenectady Air National Guard Base Scotia, New York, prepared by AECOM, dated June 2014

The Stratton ANGB is a joint civil-military airport located in the Town of Glenville, New York, and is approximately 0.5 miles north of the City of Schenectady, New York, across the Mohawk River. The 109th AW occupies approximately 124 acres of the eastern portion of the approximately 752-acre airport.

The 109th AW provides airlift support for both federal and state missions. Federal missions include the Polar Airlift, Aeromedical Evacuation, Aerial Port, Field Hospital contingencies, and the National Science Foundation-led United States Antarctic Program, as well as training, airlift, and airdrop missions. State missions include civil assistance during emergencies, support to the National Counter Drug Program, the Civil Air Patrol, and the Weapons of Mass Destruction 2nd Civil Support Team.

The 109th AW maintains and operates a fleet of Lockheed C-130H Hercules aircraft and performs strategic airlifts and deliveries by airdrop or air land. Daily operations at the Stratton ANGB include facilities maintenance and aircraft and vehicle operations and maintenance.

Site ZZ007 is located at the central east side of the installation and consists of the area of former Building 13 where hazardous materials were used and hazardous waste was generated. This building was used as a maintenance facility, including drum storage, and was demolished in the 1990s. Construction of a new building at the site began in 2019 and is in the process of being completed. This site is also improved by grass landscaping (**Figure 3**).

AECOM completed a Preliminary Assessment (PA) in November 2013, followed by a Site Inspection (SI) in November 2014 to assess soil and groundwater at Site ZZ007. AECOM noted that an existing groundwater monitoring well, MWUNK, later referred to as SC-ZZ007-MWUNK, was present during the inspection (AECOM, 2014). In June 2016, TEC conducted a Remedial Investigation (RI) at the site to determine the extent of impacts in soil and groundwater on human health and environment. Three soil borings were completed as temporary groundwater monitoring wells, and soil and groundwater samples were collected. Groundwater from monitoring well SC-ZZ007-MWUNK was also sampled and analyzed

as part of the RI. TEC summarized results of the PA, SI, and RI in a February 2018 Final No Further Response Action Planned (NFRAP) Decision Document. Soil and groundwater contained metals detections above the Project Action Limits (PALs); however, based on comparisons to site-specific background values and a baseline risk assessment, it was concluded that these constituents do not present an appreciable risk to future receptors. The New York State Department of Environmental Conservation (NYSDEC) concurred with the NFRAP recommendation in a letter dated September 2017. This letter is included in TEC's February 2018 Final NFRAP Decision Document.

Site TU008 is located at the central east side of the installation, north of Site ZZ007, and consists of former Building 4, historically used as a vehicle maintenance facility, and associated 6,000-gallon heating oil underground storage tank (UST) #41. Building 4 was demolished in 1995 and UST #41 was reportedly removed during this time (TEC, 2018). During performance of the PA/SI referenced previously, Digital Geophysical Mapping was used to confirm the absence of the UST (AECOM 2015). This site is currently improved by a building and grass landscaping (**Figure 4**).

In November 2013, AECOM completed a PA of Site TU008, followed by an SI in November 2014, to assess soil and groundwater at the site. In June and November 2016, TEC conducted an RI at the site to determine the extent of impacts in soil and groundwater on human health and the environment. Six soil borings, five of which were completed as permanent groundwater monitoring wells SC-TU008-MW001, SC-TU008-MW002, SC-TU008-MW004, SC-TU008-MW005, and SC-TU008-MW006, were sampled and analyzed for volatile organic compounds (VOCs) and semi-volatile organic compounds (SVOCs). In February 2018, TEC summarized results of the PA, SI, and RI in a Final NFRAP Decision Document. The document concluded that based on a baseline risk assessment, constituents detected in soil and groundwater above the PALs do not present an appreciable risk to future receptors. The NYSDEC concurred with the NFRAP recommendation in a letter dated September 2017. This letter is included in TEC's February 2018 Final NFRAP Decision Document.

Site TU009 is located at the southern portion of the installation and consists of a 7,000-gallon UST historically used as a bypass by the former Waste Water Treatment Plant (WWTP). The WWTP was demolished in 2002, and the 7,000-gallon UST is reportedly still present at the site and filled with sand. Site TU009 is currently improved by grass landscaping (**Figure 5**).

According to TEC's February 2018 Final NFRAP Decision Document, the WWTP used the UST from 1982 to 1983 as a bypass when nearby lagoons were in the process of being emptied and cleaned. In November 2013 and November 2014, AECOM completed a PA and SI, respectively, to assess soil and groundwater at the site. An RI was completed by TEC at the site in June and November 2016 to determine the extent of impacts in soil and groundwater on human health and the environment. Three soil borings, one of which was completed as permanent groundwater monitoring well SC-TU009-MW003, were sampled and analyzed for SVOCs and metals. Soil results from the RI identified copper, iron, nickel, and thallium above the PALs. Groundwater results from June 2016 identified arsenic, cobalt, iron, magnesium, manganese, nickel, sodium, and thallium above the PALs. Subsequent sampling of groundwater conducted in November 2016 identified only arsenic and thallium above the PALs. The document concluded that based on a baseline risk assessment of constituents detected in soil and groundwater above the PALs, they do not present an appreciable risk to future receptors. The NYSDEC concurred with

the NFRAP recommendation in a letter dated September 2017. This letter is included in TEC's February 2018 Final NFRAP Decision Document.

MONITORING WELL DECOMMISSIONING ACTIVITIES

SCO activities will be conducted at Sites TU008 and TU009, as well as Site ZZ007 pending confirmation of the existence of a groundwater monitoring well historically present at that site. A site-specific Health and Safety Plan has been prepared for the upcoming fieldwork (**Attachment A**). The monitoring wells proposed for decommissioning are summarized in the table below.

Monitoring Well ID	Completion Date	Total Well Depth (feet below ground surface)	Well Construction Material	Casing Diameter (inches)	Screen Length (feet)	Screen Slot Size (inches)
SC-ZZ007-MWUNK[1]	Unknown	15.6	PVC	2	10.6	Unknown
SC-TU008-MW001	6/3/2016	11.4	PVC	2	10	0.010
SC-TU008-MW002	6/3/2016	9.0	PVC	2	7	0.010
SC-TU008-MW004	6/3/2016	9.0	PVC	2	7	0.010
SC-TU008-MW005	11/7/2016	8.5	PVC	2	5	0.010
SC-TU008-MW006	11/7/2016	8.5	PVC	2	5	0.010
SC-TU009-MW003	6/6/2016	9.5	PVC	2	7	0.010

[1]Multiple attempts to locate this well have been unsuccessful; if it cannot be located during mobilization for well decommissioning activities, it will be documented in the SCO report as missing and likely removed during building construction.

Monitoring wells will be decommissioned in accordance with the NYSDEC CP-43: Groundwater Monitoring Well Decommissioning Policy and be performed by a licensed contractor. The well casing will be grouted from the bottom up using a tremie grout method with cement-bentonite grout mixed per NYSDEC guidance. The existing flush-mount well road boxes and pads are to remain in place, and the road box will be filled and capped with concrete.

A well abandonment log will be prepared for each well to document abandonment procedures. The abandonment log will contain the following information:

- Well owner (name, contact information)
- Date
- Well location
- Well construction details
- Geologist/Scientist
- Plugging procedures
- Type and quantity of sealing material
- Settlement compensation
- General remarks

INVESTIGATION DERIVED WASTE (IDW) MANAGEMENT

All wastes generated during well decommissioning activities are assumed to be classified as non-hazardous for disposal purposes and will be managed in accordance with applicable state and federal regulations, and the ANG policy for IDW presented in *CEV 05-1 Policy on Air National Guard Investigation or Remediation Derived Waste (IDW/RDW) Management*. Wood does not anticipate generating any soil or water IDW with the proposed decommissioning method.

PROJECT SCHEDULE

The estimated project schedule is presented in the table below. The deliverables and field efforts presented below are expected to occur as noted. However, these dates are tentative and may be revised based upon agreements reached among all parties during the project execution.

Task	Date	Distribution
Kick Off Meeting	Q1 2020	Contracting Officer Representative (COR), ANG
Draft SCO WP	Q2 2020	COR, ANG
Draft Final SCO WP	Q2 2020	COR, ANG, and Regulatory Stakeholders
Final SCO WP	Q2 2020	COR, ANG, and Regulatory Stakeholders
Well Abandonment Field Work	Q3 2020	N/A
Draft SCO Report	Q4 2020	COR, ANG
Draft Final SCO Report	Q4 2020	COR, ANG, and Regulatory Stakeholders
Final SCO Report	Q4 2020	COR, ANG, and Regulatory Stakeholders

If you have any questions, please contact me at (518) 612-0314.

Sincerely,

Wood Environment & Infrastructure Solutions, Inc.

Reviewed By:

Katie Amann
Base Task Manager

Kerri E. Doyle
Assistant Project Manager

Figures: Figure 1 – Site Location Map
Figure 2 – Sites ZZ007, TU008, and TU009
Figure 3 – ZZ007 Site Map
Figure 4 – TU008 Site Map
Figure 5 – TU009 Site Map

Attachment A – Health and Safety Plan

Distribution: Nicole Wireman, Program Manager, ANG
Maj. Teralyn Murray, ANG COR
Eric Barefoot, S&O Contractor, BB&E
Jay Mullet, Wood
Stephen Posten, Wood
Abigail Matt, BAE

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SITE LOCATION MAP

Stratton Air National Guard Base

Schenectady, New York

Legend

Installation Boundary

Location of Site

Notes & Sources

Datalayer Source: Approximate Site Boundary based on information provided TEC-Weston.

Imagery Source: ESRI

0 1,000 Feet

N

wood.
Wood Environment & Infrastructure Solutions, Inc.
271 Mill Road
Chelmsford, MA 01824

FIGURE 1

H:\AirNationalGuard\Task1\MXD\Fig1_1SiteLocationMap.mxd February 24, 2020 DWN: cynthia.raimondi CHKD: AKN

SITES ZZ007, TU008, and TU009

Stratton Air National Guard Base

Schenectady, New York

Legend

Site Boundary

Installation Boundary

Location of Site

Notes & Sources

Datalayer Source: Approximate Site Boundary based on information provided TEC-Weston.

Imagery Source: ESRI

0 500 Feet

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wood.
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Chelmsford, MA 01824

FIGURE 2

H:\AirNationalGuard\Task1\MXD\Fig2_1SiteZZ007,TU008andTU009.mxd February 24, 2020 DWN: cynthia.raimondi CHKD: AKN

ZZ007
SITE MAP

Stratton Air National Guard Base

Schenectady, New York

Legend

- Installation Boundary
- Demolished Building
- Monitoring Well Location
- Assumed Groundwater Flow Direction

Location of Site

Notes & Sources

Datalayer Source: Approximate Site Boundary based on information provided TEC-Weston.

Imagery Source: ESRI

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wood.

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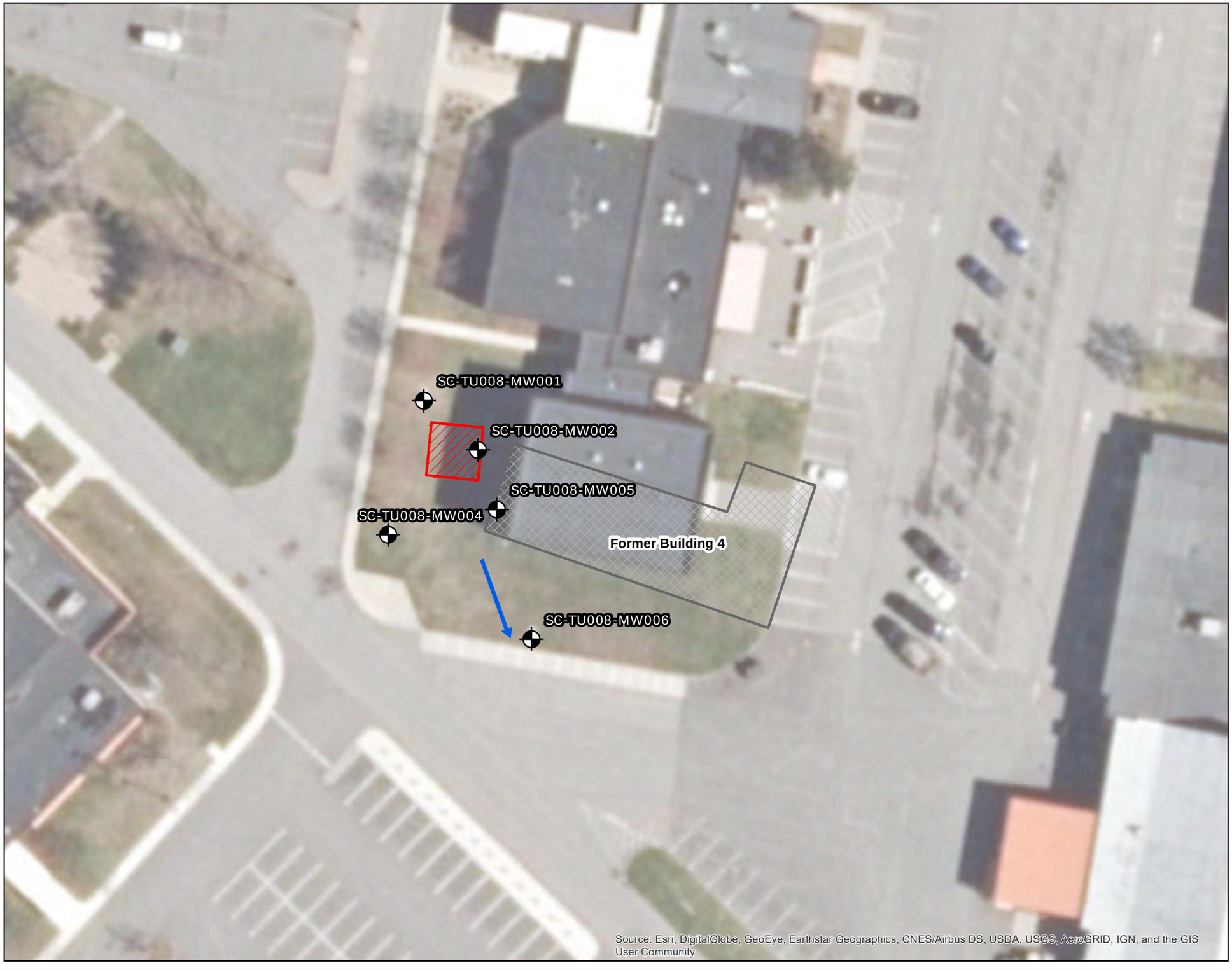
271 Mill Road
Chelmsford, MA 01824

FIGURE

3



TU008 SITE MAP

Stratton Air National Guard Base

Schenectady, New York

Legend

- Demolished Building
- Approximate Former Heating Oil UST #41 Area
- Monitoring Well Location
- Assumed Groundwater Flow Direction

Location of Site

Notes & Sources

Datalayer Source: Approximate Site Boundary based on information provided TEC-Weston.

Imagery Source: ESRI

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271 Mill Road
Chelmsford, MA 01824

FIGURE 4

TU009
SITE MAP

Stratton Air National Guard Base

Schenectady, New York

Legend

- Installation Boundary
- Approximate Former WWTP Bypass UST Area
- Monitoring Well Location
- Assumed Groundwater Flow Direction

Location of Site

Notes & Sources

Datalayer Source: Approximate Site Boundary based on information provided TEC-Weston.

Imagery Source: ESRI

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FIGURE 5

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ATTACHMENT A

HEALTH AND SAFETY PLAN

Health and Safety Plan
Site Closeout – Monitoring Well Decommissioning

General Information

Project Name:	Stratton Air National Guard Base Site Closeout
Location:	Schenectady, New York
Client	Air National Guard
Plan Prepared By:	Katie Amann
Plan Approved By:	Annette McLean 3/24/2020
Project Start Date:	July 2020

Emergency Contact List

Ambulance	911
Fire	911
Police	911
Poison Control Center	(800) 222-1222
Hospital	Ellis Hospital 1101 Nott Street Schenectady, NY 12308 (518) 243-4000 (518) 243-4121 (Emergency)
HAZMAT	911
Wood Health and Safety Officer	Cindy Sundquist: (207) 828-3309 / (207) 650-7593
Wood Project Manager	Stephen Posten: (732) 302-9500 ext. 104 / (908) 510-4797
Wood Field Manager	Katie Amann: (518) 372-0905 / (518) 612-0314
Wood Site Health and Safety Officer	Katie Amann: (518) 372-0905 / (518) 612-0314
Wood SHE Director	Vladimir Ivensky: (610) 877-6144
ANG Environmental Manager	Jennifer Kotch: (518) 344-2341

TABLE OF CONTENTS

Attachments

LIST OF ACRONYMS

AHA	Activity Hazard Analysis
ANG	Air National Guard
AW	Airlift Wing
CFR	Code of Federal Regulations
E&IS	Environment & Infrastructure Solutions
EZ	Exclusion Zone
GDR	Ground Disturbance Incident Report
HASP	Health and Safety Plan
HAZMAT	Hazardous Materials
HAZWOPER	Hazardous Waste Operations and Emergency Response
HEART	Harm Elimination and Recognition Tracking
HSE	Health, Safety, and Environment
IAR	Incident Analysis Report
IIPP	Injury and Illness Prevention Plan
OHSR	Office Health and Safety Representative (also referred to as the HSE Coordinator)
OSHA	Occupational Safety and Health Administration
OV/AG	Organic Vapor/Acid Gas
PM	Project Manager
PPE	Personal Protective Equipment
SCBA	Self-contained Breathing Apparatus
SCO	Site Closeout
SHE	Safety, Health, and Environment
SHSO	Site Health and Safety Officer
SRA	Safe Refuge Area
SZ	Support Zone
USEPA	United States Environmental Protection Agency
VIR	Vehicle Incident Report

1.0 INTRODUCTION

1.1 Purpose and Policy

The purpose of this document is to outline the health and safety plan (HASP) for the Site Closeout (SCO) activities that are scheduled to be completed at the New York Air National Guard 109th Airlift Wing (AW). This document was prepared by Wood and will serve as a safety guidance document for field personnel.

In accordance with company policy, Section 2.0 of this HASP describes the Wood Health, Safety, Security and Environment (HSSE) Management System.

1.2 Applicability

This HASP presents requirements and guidelines for work at the site and complies with applicable sections of 29 Code of Federal Regulations (CFR) 1910.120 and 1926.65, Hazardous Waste Operations and Emergency Response (HAZWOPER).

1.2.1 Modification Plan

Occasionally, procedural conflicts may arise from different documents. The requirement most protective of workers health and safety, the public, and property shall take precedence.

1.2.2 Subcontractor's Responsibilities

Subcontractors employed by Wood shall be solely responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with its work. The subcontractor shall give all notices and comply with all applicable laws, ordinances, rules, regulations, and lawful orders of any public authority bearing on the safety of persons or property, the subcontractor shall act to prevent threatened damage, injury, or loss.

1.3 Site Location

The 109th AW is located at the Stratton Air National Guard Base within the Schenectady County Airport in Schenectady, New York.

1.4 Scope of Work

The scope of work discussed in this section is for the field activities at the site. It is anticipated that the well plug and decommissioning project will last approximately one day. Wood will provide on-site oversight during plugging and decommissioning activities of seven (7) groundwater monitoring wells. A New York-licensed water well contractor/driller subcontractor will be responsible for ensuring compliance with this HASP and with their company-specific HASP among its employees during the field work. Planned site activities include the following tasks, listed in sequence of occurrence:

1. Visual site inspections and initial site walk.
2. Site clearance for all utilities.
3. Decommissioning of groundwater monitoring wells.

1.5 Health and Safety Planning

The field manager identifies the work area and task to be performed and then leads the crew in performing a task hazard assessment evaluation. This will be documented on the Point of Work Risk Assessment included in **Attachment C**. The hazard assessment is specific to the work to be performed and requires the field manager to solicit crew participation in identifying hazards and hazard control measures, such as personal protective equipment (PPE), training requirements, permits, procedures, etc.

1.6 Project Organization and Responsibilities

Refer to the cover page of this HASP for emergency contact information.

1.6.1 Project Manager

The Project Manager (PM) reports to upper-level management, has authority to direct response operations, and assumes total control over site activities.

Responsibilities:

- Prepares and organizes the background review of the situation, the Work Plan, the HASP, and the field team.
- Obtains permission for site access and coordinates activities with appropriate officials.
- Ensures that the Work Plan is completed and on schedule.
- Briefs the field teams on their specific assignments.
- Uses the Site Health and Safety Officer (SHSO) to ensure that health and safety requirements are met.
- Prepares the final report and support files on the response activities.
- Serves as the liaison with public officials.

1.6.2 Site Health and Safety Officer

The SHSO advises the PM on all aspects of health and safety on-site and stops work if any operation threatens workers or public health or safety.

Responsibilities:

- Periodically inspects protective clothing and equipment.
- Ensures that protective clothing and equipment are properly store and maintained.
- Controls entry and exit at the access control points.

- Coordinates health and safety program activities with the Office Health and Safety Representative (OHSR), also referred to as the Health, Safety, and Environment (HSE) Coordinator.
- Confirms each team member's suitability for work based on a physician's recommendation.
- Monitors the work parties for signs of stress, such as cold exposure, heat stress, and fatigue.
- Implements the HASP.
- Conducts periodic inspections to determine if the HASP is being followed.
- Enforces the "buddy" system.
- Knows emergency procedures, evacuation routes, and the telephone numbers of the ambulance, local hospital, poison control center, fire department, and police department.
- Notifies, when necessary, local public emergency officials.
- Coordinates emergency medical care.
- Sets up decontamination lines and the decontamination solutions appropriate for the type of chemical contamination at the site.
- Controls the decontamination of all equipment, personnel, and samples from the contaminated area.
- Assures proper disposal of contaminated clothing and materials.
- Ensures that all required equipment is available.
- Advises medical personnel of potential exposures and consequences.
- Notifies emergency response personnel by telephone or radio in the event of an emergency.

1.6.3 Field Manager

Responsibilities:

- Manages field operations.
- Executes the Work Plan and schedule.
- Enforces safety procedures.
- Coordinates with the SHSO in determining the personal protection level.
- Enforces site control.
- Documents field activities and sample collection.
- Serves as a liaison with public officials.

1.6.4 Work Team

Responsibilities:

- Safely completes the on-site tasks required to fulfill the Work Plan.
- Complies with the HASP.
- Notifies the SHSO or the field manager of suspected unsafe conditions.

1.7 Subcontractor's Safety Representative

The subcontractor shall take all reasonable precautions for the safety of, and shall provide all reasonable protection to prevent damage, injury, or loss to:

a. all employees on the worksite and all other persons who may be affected;
b. all the work and its materials and equipment; and
c. other property at or adjacent to the worksite.

2.0 INTRODUCTION TO WOOD HEALTH, SAFETY, SECURITY AND ENVIRONMENT (HSSE) MANAGEMENT SYSTEMS

2.1 Wood HSSE Management System "Blue Book"

The Wood HSSE management system is defined by the HSSE Management System Standard - the Blue Book. It consists of fifteen elements that set mandatory minimum standards for the management of HSSE across Wood. These minimum standards define how Wood leads, plans, and organizes itself to ensure HSSE risks are controlled and to deliver continuous improvement in HSSE performance. The Blue Book is supported by Wood HSSE standards, procedures, guidelines, and tools which provide further direction and advice on how to comply with the Blue Book's requirements.

Wood's core ***Vision*** is to:

Inspire with ingenuity, partner with agility, create new possibilities...

The Wood ***Values*** are:

- ***Care*** - Working safely, with integrity, respecting and valuing each other and our communities
- ***Commitment*** - Consistently delivering to all our stakeholders
- ***Courage*** - Pushing the boundaries to create smarter, more sustainable solutions

The Wood HSSE management system helps translate our Vision and Values into action by:

- Providing structure and consistency in the way we manage HSSE
- Focusing our attention on risk management, ensuring compliance, and undertaking assurance activities
- Supporting the development of a positive HSSE culture which in turn supports the management system
- Providing a framework for continuous improvement

Refer to the Wood "Blue Book" for additional information (LINK).

2.2 Wood Environment & Infrastructure Solutions (E&IS) HSSE Management System Manual and California Injury and Illness Prevention Plan (IIPP)

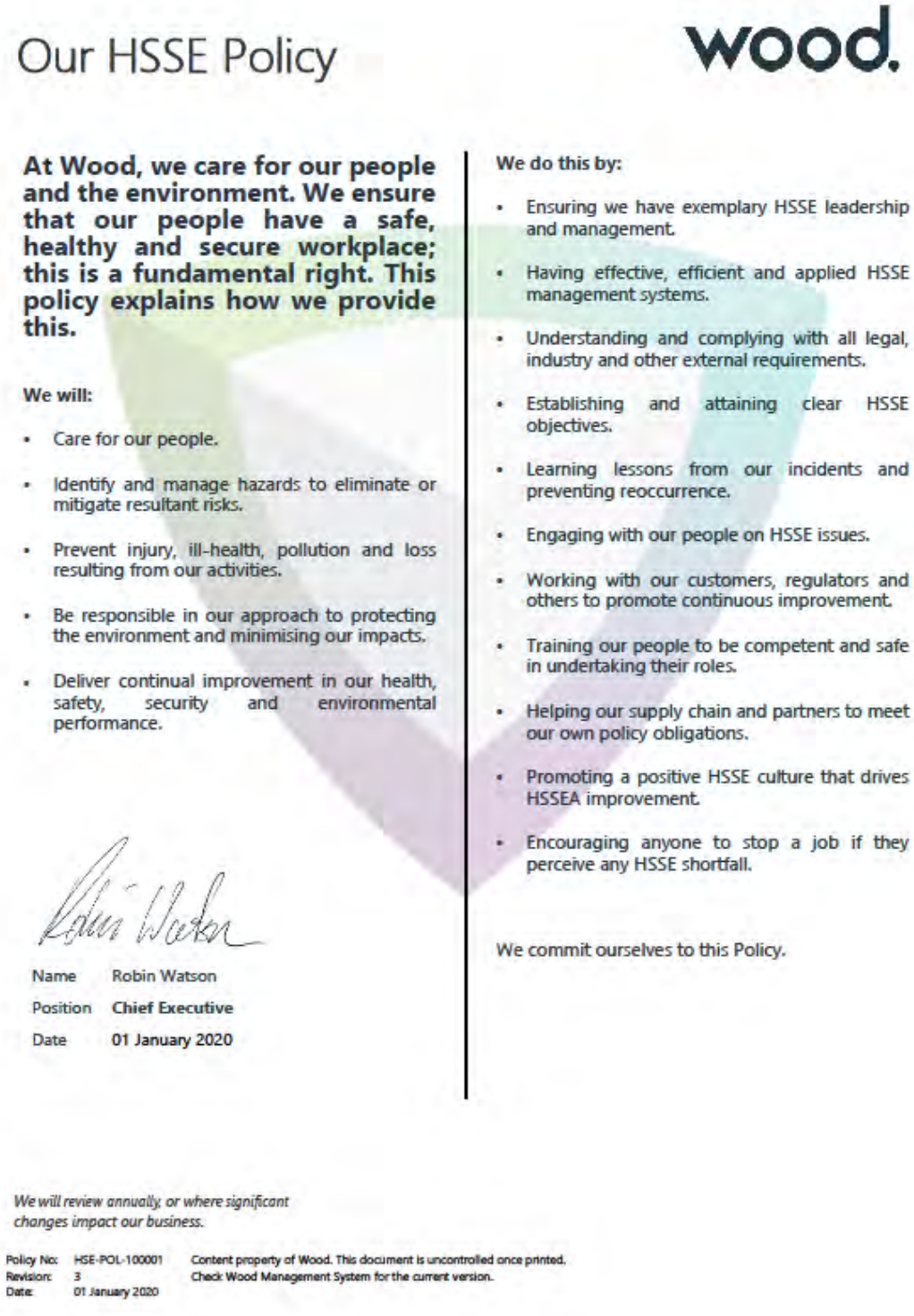
The Wood E&IS HSSE Management System Manual and California IIPP describes the HSSE system and tools developed and implemented at Wood E&IS. The manual addresses HSSE requirements for offices, laboratories, and projects, including those of various duration, scale, location, and jurisdiction.

The Wood E&IS Safety philosophy as it pertains to all work conducted, whether in the office, laboratory, or field, is:

- All incidents and injuries can be prevented.
- Management and staff are responsible for preventing injuries and occupational illnesses.
- Occupational safety and health are part of every employee's total job performance.
- Working safely is a condition of employment.
- All workplace hazards can be safeguarded.
- Training employees to work safely is essential and is the responsibility of management/supervision.
- Prevention of personal injuries and incidents and protection of environment is good business.

These principles tie into the Wood HSSE Policy Statement:

Figure 1-1 HSSE Policy



Our HSSE Policy

wood.

At Wood, we care for our people and the environment. We ensure that our people have a safe, healthy and secure workplace; this is a fundamental right. This policy explains how we provide this.

We will:

- Care for our people.
- Identify and manage hazards to eliminate or mitigate resultant risks.
- Prevent injury, ill-health, pollution and loss resulting from our activities.
- Be responsible in our approach to protecting the environment and minimising our impacts.
- Deliver continual improvement in our health, safety, security and environmental performance.

Name Robin Watson
Position **Chief Executive**
Date **01 January 2020**

We do this by:

- Ensuring we have exemplary HSSE leadership and management.
- Having effective, efficient and applied HSSE management systems.
- Understanding and complying with all legal, industry and other external requirements.
- Establishing and attaining clear HSSE objectives.
- Learning lessons from our incidents and preventing reoccurrence.
- Engaging with our people on HSSE issues.
- Working with our customers, regulators and others to promote continuous improvement.
- Training our people to be competent and safe in undertaking their roles.
- Helping our supply chain and partners to meet our own policy obligations.
- Promoting a positive HSSE culture that drives HSSEA improvement.
- Encouraging anyone to stop a job if they perceive any HSSE shortfall.

We commit ourselves to this Policy.

We will review annually, or where significant changes impact our business.

Policy No: HSE-POL-100001
Revision: 3
Date: 01 January 2020

2.3 Wood Safety Shield

A metaphor for protection, the Safety Shield pulls together our HSSE processes and procedures to drive a simplistic and consistent message to our workforce around HSSE.

Aligned with our values, the three elements of the shield are:

Prepare: It takes commitment to prepare.

Engage: It takes care to engage.

Intervene: It takes courage to intervene.

wood.
Safety Shield
Prepare. Engage. Intervene.

The Safety Shield seeks to educate, inform, monitor, improve, and recognize our employees.

2.4 Stop Work Authority

All workers have Stop Work Authority. If work assigned or observed is deemed to be unsafe, they should stop work and notify their supervisor. Follow the Work Refusal Procedure found in Section 4.5 of the Wood E&IS HSSE Integrated Manual.

Figure 1-2 Stop Work Authority

2.5 Just and Fair Safety Culture

Wood's Vision is that everyone coming to work goes home again, safe and healthy. The Wood Just and Fair Culture is designed to ensure this happens and to address the following issues:

- Promote an understanding in why people do the things they do.
- Recognize people do make mistakes.
- The premise that reckless behaviors are never tolerated.

It is unacceptable for those who are risk takers to:

- Take chances with their safety or the safety of colleagues and others.
- Fail to understand the impact an incident involving them may have on their family, friends, and work colleagues.

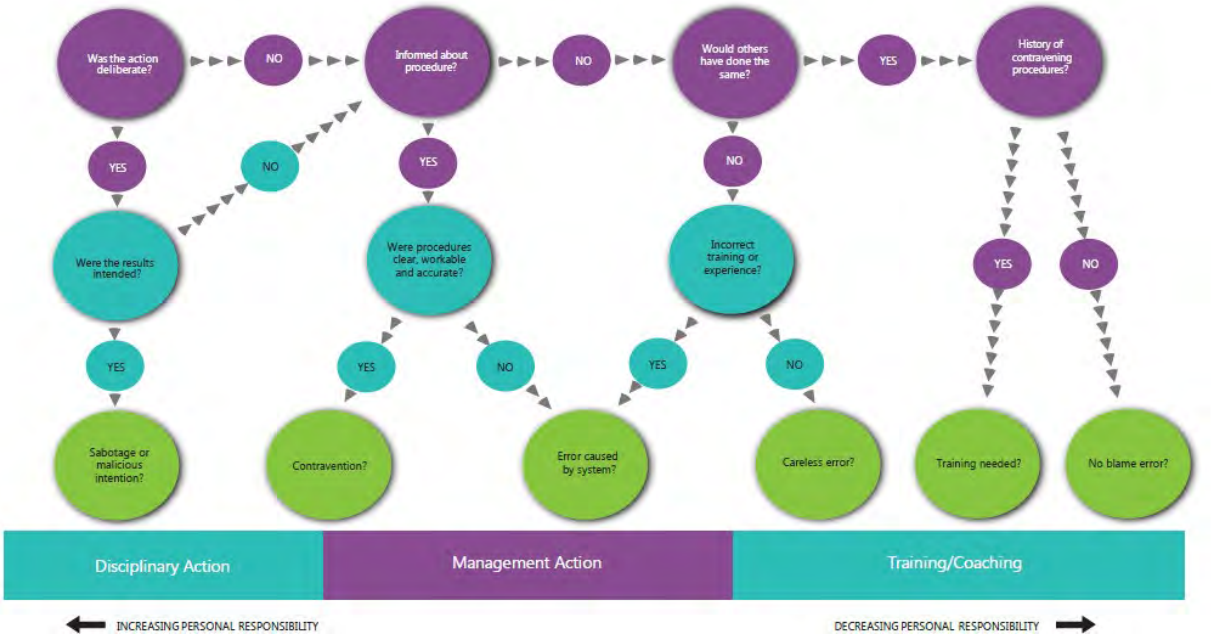
The Just and Fair culture process is generally undertaken after an initiating event – this could be an incident, findings from an audit, or similar.

Just and Fair culture must be a transparent process, implemented uniformly, and should be used sensitively and in the full knowledge of those involved. Just and Fair culture identifies the necessary action to be taken by those responsible for issues and/or improvements. When workers

do not comply with all the safety systems that have been put in place, they need to understand that there is a consequence for that behavior.

Everyone involved in the process must have an opportunity to input into what went wrong and why, and that they understand the importance of intervention to prevent incidents from re-occurring.

Figure 1-3 Just and Fair Culture Model



2.6 Six Safety Essentials

The Six Safety Essentials are designed to support the safe execution of work in all our operating locations with the development of a "common set of behaviors" that we can all share. Wood, in our goal to be recognized as a world-class leader in HSSE safety, must strive to ensure our daily overall consistency of HSSE standards, leadership, and performance.

When performing work at the site, the Wood **Six Safety Essentials** will be followed:

1. Always Take Care
2. Follow the Rules
3. Do a Risk Assessment
4. You Must Intervene
5. Manage Any Change
6. Wear the Correct PPE

Figure 1-4 Six Safety Essential Icons

2.7 Wood's Nine Life Saving Rules

The Life Saving Rules are Wood's minimum standard - it is an expectation that everyone must comply with the rules. Everyone needs to understand that:

- You must comply with the Life Saving Rules because non-compliance could result in serious injury or fatality to you or your colleagues.
- If you breach a Life Saving Rule you may be subject to disciplinary action.

Supervisors and managers must understand that:

- Breaking the Life Saving Rules will not be tolerated - no matter how urgent or important a task is.
- You have a duty to ensure that people undertaking a task have the right instruction, equipment, and training to comply with the Life Saving Rules.

Bypassing Safety Controls – Obtain authorization before overriding or disabling safety controls. I understand and use safety-critical equipment and procedures which apply to my task. I obtain authorization before:

- Disabling or overriding safety equipment
- Deviating from procedure
- Crossing a barrier

Confined Space – Obtain authorization before entering a confined space. I confirm energy sources are isolated. I confirm the atmosphere has been tested and is monitored. I check and use my breathing apparatus when required. I confirm there is an attendant standing by. I confirm a rescue plan is in place. I obtain authorization to enter.

Driving – Follow safe driving rules. I always wear a seatbelt. I do not exceed the speed limit and reduce my speed for road conditions. I do not use a phone or operate devices while driving. I am fit, rested, and fully alert while driving. I follow journey management requirements (**Attachment C**).

Energy Isolation – Verify isolation and zero energy before work begins. I have identified all energy sources. I confirm that hazardous energy sources have been isolated, locked, and tagged. I have checked there is zero energy and tested for residual or stored energy.

Hot Work – Control flammable and ignition sources. I identify and control ignition sources. Before starting any hot work:

- I confirm flammable material has been removed or isolated.
- I obtain authorization.

Before starting any hot work in a hazardous area, I confirm:

- A gas test has been completed.
- Gas will be monitored continually.

Line of Fire – **Keep yourself and others out the line of fire.** I position myself to avoid:

- Moving objects
- Vehicles
- Pressure releases
- Dropped objects

I establish and obey barriers and exclusion zones. I take action to secure loose objects and report potential dropped objects.

Safe Mechanical Lifting – Plan lifting operations and control the area. I confirm that the equipment and load have been inspected and are fit for purpose. I only operate equipment that I am qualified to use. I establish and obey barriers and exclusion zones. I never walk under a suspended load.

Work Authorization – Work with a valid permit when required. I have confirmed if a permit is required. I am authorized to perform the work. I understand the permit. I have confirmed that hazards are controlled, and it is safe to start. I stop and reassess if conditions change.

Working at Height – Protect yourself against a fall when working at height. I inspect my fall protection equipment before use. I secure tools and work materials to prevent dropped objects. I tie off 100% to approved anchor points while outside a protected area. Wood's definition of working at height is work at or above 1.8 meters/6 feet, unless local legislation requires a lower height.

2.8 Stand Up for Safety

Wood's Stand up for Safety initiative focuses on four hazards that were identified by analyzing Wood's HSSE incidents and high potential events. These are four areas of primary concern and are hazards that Wood employees face collectively as a global business. These four hazardous areas are:

- Dropped objects
- Driving
- Working at Height
- Process Safety

Extra attention will be paid to these four, key areas, if applicable, when working on the project site.

2.9 Harm Elimination and Recognition Tracking (HEART)

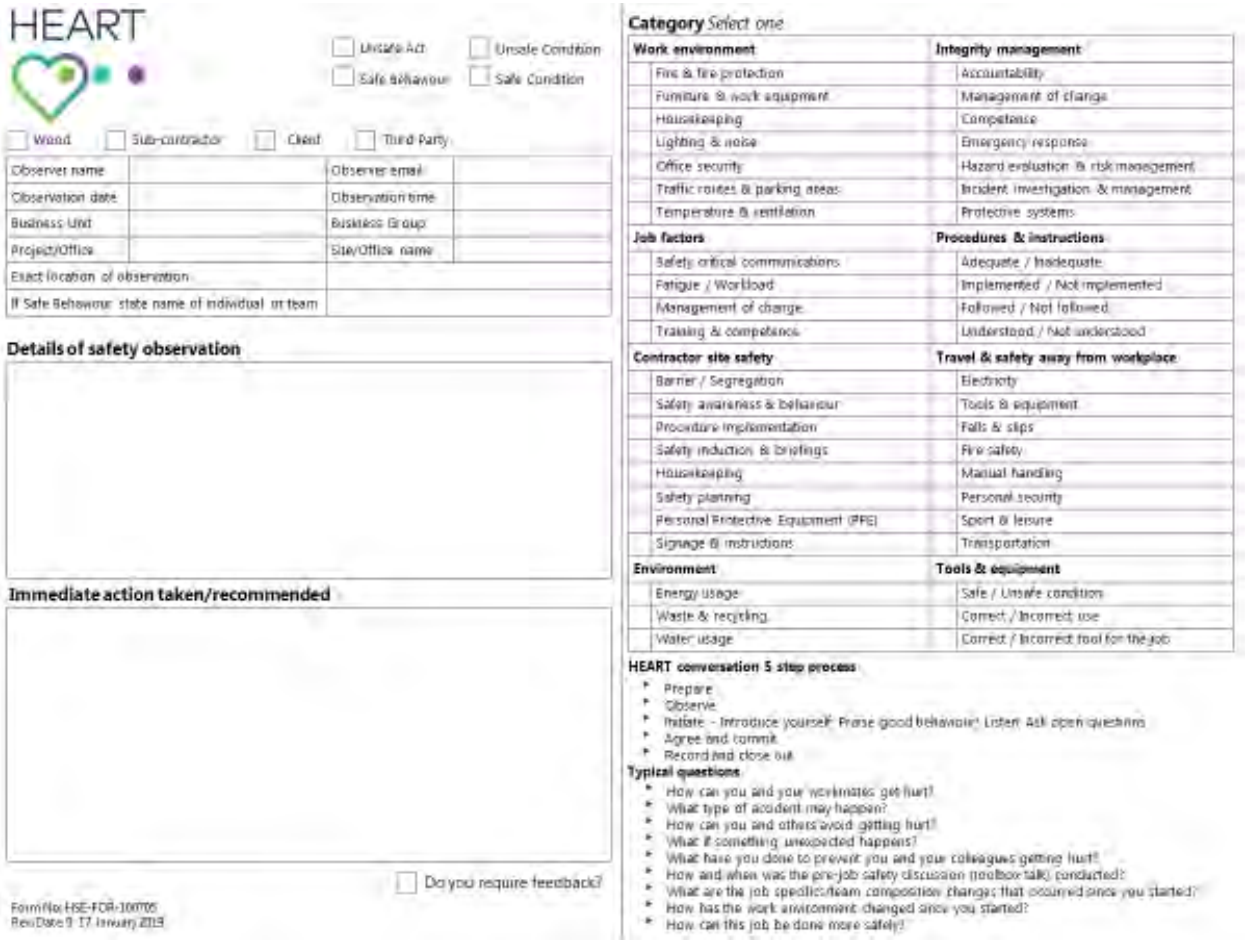
HEART is the corporate observation reporting system that all Wood employees are to use to report safety or environmental observations.

To enter a HEART observation, use the following link: https://cfapps.amecfw.com/HEART/

HEART is also accessible from mobile devices. Click here for instructions on how to access HEART from a mobile device.

A manual HEART observation form can be accessed from here.

Figure 1-5 HEART Form



HEART

☐ Unsafe Act ☐ Unsafe Condition
☐ Safe Behaviour ☐ Safe Condition

☐ Vivaid ☐ Sub-contractor ☐ Client ☐ Third Party

Observer name		Observer email	
Observation date		Observation time	
Business Unit		Business Group	
Project/Office		Site/Office name	
Exact location of observation			
If Safe Behaviour state name of individual or team			

Details of safety observation

Immediate action taken/recommended

☐ Do you require feedback?

Form No: HSE-FOR-100705
Rev Date 9 17 January 2019

Category *Select one*

Work environment		**Integrity management**	
	Fire & fire protection		Accountability
	Furniture & work equipment		Management of change
	Housekeeping		Competence
	Lighting & noise		Emergency response
	Office security		Hazard evaluation & risk management
	Traffic routes & parking areas		Incident investigation & management
	Temperature & ventilation		Protective systems
Job factors		**Procedures & instructions**	
	Safety critical communications		Adequate / Inadequate
	Fatigue / Workload		Implemented / Not implemented
	Management of change		Followed / Not followed
	Training & competence		Understood / Not understood
Contractor site safety		**Travel & safety away from workplace**	
	Barrier / Segregation		Electricity
	Safety awareness & behaviour		Tools & equipment
	Procedure implementation		Falls & slips
	Safety induction & briefings		Fire safety
	Housekeeping		Manual handling
	Safety planning		Personal security
	Personal Protective Equipment (PPE)		Sport & leisure
	Signage & instructions		Transportation
Environment		**Tools & equipment**	
	Energy usage		Safe / Unsafe condition
	Waste & recycling		Correct / Incorrect use
	Water usage		Correct / Incorrect tool for the job

HEART conversation 5 step process

- Prepare
- Observe
- Initiate - Introduce yourself Praise good behaviour Listen Ask open questions
- Agree and commit
- Record and close out

Typical questions

- How can you and your workmates get hurt?
- What type of accident may happen?
- How can you and others avoid getting hurt?
- What if something unexpected happens?
- What have you done to prevent you and your colleagues getting hurt?
- How and when was the pre-job safety discussion (toolbox talk) conducted?
- What are the job specific/team composition changes that occurred since you started?
- How has the work environment changed since you started?
- How can this job be done more safely?

3.0 SAFETY AND HEALTH RISK ANALYSIS

3.1 Biological Hazard Analysis – COVID-19

Planned site activities associated with the decommissioning of monitoring wells will require more than one worker onsite to complete. Due to the pandemic related to the novel coronavirus, COVID-19, state and client requirements and protocols have been implemented to help prevent the spread of the virus. Wood has implemented procedures that must be adhered to when working at any site. Any planned work must meet a strict set of rules and requires approval to proceed. The Wood field manager will communicate all ANG and Wood COVID-19-related protocols to site workers prior to commencement of planned site activities. The following documents will be adhered to and completed, as applicable, prior to and/or during planned site activities, and are included in **Attachment C**:

- Activity Hazard Analysis (AHA) – Travel to/from Office or Project Site, During COVID-19 Considerations
- AHA – Field Work During the Coronavirus (COVID-19)
- Daily Field Level Readiness Review – Covid-19 Updates
- Declaration Form (COVID-19)
- Essential Activities in response to COVID-19 Pandemic letter
- HSSE Field Readiness Checklist/COVID-19 Considerations
- National Guard Bureau, Contractor's Guidance Coronavirus Disease (COVID-19) letter

3.2 Chemical Hazard Analysis

Activities planned are associated with monitoring well decommissioning. Therefore, chemical concentrations in site media (soil and groundwater) comply with state cleanup standards and are protective of human health and the environment for the designated land use. As such, hazards related to exposure to chemicals in site media are expected to be minimal. Materials used to plug the monitoring wells include bentonite and Portland cement. Alconox/Liquinox will be used for decontamination. Safety data sheets for bentonite, Portland cement, and Alconox/Liquinox are included in **Attachment A**.

3.3 Physical Hazards

Worksites may contain slip, trip, and fall hazards for site workers, such as:

- Holes, pits, or ditches
- Vehicular traffic in the vicinity of the site
- Slippery surfaces
- Steep grades
- Uneven grades
- Sharp objects, such as nails, metal shards, and broken glass
- Weather conditions that make surfaces slippery and obscure visibility

3.3.1 Construction Hazards and Heavy Equipment

Planned plugging and decommissioning activities at the site may include heavy equipment such as a drilling rig. Dangerous conditions can develop from construction hazards and heavy equipment use. The following should be taken into consideration:

- Appropriate PPE consistent with the hazard (including ear protection) should be worn.
- Signing and traffic control on the site should be completed.
- Avoid walking within the shadow of the mast of the drill rig.
- Maintain eye contact with drilling rig operators and do not walk into their red zone without confirmation they are aware of your approach.

3.3.2 Noise Hazards

Planned activities may involve the use of noise-producing equipment, such as a drilling rig. The unprotected exposure of site workers to this noise during activities could result in noise-induced hearing loss.

3.3.3 Explosions

Wood does not anticipate the presence of explosive atmospheres during this work.

3.3.4 Oxygen Deficient Atmosphere

Wood does not anticipate the presence of oxygen deficient atmospheres during this work.

3.3.5 Heat- and Cold-Related Stress/Illness and Prevention

Heat

There is a potential for heat stress and related injuries especially when heavy manual labor-intensive activities are performed with semi-permeable and impermeable PPE. Potential hazards include:

- Heat rash
- Heat cramps
- Fainting
- Heat exhaustion
- Heat stroke

Prevention

- Workers are trained to recognize the symptoms of heat-related injuries and illnesses.
- Heat-related injury and illness recognition and prevention measures will be emphasized during daily safety tailgate meetings when the potential for such injuries and illnesses exists.
- Cool beverages will be available on-site. Workers will be encouraged to drink fluids.

Cold

Exposure to low temperatures presents a risk to employee safety and health both through the direct effect of the low temperature on the body and collateral effects such as slipping on ice, decreased dexterity, and reduced dependability of equipment. Potential hazards include:

- Frostbite
- Chilblains
- Hypothermia

Prevention

- Workers are trained to recognize the symptoms of frostbite and hypothermia.
- Cold injuries and illnesses recognition/prevention measures will be emphasized during daily safety tailgate meetings when the potential for cold injuries and illnesses exists.
- Work will cease under unusually hazardous conditions.
- Phenothiazine (a sedative) and beta blocker drug use will be prohibited.
- Heated vehicles will be available on-site.
- Insulating dry clothes will be available.
- Temperature will be recorded on-site.
- Warm beverages will be available on-site.

4.0 PERSONNEL PROTECTION AND MONITORING

4.1 Medical Surveillance

Periodic Comprehensive Exam:

All personnel requiring access to controlled work areas will have a baseline medical examination and a periodic (usually annual) update examination prior to assignment in accordance with Occupational Safety and Health Administration (OSHA) 29 CFR 1910.120(f). The exam must be performed by an occupational health physician who will provide written clearance for hazardous waste site work and respirator usage. Protocols for the baseline, periodic, and exit exams must be at least as stringent as those defined in the Wood Medical Surveillance Program.

Emergency Medical Treatment:

In the event that a worker requires transportation to a hospital, a map depicting the route to the hospital is located in **Attachment B**. The identified hospital facility is Ellis Hospital. See also the Contingency Plan section (Section 5) for specific information regarding emergency services and logs, reports, and record keeping. Subcontractors should provide internal workers' compensation information to the SHSO during the pre-work meeting for emergency use.

Medical Clearance Record Keeping:

Medical clearance documents are on file at the employee's home office. To ensure confidentiality, results of the medical exams or treatment records are maintained at the medical care provider's clinical offices.

4.2 Site-Specific Training

All routine, general site workers performing intrusive activities or having potential to receive exposures exceeding permissible limits will have completed the OSHA 40-hour HAZWOPER training. Three days of on-site, supervised training must be completed upon initial assignment. Appropriate annual refresher (within 12 months) updates must be completed by all HAZWOPER personnel. Supervisors/field managers will have completed the above and an additional 8 hours of OSHA Supervisory Training.

Occasional site workers that are assigned to the site for a specific, limited task, and not expected to receive exposures exceeding permissible exposure limits (e.g., geophysical and land surveyors), require only 24 hours of OSHA HAZWOPER training and 1 day of on-site training and supervision.

4.3 Personal Protective Equipment and Action Levels

The purpose of personal protective clothing and equipment is to shield or isolate individuals from the hazards that may be encountered when engineering and other controls are not feasible or cannot provide adequate protection. Adherence to all prescribed controls is vital to minimize exposures. Levels of protection will be upgraded or downgraded in response to site conditions.

4.4 Monitoring Requirements

4.4.1 Routine Monitoring for Organic Vapors

None anticipated.

4.4.2 Routine Monitoring for Explosive Environments

None anticipated.

4.4.3 Oxygen Monitoring

None anticipated.

4.4.4 Monitoring for Heat- and Cold-Related Stress/Illnesses

Using the buddy system, team members will be responsible for observing their buddy for any signs of heat- or cold-related stress or illness. It is also the responsibility of individual employees to minimize overexertion by taking frequent breaks; working during cooler or warmer hours; drinking plenty of fluids (2 gallons of water during an 8-hour shift); and wearing cotton or thermal clothing when appropriate.

4.5 Background Readings

None anticipated.

4.6 Data Logging

None anticipated.

4.7 Dust Control

Subcontractors must follow 29CFR1910.1053 and mitigate dust during mixing of Portland cement. Wood personnel shall remain upwind and outside of the EZ during mixing of Portland cement.

4.8 Personal Protective Equipment

Based on evaluation of potential hazards, the following levels of personal protection have been designated for the applicable work zones.

Work Zone Exclusion Zone (EZ) **Level of Protection** D

Personal Protective Equipment (PPE)			
Initial levels of protection were assigned to this work task based on the potential risk of exposure. These levels may be changed if warranted by monitoring data (see Action Levels) and site conditions. Any change to these initial levels must be noted here and documented in HASP and in the field logbook.			
USEPA level of protection	( ) A ( ) D Modified	( ) B (X) D	( ) C
Respirator (Level C and up)	( ) SCBA, airline ( ) P-100 filter	( ) purifying respirator ( ) dust pre-filters	( ) OV/AG cartridge ( ) other_____
Protective clothing	( ) encapsulating suit ( ) Saranex® or equivalent	( ) Tyvek® or equivalent ( ) splash suit	( ) polyethylene Tyvek® or equivalent (X) other: Long sleeves, safety vest
Head, face, eyes, ears	(X) hard hat ( ) splash shield	(X) safety glasses (X) ear plugs/muffs	( ) goggles ( ) other_____
Gloves (outer) (inner)	( ) nitrile_____ (X) nitrile _____	( ) neoprene ( ) vinyl	(X) other Leather work gloves
Footwear	(X) safety-toe leather ( ) hip waders	( ) overboots/covers ( ) shin/knee guards	( ) safety-toe rubber ( ) other _____

Modifications:_____

X = required PPE; * = modifications permitted; † = in case of upgrade.

Work Zone Support Zone (SZ) **Level of Protection** D

Personal Protective Equipment (PPE)			
Initial levels of protection were assigned to this work task based on the potential risk of exposure. These levels may be changed if warranted by monitoring data (see Action Levels) and site conditions. Any change to these initial levels must be noted here and documented in the HASP and in the field logbook.			
USEPA level of protection	( ) A ( ) D Modified	( ) B (X) D	( ) C
Respirator (Level C and up)	( ) SCBA, airline ( ) P-100 filter	( ) purifying respirator ( ) dust pre-filters	( ) OV/AG cartridge ( ) other_____
Protective clothing	( ) encapsulating suit ( ) Saranex ® or equivalent	(X) Tyvek ® or equivalent ( ) splash suit	( ) polyethylene Tyvek ® or equivalent (X) other: Long sleeves, safety vest
Head, face, eyes, ears	(X) hard hat ( ) splash shield	(X) safety glasses (X) ear plugs/muffs	( ) goggles ( ) other_____
Gloves (outer) (inner)	( ) nitrile_____ (X) nitrile _____	( ) neoprene ( ) vinyl	( ) other_____
Footwear	(X) safety-toe leather ( ) hip waders	( ) overboots/covers ( ) shin/knee guards	( ) safety-toe rubber ( ) other _____

Modifications:_____

X = required PPE; * = modifications permitted; † = in case of upgrade.

5.0 SITE CONTROL, MEASURES, ACCIDENT PREVENTION, AND CONTINGENCY PLAN

5.1 Site Control Measures

The site control currently anticipated involves site security (Section 5.6) and communications (Section 5.7). Work zones that will be utilized during the well decommissioning field effort are discussed in Section 5.2.

5.2 Work Zones

The work zones established for this field effort are as follows:

- Exclusion Zone (EZ)
- Support Zone (outside of shadow of mast) (SZ)

5.2.1 Exclusion Zone

This zone is defined as an area with an approximately 15-foot radius around the well that is being decommissioned. Access is restricted to drill rig operator and helpers, while active drilling or decommissioning activities are in progress.

5.2.2 Support Zone

The SZ will be outside of the shadow of the mast and away from the drill rig and well that is being abandoned. Vehicles, emergency equipment, telephone and break area, and any nonessential personnel will be maintained in this area.

5.3 Safe Work Practices

- Unauthorized personnel are not allowed on-site, particularly in the EZ.
- Work groups will always consist of at least two team members.
- A high standard of personal hygiene will be observed. Smoking, eating, drinking, chewing gum or tobacco, taking medication, and applying cosmetics will not be permitted within any restricted area or the EZ.
- Personnel under the obvious influence of alcohol or controlled substances are not allowed on-site; those taking medications must notify the SHSO.
- All site personnel will familiarize themselves with these practices and the emergency procedures during daily tailgate and pre-work safety meetings.
- Workers who are passengers or drivers of vehicles (both off-site and on-site) will wear their seat belts any time the vehicle is in motion.
- Personnel will avoid skin contact with contaminated or potentially contaminated media. If such contact occurs, the affected areas should be washed thoroughly with soap and water.
- Personnel will discard and replace any damaged or heavily soiled protective clothing. Discarded PPE will be containerized/drummed at the end of each day.
- Personnel should notify the SHSO of any defective monitoring, emergency, or other protective/safety equipment.

- A supply of potable water, electrolyte replacement solutions, shaded break area, and sufficient lighting will be maintained on-site; sanitary facilities will be accessible to personnel.
- Due to the COVID-19 pandemic, all site workers will: avoid any unnecessary contact; maintain a 6-foot or greater distance from all site personnel; avoid sharing or touching objects/surfaces others have come into contact with unless properly disinfected or donning appropriate PPE; wash hands frequently or as needed with soap and water for at least 20 seconds; cover their cough or sneeze; stay home if exhibiting any fever or respiratory symptoms (e.g. cough, sore throat, breathing difficulty). As part of safe work practices during the COVID-19 pandemic, all site personnel will review and complete, as necessary, the documents listed Section 3.1 of this HASP.

5.4 Health and Safety Equipment Checklist

- Open flames are not allowed anywhere on-site without a hot-work permit.
- Owners/operators of heavy equipment or drill rigs will ensure that the equipment is in good working order by performing daily inspections and routine maintenance. Deficiencies affecting health and safety shall be corrected prior to equipment use.
- All unsafe conditions shall be made safe immediately. All unsafe conditions shall be reported to the PM and the condition corrected.
- Loose-fitting clothing or loose, long hair is prohibited near moving machinery.
- All internal combustion engines must have spark arrestors that meet the requirements for hazardous atmospheres if they are to be used in such areas.
- Do not fuel engines while vehicle is running.
- Install adequate on-site roads, signs, lights, and devices.
- When portable electric tools and appliances can be used (where there is no potential for flammable or explosive conditions), they will be equipped only with 3-wire grounded power and extension cords to prevent electrical shock.
- Store tools in clean, secure areas so they will not be damaged, lost, or stolen.
- When exiting a vehicle, shift into park, set the parking brake, and shut off the engine. Never leave a running vehicle unattended.

5.5 Accident Prevention

The SHSO as well as all site employees will inspect the worksite daily to identify and correct any unsafe conditions.

Adherence to the safe work practices and procedures outlined in this HASP will assist with accident prevention. AHA forms are included in **Attachment C**.

5.5.1 Heavy Equipment Operation

Working with large motor vehicles and heavy equipment could be a major hazard at this site. Injuries can result from equipment hitting or running over personnel, impacts from flying objects, or overturning of vehicles. Vehicle and heavy equipment design and operation will be in

accordance with 29 CFR, Subpart O, 1926.602. In particular, the following precautions will be utilized to help prevent injuries/accidents:

- Brakes, hydraulic lines, light signals, fire extinguisher, fluid levels, steering, tires, horn, and other safety devices will be checked at the beginning of each day.
- Large construction motor vehicles will not be backed up unless:
    1. The vehicle has a reverse signal alarm audible above the surrounding noise level; or,
    2. The vehicle is backed up only when an observer signals that it is safe to do so.
- Heavy equipment or motor vehicles will be kept free of all nonessential items, and all cables and loose items will be secured.
- Large construction motor vehicles and heavy equipment will be provided with necessary safety equipment (seat belts, roll-over protection, emergency shut-off in case of roll-over, backup warning lights and audible alarms).
- Blades and buckets will be lowered to the ground and parking brakes will be set before shutting off any heavy equipment or vehicles.

5.5.2 Underground Utility Clearance

Prior to conducting well decommissioning activities, underground utility locations will be marked and cleared in the work zones. Utility marks will be made using information provided by the Dig Safely New York, Inc. one-call center (Call 811) and the ANG. A Utility Clearance Form will be completed prior to commencement of any well decommissioning activities (**Attachment C**).

5.5.3 Drill Rig and Plugging/Decommissioning Activities

Underground utilities will be located prior to conducting well decommissioning activities. Hard hats, safety glasses, ear plugs, high visibility safety vests, and safety boots must, as a minimum, be worn within 50 feet of the drill rig. The field manager or his/her designee will provide constant on-site supervision of the subcontractor to ensure they are meeting the health and safety requirements. If deficiencies are noted, work will be stopped and corrective action will be taken (e.g., retrain, purchase additional safety equipment, etc.). Reports of health and safety deficiencies and the corrective action taken will be forwarded to the PM.

5.6 Site Security

Access will be limited to all controlled areas via the prescribed administrative (certifications) controls. All site personnel and visitors will note arrival and departure times in the site logbook. All equipment, tools, and property shall be secured at the end of each day.

5.6.1 Visitor Access

All site visitors (except OSHA inspectors) must receive prior approval from the PM and client and may do so only for the purposes of observing site conditions or operations. Upon arrival, visitors will report to the SHSO. All visitors, regardless of their rank or professional level, will not be allowed

into controlled work areas unless training and medical requirements have been met and documented.

5.7 Communications

The "buddy system" will be enforced for field activities involving potential exposure to hazardous or toxic materials, and during any work within the EZ. Each person will observe his/her buddy for symptoms of chemical or heat overexposure and will provide first aid or emergency assistance when warranted. A mobile phone will be maintained on-site for emergency use.

The following emergency hand signals will be used:

Thumbs up	=	OK; understand
Thumbs down	=	No; negative
Grasping buddy's wrist	=	Leave site now
Hands on top of head	=	Need assistance

5.8 Contingency Plan

5.8.1 Chemical Exposure

If a member of the field crew demonstrates symptoms of chemical exposure the procedures outlined below will be followed:

- Another team member (buddy) will remove the individual from the immediate area of contamination whenever more than one person is working on-site. The buddy will communicate to the field team (via voice and hand signals) of the chemical exposure. The site manager will contact appropriate emergency response agency.
- Precautions will be taken to avoid exposure of other individuals to the chemical.
- If the chemical is on the individual's clothing, the chemical will be neutralized or removed if it is safe to do so.
- If the chemical has contacted the skin, the skin will be washed with copious amounts of water.
- In case of eye contact, an emergency eye wash will be used. Eyes will be washed for at least 15 minutes.
- All chemical exposure incidents must be reported in writing to the OHSR/HSE Coordinator. The SHSO or site manager is responsible for completing the Incident Analysis Report (IAR) included in **Attachment D**.

5.8.2 Personal Injury

In the event of a work-related injury or illness during normal working hours which requires either first aid or outside medical treatment to an employee, the following steps are to be taken:

- If the injury or illness requires first aid treatment only, the injured employee should immediately contact their immediate supervisor and/or manager and have first aid

administered as required. First aid supplies are available in each vehicle and offices and qualified designated personnel have been identified to assist with this effort.

- If an injured person requires the services of outside medical services, such as paramedics, immediately contact 911 by cell phone.

Refer to the Wood E&IS Early Injury Case Management Program table and Incident flow chart in **Attachment D** for appropriate steps to be taken in the event of a non-emergency or emergency incident.

5.8.3 Evacuation Procedures

Expeditious evacuation routes to the safe refuge area(s) (SRA) will be established daily for all work area locations with respect to the wind direction. Evacuation notification will be a continuous blast on a canned siren, vehicle horn, or direct verbal communication. Emergency drills should be performed periodically. Any additions to evacuation procedures require an update to this HASP.

In the unlikely event that an evacuation is necessary, all personnel will immediately proceed to the predetermined SRA, decontaminating to the extent possible for personal safety based on the emergency.

5.9 Decontamination Procedures

Procedures for the decontamination of tools and other related equipment are specified in the work plan. Note that separate areas should be established for personnel and equipment.

5.9.1 Decontamination – Medical Emergencies

In an emergency, the primary concern is to prevent the loss of life or severe injury. If immediate medical attention is required to save a life, decontamination should be delayed until the victim is stabilized. If the decontamination can be performed without interfering with essential life-saving techniques or first aid, or if a worker has been contaminated with an extremely toxic or corrosive material that could cause severe illness or loss of life, decontamination must be performed immediately. If an emergency due to a heat-related illness develops, protective equipment should be removed carefully from the victim as soon as possible. See **Attachment B** for a map to the nearest hospital.

Any time emergency decontamination methods must be used, the IAR must be completed by the SHSO and submitted to the OHSR/HSE Coordinator.

5.9.2 Equipment Decontamination

Sampling of soil and/or groundwater is not part of this scope of work. However, tools and other equipment that comes in contact with site soil or groundwater, or with cement-bentonite grout used to plug wells, will be cleaned prior to and between each use. The decontamination procedure will be as follows:

- Wash and scrub with detergent (laboratory grade)
- Rinse with tap water

- Rinse with distilled water
- Air dry

All decontamination fluids will be containerized and labeled by Wood and managed by the ANG.

5.9.3 Personal Decontamination

Disposable gloves and work gloves will be used during well decommissioning activities and will be removed and disposed of following use. No other decontamination procedures will be necessary.

5.10 Places of Refuge

This will be discussed in the tailgate meetings by the SHSO daily, once on-site. It will be set up in the SZ or at an off-site location in the event of a site-wide evacuation. This area will be upwind, and the location and escape routes will be designated on site control maps. It will contain emergency equipment, escape route maps, communications, and the Emergency Reference (call) List. This is required for all phases of work. In an emergency, the SHSO will take a "head count" against the site personnel listed in the site logbook, initiate search/account for missing persons, notify the emergency crews (as applicable), and limit access into the hazardous emergency area to necessary rescue and response personnel in order to prevent additional injuries and possible exposures.

5.11 Fire

Fires and explosion are not anticipated. However, in the event of a fire or explosion, the emergency alarm will sound (continuous blast on a canned siren, vehicle horn, or direct oral communication) to summon the SHSO who will then decide whether to call the fire department for outside assistance. Small-scale fires (less than one-half of the responder's height) should be extinguished with an accessible ABC fire extinguisher by any team member who has received training. Fires in boreholes may be smothered with a fire blanket. Trained emergency crews will be summoned to control any large-scale or potentially unmanageable incident. Any off-site responding agencies will be given the Site Map and briefed about site-specific hazards so they can be optimally helpful in an emergency situation. The SHSO will evacuate all non-response personnel and visitors to the SRA; will notify the Wood PM, as applicable, the client, and the OHSR/HSE Coordinator; and will complete the appropriate reports.

5.12 Safety Eyewash

All field crews are required to carry an eyewash/eye care kit.

5.13 Incident Report

The SHSO will investigate incidents that occur at the site (collect information, evidence, photos, etc.) in coordination with the employee's PM and the OHSR/HSE Coordinator. The affected employee and their PM will complete Wood's IAR form, Vehicle Incident Report (VIR) form, or

Ground Disturbance Incident Report (GDR) form (**Attachment D**) and submit to the OHSR/HSE Coordinator. The OSHR/HSE Coordinator will assist the employee and their PM with determining an incident's root cause(s). The completed report must be transmitted to the OHSR/HSE Coordinator within 24 hours of an occurrence; a fax is acceptable. The OHSR/HSE Coordinator will submit the appropriate report to the appropriate Human Resources department (for Workers' Compensation), and OSHA (as applicable).

The foreman or field manager of subcontracting crews will investigate and complete an incident report, similar in content to Wood's IAR, VIR, or GDR, in accordance with their internal company policy. This report must be transmitted to the Wood OHSR/HSE Coordinator within 24 hours.

In case of environmental incidents, property damage, power disruption, or mandated work "shutdowns," an Incident Report will be prepared by the PM. Any damage, loss, or theft of Wood property (items/tools/equipment) will be reported to the PM.

Any release of information in these reports to unauthorized persons or agencies is prohibited unless it is first approved by the client. Certain agencies or persons, such as OSHA or OSHA inspectors, can request this information and its release will be permitted. Review the Emergency Contact List for additional contact names and phone numbers.

5.14 Operation Shutdown

If an operation shutdown is necessary, the steps below shall be followed:

- Personnel are to leave the work location (upwind) and assemble at a designated assembly point (if safe) after detecting the emergency signal for evacuation.
- If an emergency situation is of concern to local site personnel, personnel will notify the SHSO who will notify the appropriate individuals.
- If appropriate and safe, the SHSO and a "buddy" are to remain at or near the location after the location has been evacuated to assist local responders and advise them of the nature and location of the incident.
- The field manager is to account for field team members at the assembly point.
- The site manager is to complete an incident report (**Attachment D**) as soon as possible after the occurrence.

Evacuation routes and assembly points will be documented by the SHSO or site manager during the employee health and safety briefing and daily tailgate meetings. Such locations shall minimize the spread of contamination.

5.15 Spill or Hazardous Materials Release

In the event of a spill or release, notify the SHSO and site manager immediately. The SHSO or site manager will be responsible for ensuring that necessary notifications are given to the appropriate individuals.

5.16 Training and Medical Surveillance

5.16.1 Site-Specific Training

Visitor Training

If an official visitor seeks entry into the work area, the SHSO shall verify that the visitor has received health and safety training in accordance with 1910.120 and a medical surveillance examination and has certification equivalent to that required for on-site work. In addition, a site-specific safety briefing shall be given by the SHSO.

Training Documentation

Documentation of training requirements is the responsibility of each employer. Written documentation verifying compliance with 29 CFR 191.120 (e)(3), (e)(4) (as applicable) and (e)(8) must be submitted to the SHSO prior to entering the EZ. Documentation of worker's current training credentials will be kept on file at the employee's home office and can be provided upon request.

5.16.2 Medical Surveillance

Personnel engaged in hazardous waste operations must be enrolled in a medical monitoring program as required by 29 CFR 1910.120(f). Medical surveillance on this project will be performed in accordance with Department of the Army Pamphlet 40-173. A letter signed by a physician attesting to each individual's fitness for duty must be provided to the SHSO prior to beginning work.

5.17 Recordkeeping

The SHSO will establish and maintain a filing system on-site for health and safety records, reports, and information concerning individual training, medical surveillance, etc. Sections in this filing system will include:

- Personnel Records – Certificates for training required under 29 CFR 1910.120, medical examination summary letters or certifications, signed acceptance forms, monitoring results, etc.
- Training – Sign-in sheets for on-site training with topics and dates.
- Visitor Logs – Sign-in sheets for site visitors.
- Inspection Reports – Reports of daily inspections by SHSO and others concerning health and safety issues.
- Accident Prevention – Copies of all hazard analyses performed on new tasks or activities. Copies of any incident reports and follow-up reports. Other pertinent correspondence.
- PPE – Records of periodic inspection, testing, and maintenance performed on PPE.

Health & Safety Plan Acceptance

I have had the opportunity to read and ask questions about this HASP. My signature certifies that I understand the procedures, equipment, and restrictions of this plan and agree to abide by them. By signing below, all personnel are indicating they have received and are current with their medical surveillance and training certification; in accordance with 29 CFR 1910.120 and Wood corporate health and safety policies.

Signature*	Printed Name	Company	Date

* This acceptance form is required for all routine site staff, subcontracting personnel, visitors, and non-routine subcontractors.

Attachment A

Safety Data Sheets

Safety Data Sheet

according to 1907/2006/EC (REACH), 1272/2008/EC (CLP), 29CFR1910/1200 and GHS Rev. 3

Effective date: 10.18.2017 **Revision**: 10.18.2017

Trade Name: Alconox

1 Identification of the substance/mixture and of the supplier

1.1 Product identifier

Trade Name: Alconox
Synonyms:
Product number: 1104-1, 1104, 1125, 1150, 1101, 1103, 1112-1, 1112

1.2 Application of the substance / the mixture : Cleaning material/Detergent

1.3 Details of the supplier of the Safety Data Sheet

Manufacturer
Alconox, Inc.
30 Glenn Street
White Plains, NY 10603
1-914-948-4040

Supplier

Emergency telephone number:
ChemTel Inc
North America: 1-800-255-3924
International: 01-813-248-0585

2 Hazards identification

2.1 Classification of the substance or mixture:

In compliance with EC regulation No. 1272/2008, 29CFR1910/1200 and GHS Rev. 3 and amendments.

Hazard-determining components of labeling:
Tetrasodium Pyrophosphate
Sodium tripolyphosphate
Sodium Alkylbenzene Sulfonate

2.2 Label elements:

Skin irritation, category 2.
Eye irritation, category 2A.

Hazard pictograms:

Signal word: Warning

Hazard statements:
H315 Causes skin irritation.
H319 Causes serious eye irritation.

Precautionary statements:
P264 Wash skin thoroughly after handling.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P302+P352 If on skin: Wash with soap and water.
P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing.
P321 Specific treatment (see supplemental first aid instructions on this label).
P332+P313 If skin irritation occurs: Get medical advice/attention.
P362 Take off contaminated clothing and wash before reuse.
P501 Dispose of contents and container as instructed in Section 13.

Safety Data Sheet

according to 1907/2006/EC (REACH), 1272/2008/EC (CLP), 29CFR1910/1200 and GHS Rev. 3

Effective date: 10.18.2017 **Revision**: 10.18.2017

Trade Name: Alconox

Additional information: None.

Hazard description

Hazards Not Otherwise Classified (HNOC): None

Information concerning particular hazards for humans and environment:

The product has to be labelled due to the calculation procedure of the "General Classification guideline for preparations of the EU" in the latest valid version.

Classification system:

The classification is according to EC regulation No. 1272/2008, 29CFR1910/1200 and GHS Rev. 3 and amendments, and extended by company and literature data. The classification is in accordance with the latest editions of international substances lists, and is supplemented by information from technical literature and by information provided by the company.

3 Composition/information on ingredients

3.1 Chemical characterization : None

3.2 Description : None

3.3 Hazardous components (percentages by weight)

Identification	Chemical Name	Classification	Wt. %
CAS number: 7758-29-4	Sodium tripolyphosphate	Skin Irrit. 2 ; H315 Eye Irrit. 2; H319	12-28
CAS number: 68081-81-2	Sodium Alkylbenzene Sulfonate	Acute Tox. 4; H303 Skin Irrit. 2 ; H315 Eye Irrit. 2; H319	8-22
CAS number: 7722-88-5	Tetrasodium Pyrophosphate	Skin Irrit. 2 ; H315 Eye Irrit. 2; H319	2-16

3.4 Additional Information : None.

4 First aid measures

4.1 Description of first aid measures

General information: None.

After inhalation:

Maintain an unobstructed airway.

Loosen clothing as necessary and position individual in a comfortable position.

After skin contact:

Wash affected area with soap and water.

Seek medical attention if symptoms develop or persist.

After eye contact:

Rinse/flush exposed eye(s) gently using water for 15-20 minutes.

Remove contact lens(es) if able to do so during rinsing.

Seek medical attention if irritation persists or if concerned.

After swallowing:

Rinse mouth thoroughly.

Seek medical attention if irritation, discomfort, or vomiting persists.

Safety Data Sheet

according to 1907/2006/EC (REACH), 1272/2008/EC (CLP), 29CFR1910/1200 and GHS Rev. 3

Effective date: 10.18.2017 **Revision**: 10.18.2017

Trade Name: Alconox

4.2 Most important symptoms and effects, both acute and delayed

None

4.3 Indication of any immediate medical attention and special treatment needed:

No additional information.

5 Firefighting measures

5.1 Extinguishing media

Suitable extinguishing agents:

Use appropriate fire suppression agents for adjacent combustible materials or sources of ignition.

For safety reasons unsuitable extinguishing agents : None

5.2 Special hazards arising from the substance or mixture :

Thermal decomposition can lead to release of irritating gases and vapors.

5.3 Advice for firefighters

Protective equipment:

Wear protective eye wear, gloves and clothing.
Refer to Section 8.

5.4 Additional information :

Avoid inhaling gases, fumes, dust, mist, vapor and aerosols.
Avoid contact with skin, eyes and clothing.

6 Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures :

Ensure adequate ventilation.
Ensure air handling systems are operational.

6.2 Environmental precautions :

Should not be released into the environment.
Prevent from reaching drains, sewer or waterway.

6.3 Methods and material for containment and cleaning up :

Wear protective eye wear, gloves and clothing.

6.4 Reference to other sections : None

7 Handling and storage

7.1 Precautions for safe handling :

Avoid breathing mist or vapor.
Do not eat, drink, smoke or use personal products when handling chemical substances.

7.2 Conditions for safe storage, including any incompatibilities :

Store in a cool, well-ventilated area.

7.3 Specific end use(s):

No additional information.

Safety Data Sheet

according to 1907/2006/EC (REACH), 1272/2008/EC (CLP), 29CFR1910/1200 and GHS Rev. 3

Effective date: 10.18.2017 **Revision**: 10.18.2017

Trade Name: Alconox

8 Exposure controls/personal protection

8.1 Control parameters :

a) 7722-88-5, Tetrasodium Pyrophosphate, OSHA TWA 5 mg/m3

b) Dusts, non-specific OEL, Irish Code of Practice

(i) Total inhalable 10 mg/m3 (8hr)

(ii) Respirible 4mg/m3 (8hr)

(iii) Tetrasodium Pyrophosphate, OSHA TWA 5 mg/m3, (8hr)

8.2 Exposure controls

Appropriate engineering controls:

Emergency eye wash fountains and safety showers should be available in the immediate vicinity of use or handling.

Respiratory protection:

Not needed under normal use conditions.

Protection of skin:

Select glove material impermeable and resistant to the substance or preparation. Protective gloves recommended to comply with EN 374. Take note of break through times, permeability, and special workplace conditions, such as mechanical strain, duration of contact, etc. Protective gloves should be replaced at the first sign of wear.

Eye protection:

Safety goggles or glasses, or appropriate eye protection. Recommended to comply with ANSI Z87.1 and/or EN 166.

General hygienic measures:

Wash hands before breaks and at the end of work.

Avoid contact with skin, eyes and clothing.

9 Physical and chemical properties

Appearance (physical state, color):	White and cream colored flakes - powder	**Explosion limit lower**: **Explosion limit upper**:	Not determined or not available. Not determined or not available.
Odor:	Not determined or not available.	**Vapor pressure at 20°C**:	Not determined or not available.
Odor threshold:	Not determined or not available.	**Vapor density**:	Not determined or not available.
pH-value:	9.5 (aqueous solution)	**Relative density**:	Not determined or not available.
Melting/Freezing point:	Not determined or not available.	**Solubilities**:	Not determined or not available.
Boiling point/Boiling range:	Not determined or not available.	**Partition coefficient (n-octanol/water)**:	Not determined or not available.
Flash point (closed cup):	Not determined or not available.	**Auto/Self-ignition temperature**:	Not determined or not available.
Evaporation rate:	Not determined or not available.	**Decompositio n**	Not determined or not available.

Safety Data Sheet

according to 1907/2006/EC (REACH), 1272/2008/EC (CLP), 29CFR1910/1200 and GHS Rev. 3

Effective date: 10.18.2017 **Revision**: 10.18.2017

Trade Name: Alconox

Flammability (solid, gaseous):	Not determined or not available.	**Viscosity**:	a. Kinematic: Not determined or not available. b. Dynamic: Not determined or not available.
Density at 20°C:	Not determined or not available.		

10 Stability and reactivity

10.1 Reactivity : None

10.2 Chemical stability : None

10.3 Possibility hazardous reactions : None

10.4 Conditions to avoid : None

10.5 Incompatible materials : None

10.6 Hazardous decomposition products : None

11 Toxicological information

11.1 Information on toxicological effects :

Acute Toxicity:

Oral:

: LD50 > 5000 mg/kg oral rat - Product .

Chronic Toxicity: No additional information.

Skin corrosion/irritation:

Sodium Alkylbenzene Sulfonate: Causes skin irritation. .

Serious eye damage/irritation:

Sodium Alkylbenzene Sulfonate: Causes serious eye irritation .

Tetrasodium Pyrophosphate: Rabbit - Risk of serious damage to eyes .

Respiratory or skin sensitization: No additional information.

Carcinogenicity: No additional information.

IARC (International Agency for Research on Cancer): None of the ingredients are listed.

NTP (National Toxicology Program): None of the ingredients are listed.

Germ cell mutagenicity: No additional information.

Reproductive toxicity: No additional information.

STOT-single and repeated exposure: No additional information.

Additional toxicological information: No additional information.

12 Ecological information

Safety Data Sheet

according to 1907/2006/EC (REACH), 1272/2008/EC (CLP), 29CFR1910/1200 and GHS Rev. 3

Effective date: 10.18.2017 **Revision**: 10.18.2017

Trade Name: Alconox

12.1 Toxicity:

Sodium Alkylbenzene Sulfonate: Fish, LC50 1.67 mg/l, 96 hours.
Sodium Alkylbenzene Sulfonate: Aquatic invertebrates, EC50 Daphnia 2.4 mg/l, 48 hours. Sodium Alkylbenzene Sulfonate: Aquatic Plants, EC50 Algae 29 mg/l, 96 hours.
Tetrasodium Pyrophosphate: Fish, LC50 - other fish - 1,380 mg/l - 96 h.
Tetrasodium Pyrophosphate: Aquatic invertebrates, EC50 - Daphnia magna (Water flea) - 391 mg/l - 48 h.

12.2 Persistence and degradability: No additional information.

12.3 Bioaccumulative potential: No additional information.

12.4 Mobility in soil: No additional information.

General notes: No additional information.

12.5 Results of PBT and vPvB assessment:

PBT: No additional information.

vPvB: No additional information.

12.6 Other adverse effects: No additional information.

13 Disposal considerations

13.1 Waste treatment methods (consult local, regional and national authorities for proper disposal)

Relevant Information:

It is the responsibility of the waste generator to properly characterize all waste materials according to applicable regulatory entities. (US 40CFR262.11).

14 Transport information

14.1 UN Number: ADR, ADN, DOT, IMDG, IATA	None
14.2 UN Proper shipping name: ADR, ADN, DOT, IMDG, IATA	None
14.3 Transport hazard classes: ADR, ADN, DOT, IMDG, IATA	**Class:** None **Label:** None **LTD.QTY:** None

US DOT

Limited Quantity Exception: None

Bulk:
RQ (if applicable): None
Proper shipping Name: None
Hazard Class: None
Packing Group: None
Marine Pollutant (if applicable): No additional information.

Non Bulk:
RQ (if applicable): None
Proper shipping Name: None
Hazard Class: None
Packing Group: None
Marine Pollutant (if applicable): No additional information.

Safety Data Sheet

according to 1907/2006/EC (REACH), 1272/2008/EC (CLP), 29CFR1910/1200 and GHS Rev. 3

Effective date: 10.18.2017 **Revision**: 10.18.2017

Trade Name: Alconox

Comments: None	**Comments:** None
14.4 Packing group: ADR, ADN, DOT, IMDG, IATA	None
14.5 Environmental hazards :	None
14.6 Special precautions for user:	None
Danger code (Kemler):	None
EMS number:	None
Segregation groups:	None

14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code: Not applicable.

14.8 Transport/Additional information:

Transport category:	None
Tunnel restriction code:	None
UN "Model Regulation":	None

15 Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture.

North American

SARA

Section 313 (specific toxic chemical listings): None of the ingredients are listed.
Section 302 (extremely hazardous substances): None of the ingredients are listed.

CERCLA (Comprehensive Environmental Response, Clean up and Liability Act) Reportable

Spill Quantity: None of the ingredients are listed.

TSCA (Toxic Substances Control Act):

Inventory: All ingredients are listed.
Rules and Orders: Not applicable.

Proposition 65 (California):

Chemicals known to cause cancer: None of the ingredients are listed.

Chemicals known to cause reproductive toxicity for females: None of the ingredients are listed.

Chemicals known to cause reproductive toxicity for males: None of the ingredients are listed.

Chemicals known to cause developmental toxicity: None of the ingredients are listed.

Canadian

Canadian Domestic Substances List (DSL):
All ingredients are listed.

EU

REACH Article 57 (SVHC): None of the ingredients are listed.

Safety Data Sheet

according to 1907/2006/EC (REACH), 1272/2008/EC (CLP), 29CFR1910/1200 and GHS Rev. 3

Effective date: 10.18.2017 **Revision**: 10.18.2017

Trade Name: Alconox

Germany MAK: Not classified.
EC 648/2004 – This is an industrial detergent. Contains >30% phosphate, 15-30% anionic surfactant, <5% EDTA salts
EC 551/2009 – This is not a laundry or dishwasher detergent
EC 907/2006 – Contains no enzymes, optical brighteners, perfumes, allergenic fragrances, or preservative agents

Asia Pacific

Australia

Australian Inventory of Chemical Substances (AICS): All ingredients are listed.

China

Inventory of Existing Chemical Substances in China (IECSC): All ingredients are listed.

Japan

Inventory of Existing and New Chemical Substances (ENCS): All ingredients are listed.

Korea

Existing Chemicals List (ECL): All ingredients are listed.

New Zealand

New Zealand Inventory of Chemicals (NZOIC): All ingredients are listed.

Philippines

Philippine Inventory of Chemicals and Chemical Substances (PICCS): All ingredients are listed.

Taiwan

Taiwan Chemical Substance Inventory (TSCI): All ingredients are listed.

16 Other information

Abbreviations and Acronyms: None

Summary of Phrases

Hazard statements:
H315 Causes skin irritation.
H319 Causes serious eye irritation.

NFPA: 1-0-0
HMIS: 1-0-0

Precautionary statements:
P264 Wash skin thoroughly after handling.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P302+P352 If on skin: Wash with soap and water.
P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing.
P321 Specific treatment (see supplemental first aid instructions on this label).
P332+P313 If skin irritation occurs: Get medical advice/attention.
P362 Take off contaminated clothing and wash before reuse.
P501 Dispose of contents and container as instructed in Section 13.

Manufacturer Statement:

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

SAFETY DATA SHEET

Creation Date 22-Sep-2009 **Revision Date** 18-Jan-2018 **Revision Number** 4

1. Identification

Product Name **Bentonite**

Cat No. : **B235-500**

CAS-No 1302-78-9
Synonyms tixoton; Southern bentonite; Bentonite magma

Recommended Use Laboratory chemicals.
Uses advised against Not for food, drug, pesticide or biocidal product use

Details of the supplier of the safety data sheet

Company
Fisher Scientific
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Emergency Telephone Number
CHEMTREC®, Inside the USA: 800-424-9300
CHEMTREC®, Outside the USA: 001-703-527-3887

2. Hazard(s) identification

Classification
Classification under 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Not a dangerous substance or mixture according to the Globally Harmonized System (GHS)

Label Elements

Hazard Statements

Precautionary Statements
Hazards not otherwise classified (HNOC)
None identified

3. Composition/Information on Ingredients

Component	CAS-No	Weight %
Bentonite	1302-78-9	>95

4. First-aid measures

Eye Contact	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.
Skin Contact	Wash off immediately with plenty of water for at least 15 minutes. Obtain medical attention.
Inhalation	Move to fresh air. Obtain medical attention. If not breathing, give artificial respiration.
Ingestion	Do not induce vomiting. Obtain medical attention.
Most important symptoms and effects	. No information available
Notes to Physician	Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media	Substance is nonflammable; use agent most appropriate to extinguish surrounding fire.
Unsuitable Extinguishing Media	No information available
Flash Point	Not applicable
Method -	No information available
Autoignition Temperature	Not applicable
Explosion Limits	
Upper	No data available
Lower	No data available
Sensitivity to Mechanical Impact	No information available
Sensitivity to Static Discharge	No information available

Specific Hazards Arising from the Chemical
Keep product and empty container away from heat and sources of ignition.

Hazardous Combustion Products
None known
Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA

Health	Flammability	Instability	Physical hazards
0	1	1	N/A

6. Accidental release measures

Personal Precautions	Ensure adequate ventilation. Use personal protective equipment. Avoid dust formation. Avoid contact with skin, eyes and clothing.
Environmental Precautions	Should not be released into the environment. See Section 12 for additional ecological information.
Methods for Containment and Clean Up	Sweep up or vacuum up spillage and collect in suitable container for disposal. Avoid dust formation. Provide adequate ventilation.

7. Handling and storage

Handling	Wear personal protective equipment. Ensure adequate ventilation. Avoid contact with skin, eyes and clothing. Avoid ingestion and inhalation. Avoid dust formation. Handle under inert gas, protect from moisture.
Storage	Keep container tightly closed in a dry and well-ventilated place. Store under an inert atmosphere.

8. Exposure controls / personal protection

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH	Mexico OEL (TWA)
Bentonite	TWA: 1 mg/m³			

Legend

ACGIH - American Conference of Governmental Industrial Hygienists

Engineering Measures None under normal use conditions.

Personal Protective Equipment

Eye/face Protection Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin and body protection Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection No protective equipment is needed under normal use conditions.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Powder Solid
Appearance	Beige
Odor	Odorless
Odor Threshold	No information available
pH	No information available
Melting Point/Range	No data available
Boiling Point/Range	No information available
Flash Point	Not applicable
Evaporation Rate	Not applicable
Flammability (solid,gas)	No information available
Flammability or explosive limits	
Upper	No data available
Lower	No data available
Vapor Pressure	No information available
Vapor Density	Not applicable
Specific Gravity	No information available
Solubility	Insoluble in water
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	Not applicable
Decomposition Temperature	No information available
Viscosity	Not applicable

10. Stability and reactivity

Reactive Hazard None known, based on information available

Stability Hygroscopic. Moisture sensitive.

Conditions to Avoid Incompatible products. Excess heat. Avoid dust formation. Exposure to moist air or water.

Incompatible Materials Strong oxidizing agents, Strong acids

Hazardous Decomposition Products None under normal use conditions

Hazardous Polymerization Hazardous polymerization does not occur.

Hazardous Reactions None under normal processing.

11. Toxicological information

Acute Toxicity

Product Information
Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Bentonite	LD50 > 5000 mg/kg (Rat)	Not listed	Not listed

Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation Irritating to eyes, respiratory system and skin

Sensitization No information available

Carcinogenicity Possible cancer hazard. May cause cancer based on animal data. The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
Bentonite	1302-78-9	Not listed	Not listed	Not listed	Not listed	Not listed

Mutagenic Effects No information available

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure None known
STOT - repeated exposure None known

Aspiration hazard No information available

Symptoms / effects,both acute and delayed No information available

Endocrine Disruptor Information No information available

Other Adverse Effects The toxicological properties have not been fully investigated.

12. Ecological information

Ecotoxicity
Do not empty into drains. Do not flush into surface water or sanitary sewer system.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Bentonite	Not listed	LC50: 8.0 - 19.0 g/L, 96h (Salmo gairdneri) LC50: = 19000 mg/L, 96h static (Oncorhynchus mykiss)	Not listed	Not listed

Persistence and Degradability Insoluble in water

Bioaccumulation/ Accumulation No information available.

Mobility Is not likely mobile in the environment due its low water solubility.

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

14. Transport information

DOT Not regulated
TDG Not regulated
IATA Not regulated
IMDG/IMO Not regulated

15. Regulatory information

All of the components in the product are on the following Inventory lists: X = listed

International Inventories

Component	TSCA	DSL	NDSL	EINECS	ELINCS	NLP	PICCS	ENCS	AICS	IECSC	KECL
Bentonite	X	X	-	215-108-5	-		X	-	X	X	X

Legend:
X - Listed
E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.
F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.
N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.
P - Indicates a commenced PMN substance
R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.
S - Indicates a substance that is identified in a proposed or final Significant New Use Rule
T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.
XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B).
Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.
Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

U.S. Federal Regulations

TSCA 12(b) Not applicable

SARA 313 Not applicable

SARA 311/312 Hazard Categories See section 2 for more information

CWA (Clean Water Act) Not applicable

Clean Air Act Not applicable

OSHA Occupational Safety and Health Administration
Not applicable

CERCLA Not applicable

California Proposition 65 This product does not contain any Proposition 65 chemicals

U.S. State Right-to-Know Regulations Not applicable

U.S. Department of Transportation

Reportable Quantity (RQ):	N
DOT Marine Pollutant	N
DOT Severe Marine Pollutant	N

U.S. Department of Homeland Security
This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade No information available

16. Other information

Prepared By
Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Creation Date	22-Sep-2009
Revision Date	18-Jan-2018
Print Date	18-Jan-2018
Revision Summary	This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

Disclaimer
The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of SDS

SAFETY DATA SHEET

1. Identification

Product identifier	**DIESEL FUELS**
Other means of identification	
SDS number	102-GHS
Synonyms	Diesel Fuels All Grades, Diesel Fuel No.2, Fuel Oil No.2, High Sulfur Diesel Fuel, Low Sulfur Diesel Fuel, Ultra Low Sulfur Diesel Fuel, CARB (California Air Resource Board) Diesel Fuel, Off-Road Diesel Fuel, Dyed Diesel Fuel, X Grade Diesel Fuel, X-1 Diesel Fuel, R5 ULSD, B5 ULS D See section 16 for complete information.
Recommended use	Motor Fuel Refinery feedstock.
Recommended restrictions	None known.

Manufacturer/Importer/Supplier/Distributor information

Manufacturer/Supplier	Valero Marketing & Supply Company and Affiliates One Valero Way San Antonio, TX 78269-6000
General Assistance	210-345-4593
E-Mail	CorpHSE@valero.com
Contact Person	Industrial Hygienist
Emergency Telephone	24 Hour Emergency 866-565-5220 1-800-424-9300 (CHEMTREC USA)

2. Hazard(s) identification

Physical hazards	Flammable liquids	Category 3
Health hazards	Acute toxicity, inhalation	Category 4
	Skin corrosion/irritation	Category 2
	Carcinogenicity	Category 2
	Reproductive toxicity	Category 2
	Specific target organ toxicity, repeated exposure	Category 2
	Aspiration hazard	Category 1
Environmental hazards	Hazardous to the aquatic environment, long-term hazard	Category 2

OSHA defined hazards Not classified.

Label elements

Signal word	Danger
Hazard statement	Flammable liquid and vapor. Harmful if inhaled. Causes skin irritation. Suspected of causing cancer. Suspected of damaging fertility or the unborn child. May cause damage to organs (blood, thymus, liver) through prolonged or repeated exposure. May be fatal if swallowed and enters airways.
Precautionary statement	
Prevention	Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Keep container tightly closed. Ground/bond container and receiving equipment. Use explosion-proof electrical/ventilating/lighting equipment. Use only non-sparking tools. Take precautionary measures against static discharges. Do not breathe mist/vapors/spray. Wash thoroughly after handling. Wear protective gloves/protective clothing/eye protection/face protection. Use only outdoors or in a well-ventilated area.

Response	If skin irritation occurs: Get medical advice/attention. If inhaled: Remove person to fresh air and keep comfortable for breathing. If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. If exposed or concerned: Get medical advice/attention. If swallowed: Immediately call a poison center/doctor. Take off contaminated clothing and wash before reuse. In case of fire: Use foam, carbon dioxide, dry powder or water fog for extinction.
Storage	Store locked up. Store in a well-ventilated place. Keep cool.
Disposal	Dispose of contents/container in accordance with local/regional/national/international regulations.
Hazard(s) not otherwise classified (HNOC)	None known.

3. Composition/information on ingredients

Mixtures

Chemical name	CAS number	%
Fuels, diesel, no. 2	68476-34-6	85 - 100
Biodiesel - Fatty acid methyl esters	67762-38-3	0 - 10
Fuels, diesel, C9-18-alkane branched and linear	1159170-26-9	0 - 5
n-Nonane	111-84-2	1 - 3
Octane (All isomers)	111-65-9	1 - 2
Hexane (Other isomers)	96-14-0	0 - 1
Naphthalene	91-20-3	0 - 1
n-Heptane	142-82-5	0 - 1
n-Hexane	110-54-3	0 - 1

4. First-aid measures

Inhalation	Move to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Get medical attention.
Skin contact	Remove contaminated clothing and shoes. Wash off immediately with soap and plenty of water. Get medical attention if irritation develops or persists. Wash clothing separately before reuse. Destroy or thoroughly clean contaminated shoes. If high pressure injection under the skin occurs, always seek medical attention.
Eye contact	Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention.
Ingestion	Rinse mouth thoroughly. Do not induce vomiting without advice from poison control center. Do not give mouth-to-mouth resuscitation. If vomiting occurs, keep head low so that stomach content does not get into the lungs. Never give anything by mouth to a victim who is unconscious or is having convulsions. Get medical attention immediately.
Most important symptoms/effects, acute and delayed	Irritation of nose and throat. Irritation of eyes and mucous membranes. Skin irritation. Unconsciousness. Corneal damage. Narcosis. Decrease in motor functions. Behavioral changes. Edema. Liver enlargement. Jaundice. Conjunctivitis. Proteinuria. Defatting of the skin. Rash. The toxicological properties of this product have not been thoroughly investigated. Use appropriate precautions. Hydrogen sulfide, a highly toxic gas, may be present. Signs and symptoms of overexposure to hydrogen sulfide include respiratory and eye irritation, dizziness, nausea, coughing, a sensation of dryness and pain in the nose, and loss of consciousness. Odor does not provide a reliable indicator of the presence of hazardous levels in the atmosphere.
Indication of immediate medical attention and special treatment needed	In case of shortness of breath, give oxygen. Keep victim warm. Keep victim under observation. Symptoms may be delayed. The toxicological properties of this material have not been fully investigated.
General information	If exposed or concerned: get medical attention/advice. Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance. Wash contaminated clothing before re-use.

5. Fire-fighting measures

Suitable extinguishing media	Water spray. Water fog. Foam. Dry chemical powder. Carbon dioxide (CO2).

Unsuitable extinguishing media	Do not use a solid water stream as it may scatter and spread fire.
Specific hazards arising from the chemical	The product is flammable, and heating may generate vapors which may form explosive vapor/air mixtures. Thermal decomposition or combustion may liberate toxic gases or fumes.
Special protective equipment and precautions for firefighters	Wear full protective clothing, including helmet, self-contained positive pressure or pressure demand breathing apparatus, protective clothing and face mask.
Fire-fighting equipment/instructions	Wear full protective clothing, including helmet, self-contained positive pressure or pressure demand breathing apparatus, protective clothing and face mask. Withdraw immediately in case of rising sound from venting safety devices or any discoloration of tanks due to fire. Fight fire from maximum distance or use unmanned hose holders or monitor nozzles. Move containers from fire area if you can do it without risk. In the event of fire, cool tanks with water spray. Cool containers exposed to flames with water until well after the fire is out. For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible, withdraw from area and let fire burn. Water runoff can cause environmental damage. Use compatible foam to minimize vapor generation as needed.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures	Keep unnecessary personnel away. Local authorities should be advised if significant spills cannot be contained. Keep upwind. Keep out of low areas. Ventilate closed spaces before entering. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. See Section 8 of the SDS for Personal Protective Equipment.
Methods and materials for containment and cleaning up	Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Local authorities should be advised if significant spillages cannot be contained. Stop leak if you can do so without risk. This material is a water pollutant and should be prevented from contaminating soil or from entering sewage and drainage systems and bodies of water. Dike the spilled material, where this is possible. Prevent entry into waterways, sewers, basements or confined areas. Use non-sparking tools and explosion-proof equipment. Small Spills: Absorb spill with vermiculite or other inert material, then place in a container for chemical waste. Clean surface thoroughly to remove residual contamination. This material and its container must be disposed of as hazardous waste. Large Spills: Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. Prevent product from entering drains. Do not allow material to contaminate ground water system. Should not be released into the environment. Clean up in accordance with all applicable regulations.
Environmental precautions	If facility or operation has an "oil or hazardous substance contingency plan", activate its procedures. Stay upwind and away from spill. Wear appropriate protective equipment including respiratory protection as conditions warrant. Do not enter or stay in area unless monitoring indicates that it is safe to do so. Isolate hazard area and restrict entry to emergency crew. Flammable. Review Firefighting Measures, Section 5, before proceeding with clean up. Keep all sources of ignition (flames, smoking, flares, etc.) and hot surfaces away from release. Contain spill in smallest possible area. Recover as much product as possible (e.g. by vacuuming). Stop leak if it can be done without risk. Use water spray to disperse vapors. Use compatible foam to minimize vapor generation as needed. Spilled material may be absorbed by an appropriate absorbent, and then handled in accordance with environmental regulations. Prevent spilled material from entering sewers, storm drains, other unauthorized treatment or drainage systems and natural waterways. Contact fire authorities and appropriate federal, state and local agencies. If spill of any amount is made into or upon navigable waters, the contiguous zone, or adjoining shorelines, contact the National Response Center at 1-800-424-8802. For highway or railways spills, contact Chemtrec at 1-800-424-9300.

7. Handling and storage

Precautions for safe handling	Eliminate sources of ignition. Avoid spark promoters. Ground/bond container and equipment. These alone may be insufficient to remove static electricity. Wear personal protective equipment. Avoid breathing mist/vapors/spray. Avoid contact with eyes, skin, and clothing. Do not taste or swallow. Avoid prolonged exposure. Use only with adequate ventilation. Wash thoroughly after handling. The product is combustible, and heating may generate vapors which may form explosive vapor/air mixtures. DO NOT handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. Take precautionary measures against static discharges. All equipment used when handling the product must be grounded. Use non-sparking tools and explosion-proof equipment. When using, do not eat, drink or smoke. Avoid release to the environment.

Conditions for safe storage, including any incompatibilities	Flammable liquid storage. Do not handle or store near an open flame, heat or other sources of ignition. This material can accumulate static charge which may cause spark and become an ignition source. The pressure in sealed containers can increase under the influence of heat. Keep container tightly closed in a cool, well-ventilated place. Keep away from food, drink and animal feedingstuffs. Keep out of the reach of children.

8. Exposure controls/personal protection

Occupational exposure limits

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Components	Type	Value
Naphthalene (CAS 91-20-3)	PEL	50 mg/m3
		10 ppm
n-Heptane (CAS 142-82-5)	PEL	2000 mg/m3
		500 ppm
n-Hexane (CAS 110-54-3)	PEL	1800 mg/m3
		500 ppm
Octane (All isomers) (CAS 111-65-9)	PEL	2350 mg/m3
		500 ppm

US. ACGIH Threshold Limit Values

Components	Type	Value	Form
Fuels, diesel, no. 2 (CAS 68476-34-6)	TWA	100 mg/m3	Inhalable fraction and vapor.
Hexane (Other isomers) (CAS 96-14-0)	STEL	1000 ppm	
	TWA	500 ppm	
Naphthalene (CAS 91-20-3)	STEL	15 ppm	
	TWA	10 ppm	
n-Heptane (CAS 142-82-5)	STEL	500 ppm	
	TWA	400 ppm	
n-Hexane (CAS 110-54-3)	TWA	50 ppm	
n-Nonane (CAS 111-84-2)	TWA	200 ppm	
Octane (All isomers) (CAS 111-65-9)	TWA	300 ppm	

US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value
Hexane (Other isomers) (CAS 96-14-0)	Ceiling	1800 mg/m3
		510 ppm
	TWA	350 mg/m3
		100 ppm
Naphthalene (CAS 91-20-3)	STEL	75 mg/m3
		15 ppm
	TWA	50 mg/m3
		10 ppm
n-Heptane (CAS 142-82-5)	Ceiling	1800 mg/m3
		440 ppm
	TWA	350 mg/m3
		85 ppm
n-Hexane (CAS 110-54-3)	TWA	180 mg/m3
		50 ppm
n-Nonane (CAS 111-84-2)	TWA	1050 mg/m3
		200 ppm
Octane (All isomers) (CAS 111-65-9)	Ceiling	1800 mg/m3
		385 ppm
	TWA	350 mg/m3
		75 ppm

Biological limit values

ACGIH Biological Exposure Indices

Components	Value	Determinant	Specimen	Sampling Time
n-Hexane (CAS 110-54-3)	0.4 mg/l	2,5-Hexanedion, without hydrolysis	Urine	*
	0.4 mg/l	2,5-Hexanedi - on, without hydrolysis		*

* - For sampling details, please see the source document.

Exposure guidelines

US - California OELs: Skin designation

n-Hexane (CAS 110-54-3) Can be absorbed through the skin.

US ACGIH Threshold Limit Values: Skin designation

Fuels, diesel, no. 2 (CAS 68476-34-6) Can be absorbed through the skin.
Naphthalene (CAS 91-20-3) Can be absorbed through the skin.
n-Hexane (CAS 110-54-3) Can be absorbed through the skin.

Appropriate engineering controls Provide adequate general and local exhaust ventilation. Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits. Use explosion-proof equipment.

Individual protection measures, such as personal protective equipment

Eye/face protection Wear safety glasses. If splash potential exists, wear full face shield or chemical goggles.

Skin protection

Hand protection Wear chemical-resistant, impervious gloves. Suitable gloves can be recommended by the glove supplier. Be aware that the liquid may penetrate the gloves. Frequent change is advisable.

Other Full body suit and boots are recommended when handling large volumes or in emergency situations. Flame retardant protective clothing is recommended.

Respiratory protection Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator. If workplace exposure limits for product or components are exceeded, NIOSH approved equipment should be worn. Proper respirator selection should be determined by adequately trained personnel, based on the contaminants, the degree of potential exposure and published respiratory protection factors. This equipment should be available for nonroutine and emergency use.

Thermal hazards Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations Consult supervisor for special handling instructions. Avoid contact with eyes. Avoid contact with skin. Keep away from food and drink. Wash hands before breaks and immediately after handling the product. Provide eyewash station and safety shower. Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Appearance Liquid (may be dyed red).

Physical state Liquid.

Form Liquid.

Color Clear. Straw.

Odor Kerosene (strong).

Odor threshold Not available.

pH Not available.

Melting point/freezing point -60.07 °F (-51.15 °C) Estimated

Initial boiling point and boiling range 325 - 700 °F (162.78 - 371.11 °C)

Flash point > 100.0 °F (> 37.8 °C) Closed Cup

Evaporation rate 0.02

Flammability (solid, gas) Not available.

Upper/lower flammability or explosive limits

Flammability limit - lower (%)	0.4 %
Flammability limit - upper (%)	8 %
Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.
Vapor pressure	< 1 mm Hg (20°C)
Vapor density	3 (Air = 1)
Relative density	0.82 - 0.87
Relative density temperature	60 °F (15.56 °C)
Solubility(ies)	
Solubility (water)	Not available.
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	494.96 °F (257.2 °C)
Decomposition temperature	Not available.
Viscosity	2 - 4.5 mm²/s

10. Stability and reactivity

Reactivity	Stable at normal conditions.
Chemical stability	Stable under normal temperature conditions and recommended use.
Possibility of hazardous reactions	Hazardous polymerization does not occur.
Conditions to avoid	Heat, flames and sparks. Ignition sources. Contact with incompatible materials. Do not pressurize, cut, weld, braze, solder, drill, grind or expose empty containers to heat, flame, sparks, static electricity, or other sources of ignition; they may explode and cause injury or death.
Incompatible materials	Strong oxidizing agents.
Hazardous decomposition products	No hazardous decomposition products are known.

11. Toxicological information

Information on likely routes of exposure

Ingestion	May be fatal if swallowed and enters airways.
Inhalation	Harmful if inhaled. In high concentrations, vapors and spray mists are narcotic and may cause headache, fatigue, dizziness and nausea.
Skin contact	Causes skin irritation.
Eye contact	May cause eye irritation.
Symptoms related to the physical, chemical and toxicological characteristics	Irritation of nose and throat. Irritation of eyes and mucous membranes. Skin irritation. Unconsciousness. Corneal damage. Narcosis. Decrease in motor functions. Behavioral changes. Edema. Liver enlargement. Jaundice. Conjunctivitis. Proteinuria. Defatting of the skin. Rash. The toxicological properties of this product have not been thoroughly investigated. Use appropriate precautions.

Information on toxicological effects

Acute toxicity	Harmful if inhaled. Harmful: may cause lung damage if swallowed. The toxicological properties of this material have not been fully investigated.

Components	Species	Test Results
Fuels, diesel, no. 2 (CAS 68476-34-6)		
Acute		
Inhalation		
LC50	Rat	4.1 mg/l, 4 hours

Components	Species	Test Results
Naphthalene (CAS 91-20-3)		
Acute		
Dermal		
LD50	Rabbit	> 2 g/kg
Oral		
LD50	Rat	490 mg/kg
n-Heptane (CAS 142-82-5)		
Acute		
Inhalation		
LC50	Rat	103 mg/l, 4 Hours
n-Hexane (CAS 110-54-3)		
Acute		
Oral		
LD50	Rat	28710 mg/kg
n-Nonane (CAS 111-84-2)		
Acute		
Inhalation		
LC50	Rat	3200 mg/l, 4 Hours
Octane (All isomers) (CAS 111-65-9)		
Acute		
Inhalation		
LC50	Rat	118 mg/l, 4 Hours

Skin corrosion/irritation Causes skin irritation.

Serious eye damage/eye irritation Based on available data, the classification criteria are not met.

Respiratory or skin sensitization

Respiratory sensitization Based on available data, the classification criteria are not met.

Skin sensitization Based on available data, the classification criteria are not met.

Germ cell mutagenicity Based on available data, the classification criteria are not met.

Carcinogenicity Suspected of causing cancer.
International Agency for Research on Cancer (IARC): Whole diesel engine exhaust – IARC Group 1. Exposure may cause lung cancer and also noted a positive association with an increased risk of bladder cancer.
Diesel exhaust has been reported to be an occupational hazard due to NIOSH-reported potential carcinogenic properties.

IARC Monographs. Overall Evaluation of Carcinogenicity

Fuels, diesel, no. 2 (CAS 68476-34-6)	3 Not classifiable as to carcinogenicity to humans.
Naphthalene (CAS 91-20-3)	2B Possibly carcinogenic to humans.

NTP Report on Carcinogens

Naphthalene (CAS 91-20-3)	Reasonably Anticipated to be a Human Carcinogen.

Reproductive toxicity Suspected of damaging fertility or the unborn child.
Napthalene interferes with embryo development in experimental animals at dose levels that cause maternal toxicity. In humans, excessive exposure to this agent may cause hemolytic anemia in the mother and fetus.

Specific target organ toxicity - single exposure Based on available data, the classification criteria are not met.

Specific target organ toxicity - repeated exposure May cause damage to the following organs through prolonged or repeated exposure: Blood. Liver. Thymus.

Aspiration hazard May be fatal if swallowed and enters airways.

Chronic effects Contains organic solvents which in case of overexposure may depress the central nervous system causing dizziness and intoxication. Repeated exposure to naphthalene may cause cataracts, allergic skin rashes, destruction of red blood cells, and anemia, jaundice, kidney and liver damage. Danger of serious damage to health by prolonged exposure. Prolonged or repeated overexposure may cause central nervous system, kidney, liver, and lung damage.

Further information Symptoms may be delayed. Hydrogen sulfide, a highly toxic gas, may be present. Signs and symptoms of overexposure to hydrogen sulfide include respiratory and eye irritation, dizziness, nausea, coughing, a sensation of dryness and pain in the nose, and loss of consciousness. Odor does not provide a reliable indicator of the presence of hazardous levels in the atmosphere. Toxicological properties of this material have not been fully investigated.

12. Ecological information

Ecotoxicity Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Components		Species	Test Results
Fuels, diesel, no. 2 (CAS 68476-34-6)			
Aquatic			
Acute			
Crustacea	EL50	Daphnia magna	68 mg/l, 48 hours
Fish	LL50	Oncorhynchus mykiss	65 mg/l, 96 hours
Naphthalene (CAS 91-20-3)			
Aquatic			
Crustacea	EC50	Water flea (Daphnia magna)	1.09 - 3.4 mg/l, 48 hours
Fish	LC50	Pink salmon (Oncorhynchus gorbuscha)	0.95 - 1.62 mg/l, 96 hours
n-Heptane (CAS 142-82-5)			
Aquatic			
Fish	LC50	Western mosquitofish (Gambusia affinis)	4924 mg/l, 96 hours
n-Hexane (CAS 110-54-3)			
Aquatic			
Fish	LC50	Fathead minnow (Pimephales promelas)	2.101 - 2.981 mg/l, 96 hours

Persistence and degradability Not available.

Bioaccumulative potential Not available.

Partition coefficient n-octanol / water (log Kow)

Hexane (Other isomers) (CAS 96-14-0)	3.6
Octane (All isomers) (CAS 111-65-9)	5.18
n-Heptane (CAS 142-82-5)	4.66
n-Hexane (CAS 110-54-3)	3.9
n-Nonane (CAS 111-84-2)	5.46

Mobility in soil Not available.

Other adverse effects Not available.

13. Disposal considerations

Disposal instructions Dispose in accordance with all applicable regulations. This material and its container must be disposed of as hazardous waste. Dispose of this material and its container to hazardous or special waste collection point. Incinerate the material under controlled conditions in an approved incinerator. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container.

Hazardous waste code D001: Waste Flammable material with a flash point <140 °F

US RCRA Hazardous Waste U List: Reference

Naphthalene (CAS 91-20-3)	U165

Waste from residues / unused products Dispose of in accordance with local regulations.

Contaminated packaging Offer rinsed packaging material to local recycling facilities.

14. Transport information

DOT

UN number UN1202

UN proper shipping name Diesel fuel

Transport hazard class(es)

Class Combustible Liquid

Subsidiary risk -

Packing group III

Environmental hazards

Marine pollutant	Yes
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
Special provisions	144, B1, IB3, T2, TP1
Packaging exceptions	150
Packaging non bulk	203
Packaging bulk	242

IATA

UN number	UN1202
UN proper shipping name	Diesel fuel
Transport hazard class(es)	
Class	3
Subsidiary risk	-
Label(s)	3
Packing group	III
Environmental hazards	Yes
ERG Code	3L
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

IMDG

UN number	UN1202
UN proper shipping name	DIESEL FUEL
Transport hazard class(es)	
Class	3
Subsidiary risk	-
Label(s)	3
Packing group	III
Environmental hazards	
Marine pollutant	Yes
EmS	F-E, S-E
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	Not applicable. However, this product is a liquid and if transported in bulk covered under MARPOL 73/78, Annex I.

15. Regulatory information

US federal regulations

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

n-Nonane (CAS 111-84-2)	1.0 % One-Time Export Notification only.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

CERCLA Hazardous Substance List (40 CFR 302.4)

Hexane (Other isomers) (CAS 96-14-0)	LISTED
Naphthalene (CAS 91-20-3)	LISTED
n-Heptane (CAS 142-82-5)	LISTED
n-Hexane (CAS 110-54-3)	LISTED
n-Nonane (CAS 111-84-2)	LISTED
Octane (All isomers) (CAS 111-65-9)	LISTED

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories	Immediate Hazard - No Delayed Hazard - No Fire Hazard - No Pressure Hazard - No Reactivity Hazard - No

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical	Yes

SARA 313 (TRI reporting)

Chemical name	CAS number	% by wt.
Naphthalene	91-20-3	0 - 1

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Naphthalene (CAS 91-20-3)
n-Hexane (CAS 110-54-3)

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Safe Drinking Water Act (SDWA) Not regulated.

US state regulations WARNING: This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

US. Massachusetts RTK - Substance List

Hexane (Other isomers) (CAS 96-14-0)
Naphthalene (CAS 91-20-3)
n-Heptane (CAS 142-82-5)
n-Hexane (CAS 110-54-3)
n-Nonane (CAS 111-84-2)
Octane (All isomers) (CAS 111-65-9)

US. New Jersey Worker and Community Right-to-Know Act

Fuels, diesel, no. 2 (CAS 68476-34-6)
Naphthalene (CAS 91-20-3)
n-Heptane (CAS 142-82-5)
n-Hexane (CAS 110-54-3)
n-Nonane (CAS 111-84-2)
Octane (All isomers) (CAS 111-65-9)

US. Pennsylvania Worker and Community Right-to-Know Law

Fuels, diesel, no. 2 (CAS 68476-34-6)
Hexane (Other isomers) (CAS 96-14-0)
Naphthalene (CAS 91-20-3)
n-Heptane (CAS 142-82-5)
n-Hexane (CAS 110-54-3)
n-Nonane (CAS 111-84-2)
Octane (All isomers) (CAS 111-65-9)

US. Rhode Island RTK

Naphthalene (CAS 91-20-3)
n-Hexane (CAS 110-54-3)

US. California Proposition 65

US - California Proposition 65 - Carcinogens & Reproductive Toxicity (CRT): Listed substance

Benzene (CAS 71-43-2)
Toluene (CAS 108-88-3)

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	No
Canada	Domestic Substances List (DSL)	No
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	No
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	No
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	No
Korea	Existing Chemicals List (ECL)	No
New Zealand	New Zealand Inventory	No
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	No

Country(s) or region	Inventory name	On inventory (yes/no)*
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s).
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information, including date of preparation or last revision

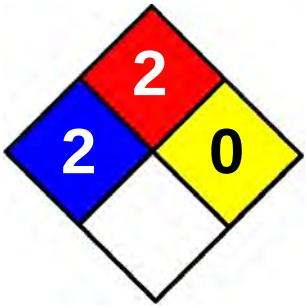
Issue date 13-May-2013

Revision date 23-May-2014

Version # 04

Further information HMIS® is a registered trade and service mark of the NPCA.

NFPA Ratings



Disclaimer This material Safety Data Sheet (SDS) was prepared in accordance with 29 CFR 1910.1200 by Valero Marketing & Supply Co., ("VALERO"). VALERO does not assume any liability arising out of product use by others. The information, recommendations, and suggestions presented in this SDS are based upon test results and data believed to be reliable. The end user of the product has the responsibility for evaluating the adequacy of the data under the conditions of use, determining the safety, toxicity and suitability of the product under these conditions, and obtaining additional or clarifying information where uncertainty exists. No guarantee expressed or implied is made as to the effects of such use , the results to be obtained, or the safety and toxicity of the product in any specific application. Furthermore, the information herein is not represented as absolutely complete, since it is not practicable to provide all the scientific and study information in the format of this document, plus additional information may be necessary under exceptional conditions of use, or because of applicable laws or government regulations.

SAFETY DATA SHEET

PURELL® Advanced Hand Sanitizer Refreshing Gel

Version	Revision Date:	MSDS Number:	Date of last issue: 12/12/2014
1.1	02/10/2015	36779-00002	Date of first issue: 12/12/2014

SECTION 1. IDENTIFICATION

Product name : PURELL® Advanced Hand Sanitizer Refreshing Gel

Manufacturer or supplier's details

Company name of supplier : GOJO Industries, Inc.

Address : One GOJO Plaza, Suite 500
Akron OH 44311

Telephone : 1 (330) 255-6000

Emergency telephone : 1-800-424-9300 CHEMTREC

Recommended use of the chemical and restrictions on use

Recommended use : Hand Sanitizer

Restrictions on use : This is a personal care or cosmetic product that is safe for consumers and other users under normal and reasonably foreseeable use. Cosmetics and consumer products, specifically defined by regulations around the world, are exempt from the requirement of an SDS for the consumer. While this material is not considered hazardous, this SDS contains valuable information critical to the safe handling and proper use of the product for industrial workplace conditions as well as unusual and unintended exposures such as large spills. This SDS should be retained and available for employees and other users of this product. For specific intended-use guidance, please refer to the information provided on the package or instruction sheet.

SECTION 2. HAZARDS IDENTIFICATION

GHS Classification

Flammable liquids : Category 3

Eye irritation : Category 2A

GHS Label element

Hazard pictograms :

Signal Word : Warning

Hazard Statements : H226 Flammable liquid and vapor.

H319 Causes serious eye irritation.

Precautionary Statements : **Prevention:**
P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P233 Keep container tightly closed.
P241 Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P242 Use only non-sparking tools.
P243 Take precautionary measures against static discharge.
P264 Wash skin thoroughly after handling.
P280 Wear protective gloves/ eye protection/ face protection.
Response:
P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337 + P313 If eye irritation persists: Get medical advice/ attention.
Storage:
P403 + P235 Store in a well-ventilated place. Keep cool.
Disposal:
P501 Dispose of contents/ container to an approved waste disposal plant.

Other hazards

Vapors may form explosive mixture with air.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Hazardous ingredients

Chemical Name	CAS-No.	Concentration (%)
Ethanol	64-17-5	>= 50 - < 70
Propan-2-ol	67-63-0	>= 1 - < 5

SECTION 4. FIRST AID MEASURES

General advice : In the case of accident or if you feel unwell, seek medical advice immediately.
When symptoms persist or in all cases of doubt seek medical advice.

If inhaled : If inhaled, remove to fresh air.
Get medical attention if symptoms occur.

In case of skin contact : Wash with water and soap as a precaution.
Get medical attention if symptoms occur.

In case of eye contact	:	In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. If easy to do, remove contact lens, if worn. Get medical attention.
If swallowed	:	If swallowed, DO NOT induce vomiting. Get medical attention if symptoms occur. Rinse mouth thoroughly with water.
Most important symptoms and effects, both acute and delayed	:	Causes serious eye irritation.
Protection of first-aiders	:	First Aid responders should pay attention to self-protection, and use the recommended personal protective equipment when the potential for exposure exists.
Notes to physician	:	Treat symptomatically and supportively.

SECTION 5. FIRE-FIGHTING MEASURES

Suitable extinguishing media	:	Water spray Alcohol-resistant foam Dry chemical Carbon dioxide (CO2)
Unsuitable extinguishing media	:	High volume water jet
Specific hazards during fire fighting	:	Do not use a solid water stream as it may scatter and spread fire. Flash back possible over considerable distance. Vapors may form explosive mixtures with air. Exposure to combustion products may be a hazard to health.
Hazardous combustion products	:	Carbon oxides
Specific extinguishing methods	:	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Use water spray to cool unopened containers. Remove undamaged containers from fire area if it is safe to do so. Evacuate area.
Special protective equipment for fire-fighters	:	In the event of fire, wear self-contained breathing apparatus. Use personal protective equipment.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions,	:	Remove all sources of ignition.

protective equipment and emergency procedures		Use personal protective equipment. Follow safe handling advice and personal protective equipment recommendations.
Environmental precautions	:	Discharge into the environment must be avoided. Prevent further leakage or spillage if safe to do so. Prevent spreading over a wide area (e.g. by containment or oil barriers). Retain and dispose of contaminated wash water. Local authorities should be advised if significant spillages cannot be contained.
Methods and materials for containment and cleaning up	:	Non-sparking tools should be used. Soak up with inert absorbent material. Suppress (knock down) gases/vapors/mists with a water spray jet. For large spills, provide diking or other appropriate containment to keep material from spreading. If diked material can be pumped, store recovered material in appropriate container. Clean up remaining materials from spill with suitable absorbent. Local or national regulations may apply to releases and disposal of this material, as well as those materials and items employed in the cleanup of releases. You will need to determine which regulations are applicable. Sections 13 and 15 of this SDS provide information regarding certain local or national requirements.

SECTION 7. HANDLING AND STORAGE

Technical measures	:	See Engineering measures under EXPOSURE CONTROLS/PERSONAL PROTECTION section.
Local/Total ventilation	:	Use with local exhaust ventilation. Use only in an area equipped with explosion proof exhaust ventilation.
Advice on safe handling	:	Do not breathe vapors or spray mist. Do not swallow. Do not get in eyes. Avoid prolonged or repeated contact with skin. Handle in accordance with good industrial hygiene and safety practice. Non-sparking tools should be used. Keep container tightly closed. Keep away from heat and sources of ignition. Take precautionary measures against static discharges. Take care to prevent spills, waste and minimize release to the environment.
Conditions for safe storage	:	Keep in properly labeled containers. Keep tightly closed.

Keep in a cool, well-ventilated place.
Store in accordance with the particular national regulations.
Keep away from heat and sources of ignition.

Materials to avoid : Do not store with the following product types:
Strong oxidizing agents
Organic peroxides
Flammable solids
Pyrophoric liquids
Pyrophoric solids
Self-heating substances and mixtures
Substances and mixtures which in contact with water emit flammable gases
Explosives
Gases

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ingredients with workplace control parameters

Ingredients	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Ethanol	64-17-5	TWA	1,000 ppm 1,900 mg/m3	NIOSH REL
		TWA	1,000 ppm 1,900 mg/m3	OSHA Z-1
		STEL	1,000 ppm	ACGIH
Propan-2-ol	67-63-0	TWA	200 ppm	ACGIH
		STEL	400 ppm	ACGIH
		TWA	400 ppm 980 mg/m3	NIOSH REL
		ST	500 ppm 1,225 mg/m3	NIOSH REL
		TWA	400 ppm 980 mg/m3	OSHA Z-1

Biological occupational exposure limits

Ingredients	CAS-No.	Control parameters	Biological specimen	Sampling time	Permissible concentration	Basis
Propan-2-ol	67-63-0	Acetone	Urine	End of shift at end of work-week	40 mg/l	ACGIH BEI

Engineering measures : Minimize workplace exposure concentrations.
Use only in an area equipped with explosion proof exhaust ventilation.
Use with local exhaust ventilation.

Personal protective equipment

Respiratory protection	:	General and local exhaust ventilation is recommended to maintain vapor exposures below recommended limits. Where concentrations are above recommended limits or are unknown, appropriate respiratory protection should be worn. Follow OSHA respirator regulations (29 CFR 1910.134) and use NIOSH/MSHA approved respirators. Protection provided by air purifying respirators against exposure to any hazardous chemical is limited. Use a positive pressure air supplied respirator if there is any potential for uncontrolled release, exposure levels are unknown, or any other circumstance where air purifying respirators may not provide adequate protection.
Hand protection		
Material	:	Impervious gloves
Material	:	Flame retardant gloves
Remarks	:	Choose gloves to protect hands against chemicals depending on the concentration specific to place of work. Breakthrough time is not determined for the product. Change gloves often! For special applications, we recommend clarifying the resistance to chemicals of the aforementioned protective gloves with the glove manufacturer. Wash hands before breaks and at the end of workday.
Eye protection	:	Wear the following personal protective equipment: Safety goggles
Skin and body protection	:	Select appropriate protective clothing based on chemical resistance data and an assessment of the local exposure potential. Wear the following personal protective equipment: Flame retardant antistatic protective clothing. Skin contact must be avoided by using impervious protective clothing (gloves, aprons, boots, etc).
Hygiene measures	:	Ensure that eye flushing systems and safety showers are located close to the working place. When using do not eat, drink or smoke. Wash contaminated clothing before re-use.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	liquid
Color	:	clear, Colorless to pale yellow
Odor	:	citrus

Odor Threshold	:	No data available
pH	:	6.5 - 8.5
Melting point/freezing point	:	No data available
Initial boiling point and boiling range	:	70 °C
Flash point	:	25 °C
Evaporation rate	:	No data available
Flammability (solid, gas)	:	Not applicable
Upper explosion limit	:	No data available
Lower explosion limit	:	No data available
Vapor pressure	:	No data available
Relative vapor density	:	No data available
Density	:	0.8750 g/cm3
Solubility(ies)		
Water solubility	:	soluble
Partition coefficient: n-octanol/water	:	Not applicable
Autoignition temperature	:	No data available
Decomposition temperature	:	The substance or mixture is not classified self-reactive.
Viscosity		
Viscosity, kinematic	:	3,500 - 23,000 mm2/s (20 °C)
Explosive properties	:	Not explosive
Oxidizing properties	:	The substance or mixture is not classified as oxidizing.

SECTION 10. STABILITY AND REACTIVITY

Reactivity	:	Not classified as a reactivity hazard.
Chemical stability	:	Stable under normal conditions.
Possibility of hazardous reactions	:	Flammable liquid and vapor. Vapors may form explosive mixture with air. Can react with strong oxidizing agents.

Conditions to avoid	:	Heat, flames and sparks.
Incompatible materials	:	Oxidizing agents
Hazardous decomposition products	:	No hazardous decomposition products are known.

SECTION 11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure
Inhalation
Skin contact
Ingestion
Eye contact

Acute toxicity

Not classified based on available information.

Product:

Acute oral toxicity	:	Acute toxicity estimate: > 5,000 mg/kg Method: Calculation method

Ingredients:

Ethanol:

Acute oral toxicity	:	LD50 (Rat): > 5,000 mg/kg
Acute inhalation toxicity	:	LC50 (Rat): 124.7 mg/l Exposure time: 4 h Test atmosphere: vapor

Propan-2-ol:

Acute oral toxicity	:	LD50 (Rat): > 5,000 mg/kg
Acute inhalation toxicity	:	LC50 (Rat): 72.6 mg/l Exposure time: 4 h Test atmosphere: vapor
Acute dermal toxicity	:	LD50 (Rat): > 5,000 mg/kg

Skin corrosion/irritation

Not classified based on available information.

Product:

Result: No skin irritation

Ingredients:

Ethanol:
Species: Rabbit
Method: OECD Test Guideline 404
Result: No skin irritation

Propan-2-ol:
Species: Rabbit
Result: No skin irritation

Serious eye damage/eye irritation

Causes serious eye irritation.

Ingredients:

Ethanol:
Species: Rabbit
Result: Irritation to eyes, reversing within 21 days
Method: OECD Test Guideline 405

Propan-2-ol:
Species: Rabbit
Result: Irritation to eyes, reversing within 21 days

Respiratory or skin sensitization

Skin sensitization: Not classified based on available information.
Respiratory sensitization: Not classified based on available information.

Product:

Assessment: Does not cause skin sensitization.

Ingredients:

Ethanol:
Test Type: Local lymph node assay (LLNA)
Routes of exposure: Skin contact
Species: Mouse
Result: negative

Propan-2-ol:
Test Type: Buehler Test
Routes of exposure: Skin contact
Species: Guinea pig
Method: OECD Test Guideline 406
Result: negative

Germ cell mutagenicity

Not classified based on available information.

Ingredients:

Ethanol:

Genotoxicity in vitro	:	Test Type: In vitro mammalian cell gene mutation test Result: negative
Genotoxicity in vivo	:	Test Type: Rodent dominant lethal test (germ cell) (in vivo) Species: Mouse Application Route: Ingestion Result: negative

Propan-2-ol:

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)
Result: negative

Genotoxicity in vivo : Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)
Species: Mouse
Application Route: Intraperitoneal injection
Result: negative

Carcinogenicity

Not classified based on available information.

Ingredients:

Propan-2-ol:
Species: Rat
Application Route: inhalation (vapor)
Exposure time: 104 weeks
Method: OECD Test Guideline 451
Result: negative

IARC No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

OSHA No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

NTP No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

Reproductive toxicity

Not classified based on available information.

Ingredients:

Ethanol:

Effects on fertility : Test Type: Two-generation reproduction toxicity study
Species: Mouse
Application Route: Ingestion
Method: OECD Test Guideline 416
Result: negative

Propan-2-ol:

Effects on fertility : Test Type: Two-generation reproduction toxicity study
Species: Rat
Application Route: Ingestion
Result: negative

Effects on fetal development : Test Type: Embryo-fetal development
Species: Rat
Application Route: Ingestion

Result: negative

STOT-single exposure

Not classified based on available information.

Ingredients:

Propan-2-ol:
Assessment: May cause drowsiness or dizziness.

STOT-repeated exposure

Not classified based on available information.

Repeated dose toxicity

Ingredients:

Ethanol:
Species: Rat
NOAEL: 2,400 mg/kg
Application Route: Ingestion
Exposure time: 2 y

Propan-2-ol:
Species: Rat
NOAEL: 5000 ppm
Application Route: inhalation (vapor)
Exposure time: 104 w
Method: OECD Test Guideline 413

Aspiration toxicity

Not classified based on available information.

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Ingredients:

Ethanol:

Toxicity to fish	:	LC50 (Pimephales promelas (fathead minnow)): > 1,000 mg/l Exposure time: 96 h
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): > 1,000 mg/l Exposure time: 48 h
Toxicity to algae	:	EC50 (Chlorella vulgaris (Fresh water algae)): 275 mg/l Exposure time: 72 h Method: OECD Test Guideline 201
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOEC (Daphnia magna (Water flea)): 9.6 mg/l Exposure time: 9 d

Toxicity to bacteria : EC50 (Photobacterium phosphoreum): 32.1 mg/l
Exposure time: 0.25 h

Propan-2-ol:
Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): 10,000 mg/l
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 10,000 mg/l
Exposure time: 24 h

Toxicity to algae : ErC50 (Scenedesmus quadricauda (Green algae)): > 1,800 mg/l
Exposure time: 8 d

Toxicity to bacteria : EC50 (Pseudomonas putida): > 1,050 mg/l
Exposure time: 16 h

Persistence and degradability

Ingredients:

Ethanol:
Biodegradability : Result: Readily biodegradable.
Biodegradation: 84 %
Exposure time: 20 d

Propan-2-ol:
Biodegradability : Result: rapidly degradable

Bioaccumulative potential

Ingredients:

Ethanol:
Partition coefficient: n-octanol/water : log Pow: -0.35

Propan-2-ol:
Partition coefficient: n-octanol/water : log Pow: 0.05

Mobility in soil

No data available

Other adverse effects

No data available

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues : Dispose of in accordance with local regulations.

Contaminated packaging : Dispose of as unused product.

Empty containers should be taken to an approved waste handling site for recycling or disposal.
Do not burn, or use a cutting torch on, the empty drum.

SECTION 14. TRANSPORT INFORMATION

International Regulation

UNRTDG

UN number	:	UN 1987
Proper shipping name	:	ALCOHOLS, N.O.S. (Ethanol, Propan-2-ol)
Class	:	3
Packing group	:	III
Labels	:	3

IATA-DGR

UN/ID No.	:	UN 1987
Proper shipping name	:	Alcohols, n.o.s. (Ethanol, Propan-2-ol)
Class	:	3
Packing group	:	III
Labels	:	Flammable Liquids
Packing instruction (cargo aircraft)	:	366
Packing instruction (passenger aircraft)	:	355

IMDG-Code

UN number	:	UN 1987
Proper shipping name	:	ALCOHOLS, N.O.S. (Ethanol, Propan-2-ol)
Class	:	3
Packing group	:	III
Labels	:	3
EmS Code	:	F-E, S-D
Marine pollutant	:	no

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied.

Domestic regulation

49 CFR

UN/ID/NA number	:	UN 1987
Proper shipping name	:	ALCOHOLS, N.O.S.
Class	:	3
Packing group	:	III
Labels	:	FLAMMABLE LIQUID
ERG Code	:	127

Marine pollutant : no

SECTION 15. REGULATORY INFORMATION

EPCRA - Emergency Planning and Community Right-to-Know

CERCLA Reportable Quantity

This material does not contain any components with a CERCLA RQ.

SARA 304 Extremely Hazardous Substances Reportable Quantity

This material does not contain any components with a section 304 EHS RQ.

SARA 311/312 Hazards : Fire Hazard
Acute Health Hazard

SARA 302 : No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 : The following components are subject to reporting levels established by SARA Title III, Section 313:

Propan-2-ol	67-63-0	3.4086 %

US State Regulations

Pennsylvania Right To Know

Ethanol	64-17-5	50 - 70 %
Water	7732-18-5	30 - 50 %
Propan-2-ol	67-63-0	1 - 5 %

New Jersey Right To Know

Ethanol	64-17-5	50 - 70 %
Water	7732-18-5	30 - 50 %
Propan-2-ol	67-63-0	1 - 5 %

California Prop 65 This product does not contain any chemicals known to the State of California to cause cancer, birth, or any other reproductive defects.

The ingredients of this product are reported in the following inventories:

AICS : All ingredients listed or exempt.

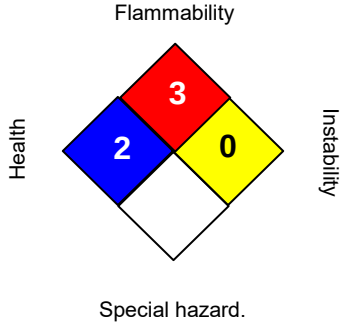
Inventories

AICS (Australia), DSL (Canada), IECSC (China), REACH (European Union), ENCS (Japan), ISHL (Japan), KECI (Korea), NZIoC (New Zealand), PICCS (Philippines), NECSI (Taiwan), TSCA (USA)

SECTION 16. OTHER INFORMATION

Further information

NFPA:



HMIS III:

HEALTH	2
FLAMMABILITY	3
PHYSICAL HAZARD	0

0 = not significant, 1 =Slight,
2 = Moderate, 3 = High
4 = Extreme, * = Chronic

Full text of other abbreviations

ACGIH	:	USA. ACGIH Threshold Limit Values (TLV)
ACGIH BEI	:	ACGIH - Biological Exposure Indices (BEI)
NIOSH REL	:	USA. NIOSH Recommended Exposure Limits
OSHA Z-1	:	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
ACGIH / TWA	:	8-hour, time-weighted average
ACGIH / STEL	:	Short-term exposure limit
NIOSH REL / TWA	:	Time-weighted average concentration for up to a 10-hour workday during a 40-hour workweek
NIOSH REL / ST	:	STEL - 15-minute TWA exposure that should not be exceeded at any time during a workday
OSHA Z-1 / TWA	:	8-hour time weighted average
Sources of key data used to compile the Material Safety Data Sheet	:	Internal technical data, data from raw material SDSs, OECD eChem Portal search results and European Chemicals Agency, http://echa.europa.eu/
Revision Date	:	02/10/2015

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and shall not be considered a warranty or quality specification of any type. The information provided relates only to the specific material identified at the top of this SDS and may not be valid when the SDS material is used in combination with any other materials or in any process, unless specified in the text. Material users should review the information and recommendations in the specific context of their intended manner of handling, use, processing and storage, including an assessment of the appropriateness of the SDS material in the user's end product, if applicable.

US / Z8

Safety Data Sheet

according to 1907/2006/EC (REACH), 1272/2008/EC (CLP), 29CFR1910/1200 and GHS Rev. 3

Effective date: 05/17/2017 **Revision** : 05/17/2017

Trade Name: Liquinox

1 Identification of the substance/mixture and of the supplier

1.1 Product identifier

Trade Name: Liquinox
Synonyms:
Product number: 1232-1, 1232, 1201-1, 1201, 1205, 1215, 1255

1.2 Application of the substance / the mixture : Cleaning material/Detergent

1.3 Details of the supplier of the Safety Data Sheet

Manufacturer **Supplier**
Alconox, Inc.
30 Glenn Street
White Plains, NY 10603
1-914-948-4040

Emergency telephone number:
ChemTel Inc
North America: 1-800-255-3924
International: 01-813-248-0585

2 Hazards identification

2.1 Classification of the substance or mixture:

In compliance with EC regulation No. 1272/2008, 29CFR1910/1200 and GHS Rev. 3 and amendments.

Hazard-determining components of labeling:
Alcohol ethoxylate
Sodium alkylbenzene sulfonate
Sodium xylenesulphonate
Lauramine oxide

2.2 Label elements:

Eye irritation, category 2A.
Skin irritation, category 2.

Hazard pictograms:

Signal word: Warning

Hazard statements:
H315 Causes skin irritation.
H319 Causes serious eye irritation.

Precautionary statements:
P264 Wash skin thoroughly after handling.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P302+P352 If on skin: Wash with soap and water.
P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing.
P332+P313 If skin irritation occurs: Get medical advice/attention.
P501 Dispose of contents and container as instructed in Section 13.

Additional information: None.

Hazard description

Safety Data Sheet

according to 1907/2006/EC (REACH), 1272/2008/EC (CLP), 29CFR1910/1200 and GHS Rev. 3

Effective date: 05/17/2017 **Revision** : 05/17/2017

Trade Name: Liquinox

Hazards Not Otherwise Classified (HNOC): None

Information concerning particular hazards for humans and environment:

The product has to be labelled due to the calculation procedure of the "General Classification guideline for preparations of the EU" in the latest valid version.

Classification system:

The classification is according to EC regulation No. 1272/2008, 29CFR1910/1200 and GHS Rev. 3 and amendments, and extended by company and literature data. The classification is in accordance with the latest editions of international substances lists, and is supplemented by information from technical literature and by information provided by the company.

3 Composition/information on ingredients

3.1 Chemical characterization : None

3.2 Description : None

3.3 Hazardous components (percentages by weight)

Identification	Chemical Name	Classification	Wt. %
CAS number: 68081-81-2	Sodium Alkylbenzene Sulfonate	Acute Tox. 4; H303 Skin Irrit. 2 ; H315 Eye Irrit. 2; H319	10-25
CAS number: 1300-72-7	Sodium Xylenesulphonate	Eye Irrit. 2; H319	2.5-10
CAS number: 84133-50-6	Alcohol Ethoxylate	Skin Irrit. 2 ; H315 Eye Dam. 1; H318	2.5-10
CAS number: 1643-20-5	Lauramine oxide	Skin Irrit. 2 ; H315 Eye Dam. 1; H318	1-2

3.4 Additional Information: None.

4 First aid measures

4.1 Description of first aid measures

General information: None.

After inhalation:

Maintain an unobstructed airway.

Loosen clothing as necessary and position individual in a comfortable position.

After skin contact:

Wash affected area with soap and water.

Seek medical attention if symptoms develop or persist.

After eye contact:

Rinse/flush exposed eye(s) gently using water for 15-20 minutes.

Remove contact lens(es) if able to do so during rinsing.

Seek medical attention if irritation persists or if concerned.

After swallowing:

Rinse mouth thoroughly.

Seek medical attention if irritation, discomfort, or vomiting persists.

4.2 Most important symptoms and effects, both acute and delayed

None

Safety Data Sheet

according to 1907/2006/EC (REACH), 1272/2008/EC (CLP), 29CFR1910/1200 and GHS Rev. 3

Effective date: 05/17/2017 **Revision** : 05/17/2017

Trade Name: Liquinox

4.3 Indication of any immediate medical attention and special treatment needed:

No additional information.

5 Firefighting measures

5.1 Extinguishing media

Suitable extinguishing agents:

Use appropriate fire suppression agents for adjacent combustible materials or sources of ignition.

For safety reasons unsuitable extinguishing agents : None

5.2 Special hazards arising from the substance or mixture :

Thermal decomposition can lead to release of irritating gases and vapors.

5.3 Advice for firefighters

Protective equipment:

Wear protective eye wear, gloves and clothing.
Refer to Section 8.

5.4 Additional information :

Avoid inhaling gases, fumes, dust, mist, vapor and aerosols.
Avoid contact with skin, eyes and clothing.

6 Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures :

Ensure adequate ventilation.
Ensure air handling systems are operational.

6.2 Environmental precautions :

Should not be released into the environment.
Prevent from reaching drains, sewer or waterway.

6.3 Methods and material for containment and cleaning up :

Wear protective eye wear, gloves and clothing.

6.4 Reference to other sections : None

7 Handling and storage

7.1 Precautions for safe handling :

Avoid breathing mist or vapor.
Do not eat, drink, smoke or use personal products when handling chemical substances.
Conditions for safe storage, including any incompatibilities:
Store closed upright and in a cool dry place, should be 15 - 30 deg C or 60 - 90 deg F.

7.2 Specific end use(s):

No additional information.

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8 Exposure controls/personal protection

8.1 Control parameters :

No applicable occupational exposure limits

8.2 Exposure controls

Appropriate engineering controls:

Emergency eye wash fountains and safety showers should be available in the immediate vicinity of use or handling.

Respiratory protection:

Not needed under normal conditions.

Protection of skin:

Select glove material impermeable and resistant to the substance.

Eye protection:

Safety goggles or glasses, or appropriate eye protection.

General hygienic measures:

Wash hands before breaks and at the end of work.
Avoid contact with skin, eyes and clothing.

9 Physical and chemical properties

Appearance (physical state, color):	Pale yellow liquid	**Explosion limit lower**: **Explosion limit upper**:	Not determined or not available. Not determined or not available.
Odor:	Not determined or not available.	**Vapor pressure at 20°C**:	Not determined or not available.
Odor threshold:	Not determined or not available.	**Vapor density**:	Not determined or not available.
pH-value:	8.5 as is	**Relative density**:	Not determined or not available.
Melting/Freezing point:	Not determined or not available.	**Solubilities**:	Not determined or not available.
Boiling point/Boiling range:	Not determined or not available.	**Partition coefficient (n-octanol/water)**:	Not determined or not available.
Flash point (closed cup):	Not determined or not available.	**Auto/Self-ignition temperature**:	Not determined or not available.

Evaporation rate:	Not determined or not available.	**Decomposition temperature**:	Not determined or not available.
Flammability (solid, gaseous):	Not determined or not available.	**Viscosity**:	a. Kinematic: Not determined or not available. b. Dynamic: Not determined or not available.

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Trade Name: Liquinox	
Density at 20°C:	Not determined or not available.

10 Stability and reactivity

10.1 Reactivity : None

10.2 Chemical stability : None

10.3 Possibility hazardous reactions : None

10.4 Conditions to avoid : None

10.5 Incompatible materials : None

10.6 Hazardous decomposition products : None

11 Toxicological information

11.1 Information on toxicological effects :

Acute Toxicity:

Oral:

: LD50 >5000 mg per kg Rat, Oral) - product .

Chronic Toxicity: No additional information.

Skin corrosion/irritation:

Alcohol Ethoxylate: May cause mild to moderate skin irritation.

Sodium Alkylbenzene Sulfonate: Causes skin irritation.

Lauramine oxide: Causes skin irritation.

Serious eye damage/irritation:

Sodium Alkylbenzene Sulfonate: Causes serious eye irritation.

Alcohol Ethoxylate: Causes moderate to severe eye irritation and conjunctivitis.

Sodium xylenesulphonate: Rabbit: irritating to eyes.

Lauramine oxide: Causes serious eye damage.

Respiratory or skin sensitization: No additional information.

Carcinogenicity: No additional information.

IARC (International Agency for Research on Cancer): None of the ingredients are listed.

NTP (National Toxicology Program): None of the ingredients are listed.

Germ cell mutagenicity: No additional information.

Reproductive toxicity: No additional information.

STOT-single and repeated exposure: No additional information.

Additional toxicological information: No additional information.

12 Ecological information

12.1 Toxicity:

Sodium Alkylbenzene Sulfonate: Fish, LC50 1.67 mg/l, 96 hours.

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Sodium Alkylbenzene Sulfonate: Aquatic invertebrates, EC50 Daphnia 2.4 mg/l, 48 hours.
Sodium Alkylbenzene Sulfonate: Aquatic Plants, EC50 Algae 29 mg/l, 96 hours.
Lauramine oxide: Fish, LC0 24.3 mg/l, 96h [Killifish (Cyprinodontidae)]
Lauramine oxide: Aquatic invertebrates, (LC50): 3.6 mg/l 96 hours [Daphnia (Daphnia)].
Lauramine oxide: Aquatic plants, EC50 Algae 0.31 mg/l 72 hours [Algae]
Alcohol Ethoxylate: Aquatic invertebrates, (LC50): 4.01 mg/l 48 hours [Daphnia (daphnia)].

12.2 Persistence and degradability: No additional information.

12.3 Bioaccumulative potential: No additional information.

12.4 Mobility in soil: No additional information.

General notes: No additional information.

12.5 Results of PBT and vPvB assessment:

PBT: No additional information.

vPvB: No additional information.

12.6 Other adverse effects: No additional information.

13 Disposal considerations

13.1 Waste treatment methods (consult local, regional and national authorities for proper disposal)

Relevant Information:

It is the responsibility of the waste generator to properly characterize all waste materials according to applicable regulatory entities. (US 40CFR262.11).

14 Transport information

14.1 UN Number: None
ADR, ADN, DOT, IMDG, IATA

14.2 UN Proper shipping name: None
ADR, ADN, DOT, IMDG, IATA

14.3 Transport hazard classes:
ADR, ADN, DOT, IMDG, IATA

Class: None
Label: None
LTD. QTY: None

US DOT
Limited Quantity Exception: None

Bulk:
RQ (if applicable): None
Proper shipping Name: None
Hazard Class: None
Packing Group: None
Marine Pollutant (if applicable): No additional information.
Comments: None

Non Bulk:
RQ (if applicable): None
Proper shipping Name: None
Hazard Class: None
Packing Group: None
Marine Pollutant (if applicable): No additional information.
Comments: None

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14.4 Packing group: ADR, ADN, DOT, IMDG, IATA	None
14.5 Environmental hazards :	None
14.6 Special precautions for user:	None
Danger code (Kemler):	None
EMS number:	None
Segregation groups:	None

14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code: Not applicable.

14.8 Transport/Additional information:

Transport category:	None
Tunnel restriction code:	None
UN "Model Regulation":	None

15 Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture.

North American

SARA

Section 313 (specific toxic chemical listings): None of the ingredients are listed.
Section 302 (extremely hazardous substances): None of the ingredients are listed.

CERCLA (Comprehensive Environmental Response, Clean up and Liability Act) Reportable

Spill Quantity: None of the ingredients are listed.

TSCA (Toxic Substances Control Act):

Inventory: All ingredients are listed.
Rules and Orders: Not applicable.

Proposition 65 (California):

Chemicals known to cause cancer: None of the ingredients are listed.

Chemicals known to cause reproductive toxicity for females: None of the ingredients are listed.

Chemicals known to cause reproductive toxicity for males: None of the ingredients are listed.

Chemicals known to cause developmental toxicity: None of the ingredients are listed.

Canadian

Canadian Domestic Substances List (DSL):
All ingredients are listed.

EU

REACH Article 57 (SVHC): None of the ingredients are listed.

Germany MAK: Not classified.

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Asia Pacific

Australia

Australian Inventory of Chemical Substances (AICS): All ingredients are listed.

China

Inventory of Existing Chemical Substances in China (IECSC): All ingredients are listed.

Japan

Inventory of Existing and New Chemical Substances (ENCS): All ingredients are listed.

Korea

Existing Chemicals List (ECL): All ingredients are listed.

New Zealand

New Zealand Inventory of Chemicals (NZOIC): All ingredients are listed.

Philippines

Philippine Inventory of Chemicals and Chemical Substances (PICCS): All ingredients are listed.

Taiwan

Taiwan Chemical Substance Inventory (TSCI): All ingredients are listed.

16 Other information

Abbreviations and Acronyms: None

Summary of Phrases

Hazard statements:

H315 Causes skin irritation.
H319 Causes serious eye irritation.

Precautionary statements:

P264 Wash skin thoroughly after handling.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P302+P352 If on skin: Wash with soap and water.
P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing.
P332+P313 If skin irritation occurs: Get medical advice/attention.
P501 Dispose of contents and container as instructed in Section 13.

Manufacturer Statement:

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as guidance for safe handling,

use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

NFPA: 1-0-0

HMIS: 1-0-0

Safety Data Sheet

Portland Cement

Section 1. Identification

Product identifier:	Portland Cement
Other means of identification:	Cement, hydraulic cement CEMEX Type I CEMEX Type II CEMEX Type I/II CEMEX Type III CEMEX Type II/V CEMEX Type V CEMEX Type IA CEMEX Type I/II Low Alkali CEMEX Type II Low Alkali CEMEX Type III Low Alkali CEMEX Type V Low Alkali CEMEX Type II/V Low Alkali CEMEX Class A CEMEX Class C CEMEX Class H White Cement
Chemical name:	Calcium compounds, calcium silicate compounds, and other calcium compounds containing iron and aluminum make up the majority of this product.
Relevant Uses:	Building materials, construction application, a basic ingredient in concrete.
Manufacturers Name:	CEMEX
Address:	10100 Katy Freeway, Suite 300 Houston, TX 77043 T Customer Care 1-800-99-CEMEX
Emergency telephone number:	CHEMTREC: 1-800-424-9300

Section 2. Hazards Identification

OSHA/HCS status:	This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
Category Classification(s):	SKIN CORROSION/IRRITATION - Category 1 EYE DAMAGE - Category 1 SKIN SENSITIZATION - Category 1 CARCINOGENICITY/INHALATION - Category 1

GHS label elements:

Hazard pictograms:

GHS05 GHS07 GHS08

Signal word:	Danger
Hazard statements:	Causes severe skin burns and eye damage May cause an allergic skin reaction Causes serious eye damage May cause cancer (Inhalation, Dermal).

Precautionary Statements:	Obtain special instructions before use Do not handle until all safety precautions have been read and understood Do not breathe dust Wash clothing, face, hands thoroughly after handling Contaminated work clothing must not be allowed out of the workplace Wear eye protection, protective clothing, protective gloves If swallowed: rinse mouth. Do NOT induce vomiting If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower If inhaled: Remove person to fresh air and keep comfortable for breathing If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing If exposed or concerned: Get medical advice/attention Immediately call a doctor Specific treatment (see Section 4 on this label) If skin irritation or rash occurs: Get medical advice/attention Take off contaminated clothing and wash it before reuse Wash contaminated clothing before reuse Dispose of contents/container to comply with local/regional/national regulations
Other Hazards:	Trace amounts of naturally occurring chemicals might be detected during chemical analysis. Trace constituents may include insoluble residue, some of which may be free Quartz (crystalline silica), calcium oxide (Also known as lime or quick lime), magnesium oxide, potassium sulfate, sodium sulfate, chromium compounds, and nickel compounds.

Section 3. Composition / Information on Ingredients

Substance/mixture:	Portland Cement - mixture
Chemical name:	Calcium compounds; calcium silicates and calcium oxides make up the majority of this product – calcium compounds can contain small amounts or iron and aluminum.

Ingredient Name	% Content	CAS number
Portland Cement Clinker	81 - 96	65997-15-1
Gypsum	4 - 9	7778-18-9
Limestone	0 - 5	1317-65-3
Granulated Blast Furnace Slag	0 - 5	65996-69-2
Kiln Bag House Dust	0 – 5	69012-63-1
Lime Kiln Dust	0 – 2	1305-78-8
Quartz (crystalline silica)	0 - 0.1	14808-60-7
Hexavalent chromium*	*	18450-29-9

Any concentration shown as a range is to protect confidentiality or is due to process variation.

*Hexavalent chromium is included due to dermal sensitivity associated with the component.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Section 4. First-Aid Measures

Description of necessary first aid measures:

General:	Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.
Eye contact:	Get medical attention immediately. Call a poison center or physician. Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove

	any contact lenses. Continue to rinse for at least 15 minutes. Chemical burns must be treated promptly by a physician.
Inhalation:	Seek medical help if coughing or other symptoms persist. Inhalation of large amounts of Portland Cement requires immediate medical attention. Call a poison center or physician. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If the individual is not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway.
Skin contact:	Get medical attention immediately. Heavy exposure to Portland Cement dust, wet concrete or associated water requires prompt attention. Quickly remove contaminated clothing, shoes, and leather goods such as watchbands and belts. Quickly and gently blot or brush away excess Portland Cement. Immediately wash thoroughly with lukewarm, gently flowing water and non-abrasive pH neutral soap. Seek medical attention for rashes, burns, irritation, dermatitis and prolonged unprotected exposures to wet cement, cement mixtures or liquids from wet cement. Burns should be treated as caustic burns.
Ingestion:	Get medical attention immediately. Call a poison center or physician. Have victim rinse mouth thoroughly with water. DO NOT INDUCE VOMITING unless directed to do so by medical personnel. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Have victim drink 60 to 240 mL (2 to 8 oz.) of water. Stop giving water if the exposed person feels sick as vomiting may be dangerous. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Chemical burns must be treated promptly by a physician. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway.

Potential symptoms and effects from acute exposures (delayed or immediate):

Eye contact:	Causes serious eye damage.
Inhalation:	May cause respiratory irritation.
Skin contact:	Causes severe burns. Discomfort or pain cannot be relied upon to alert a person to a serious injury. You may not feel pain or the severity of the burn until hours after the exposure. Chemical burns must be treated promptly by a physician. May cause an allergic skin reaction.
Ingestion:	Not expected to be a significant route of entry. May cause burns to mouth, throat and stomach.

Potential symptoms and effects from over-exposures:

Eye contact:	Adverse symptoms may include the following: pain, watering and redness
Inhalation:	Adverse symptoms may include the following: respiratory tract irritation and coughing
Skin contact:	Adverse symptoms may include the following: pain or irritation, redness and blistering may occur, skin burns, ulceration and necrosis may occur
Ingestion:	Adverse symptoms may include the following: stomach pains

Recommendations for immediate medical attention / treatment:

If large quantities have been Ingested or inhaled:	Seek medical treatment and contact poison treatment specialist immediately.
Notes to physician:	Treat symptomatically.
Protection of first-aiders:	No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

Section 5. Fire-fighting Measures

Extinguishing media

Suitable extinguishing media:	Non-flammable. Use an extinguishing agent suitable for the surrounding fire.
Specific hazards arising from the chemical:	No specific fire or explosion hazard.
Hazardous thermal decomposition products:	Decomposition products may include the following materials: carbon dioxide, carbon monoxide, sulfur oxides and metal oxide/oxides products:
Special protective actions for firefighters:	Evacuate area. Fight fire with normal precautions from a reasonable distance. Move containers from fire area if this can be done without risk.
Special protective equipment for fire-fighters:	Positive pressure self-contained breathing apparatus (SCBA) and structural firefighters' protective clothing will provide adequate protection.

Section 6. Accidental Release Measures

Personal precautions, protective equipment and emergency procedures

No action shall be taken involving any personal risk or without suitable training. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment. For personal protective clothing requirements, please see Section 8.

For non-emergency personnel:	Evacuate area, if necessary. Contact emergency personnel, if needed. Do not breathe dust. Stay upwind.
For emergency responders:	Evacuate surrounding areas if necessary. Keep unnecessary and unprotected personnel from entering. Do not breathe dust. Provide adequate ventilation.
Environmental precautions:	Avoid release to the environment. Contain the spill to avoid the discharge of spilled material into drains, surface waters and/or groundwater. If the spilled material enters any drainage systems, surface waters and/or groundwater, follow all applicable local, state and federal laws and regulations for additional clean-up and/or reporting requirements.

Methods and materials for containment and cleaning up

Small and large spills:	Wear appropriate personal protective equipment as described in Section 8 for cleaning, containing and removing the spill. Minimize generation of dust. For small spills, clean with a vacuum with a filtration system sufficient to remove and prevent recirculation of cement dust (a vacuum equipped with a high-efficiency particulate air (HEPA) filter is recommended). For large spills, use control dust measures and carefully scoop or shovel into clean dry container for later reuse or disposal. DO NOT USE COMPRESSED AIR TO CLEAN SPILLS. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and Storage

Precautions for safe handling

Protective measures:	Put on appropriate personal protective equipment (see Section 8). Persons with a history of skin sensitization problems should not be employed in any process in which this product is used. Avoid exposure by obtaining and following special instructions before use. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not breathe dust. Do not ingest. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate.
Advice on general	Eating, drinking and smoking should be prohibited in areas where this material is handled,

occupational hygiene: stored and processed. Workers should wash hands and face before eating, drinking and smoking.

Conditions for safe storage: Store and handle in accordance with all current regulations and standards. Keep separated from incompatible substances.

Section 8. Exposure Controls / Personal Protection

Occupational Exposure Limits

Ingredient name	Exposure limits
Portland Cement Clinker	ACGIH TLV (United States, 3/2012). TWA: 1 mg/m^3 8 hours. Form: Respirable NIOSH REL (United States, 6/2009). TWA: 5 mg/m^3 10 hours. Form: Respirable TWA: 10 mg/m3 10 hours. Form: Total OSHA PEL (United States, 6/2010). TWA: 5 mg/m^3 8 hours. Form: Respirable TWA: 15 mg/m^3 8 hours. Form: Total
Quartz (crystalline silica)	ACGIH TLV (United States, 3/2012). TWA: 0.025 mg/m^3 8 hours. Form: Respirable NIOSH REL (United States, 6/2009). TWA: 0.05 mg/m^3 8 hours. Form: Respirable OSHA PEL Z-3 (United States, 9/2005). TWA: 10mg/m^3 divided by %SiO2 + 2: Respirable TWA: 30mg/m^3 divided by %SiO2 + 2: Total
Limestone	ACGIH TLV (United States, 3/2012). TWA: 10 mg/m^3 8 hours. Form: Total NIOSH REL (United States, 6/2009). TWA: 5 mg/m^3 10 hours. Form: Respirable TWA: 10 mg/m^3 10 hours. Form: Total Dust OSHA PEL (United States, 6/2010). TWA: 5 mg/m^3 8 hours. Form: Respirable TWA: 15 mg/m^3 8 hours. Form: Total dust
Gypsum	ACGIH TLV (United States, 3/2012) TWA: 10 mg/m^3 8 hours. Form: Respirable NIOSH REL (United States, 6/2009) TWA 5 mg/m^3 8 hours. Form: Respirable TWA 10 mg/m^3 8 hours. Form: Total OSHA PEL Z-1 (United States, 2/2006) TWA 5 mg/m^3 8 hours. Form: Respirable TWA 15 mg/m^3 8 hours. Form: Total
Particulates Not Otherwise Regulated (Total Dust)	ACGIH TLV (United States, 3/2012) TWA: 3 mg/m^3 8 hours. Form: Respirable TWA: 10 mg/m^3 8 hours. Form: Total dust OSHA PEL (United States, 6/2010). TWA: 5mg/m^3 8 hours. Form: Respirable TWA: 15 mg/m^3 8 hours. Form: Total dust

Controls

Appropriate engineering controls: Use only with adequate ventilation. If user operations generate dust, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Environmental exposure controls:	Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation.

Hygiene

Wash	Clean water should always be readily available for skin and (emergency) eye washing. Periodically wash areas contacted by Portland Cement with a pH neutral soap and clean, uncontaminated water. If clothing becomes saturated with Portland Cement, garments should be removed and replaced with clean, dry clothing. Remove protective equipment and saturated clothing before entering eating areas.

PPE

Eye/face protection:	To prevent eye contact, wear safety glasses with side shields, safety goggles or face shields when handling dust or wet cement. Wearing contact lenses when working with cement is not recommended.
Hand protection:	Use impervious, waterproof, and alkali-resistant gloves. Do not rely on barrier creams in place of impervious gloves. Do not get Portland Cement inside gloves. Recommended material: Nitrile®
Body protection:	Use impervious, waterproof, abrasion and alkali-resistant boots and protective long-sleeved and long- legged clothing to protect the skin from contact with wet Portland Cement. To reduce foot and ankle exposure, wear impervious boots that are high enough to prevent Portland Cement from getting inside them. Do not get Portland Cement inside boots, shoes, or gloves. Remove clothing and protective equipment that becomes saturated with cement and immediately wash exposed areas of the body.
Other skin protection:	Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved. Footwear and other gear to protect the skin should be approved by a specialist before handling this product.
Respiratory protection:	Use a properly fitted, particulate filter respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product, and assigned protection factor of the selected respirator.

Section 9. Physical and Chemical Properties

Physical State:	Solid. [Powder.]	Lower and upper explosive (flammable) limits:	Not applicable.
Color:	Gray or white.	Vapor pressure:	Not applicable.
Odor:	Odorless.	Vapor density:	Not applicable.
Odor threshold:	Not available.	Relative density:	2.7 to 3.15
pH (in water):	12 - 13	Solubility:	Slightly soluble in water.
Melting point:	Not available.	Solubility in water:	0.1 to 1%
Boiling point:	>1000°C (>1832°F)	Partition coefficient: n-octanol/water:	Not applicable.
Flash point:	Not flammable. Not combustible.	Auto-ignition temperature:	Not applicable.
Burning time:	Not available.	Decomposition temperature:	Not available.
Burning rate:	Not available.	SADT:	Not available.
Evaporation rate:	Not applicable.	Viscosity:	Not applicable.

Flammability (solid, gas): Not applicable.

Section 10. Stability and Reactivity

Reactivity: Reacts slowly with water forming hydrated compounds, releasing heat and producing a strong alkaline solution until reaction is substantially complete.

Chemical stability: The product is stable.

Possibility of hazardous reactions: Under normal conditions of storage and use, hazardous reactions will not occur.

Conditions to avoid: No specific data.

Incompatible materials: Reactive or incompatible with the following materials: oxidizing materials, acids, aluminum and ammonium salt. Portland Cement is highly alkaline and will react with acids to produce a violent, heat-generating reaction. Toxic gases or vapors may be given off depending on the acid involved. Reacts with acids, aluminum metals and ammonium salts. Aluminum powder and other alkali and alkaline earth elements will react in wet mortar or concrete, liberating hydrogen gas. Limestone ignites on contact with fluorine and is incompatible with acids, alum, ammonium salts, and magnesium. Silica reacts violently with powerful oxidizing agents such as fluorine, boron trifluoride, chlorine trifluoride, manganese trifluoride, and oxygen difluoride yielding possible fire and/or explosions. Silicates dissolve readily in hydrofluoric acid producing a corrosive gas — silicon tetrafluoride.

Hazardous decomposition products: Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological Information

Toxicological Effects

Acute toxicity: Portland Cement LD50/LC50 = Not available

Irritation/Corrosion: Skin: May cause serious burns in the presence of moisture.
Eyes: Causes serious eye damage. May cause burns in the presence of moisture.
Respiratory: May cause respiratory tract irritation.

Sensitization: May cause sensitization due to the potential presence of trace amounts of hexavalent chromium.

Mutagenicity: Not classified.

Reproductive toxicity: Not classified.

Teratogenicity: Not classified.

Aspiration hazard: Not classified.

Carcinogenicity Classification:

Ingredient	OSHA	IARC	ACGIH	NTP
Portland Cement Clinker	–	–	A4	–
Quartz (crystalline silica)	–	1	A2	Known to be a human carcinogen.

Specific target organ toxicity (single exposure): Product Not Classified

Ingredient	Category	Route of Exposure	Target Organs
Quartz (crystalline silica)	Category 3	Inhalation	Respiratory tract irritation

Specific target organ toxicity (repeated exposure): Product Not Classified

Ingredient	Category	Route of Exposure	Target Organs
Quartz (crystalline silica)	Category 2	Inhalation	Respiratory tract and kidneys

Routes of exposure - Dermal contact, Eye contact, Inhalation, and Ingestion.

Potential acute health effects:

Eye contact: Causes serious eye damage.
Inhalation: May cause respiratory irritation.
Skin contact: Causes severe burns. May cause an allergic skin reaction.
Ingestion: May cause burns to mouth, throat and stomach.

Symptoms related to the physical, chemical and toxicological characteristics:

Eye contact: Adverse symptoms may include the following: pain, watering, redness
Inhalation: Adverse symptoms may include the following: respiratory tract irritation, coughing
Skin contact: Adverse symptoms may include the following: pain or irritation, redness, blistering may occur, skin burns, ulcerations and necrosis may occur
Ingestion: Adverse symptoms may include the following: stomach pains

Delayed and immediate effects and also chronic effects from short and long term exposure:

Short term exposure
Potential immediate effects: No known significant effects or critical hazards.
Potential delayed effects: No known significant effects or critical hazards.

Long term exposure
Potential immediate effects: No known significant effects or critical hazards.
Potential delayed effects: No known significant effects or critical hazards.

Potential chronic health effects:

General: Repeated or prolonged inhalation of dust may lead to chronic respiratory irritation. If sensitized to hexavalent chromium, a severe allergic dermal reaction may occur when subsequently exposed to very low levels.

Carcinogenicity: Quartz (crystalline silica) is considered a hazard by inhalation. IARC has classified Quartz (crystalline silica) as a Group 1 substance, carcinogenic to humans. This classification is based on the findings of laboratory animal studies (inhalation and implantation) and epidemiology studies that were considered sufficient for carcinogenicity. Excessive exposure to Quartz (crystalline silica) can cause silicosis, a non-cancerous lung disease.

Mutagenicity: No known significant effects or critical hazards.

Teratogenicity: No known significant effects or critical hazards.

Developmental effects: No known significant effects or critical hazards.

Fertility effects: No known significant effects or critical hazards.

Numerical measures of toxicity: There are no data available - acute toxicity estimates.

Section 12. Ecological

Toxicity

Persistence and degradability: There are no data available.

Bioaccumulation potential: There are no data available.

Mobility in soil: Soil/water partition coefficient (Koc): Not available.

Other adverse effects: No known significant effects or critical hazards.

Ecotoxicity: No recognized unusual toxicity to plants or animals

Section 13. Disposal Considerations

Disposal methods: Salvage spilled cement material where possible. Uncontaminated cement material may be reused. Dispose of waste material in accordance with local, state and federal laws and regulations.

Section 14. Transport Information

Special precautions for user: spillage. Ensure that persons transporting the product know what to do in the event of an accident or

Transport in bulk according to Annex II of MARPOL 73/ 78 and the IBC Code: Not Regulated.

Transport Parameters	DOT Classification	IMDG	IATA
UN Number	Not Regulated	Not Regulated	Not Regulated
UN Proper Shipping Name	-	-	-
Transport Hazard Class	-	-	-
Packing Group	-	-	-
Environmental Hazard	None	None	None
Additional Information	-	-	-

Section 15. Regulatory Information

Status under USDOL-OSHA Hazard Communication Rule, 29 CFR 1910.1200
This product is considered a "hazardous chemical" under this regulation, and should be part of any hazard communication program.

Status under CERCLA/SUPERFUND 40 CFR 117 and 302
Not listed.

Hazard Category under SARA(Title III), Sections 311 and 312
This product qualifies as a "hazardous substance" with delayed health effects.

Status under SARA (Title III), Section 313
This cement product does not contain Emergency Planning and Community Right to Know (EPCRA") Section 313 chemicals in excess of the applicable de minimis concentration specified in EPCRA Section 313 Section 372.38(a). Trace amounts of naturally occurring chemicals might be detected during chemical analysis.

Status under TSCA (as of May 1997)
The ingredients of this product are listed on the TSCA inventory or are exempt.

Status under the Federal Hazardous Substances Act
This product is a "hazardous substance" subject to statutes promulgated under the subject act.

Status under California Proposition 65
This product contains up to 0.05 percent of chemicals (trace elements) known to the State of California to cause cancer, birth defects or other reproductive harm. California law requires the manufacturer to give the above warning in the absence of definitive testing to prove that the defined risks do not exist.

State Right to Know:
Portland Cement Clinker (65997-15-1)
U.S. - Idaho - Non-Carcinogenic Toxic Air Pollutants - Acceptable Ambient Concentrations
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Washington - Permissible Exposure Limits - TWAs

Quartz (crystalline silica) (14808-60-7)
U.S. - Idaho - Non-Carcinogenic Toxic Air Pollutants - Acceptable Ambient Concentrations
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Washington - Permissible Exposure Limits - TWAs

Gypsum (7778-18-9)
U.S. - New Jersey - Right to Know Hazardous Substance List

Limestone (1317-65-3)
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Washington - Permissible Exposure Limits - TWAs

Section 16. Other Information

Approval or Revision History

Date of issue (mm/dd/yyyy):	July 1998
Revision:	April 2011 (Michael Tilton)
Revision:	May 2015 - Revised Section(s) per HCS-GHS
Revision:	April 2017 – related to address

Notice to reader

While the information provided in this safety data sheet is believed to provide a useful summary of the hazards of Portland Cement as it is commonly used, the sheet cannot anticipate and provide all of the information that might be needed in every situation. Inexperienced product users should obtain proper training before using this product. In particular, the data furnished in this sheet do not address hazards that may be posed by other materials mixed with Portland Cement to produce Portland Cement products. Users should review other relevant material safety data sheets before working with this Portland Cement or working on Portland Cement products, for example, Portland Cement concrete.

SELLER MAKES NO WARRANTY, EXPRESS OR IMPLIED, CONCERNING THE PRODUCT OR THE MERCHANTABILITY OR FITNESS THEREOF FOR ANY PURPOSE OR CONCERNING THE ACCURACY OF ANY INFORMATION PROVIDED BY CEMEX, Inc. except that the product shall conform to contracted specifications. The information provided herein was believed by CEMEX to be accurate at the time of preparation or prepared from sources believed to be reliable, but it is the responsibility of the user to investigate and understand other pertinent sources of information to comply with all laws and procedures applicable to the safe handling and use of product and to determine the suitability of the product for its intended use. Buyer's exclusive remedy shall be for damages and no claim of any kind, whether as to product delivered or for non-delivery of product, and whether based on contract, breach of warranty, negligence, or otherwise shall be greater in amount than the purchase price of the quantity of product in respect of which damages are claimed. In no event shall Seller be liable for incidental or consequential damages, whether Buyer's claim is based on contract, breach of warranty, negligence or otherwise. In particular, the data furnished in this sheet do not address hazards that may be posed by other materials mixed with Portland Cement to produce Portland Cement products. Users should review other relevant safety data sheets before working with Portland Cement or working on Portland Cement products, for example, Portland Cement concrete.

Abbreviations

ACGIH — American Conference of Governmental Industrial Hygienists
CAS — Chemical Abstract Service
CERCLA — Comprehensive Emergency Response and Comprehensive Liability Act
CFR — Code of Federal Regulations DOT — Department of Transportation
GHS – Globally Harmonized System Globally Harmonized System
HEPA - High Efficiency Particulate Air
IATA — International Air Transport Association
IARC — International Agency for Research on Cancer
IMDG — International Maritime Dangerous Goods
NIOSH — National Institute of Occupational Safety and Health
NOEC — No Observed Effect Concentration
NTP — National Toxicology Program
OSHA — Occupational Safety and Health Administration
PEL — Permissible Exposure Limit
REL — Recommended Exposure Limit RQ — Reportable Quantity
SARA — Superfund Amendments and Reauthorization Act
SDS — Safety Data Sheet

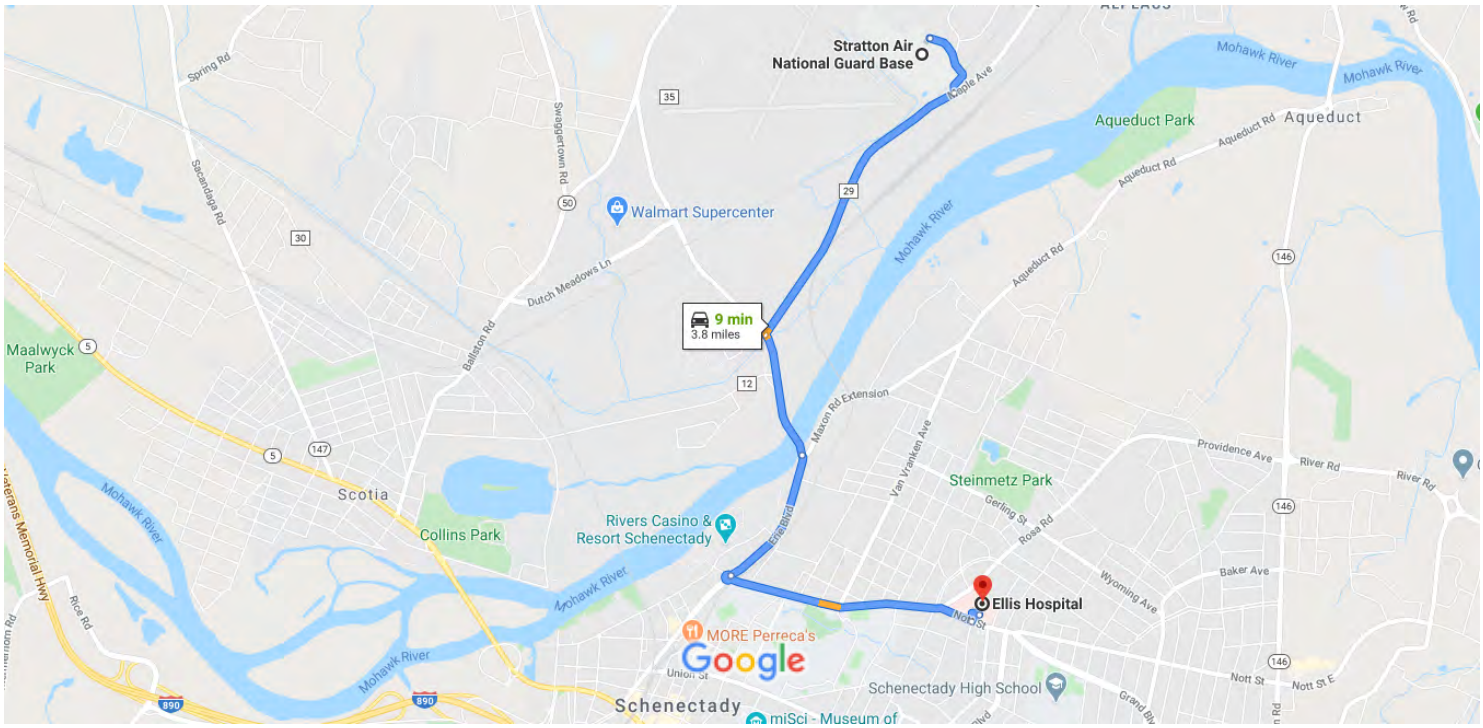
Safety Data Sheet

TLV — Threshold Limit Value
TPQ — Threshold Planning Quantity
TSCA — Toxic Substances Control Act
TWA — Time-Weighted Average
UN — United Nations

Attachment B

Map to Local Hospital

Google Maps Stratton Air National Guard Base to Ellis Hospital Drive 3.8 miles, 9 min



Map data ©2020 2000 ft

Stratton Air National Guard Base

1 Air National Guard Rd, Schenectady, NY 12302

1. Head southeast on Ronald Reagan Way toward Jordan Ln
   ⚠ Partial restricted usage road
   0.3 mi
2. Turn right onto Maple Ave
   1.3 mi
3. Turn left onto Freemans Bridge Rd
   0.5 mi
4. Continue onto Erie Blvd
   0.6 mi
5. At the traffic circle, take the 3rd exit onto Nott St
   1.0 mi
6. Turn left at Lowell Rd
   223 ft
7. Turn left
   ℹ Destination will be on the right
   164 ft

Ellis Hospital

1101 Nott St, Schenectady, NY 12308

Attachment C

Risk and Activity Hazard Analysis Forms

Point of Work Risk Assessment

wood.

Project / activity	
Work location	
Date	

PoW RA is intended to facilitate and document a field-level risk assessment by all involved workers, to verify that the hazards identified, and controls specified in the Health and Safety Plan (HASP) and/or Activity Hazard Analysis (AHA) adequately address the hazards encountered at the site. If you have concerns regarding Health, Safety or Environment (HSE) hazards or controls, contact your supervisor / project manager, HSE Coordinator or HSE Manager.

Part 1 – Stop

Before you start (Discuss and agree with all involved workers. Tick appropriate box.)	Yes	No*	N/A
Is the task the same as briefed?			
Are conditions or activities as expected and mitigated in the HASP / AHA?			
Do you have the right documentation and authorization?			
Does the team have the right training, competence and fit for duty?			
Are all tools, equipment and required PPE in good working order?			
Have all applicable work permits and/or site orientation been completed?			

*** If you have answered 'No' to any of the above, report to the supervisor / project manager to verify the required actions.**

Part 2 – Look and Think

Hazard Assessment (If the hazard is present, tick the box.) **Life Saving Rules (LSR) indicated by icon***

Driving / Journey management		Excavations (protection) / Utilities	
Traffic / motorist exposure		Overhead powerlines / Electricity	
Towing and securing cargo		Work permits (site, other special, etc.)	
Moving and energized equipment		Toxic chemicals / hazardous materials	
Operating mobile equipment		Confined space	
Uncertified / defective equipment		Isolation (electricity, process, etc.)	
Powered tool use		Dropped objects / Overhead work	
Line of fire from equipment failure		Work at height / Scaffolding	
Manual handling		Suspended load / Crane	
Temperature (high / low) / weather		Heat / fire / explosion	
Lone / remote working		Personal security / Harassment / Crime	
Fatigue / stress		Work near or over open water	

Other hazard(s) – specify

Circle any ticks for hazards that have not been identified in the AHA and that do not currently have appropriate controls and carry these forward to Part 3. Do not commence work until these have been assessed further.

***LSR: Contact the supervisor / project manager if LSR identified are not currently controlled.**

Point of Work Risk Assessment

wood.

Part 3 – Assess, Control and Act

Risk Assessment (if more space is needed attach separate page.)

Hazard (circled from Part 2)	Additional control measures / precautions	Residual Risk* (E, H, M, L, VL)

*** If any Residual Risk is High (H) following implementation of control measures / precautions, then activity must not proceed.**

Risk Assessment Code (RAC) Matrix (Refer to Project HSE Risk Characterization Form)

Severity \ Probability	Almost certain	Likely	Possible	Unlikely	Rare
Catastrophic	H	H	S	S	M
Critical	H	S	S	M	L
Marginal	S	M	M	L	L
Negligible	M	L	L	L	L

1. **Review each "Hazard" to identify Probability and Severity considering controls applied.**
2. **Identify the RAC as H (High), S (Substantial), M (Moderate), L (Low) for each "Hazard" after controls are applied.**

"Probability" is the likelihood to cause an incident:
Almost certain (more than 1per every month), Likely (at least 1per every 6 months), Possible (1per every 6 months - 2 years), Unlikely (1per every 2-10 years), Rare (less than 1per every 10 years).

"Severity" is the outcome/degree if an incident:
Catastrophic (1-4 fatal, severe health effect, long term disability), Critical (Lost time injury, significant health effect), Marginal (Medical or Restricted injury, moderate health effect) or Negligible (First Aid or temporary health effect).

Part 4 – Review

Activity review	Yes	No
Are there any lessons for next time?		
Has the work created any new hazards?		
Midday activity review? (i.e. after breaks, lunch, or changed condition)		

If you have answered 'Yes' to either of these questions, inform the supervisor or project manager.

Name and signature(s) of person(s) completing POW:

Reviewer: _____ Date reviewed_____

Once complete, scan and send to the supervisor or project manager.

Journey Management Plan

RISK EVALUATION

1	How many total hours will the driver have been on duty at the end of the journey? Note: Maximum 14 duty hours permitted
2	Will the overall journey distance exceed 120 miles?
3	Will the journey require driving in wet, flooded, icy, and/or snowy roads?
4	Will the journey require driving in conditions that limit visibility (dark, fog, snow, hail, etc.)?
5	Will the journey require driving overnight (after 9pm - 5am)?
6	Is the driver familiar with the route for this journey?
7	How many hours of sleep has the driver had in the past 24 hours?
8	Will there be a passenger in the vehicle during the journey?
9	Is heavy traffic congestion expected during the journey?
10	Was a pre-trip inspection performed? (walk around, towing, load securement, etc.)
11	Is the vehicle towing a heavy or oversized load OR permit required?
12	Will the driver encounter unpaved or mountainous road conditions?
13	In case of emergency, will the driver have a suitable means of communication?
14	Are there elevated security risks associated with this journey?
15	Is there an elevated risk of striking an animal on the roadway during this journey?

LOW RISK - 25 points or less, suggested completion of Risk Mitigation

MEDIUM RISK - 30 to 55 points, requires completion of Risk Mitigation

HIGH RISK - 60 points or more, do not begin journey without management approval

RISK EVALUATION SCORECARD

Question	Response	Points
1	12+ hrs = 10	
2	Yes = 10	
3	Yes = 10	
4	Yes = 10	
5	Yes = 10	
6	No = 5	
7	<8 Hrs = 5	
8	No = 5	
9	Yes = 5	
10	No = 5	
11	Yes = 5	
12	Yes = 5	
13	No = 5	
14	Yes = 5	
15	Yes = 5	
TOTAL POINTS		

Risk Mitigation Form on opposite side *(turn page over)*

RISK MITIGATION FORM

?#	Risk Evaluation Question	List Controls

Action Items

- ○ Qualified Driver
- ○ 360° Inspection
- ○ Pre-Trip Inspection
- ○ Weekly Vehicle Inspection form

Signatures	
Driver Signature	Date
Supervisor Signature	Date

AHA – TRAVEL TO / FROM OFFICE OR PROJECT SITE, DURING COVID-19 CONSIDERATIONS

wood.

Activity/Work Task:	Travel To / From Office or Project Site during Covid-19 Pandemic			HSE-GDS-110002 Trigger Level where you're coming from	2	HSE-GDS-110002 Trigger Level where you're going to	2	Overall RAC	M
Project Location:	Stratton ANGB, Schenectady, NY	Home Location:	Troy, NY						
Project Number:	3487190048								
Date Prepared:	4/23/2020	Date Reviewed:	4/23/2020						
Prepared by / for (Name/Title):	Katie Amann/Technical Professional III								
Reviewed by (Name/Title):	Annette McLean, Sr. EHS Specialist								

Notes:

This AHA is not an exhaustive summary of all hazards associated with the field activities or project site. Refer to the site Emergency Action Plan provided by the local office or project site. This AHA is intended to provide Wood personnel a safety framework for mobilizing to the physical Wood office or field location at a Wood-controlled or client-controlled worksite. This AHA review and update should be completed in parallel with the HSSE Field Readiness Checklist.

Risk Assessment Code (RAC) Matrix

Severity	Probability				
	Frequent	Likely	Occasional	Seldom	Unlikely
Catastrophic	H	H	S	S	M
Critical	H	S	S	M	L
Marginal	S	M	M	L	L
Negligible	M	L	L	L	L

Step 1: Review each **"Hazard"** with identified safety **"Controls"** and determine RAC (See above)

"Probability" is the likelihood to cause an incident, near miss, or accident and identified as: Frequent, Likely, Occasional, Seldom or Unlikely.

"Severity" is the outcome/degree if an incident, near miss, or accident did occur and identified as: Catastrophic, Critical, Marginal, or Negligible

Step 2: Identify the RAC (Probability/Severity) as E, H, M, or L for each "Hazard" on AHA. Annotate the overall highest RAC at the top of AHA.

RAC Chart

- H = High Risk
- S = Substantial Risk
- M = Moderate Risk
- L = Low Risk

Job Steps	Hazards	Controls	RAC
1. Prepare for travel	1A) Mental health, family concerns	▪ Ops management to limit personnel deployed to projects to individuals whose presence on the project site would be considered "essential" for work. ▪ Plan to use multiple vehicles, where possible with respect to social distancing recommendations ▪ Communications are assessed routinely with site personnel including use of ISOS app, cellphone coverage, email, and Skype/Teams messaging. ▪ Ensure you have all materials with you necessary to conduct work effort including handwashing supplies. ▪ Determine training and medical monitoring needs and ensure all required Health and Safety training and medical monitoring has been received and is current (e.g. WorkCare, download ISOS app (Instruction), coordinate with Global Mobility, etc.) ▪ Ensure all workers are fit for duty (alert, well rested, no underlying medical conditions that would increase severity or susceptibility to infectious illness, and mentally and physically fit and willing to perform work assignment). ▪ Familiarize yourself with route to destinations (e.g. home to airport, airport to hotel, hotel to site, etc.).	L

AHA – TRAVEL TO / FROM OFFICE OR PROJECT SITE, DURING COVID-19 CONSIDERATIONS

Job Steps	Hazards	Controls	RAC
		▪ Ensure that a copy of the current insurance certificates and incident reporting procedures/forms are available during travel (some documents are appended to this AHA). ▪ Ensure you have reviewed latest geographic updates for COVID-19 risk within the location you are travelling to, and where you're coming from, including airport layovers and considerations for international and intrastate entry upon return. ▪ Be prepared for possible quarantine events or shelter-in-place mandates from local officials.	
	1B) Vehicle defects	Inspect vehicle for defects such as: ▪ Inadequate fluids (e.g., fuel, antifreeze, oil, windshield washer) ▪ Worn/flat tires ▪ Windshield wipers loose, worn, or torn ▪ Oil puddles under vehicle ▪ Headlights, brake lights, turn signals not working ▪ Exterior or interior damage (e.g., scratches, dents)	L
	1C) Insufficient emergency equipment, unsecured loads	▪ Ensure vehicle has first aid kit (if first aid kits are not provided at the site); bring medications for allergic responses if necessary. ▪ Ensure vehicle is equipped with warning flashers and/or flares and that the warning flashers work. ▪ Cell phones are recommended to call for help in the event of an emergency. Ensure cellphone provider has coverage in location of travel prior to departure. ▪ Vehicles carrying tools must have a safety cage in place; all tools must be properly secured. ▪ Ensure parking cones are present, if applicable.	L

AHA – TRAVEL TO / FROM OFFICE OR PROJECT SITE, DURING COVID-19 CONSIDERATIONS

Job Steps	Hazards	Controls	RAC
2. Travelling to site or airport	2A) Collisions, unsafe driving conditions	▪ Drive defensively! And complete a Journey Management Plan. ▪ Cell phone us is prohibited while driving, including hands free! ▪ Do not use cruise control during inclement weather. ▪ Do not drive more than 300 miles per day or for extended distances from 11:00pm to 5:00 am. ▪ Do not eat or use tobacco products in the vehicle. ▪ No unrestrained pets or nonwork riders (e.g., hitch hikers, girl friend, mother-in-law) allowed in vehicles. ▪ Seat belts must be used at all times when operating any vehicle on company business. ▪ Drive at safe speed for road conditions. ▪ Maintain adequate following distance. ▪ Pull over and stop if you have to look at a map or use a cell phone. ▪ Try to park so that you don't have to back up to leave. ▪ If backing is required, walk around vehicle to identify any hazards (especially low level hazards that may be difficult to see when in the vehicle) that might be present. Use a spotter if necessary.	**M**
	2B) Taxi / Uber / Lyft / driver service - unsafe driving or personal security concerns	▪ Minimize the time that you're standing outside by yourself with your phone in your hand. Instead, wait inside until the app shows that your driver has arrived. ▪ Make sure you're getting into the right car with the right driver by matching the license plate, car make and model, and driver photo with what's provided in your app. Never get in a car where the vehicle or driver identity doesn't match what's displayed in your app. ▪ Have the driver confirm your name. To safely exchange names, you can ask, "Who are you here to pick up? ▪ Whenever possible, sit in the back seat, especially if you're riding alone. This helps ensure that you can safely exit on either side of the vehicle to avoid moving traffic, and it gives you and your driver some personal space. ▪ Always wear your seatbelt! ▪ Share your trip details with your supervisor, friends, or family members. ▪ Request to end the ride if you ever feel unsafe during the trip. ▪ If you're in an urgent situation, call 911 or emergency services phone number.	**L**
	2C) Intersections	▪ Proceed carefully through intersections ▪ Ensure that cross traffic has stopped before proceeding, especially if the light has just turned green. Look out for drivers running red lights! ▪ When merging into traffic or turning, ensure vehicles in front have merged/turned (and not stopped) prior to proceeding.	**M**
	2D) Dusty, winding, narrow roads	▪ Go slow around corners, occasionally clearing the windshield.	**M**

AHA – TRAVEL TO / FROM OFFICE OR PROJECT SITE, DURING COVID-19 CONSIDERATIONS

Job Steps	Hazards	Controls	RAC
	2E) Rocky or one-lane roads	▪ Stay clear of gullies and trenches, drive slowly over rocks. ▪ Yield right-of-way to oncoming vehicles---find a safe place to pull over.	L
	2F) Stormy weather	▪ Inquire about conditions before leaving the hotel or office. ▪ Be aware of oncoming storms.	M
	2G) When angry or irritated	▪ Attitude adjustment; change the subject or work out the problem before driving the vehicle. Let someone else drive.	L
	2H) Turning around on narrow roads	▪ Safely turn out with as much room as possible. ▪ Know what is ahead and behind the vehicle. ▪ Use a spotter if available.	L
	2I) SARS-CoV-2 exposure NOTE: *If Trigger Level to/from is 1, then insert L for RAC. If Trigger Level to/from is 2 or 3, then insert M for RAC.* *Any work inside a healthcare facility is Substantial to High risk and prohibited*	▪ Do not travel when not feeling well. ▪ Do not travel if someone you've had close contact with in the last 14-days has experienced fever, chills, or other related symptoms. ▪ Do not travel with other individuals who are not feeling well or have been in close contact with individuals in the last 14-days who have experienced COVID-19 symptoms. ▪ Do not travel if you have been in close contact with individuals who are healthcare professionals treating confirmed or suspected COVID-19 patients. ▪ Cleanliness of vehicle assessed along with regular cleaning intervals. ▪ Travel to project sites and airport should limit the number of personnel per vehicle (i.e. no travelling invan with multiple personnel to project sites). ▪ Avoid touching high-contact surfaces within vehicles. ▪ Wash hands after exiting vehicle and avoid touching face/eyes/mouth while inside vehicle. ▪ Keep ventilation systems running when inside vehicle or crack the window open for additional fresh air.	M
	2J) On wet or slick roads	▪ Drive slow and safe.	M
	2K) Animals on road	▪ Drive slowly, watch for other animals nearby. ▪ Be alert for animals darting out of wooded areas	L
	2L) Vehicle accident	▪ Employees should follow Wood vehicle operation policy and be aware of all stationary and mobile vehicles.	M

AHA – TRAVEL TO / FROM OFFICE OR PROJECT SITE, DURING COVID-19 CONSIDERATIONS

Job Steps	Hazards	Controls	RAC
3. Parking at job site or airport parking and movement to site location or airport	3A) Striking other vehicles, objects	▪ Choose parking spot that is away from other vehicles, if possible. ▪ Choose a spot that will allow the driver to drive forward when leaving the site. ▪ Back into parking spots, or pull through when parking in perpendicular parking spaces (drive forward into angle/herring bone type parking spots).	M
	3B) Leaving parking spaces	▪ Walk around the vehicle before leaving and identify hazards (low lying objects, location of other vehicles or pedestrians, other vehicles with drivers that may be leaving at the same time, etc.) ▪ If backing is unavoidable, use a spotter if a second person is available; if no spotter available, back slowly, checking for other vehicles, pedestrians, etc.	L
	3C) Slips, trips, and falls using walking surfaces, stairways, ramps, escalators, etc.	▪ Ensure that aisles are correctly established and clear, no tripping hazards are evident, floors are even, wires are not streched across aisles, entrance mats are available and used for wet weather, floors are dry-not slippery, and carpets/rugs are secure ▪ Ensure that adequate lighting- suitable for walking and say on locations treated for potentially icy conditions ▪ Stick to ramps, walkways, corridors with a nonslip surface ▪ Use proper body mechanics when lifting supplies, luggage, equipment, etc. Do not attempt to carry more than 50 lbs; utility rolling wheels, hand cart, etc. for assistance.	M

AHA – TRAVEL TO / FROM OFFICE OR PROJECT SITE, DURING COVID-19 CONSIDERATIONS

Job Steps	Hazards	Controls	RAC
	3D) SARS-CoV-2 exposure in airports and on airplane, and ground transportation at airports NOTE: *If Trigger Level to/from is 1, then insert L for RAC. If Trigger Level to/from is 2 or 3, then insert M for RAC.* *Any work inside a healthcare facility is Substantial to High risk and prohibited*	▪ Travel to be booked routing outside of potential high community transmission transport hubs. ▪ Temperature monitoring taking place by security personnel. ▪ Wash your hands often or use hand sanitizer. Wash your hands for at least 20 seconds; remember to lather the backs of the hands, between the fingers, and under the nails. Use a hand sanitizer that contains at least 60 percent alcohol. Cover all surfaces of your hands and rub them together until they feel dry. Avoid touching your eyes, nose, and mouth with unwashed hands. Cover your mouth and nose if you sneeze or cough with a tissue or use the inside of your elbow and throw used tissues in the trash. Follow up with hand washing or hand sanitizer. Bring your own hand sanitizer (up to 12 ounces allowed in carry on). ▪ Pack disinfecting wipes in your carry on and use them to wipe down common areas throughout the airport from check in, to gate, to plane. Touch screens, door handles, seating and dining areas, as well as frequently-used objects that you touch with your hands should all be wiped down. Bleach-based wipes and solutions with at least 60 percent alcohol can kill the coronavirus. Once you're seated on the plane, use disinfecting wipes to clean the hard surfaces like the head and arm rest, the seatbelt buckle, the remote, screen, seat back pocket, and the tray table. ▪ When we're traveling, many of us place pens, boarding passes, parking tickets, and more into our mouths without even noticing it and then hand those items to other people like parking attendants, Transportation Security Administration (TSA) officers, or flight crew. Be conscientious about keeping your hands or other items out of your mouth. ▪ During your travel journey, look for opportunities to stay six feet, or an arm's length from others. One of the ways coronavirus is spread is between people who are in close contact with one another or through respiratory droplets with an infected person coughs or sneezes. ▪ Protect other people from infection and give yourself the time you need to recuperate by staying home if you are not feeling well. ▪ Avoid travelling in vans or buses with multiple personnel, keep distance between seats if you must.	**M**

AHA – TRAVEL TO / FROM OFFICE OR PROJECT SITE, DURING COVID-19 CONSIDERATIONS

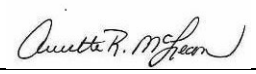
Job Steps	Hazards	Controls	RAC
4. Travel back /forth to hotel, home, restaurants, recreation, airport, etc.	4A) Hazards from criminal activity / security / social unrest	▪ Always plan the trip (Journey Management Plan) prior to leaving or returning. ▪ Drive with the vehicle doors locked. ▪ Keep plenty of gas in the vehicle's tank. ▪ Observe all local traffic laws. ▪ Stay in area where there are other people. Use restroom facilities that are located near to public areas. Be aware of people around you. ▪ Pick hotels that are located in the safest part of town and when possible, have good security. ▪ Move quickly when going from the parking lots to the hotel. ▪ Park as close to lighting as possible. ▪ Look in the vehicle prior to entering to see if anyone is hiding in the vehicle. ▪ If you feel threatened, scream, yell and run. Don't be a hero. ▪ Request a room located on the 7th floor or below (fire truck ladders will reach to the 7th floor). Learn the emergency exit route from your room upon arrival. Always keep your room door locked and bolted.	L

Job Steps	Hazards	Controls	RAC
	4B) SARS-CoV-2 exposure in community NOTE: *If Trigger Level to/from is 1, then insert L for RAC. If Trigger Level to/from is 2 or 3, then insert M for RAC.* *Any work inside a healthcare facility is Substantial to High risk and prohibited*	▪ Avoid public spaces and going out to eat by bringing your own lunch to the project site. Ensure all personnel wash and/or sanitize their hands properly prior to eating. While staying in a hotel, the following is recommended: ▪ When booking confirm the hotel has an ehanced cleaning procedure for high-touch public areas (elevators, door handles, lobbies, room keys) in response to the pandemic' ▪ Confirm hand sanitizers for staff and guest are located through the facilty, including front desk ▪ Confirm hotel has a procedure to identify if staff are Covid-19 high risk, and if so, is this procedure followed (e.g. self quarantine). ▪ Confirm if they require a guest to complete a Covid-19 questionnaire before assigning a room. ▪ Confirm that staff have taken enhanced Covid-19 awareness training. ▪ Eat all food in your hotel room after disinfecting surfaces as outlined above. Do not eat in public spaces or restaurants. ▪ Wash hands with soap and warm water for a minimum of 20 seconds or disinfect using hand sanitizer prior to eating ▪ If the hotel has a restaurant or café, order food to be picked up or delivered to your room. Follow guidelines for minimizing time in public spaces in section 2d above. ▪ If there is no food available at the hotel, order groceries or food for delivery to the hotel. Call local restaurants to order food for delivery (call the hotel lobby for recommendations) or use food ordering applications such as Postmates, Caviar, and Doordash. Some of these applications have options for contactless delivery Prior to leaving the site: ▪ Disinfect shared equipment you came into contact with during the work day. ▪ Wash your hands thoroughly for a minimum of 20 seconds with soap warm water or disinfect using hand sanitizer prior to leaving the site. When you arrive home: ▪ Disinfect your cell phone with an approved antimicrobial wipe. ▪ Wash hands thoroughly for a minimum of 20 seconds with soap and warm water.	**M**

AHA – TRAVEL TO / FROM OFFICE OR PROJECT SITE, DURING COVID-19 CONSIDERATIONS

Equipment to be Used	Training Requirements / Contact Information	Inspection Requirements
PPE as required by the office / job site Cellphone with ISOS app First Aid kit Sunglasses Handwashing soap and/or hand sanitizer Disinfecting wipes and EPA-recommended disinfectants	**Competent / Qualified Personnel:** Steve Posten (Supervisor) – 1.732.302.9500 Katie Amann (Field Lead) – 1.518.612.0314 Client Contact: Nicole Wireman (NGB/A4VR Program Manager) – 1.240.612.8506 Jen Kotch (ANGB Env. Manager) – 1.518.344.2341 HSE Coordinator / SSHO: Annette McLean – 1.978.614.5355 Emergency services: 911 Non-emergency Police: Glenville Police Department – 1.518.630.0911 Non-emergency Fire: East Glenville Fire District – 518.630.0911 Local Public Health Dept.: Schenectady County Public Health Department – 1.518.386.2810 WorkCare: 1.888.449.7789 ISOS: 1.215.354.5000 Current US Driver's license for vehicle operators **Training requirements:** AHA Induction ISOS / Security Awareness Training First Aid and CPR HazCom / WHMIS / Intro. to Client/Site Plans Task kick-off meeting and weekly toolbox chats Monthly SafetyGram and Office HSE Meetings	Inspection of vehicle prior to operation. Note needed repairs and schedule service as soon as feasible. Inspect all PPE prior to use. Perform an assessment to identify all areas and equipment with shared surfaces. Verify all areas and equipment identified with shared surfaces are disinfected with antimicrobial wipes prior to use. Check in regularly with yourself and other field staff to ensure hands are washed frequently and/or sanitized. Stay home if: • Feeling sick even if symptoms do not align with COVID-19; or • You have been in contact with someone believed to have the coronavirus or traveled to a foreign country or out of state.

AHA – TRAVEL TO / FROM OFFICE OR PROJECT SITE, DURING COVID-19 CONSIDERATIONS

AHA REVIEW ACKNOWLEDGEMENT		
Reviewed by (PM):	Signature:	Date:
Plan Concurrence by (other): Annette McLean	Signature: 	Date: 4/23/2020
The undersigned acknowledge they have read, understood and shall comply with all components of the AHA. This AHA is a living document and should be reviewed and revised during regular meetings with the Wood team.		
Name (print):	Signature:	Date:
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Activity Hazard Analysis – Field Work During the Coronavirus (COVID-19)

Activity/Work Task:	Field Work During the Coronavirus (COVID-19) Outbreak		
Project Location:	Varies		
Contract Number:	Multiple		
Date Prepared:	03/12/2020	Date Accepted:	3/18/2020
Prepared by (Name/Title):	Shea Oades/ Technical Professional 1- Environmental		
Reviewed by (Name/Title):	Erin Shankel, PE/ Senior 1 Engineer		

This AHA involves the following:

- Establishing general measures for conducting field work during the COVID-19 outbreak

This AHA is not an exhaustive summary of all hazards associated with the Site. Refer to the site-specific HASP for additional requirements. Contractor to follow general site safety controls for Slips Trips and Falls, Biological hazards, cuts lacerations and pinch points, and emergency procedures.

Overall Risk Assessment Code (RAC) (Use highest code)	**M**

Risk Assessment Code (RAC) Matrix

Severity	**Probability**				
	Frequent	Likely	Occasional	Seldom	Unlikely
Catastrophic	**E**	**E**	**H**	**H**	**M**
Critical	**E**	**H**	**H**	**M**	**L**
Marginal	**H**	**M**	**M**	**L**	**L**
Negligible	**M**	**L**	**L**	**L**	**L**

Step 1: Review each **"Hazard"** with identified safety **"Controls"** and determine RAC (See above)

"Probability" is the likelihood to cause an incident, near miss, or accident and identified as: Frequent, Likely, Occasional, Seldom or Unlikely.

"Severity" is the outcome/degree if an incident, near miss, or accident did occur and identified as: Catastrophic, Critical, Marginal, or Negligible

Step 2: Identify the RAC (Probability/Severity) as E, H, M, or L for each "Hazard" on AHA. Annotate the overall highest RAC at the top of AHA.

RAC Chart
E = Extremely High Risk
H = High Risk
M = Moderate Risk
L = Low Risk

Activity Hazard Analysis – Field Work During the Coronavirus (COVID-19)

Equipment to be Used	Training Requirements/Competent or Qualified Personnel name(s)	Inspection Requirements
In addition to standard Level D PPE, all field staff should carry hand sanitizer and disinfectant wipes with the proper concentration of antimicrobial agents, such as: • 10% (1% iodine) Povidone-iodine • 2% Glutaraldehyde • 70% Isopropanol • 0.05% Benzalkonium chloride • 0.23% Sodium Chlorite • 0.7% Formaldehyde If disinfectant is not available, a solution of 70% ethanol or water and bleach in a dilution of 1:50 can be used.	**Competent / Qualified Personnel:** All Wood employees with appropriate training requirements per the site-specific HASP **Training Requirements:** • Site-specific HASP orientation • Toolbox safety meeting • Task kickoff meeting • Any other trainings required by the site-specific HASP	Perform an assessment to identify all areas and equipment with shared surfaces. Verify all areas and equipment identified with shared surfaces are disinfected with antimicrobial wipes prior to use. Check in regularly with yourself and other field staff to ensure hands are washed frequently and/or sanitized. Stay home if: • Feeling sick even if symptoms do not align with COVID-19; or • You have been in contact with someone believed to have the coronavirus or traveled to a foreign country or out of state.

Activity Hazard Analysis – Field Work During the Coronavirus (COVID-19)

Job Steps	Hazards	Controls	RAC
1. Prepare for site visit	1a) N/A	▪ As the situation concerning COVID-19 evolves, ensure you are up to date with both Wood corporate and local policies. Review Wood's Coronavirus Guidance and check with your health and safety officer and project manager if you have any questions or concerns. ▪ Check and follow local control measures and advice. Assess if work is to be conducted in a high transmission area. ▪ Check with project manager to see if the client's protocols and expectations have changed with the progression of the COVID-19. ▪ Ensure all workers are fit for duty—anyone feeling sick should remain at home even if symptoms do not align with COVID-19. If a worker has been in contact with someone believed to have COVID-19 they should remain at home as well for the CDC recommended 14-day period. ▪ Determine PPE needs – bring required PPE to the site, including hand sanitizer and antimicrobial wipes. While hand sanitizer and antimicrobial wipes are in short supply, plan ahead to order them online (from Amazon or other online retailers). Check in with your supervisor or project manager if you are having issues accessing hand sanitizer and antimicrobial wipes. ▪ Coordinate field activities to minimize time spent in public spaces as much as possible.	**L**
2. Traveling to the site	2a) Vehicles	▪ Consider driving a personal vehicle to reduce exposure to germs. ▪ If renting a vehicle, wipe down all vehicle surfaces thoroughly with antimicrobial wipes using nitrile gloves. Use proper donning and doffing procedures for nitrile gloves. ▪ **Do not carpool; it is necessary to minimize contact with coworkers.**	**M**
	2b) Public Transit	▪ Public transit should not be used as a means of transportation unless necessary. Check with your health and safety officer and project manager if you have questions or concerns. ▪ If public transit is required, wear nitrile gloves, wear face masks and use social distancing, maintaining at least a 6-foot distance between other personnel. Use proper donning and doffing procedures for nitrile gloves. ▪ Consider renting a car rather than taking public transit. Follow the safety procedures outline in Section 2a.	**M**

2. Traveling to the site	2c) Airline Travel	▪ Avoid airline travel unless absolutely necessary. Current Wood policy allows for only essential business travel; however, this policy may change as the situation progresses. ▪ Ensure that the local policies and the risk levels in both your departure and arrival cities have been evaluated. ▪ Obtain approval from your local health and safety officer and project manager prior to booking air travel. ▪ Do not travel if you feel sick, even if the symptoms do not align with COVID-19, or if you have come into contact with someone believed to have COVID-19. ▪ At the airport, utilize social distancing maintaining at least a 6-foot distance between you and others. ▪ Once on the plane, disinfect surfaces that you may touch, such as the tray table and arm rests. Consider wearing nitrile gloves, utilizing the appropriate donning and doffing procedure. ▪ Throughout your trip, avoid contact with sick passengers and wash your hands often with soap and warm water for at least 20 seconds. Hand sanitizer may be used if soap and water are unavailable; rub sanitizer thoroughly over hands until dry. ▪ Avoid touching your face, mouth, and nose. If you do inadvertently touch your face, mouth, or nose, wash hands and/or affected area with soap and warm water for a minimum of 20 seconds or disinfect hands using hand sanitizer immediately after.	**M**
	2d) Hotel Stays	▪ If a hotel stay is deemed necessary for the given field work, ensure that you disinfect your room upon initial arrival and returning each day, taking the following measures: o Disinfect all surfaces of your hotel room with an appropriate antimicrobial wipe using nitrile gloves. Use proper donning and doffing procedures for nitrile gloves. o Place the "Do Not Disturb" placard on the room while away to minimize the reintroduction and spread of germs from others. o Wash your hands immediately upon returning to the hotel room every evening. ▪ Minimize, or avoid entirely, time spent in hotel common areas (i.e., the lobby, dining areas, gyms, etc.). If time spent in these areas is unavoidable, ensure to wash your hands before and after. Hands should be washed for a minimum of 20 seconds with soap and warm water. Hand sanitizer may be used if soap and water are unavailable; rub sanitizer thoroughly over hands until dry.	**M**

3. Initial arrival—assess site conditions	3a) Communication and interaction with subcontractors, coworkers, and other site personnel	▪ Utilize social distancing, maintaining at least a 6-foot distance between other personnel. Do not shake hands or touch others. ▪ Check in with subcontractors and other site personnel to ensure everyone feels fit for duty. If anyone is feeling sick, contact your project manager to determine if they should be sent home. ▪ Discuss procedures and expectations for frequent hand washing and/or sanitation with all site personnel. Make sure hands are washed for a minimum of 20 seconds with soap and warm water. Hand sanitizer may be used if soap and water are unavailable; rub sanitizer thoroughly over hands until dry. ▪ Use nitrile gloves at all times, even if performing a task that does not typically require gloves. Gloves must be used for opening and closing doors. Use proper donning and doffing procedures for nitrile gloves. ▪ Consider disinfecting shared surfaces with an approved antimicrobial agent. ▪ Discuss and utilize safe practices such as avoiding touching your face, mouth and nose. If you do inadvertently touch your face, mouth, or nose, wash hands and/or affected area with soap and warm water for a minimum of 20 seconds or disinfect hands using hand sanitizer immediately after. ▪ Cover your mouth and nose with your elbow when coughing or sneezing and wash hands with soap and warm water for a minimum of 20 seconds or disinfect using hand sanitizer immediately after. ▪ Sanitize your phone on a regular basis. Be cognizant of touching your phone or holding it up to your face if it has not been sanitized or it has been touched with dirty gloves or unwashed hands. Avoid allowing others to touch your phone, sanitizing it afterwards if you allow them to do so.	**M**
4. Eating	4a) Eating while in the field and staying in hotels	▪ Avoid public spaces and going out to eat by bringing your own lunch to the project site. Ensure all personnel wash and/or sanitize their hands properly prior to eating. ▪ While staying in a hotel, the following is recommended: o Eat all food in your hotel room after disinfecting surfaces as outlined in section 2d above. Do not eat in public spaces or restaurants. o Wash hands with soap and warm water for a minimum of 20 seconds or disinfect using hand sanitizer prior to eating o If the hotel has a restaurant or café, order food to be picked up or delivered to your room. Follow guidelines for minimizing time in public spaces in section 2d above. o If there is no food available at the hotel, order groceries or food for delivery to the hotel. Call local restaurants to order food for delivery (call the hotel lobby for recommendations) or use food ordering applications such as Postmates, Caviar, and Doordash. Some of these applications have options for contactless delivery.	**M**

5. Return to office/home	5a) Decontamination	▪ Prior to leaving the site: o Disinfect shared equipment you came into contact with during the work day. o Wash your hands thoroughly for a minimum of 20 seconds with soap warm water or disinfect using hand sanitizer prior to leaving the site. ▪ When you arrive home: o Disinfect your cell phone with an approved antimicrobial wipe. o Wash hands thoroughly for a minimum of 20 seconds with soap and warm water.	**L**

AHA – General Field Work

Activity/Work Task:	General Field Work	Substantial / High Risks:	Falling Objects, Ticks and infected mosquitos, Lifting Injuries, Vehicular Traffic, Overhead Hazards, Heavy Equipment (overhead hazards, spills, struck by or against), Struck by vehicle/ equipment, Contact with Electricity/ Lightning, Heat Street, Wet Bulb Globe Temperature (WBGT) Index, Cold Extremes, Wind, Thunderstorms, Distractions leading to innumerable hazards	Highest RAC: (residual)	**M**
Project Location:	Stratton Air National Guard Base				
Contract Number:	W9133L-19-R-0053				
Date Prepared:	2/21/2020 Date Accepted: 3/24/2020				
Prepared by (Name/Title):	Katie Amann/Technical Professional III				
Reviewed by (Name/Title):	Annette McLean, Sr. EHS Specialist				

Risk Assessment Code (RAC) Matrix

Severity \ Probability	Almost certain	Likely	Possible	Unlikely	Rare
Catastrophic	H	H	S	S	M
Critical	H	S	S	M	L
Marginal	S	M	M	L	L
Negligible	M	L	L	L	L

Notes: (Field Notes, Review Comments, etc.)

This AHA involves the following:

- Establishing site specific measures for the specified activity
- **BOLD hazards corresponding to Substantial or High Risk**.

This AHA is not an exhaustive summary of all hazards associated with the Site. Refer to the project HASP or client information for additional requirements, and emergency procedures.

Workers to follow general site safety controls for Hazard Signage/PPE, Housekeeping, Slips Trips and Falls, Biological hazards, Mobile equipment, Confined spaces, Fall hazards, Electrical, and any active operating equipment or construction activities.

Step 1: Review each **"Hazard"** to identify Probability and Severity (Refer to Project HSE Risk Characterization Form)

- **"Probability**" is the likelihood to cause an incident, near miss, or accident and identified as: Almost certain, Likely, Possible, Unlikely, Rare.
- **"Severity"** is the outcome/degree if an incident, near miss, or accident did occur and identified as: Catastrophic, Critical, Marginal or Negligible

Step 2: Identify the RAC-Inherent as H, S, M, or L for each "Hazard" on AHA, ***before* controls are applied.**

Step 3: Identify the RAC-Residual as H, S, M, or L for each "Hazard" on AHA, ***after* controls are applied.**

Step 4: Annotate the overall highest RAC-Residual at the top of AHA.

Risk Categories
H = High Risk
S = Substantial Risk
M = Moderate Risk
L = Low Risk

MANAGEMENT OF CHANGE: If there is a change or deviation from the planned activity, you must stop the job and re-evaluate the risk assessment and the precautions taken. Any changes to work described in this AHA shall require review by a Qualified Person.

Check all Life Saving Rules that apply:									
☐ Hot Work	☐	Bypassing Safety Controls	☐	Confined Space	☑	Driving	☐	Energy Isolation
	☑	Line of Fire	☑	Work Authorization	☑	Safe Mechanical Lifting	☐	Working at Height

AHA – General Field Work

Equipment to be Used	Training Requirements/Competent or Qualified Personnel name(s)	Inspection Requirements
PPE: • Work uniform or work clothes • Hard hat* • Safety glasses* • Steel-toed boots* • Gloves (per HASP) * • High-visibility reflective vests* • Hearing protection *Mandatory PPE for ANG Projects	**Competent / Qualified Personnel:** Name: Wood personnel, see HASP **Training Requirements:** • HAZWOPER (40-hour, 8-hour Refresher, Supervisory, if applicable) • Site-Specific HASP Orientation • Toolbox safety meeting • Task kick-off meeting	• Daily inspection of equipment per manufacturer's instructions. Tag tools that are defective and remove from service. • Inspect power cord sets prior to use. • Inspect all PPE prior to use.

Job Steps	Hazards	RAC Inherent	Controls	RAC Residual
1. Mobilization	See Mobilization/Demobilization and Site Preparation AHA	**M**	See Mobilization/Demobilization and Site Preparation AHA	**Exempt**
2. Communication	Safety, crew unity	**M**	Talk to each other. ▪ Let other crewmembers know when you see a hazard. ▪ Avoid working near known hazard trees (trees that are rotten, dead, damaged, etc.). ▪ Always know the wherabouts of fellow crewmembers. ▪ Carry a radio and spare batteries or cell phone. ▪ Review Emergency Evacuation Procedures (see below).	**L**
3. Walking and working in the field	3A) Falling down, twisted ankles and knees, poor footing	**M**	Always watch your footing. ▪ Slow down and use extra caution around logs, rocks, and animal holes. ▪ Extremely steep slopes (>50%) can be hazardous under wet or dry conditions; consider an alternate route. ▪ Wear laced boots with a minimum 8" high upper and non-skid Vibram-type soles for ankle support and traction.	**L**
	3B) **Falling objects**	**S**	Protect head agains falling objects. ▪ Wear your hardhat for protection from falling limbs and pinecones, and from tools and equipment carried by other crewmembers. ▪ Stay out of the woods during extremely high winds.	**L**
	3C) Damage to eyes	**M**	Protect eyes:	**L**

AHA – General Field Work

Job Steps	Hazards	RAC Inherent	Controls	RAC Residual
			▪ Watch where you walk, especially around trees and brush with limbs sticking out. ▪ Exercise caution when clearing limbs from tree trunks. Advise wearing eye protection. ▪ Ultraviolet light from the sun can be damaging to the eyes; look for sunglasses that specify significant protection from UV-A and UV-B radiation. If safety glasses require, use one's with tinted lenses	
	3D) Bee and wasp stings	**M**	See AHA for Insect Stings and Bites	**L**
	3E) **Ticks and infected mosquitos**	**S**	See AHA for Insect Stings and Bites	**L**
	3F) **Lifting Injuries (e.g., Back Injuries)**	**S**	Lifting Injuries (e.g., Back Injuries) ▪ Site personnel will be instructed on proper lifting techniques. ▪ Perform warm-up excercises before starting work. ▪ **DO NOT EXCEED THE WOOD E&IS LIFTING LIMIT OF 50 POUNDS.** ▪ Use two people to lift, lower, or carry equipment or materials heavier than 50 pounds. ▪ Mechanical devices should be used to reduce manual handling of materials. ▪ Drive the field vehicle as close to the point that the heavy equipment/material will be used as long as the area is safe to drive into and you do not create hazards to you, your co-worker, or the vehicle.	**M**
	3G) Slips/Trips/Falls	**M**	Slips/Trips/Falls ▪ Maintain work areas safe and orderly; unloading areas should be on even terrain; mark or repair possible tripping hazards. ▪ Site SHSO inspect the entire work area to identify and mark hazards. ▪ Be aware of work area conditions that can cause slip hazards such as ponding of water on concrete surfaces. Ponding of water on smooth surfaces, such as concrete, coupled with the warm or freezing weather conditions has the potential to cause slippery condiitons such as growth of scum or ice, as applicable. Adding a layer of clean fill to the surface may prevent the growth of scum, and/or create a non-slippery walking surface.	**L**

AHA – General Field Work

Job Steps	Hazards	RAC Inherent	Controls	RAC Residual
	3H) **Vehicular Traffic**	**S**	Vehicular Traffic ▪ Spotters will be used when backing up trucks and heavy equipment and when moving equipment. ▪ High visibility vests will be worn when workers are exposed to vehicular traffic at the site or on public roads.	**M**
	3I) **Overhead Hazards**	**S**	Overhead Hazards ▪ Personnel will be required to wear hard hats that meet ANSI Standard Z89.1. ▪ All ground personnel will stay clear of suspended loads. ▪ All equipment will be provided with guards, canopies or grills to protect the operator from falling or flying objects. ▪ All overhead hazards will be identified prior to commencing work operations.	**M**
	3J) Dropped Objects	**M**	Dropped Objects ▪ Steel toe boots meeting ANSI Standard Z41 will be worn.	**L**
	3K) Noise	**M**	Noise ▪ Hearing protection will be worn with a noise reduction rating capable of maintaining personal exposure below 85 dBA (ear muffs or plugs); all equipment will be equipped with manufacturer's required mufflers. Hearing protection shall be worn by all personnel working in or near heavy equipment.	**L**
	3L) Eye Injuries	**M**	Eye Injuries ▪ Safety glasses meeting ANSI Standard Z87 will be worn.	**L**
	3M) **Heavy Equipment (overhead hazards, spills, struck by or against)**	**S**	Heavy Equipment ▪ Equipment will have seat belts. ▪ Operators will wear seat belts when operating equipment. ▪ Do not operate equipment on grades that exceed manufacturer's recommendations. ▪ Equipment will have guards, canopies or grills to protect from flying objects. ▪ Ground personnel will stay clear of all suspended loads. ▪ Ground personnel will wear high visibility vests ▪ Spill and absorbent materials will be readily available.	**M**

AHA – General Field Work

Job Steps	Hazards	RAC Inherent	Controls	RAC Residual
			▪ Drip pans, polyethylene sheeting or other means will be used for secondary containment. ▪ Ground personnel will stay out of the swing radius of excavators. ▪ Eye contact with operators will be made before approaching equipment. ▪ Operator will acknowledge eye contact by removing his hands from the controls. ▪ Equipment will not be approached on blind sides. All equipment will be equipped with backup alarms and use spotters when significant physical movement of equipment occurs on-site, (i.e., other than in place excavation or truck loading).	
	3N) **Struck by vehicle/ equipment**	**S**	Struck by vehicle/equipment ▪ Be aware of heavy equipment operations. ▪ Keep out of the swing radius of heavy equipment. ▪ Ground personnel in the vicinity of heavy equipment operations will be within the view of the operator at all times and will wear high visibility vests. ▪ Ground personnel will be aware of the counterweight swing and maintain an adequate buffer zone. ▪ Ground personnel will not stand directly behind heavy equipment when it is in operation. ▪ Drivers will keep workers on foot in their vision at all times, if you lose sight of someone, Stop!	**M**
	3O) Struck/cut by tools	**M**	Struck/cut by tools ▪ Cut resistant work gloves will be worn when dealing with sharp objects. ▪ All hand and power tools will be maintained in safe condition. ▪ Guards will be kept in place while using hand and power tools.	**L**
	3P) Caught in/on/between	**M**	Caught in/on/between ▪ Workers will not position themselves between equipment and a stationary object. ▪ Workers will not wear long hair down (place in pony-tail and tuck into shirt) or jewelry if working with tools/machinery.	**L**
	3Q) **Contact with Electricity/ Lightning**	**S**	Contact with Electricity/Lighting	**M**

AHA – General Field Work

Job Steps	Hazards	RAC Inherent	Controls	RAC Residual
			▪ All electrical tools and equipment will be equipped with GFCI. ▪ Electrical extension cords will be of the “Hard” or “Extra Hard” service type. ▪ All extension cords shall have a three-blade grounding plug. ▪ Personnel shall not use extension cords with damaged outer covers, exposed inner wires, or splices. ▪ Electrical cords shall not be laid across roads where vehicular traffic may damage the cord without appropriate guarding. ▪ All electrical work will be conducted by a licensed electrician. ▪ All utilities will be marked prior to excavation activities. ▪ All equipment will stay a minimum of 10 feet from overhead energized electrical lines (50 kV). This distance will increase by 4 inches for each 10 kV above 50 kV. Rule of Thumb: Stay 10 feet away from all overhead powerlines known to be 50 kV or less and 35 feet from all others.) ▪ The SHSO shall halt outdoor site operations whenever lightning is visible, outdoor work will not resume until 30 minutes after the last sighting of lightning.	
	3R) Equipment failure	**M**	Equipment failure ▪ All equipment will be inspected before use. If any safety problems are noted, the equipment should be tagged and removed from service until repaired or replaced.	**L**
	3S) Hand & power tool usage, cuts, burns, etc.	**M**	Hand & power tool usage ▪ Inspect the tool daily. ▪ Remove broken or damaged tools from service. ▪ Use the tool for its intended purpose. ▪ Use in accordance with manufacturers instructions.	**L**
	3T) Burns and Exposure to Exhaust from Portable Propane Torch Use	**M**	Portable propane torch usage ▪ Read the manual to become familiar with the propane torch and follow all safety precautions. Don PPE (safety glasses, heavy leather gloves) before using the torch. ▪ Inspect the propane cylinder and the torch tip to ensure there are no defects, damage, etc. ▪ Assemble the torch kit per instruction manual. The torch is designed to be used with the small propane cylinder, do not attempt to attach the torch to any other gas cylinder.	**L**

AHA – General Field Work

Job Steps	Hazards	RAC Inherent	Controls	RAC Residual
			▪ Do not use the torch in areas where gasoline or other liquids having flammable vapors are stored or used. ▪ Do not smoke while igniting or operating the propane torch. ▪ Have an ABC type fire extinguisher readily accessible to the work area. ▪ Be sure the torch tip has a tight seal to the cylinder. If you smell gas, do not try to light the torch. Check the seal between the cylinder and torch. Do not attempt to light the torch until the seal is secure and no gas is leaking. ▪ To ignite the torch flame, first position the point of the torch tip away from you. ▪ If the unit requires a striker to ignite the torch, only use the striker provided with the unit. Never use a match or lighter to ignite torch. ▪ Do not place hand or any part of your body in the path of the flame while lighting or operating the propane torch. ▪ Never leave an ignited torch unattended while in operation. When not in use, the torch tip must be removed from the propane cylinder. ▪ Be aware of the weather conditions. On bright sunny days, the torch flame may be barely visible. On windy days, the wind may carry the torch's heat back towards you. ▪ The torch can produce combustion products such as carbon monoxide. Do not breathe in the exhaust. Propane vapors are heavier than air and can accumulate in low or confined areas. Use the torch only in a well ventilated area. ▪ Heating a surface may cause heat to be conducted to adjoining surfaces that may be combustible or become pressurized when heated. Always check to make sure no unintended parts or materials are being heated. ▪ Torch will be extremely hot, allow the torch to cool before touching it to remove it from the cylinder. ▪ Never store a torch that is still hot. ▪ When cooled, disconnect the torch from the cylinder for storage, and store them in a safe manner to prevent damage.	
4. Environmental health considerations	4A) **Heat Stress**	**S**	Take precautions to prevent heat stress ▪ Remain constantly aware of the four basic factors that determine the degree of heat stress (air temperature, humidity, air movement, and	**M**

Job Steps	Hazards	RAC Inherent	Controls	RAC Residual
			heat radiation) relative to the surrounding work environmental heat load. ▪ Know the signs and symptoms of heat exhaustion, heat cramps, and heat stroke. Heat stroke is a true medical emergency requiring immediate emergency response action. ▪ **NOTE:** The severity of the effects of a given environmental heat stress is decreased by reducing the work load, increasing the frequency and/or duration of rest periods, and by introducing measures which will protect employees from hot environments. ▪ Maintain adequate water intake by drinking water periodically in small amounts throughout the day (flavoring water with citrus flavors or extracts enhances palatability). ▪ Allow approximately 2 weeks with progressive degrees of heat exposure and physical exertion for substantial acclimatization. ▪ Acclimatization is necessary regardless of an employee's physical condition (the better one's physical condition, the quicker the acclimatization). Tailor the work schedule to fit the climate, the physical condition of employees, and mission requirements. ▪ A reduction of work load markedly decreases total heat stress. ▪ Lessen work load and/or duration of physical exertion the first days of heat exposure to allow gradual acclimatization. ▪ Alternate work and rest periods. More severe conditions may require longer rest periods and electrolyte fluid replacement.	
	4B) **Wet Bulb Globe Temperature (WBGT) Index** (or OSHA - NIOSH Heat Index App)	**S**	Heat Index/WBGT ▪ Curtail or suspend physical work when conditions are extremely severe ▪ Use the OSHA-NIOSH Heat Index App to calculate the heat index (or compute using a Wet Bulb Globe Temperature Index) to determine the level of physical activity (take WBGT index measurements in a location that is similar or closely approximates the environment to which employees will be exposed).	**M**
		S	**HEAT INDEX/WBGT THRESHOLD VALUES FOR INSTITUTING PREVENTIVE MEASURES** 80-90 °F Fatigue possible with prolonged exposure and physical activity.	**M**

AHA – General Field Work

Job Steps	Hazards	RAC Inherent	Controls	RAC Residual
			90-105 °F Heat exhaustion and heat stroke possible with prolonged exposure and physical activity. 105-130 °F Heat exhaustion and heat stroke are likely with prolonged heat exposure and physical activity.	
	4C) **Cold Extremes**	**S**	Take precautions to prevent cold stress injuries ▪ Cover all exposed skin and be aware of frostbite. While cold air will not freeze the tissues of the lungs, slow down and use a mask or scarf to minimize the effect of cold air on air passages. ▪ Dress in layers with wicking garments (those that carry moisture away from the body – e.g., cotton) and a weatherproof slicker. A wool outer garment is recommended. ▪ Take layers off as you heat up; put them on as you cool down. ▪ Wear head protection that provides adequate insulation and protects the ears. ▪ Maintain your energy level. Avoid exhaustion and over-exertion which causes sweating, dampens clothing, and accelerates loss of body heat and increases the potential for hypothermia. ▪ Acclimate to the cold climate to minimize discomfort. ▪ Maintain adequate water/fluid intake to avoid dehydration.	**M**
	4D) **Wind**	**S**	4A) Effects of the wind ▪ Wind chill greatly affects heat loss (see attached Wind Chill Index). ▪ Avoid marking in old, defective timber, especially hardwoods, during periods of high winds due to snag hazards.	**M**
	4E) **Thunderstorms**	**S**	4B) Thunderstorms ▪ Monitor weather channels to determine if electrical storms are forcased. ▪ Plan ahead and identify safe locations to be in the event of a storm. (e.g., sturdy building, vehicle, etc.) ▪ Suspend all field work at the first sound of thurnder. You should be in a safe place when the time between the lightning and thunder is less than 30 seconds. ▪ Only return to work 30 minutes after the after the last strike or sound of thunder	**M**
5. Check and calibrate industrial hygiene and	5A) Exposure to Calibration Gases/Chemicals due to:	**M**	Verify proper operation of the instrument prior to calibration.	**L**

AHA – General Field Work

Job Steps	Hazards	RAC Inherent	Controls	RAC Residual
other field instruments and equipment as required and as recommended by the manufacturer	Use of damaged instruments.		▪ Calibrate instruments in an area with adequate ventilation and follow the manufacturer's recommendations. ▪ Wear appropriate PPE to conduct calibrations as specified in the instrument manual.	
	5B) Exposure to Site contaminants due to: ▪ Improper instrument calibration; ▪ Misinterpretation of calibration results; ▪ Improper instrument repair; ▪ Improper use of instrument due to lack of training.	**M**	Calibrate the instrument in accordance with the manufacturer's recommendations (see instrument manual) using the applicable calibration standard and calibration procedure. ▪ Perform calibrations at a frequency recommended by the manufacturer. Be aware of the instrument's limitations (e.g., detection limit, maximum sensitivity) and the conditions (e.g., humidity) that may affect correct operation or accuracy of that equipment. Possible sources of error that may affect the correct calibration of the instrument. ▪ Use only calibration materials recommended by the manufacturer for calibration. Do not use substitutions. ▪ Confirm that the connections between the instrument and the calibration gas/material is leak-free. ▪ Record all instrument calibrations in the field logbook. Include the instrument ID (type/manufacture/serial number/lamp eV, etc.), calibration gas used (chemical and concentration), and instrument result. ▪ Do not attempt to repair instrument. Return to the vendor for replacement. Report any damaged or malfunctioning instrument to the vendor. ▪ All personnel must be familiar with operation of the instrument and understand: – Theroy of its operation including any alarms and their setpoints – Materials the instrument can and cannot detect, – Instrument's limitations – The expected responses to calibration gases/materials – Interfering gases/chemicals and their affects on the instrument readings – When re-zeroing is appropriate	**L**
6. Cell phone/electronic device use in the field	**Distractions leading to innumerable hazards**	**S**	Designate a safe location/distance away from the work area and traffic patterns for cell phone use.	**M**

AHA – General Field Work

Job Steps	Hazards	RAC Inherent	Controls	RAC Residual
			• All phone calls can wait until you have stopped work and moved to a safe location. • Never use a cell phone in an Exclusion Zone unless first moving to a safe location. Use of radios are recommended instead of cell phone use, • Remove chemically protective gloves before cell phone/electronic device handling, • Stand still when using cell phones and electronic devices, • Don't turn your back on traffic or heavy equipment movements, • Operating mobile equipment requires both hands. No cell phone use is allowed while operating mobile equipment including hands free.	

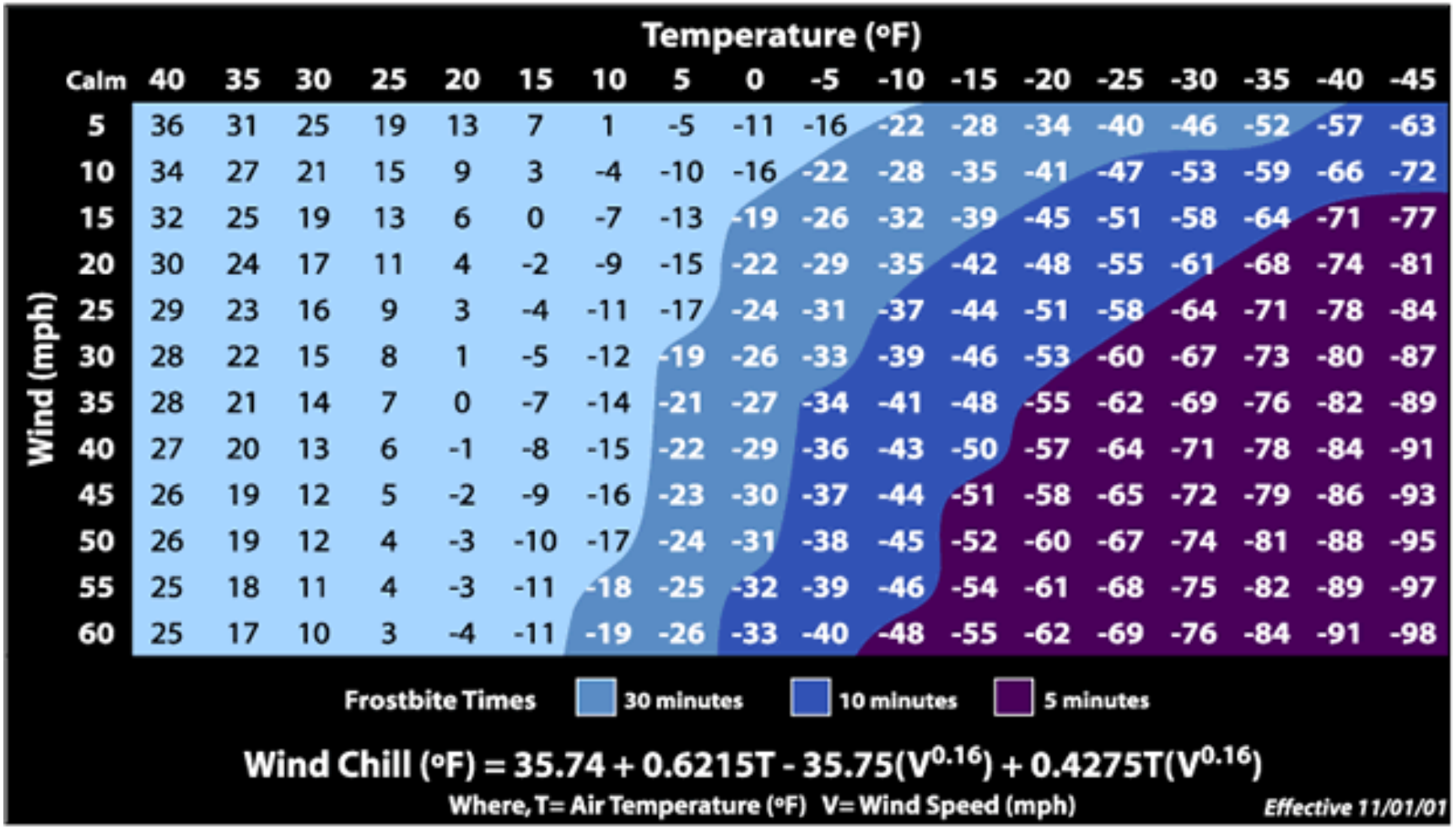
AHA – General Field Work

Heat Index Chart

Temperature	% Relative Humidity															
		15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
	110	108	112	117	123	130											
	105	102	105	108	113	117	122	130									
	100	97	98	102	104	107	110	115	120	126	132						
	95	91	93	95	96	98	100	104	106	109	113	119	124	130			
	90	86	87	88	90	91	92	95	97	98	100	103	106	110	114	117	121
	85	81	82	83	84	85	86	87	88	89	90	92	94	96	97	100	102
	80	76	77	78	78	79	79	80	81	82	83	84	85	86	87	88	89

Legend	
80-89 degrees	Fatigue is possible with prolonged exposure and/or physical activity.
90-104 degrees	Sunstroke, heat cramps and heat exhaustion are possible with prolonged exposure and/or physical activity.
105-129 degrees	Sunstroke, heat cramps and heat exhaustion are likely. Heat stroke is possible with prolonged exposure and/or physical activity.
130+ degrees	Heatstroke/sunstroke is highly likely with continued exposure.

Wind Chill Chart



Wind (mph) \ Temperature (°F)	Calm	40	35	30	25	20	15	10	5	0	-5	-10	-15	-20	-25	-30	-35	-40	-45
5		36	31	25	19	13	7	1	-5	-11	-16	-22	-28	-34	-40	-46	-52	-57	-63
10		34	27	21	15	9	3	-4	-10	-16	-22	-28	-35	-41	-47	-53	-59	-66	-72
15		32	25	19	13	6	0	-7	-13	-19	-26	-32	-39	-45	-51	-58	-64	-71	-77
20		30	24	17	11	4	-2	-9	-15	-22	-29	-35	-42	-48	-55	-61	-68	-74	-81
25		29	23	16	9	3	-4	-11	-17	-24	-31	-37	-44	-51	-58	-64	-71	-78	-84
30		28	22	15	8	1	-5	-12	-19	-26	-33	-39	-46	-53	-60	-67	-73	-80	-87
35		28	21	14	7	0	-7	-14	-21	-27	-34	-41	-48	-55	-62	-69	-76	-82	-89
40		27	20	13	6	-1	-8	-15	-22	-29	-36	-43	-50	-57	-64	-71	-78	-84	-91
45		26	19	12	5	-2	-9	-16	-23	-30	-37	-44	-51	-58	-65	-72	-79	-86	-93
50		26	19	12	4	-3	-10	-17	-24	-31	-38	-45	-52	-60	-67	-74	-81	-88	-95
55		25	18	11	4	-3	-11	-18	-25	-32	-39	-46	-54	-61	-68	-75	-82	-89	-97
60		25	17	10	3	-4	-11	-19	-26	-33	-40	-48	-55	-62	-69	-76	-84	-91	-98

Frostbite Times — 30 minutes — 10 minutes — 5 minutes

$$\text{Wind Chill (°F)} = 35.74 + 0.6215T - 35.75(V^{0.16}) + 0.4275T(V^{0.16})$$

Where, T= Air Temperature (°F) V= Wind Speed (mph)

Effective 11/01/01

AHA – General Field Work

FIELD ACKNOWLEDGEMENT OF PERSON(S) CARRYING OUT WORK

		SIGNED:	DATE:
NAME(S):			

SITE SUPERVISOR: _____ SIGNED: _____ DATE: _____

BY SIGNING – You Acknowledge that:

- I have read and understand all job steps, hazards and controls associated with today's work.
- Further, I WILL stop any job I think is unsafe.
- I have completed a site-specific HASP Orientation
- I have participated in a daily tailgate safety meeting

For tasks/activities that extend beyond a single day, use DAILY RENEWAL form or Point of Work Risk Assessment (PoWRa).

AHA – General Field Work

Applicable Procedures / Safe Work Practices (SWP) and Forms for Critical Hazards
(Instruction: Complete and append forms, as applicable)

Hazard	Procedure	SWP	Guidance / Form
Driving	Operation of Company Vehicles	SWP-Journey Management Planning	Required for non-routine or high-risk journeys.

Attached Guidance / Forms / Checklists

- Journey Management Plan Form

AHA – General Field Work

AHA DAILY RENEWAL		
Date:	Weather:	
Changes noted:		
Site Supervisor (Print & Sign):		
Name(s):		
Date:	Weather:	
Changes noted:		
Site Supervisor (Print & Sign):		
Name(s):		
Date:	Weather:	
Changes noted:		
Site Supervisor (Print & Sign):		
Name(s):		

AHA – Insect Stings and Bites

Activity/Work Task:	Insect Stings and Bites	Substantial / High Risks:	Lyme Disease, Rocky Mountain Spotted Fever, etc.; Allergic reactions, painful stings	Highest RAC: (residual)	**M**
Project Location:	Stratton Air National Guard Base				
Contract Number:	W9133L-19-R-0053				
Date Prepared:	2/21/2020	Date Accepted:	3/24/2020		
Prepared by (Name/Title):	Katie Amann/Technical Professional III				
Reviewed by (Name/Title):	Annette McLean, Sr. EHS Specialist				

Risk Assessment Code (RAC) Matrix

Severity \ Probability	Almost certain	Likely	Possible	Unlikely	Rare
Catastrophic	H	H	S	S	M
Critical	H	S	S	M	L
Marginal	S	M	M	L	L
Negligible	M	L	L	L	L

Notes: (Field Notes, Review Comments, etc.)

This AHA involves the following:

- Establishing site specific measures for the specified activity
- **BOLD hazards corresponding to Substantial or High Risk**.

This AHA is not an exhaustive summary of all hazards associated with the Site. Refer to the project HASP or client information for additional requirements, and emergency procedures.

Workers to follow general site safety controls for Hazard Signage/PPE, Housekeeping, Slips Trips and Falls, Biological hazards, Mobile equipment, Confined spaces, Fall hazards, Electrical, and any active operating equipment or construction activities.

Step 1: Review each **"Hazard"** to identify Probability and Severity (Refer to Project HSE Risk Characterization Form)

- **"Probability**" is the likelihood to cause an incident, near miss, or accident and identified as: Almost certain, Likely, Possible, Unlikely, Rare.
- **"Severity"** is the outcome/degree if an incident, near miss, or accident did occur and identified as: Catastrophic, Critical, Marginal or Negligible

Step 2: Identify the RAC-Inherent as H, S, M, or L for each "Hazard" on AHA, ***before* controls are applied.**

Step 3: Identify the RAC-Residual as H, S, M, or L for each "Hazard" on AHA, ***after* controls are applied.**

Step 4: Annotate the overall highest RAC-Residual at the top of AHA.

Risk Categories
H = High Risk
S = Substantial Risk
M = Moderate Risk
L = Low Risk

MANAGEMENT OF CHANGE: If there is a change or deviation from the planned activity, you must stop the job and re-evaluate the risk assessment and the precautions taken. Any changes to work described in this AHA shall require review by a Qualified Person.

Check all Life Saving Rules that apply:								
☐ Bypassing Safety Controls	☐ Confined Space	☐ Driving	☐ Energy Isolation
☐ Hot Work	☐ Line of Fire	☐ Work Authorization	☐ Safe Mechanical Lifting	☐ Working at Height

AHA – Insect Stings and Bites

Equipment to be Used	Training Requirements/Competent or Qualified Personnel name(s)	Inspection Requirements
PPE: • Work uniform or work clothes • Hard hat* • Safety glasses* • Steel-toed boots* • Gloves (per HASP) * • High-visibility reflective vests* • Hearing protection *Mandatory PPE for ANG Projects	**Competent / Qualified Personnel:** Name: Wood Staff, See the HASP. **Training Requirements:** • HAZWOPER (40-hour, 8-hour Refresher, Supervisory, if applicable) • Site-Specific HASP Orientation • Toolbox safety meeting • Task kick-off meeting	• Daily inspection of equipment per manufacturer's instructions. • Inspect all PPE prior to use.

Job Steps	Hazards	RAC Inherent	Controls	RAC Residual
1. Traveling/working in areas with potential tick bites (ex. outdoor wooded areas or fields)	1A) **Lyme Disease, Rocky Mountain Spotted Fever, etc.**	**S**	• Spray clothing with insect repellant as a barrier. • Wear light colored clothing that fits tightly at the wrists, ankles, and waist. • Each outer garment should overlap the one above it. • Cover trouser legs with high socks or boots. • Tuck in shirt tails. • Search the body on a regular basis, especially hair and clothing; ticks generally do not attach for the first couple of hours. • If a tick becomes attached, pull it by grasping it as close as possible to the point of attachment and pull straight out with gentle pressure. Wash skin with soap and water then cleanse with rubbing alcohol. Place the tick in an empty container for later identification, if the victim should have a reaction. Record dates of exposure and removal. • Do not try to remove the tick by burning with a match or covering it with chemical agents. • If you cannot remove the tick, or the head detaches, seek propmt medical help. • Watch for warning signs of illness: a large red spot on the bite area, fever, chills, headache, joint and muscle ache, significant fatigue, and facial paralysis are reactions that may appear within two weeks of the attack. Symptoms specific to	**M**

AHA – Insect Stings and Bites

Job Steps	Hazards	RAC Inherent	Controls	RAC Residual
			Lyme disease include: confusion, short-term memory loss, and disorientation.	
2. Working/traveling in areas with potential bee and wasp stings (ex. wooded areas and fields)	2A) **Allergic reactions, painful stings**	**S**	• Be alert to hives in brush or in hollow logs. Watch for insects travelling in and out of one location. • Prior to approaching protective well casings, observe for any indication of nesting activity. • If you or anyone you are working with is known to have allergic reactions to bee stings, tell the rest of the crew and your supervisor. Make sure you carry emergency medication with you at all times. • Wear long sleeve shirts and trousers; tuck in shirt. Bright colors and metal objects may attract bees. • If you are stung, cold compresses may bring relief. • If a stinger is left behind, scrape it off the skin. Do not use tweezers as this squeezes the venom sack, worsening the injury. • If the victim develops hives, asthmatic breathing, tissue swelling, or a drop in blood pressure, seek medical help immediately. Give victim antihistime, (Benadryl, chlo-amine tabs).	**L**
3. Traveling/working in areas of potential mosquito bites (ex. woods, fields, near bodies of water, etc.)	3A) Skin irritation, encephalitis	**M**	• Wear long sleeves and trousers. • Avoid heavy scents. • Use insect repellants. If using DEET, do not apply directly to skin, apply to clothing only. • Carry after-bite medication to reduce skin irritation.	**L**

AHA – Insect Stings and Bites

FIELD ACKNOWLEDGEMENT OF PERSON(S) CARRYING OUT WORK

		SIGNED:	DATE:
NAME(S):			
SITE SUPERVISOR:		SIGNED:	DATE:

BY SIGNING – You Acknowledge that:

- I have read and understand all job steps, hazards and controls associated with today's work.
- Further, I WILL stop any job I think is unsafe.
- I have completed a site-specific HASP Orientation
- I have participated in a daily tailgate safety meeting

For tasks/activities that extend beyond a single day, use DAILY RENEWAL form or Point of Work Risk Assessment (PoWRa).

AHA – Insect Stings and Bites

AHA DAILY RENEWAL		
Date:	Weather:	
Changes noted:		
Site Supervisor (Print & Sign):		
Name(s):		
Date:	Weather:	
Changes noted:		
Site Supervisor (Print & Sign):		
Name(s):		
Date:	Weather:	
Changes noted:		
Site Supervisor (Print & Sign):		
Name(s):		

AHA – Mobilization/Demobilization and Site Preparation

Activity/Work Task:	Mobilization/Demobilization and Site Preparation	Substantial / High Risks:	Struck by Heavy Equipment / Vehicles, Overexertion Unloading / Loading Supplies, Caught in/on/between, Vehicle Accident	Highest RAC: (residual)	**M**
Project Location:	Stratton Air National Guard Base				
Contract Number:	W9133L-19-R-0053				
Date Prepared:	2/21/2020	Date Accepted:	3/24/2020		
Prepared by (Name/Title):	Katie Amann/Technical Professional III				
Reviewed by (Name/Title):	Annette McLean, Sr. EHS Specialist				

Risk Assessment Code (RAC) Matrix

Severity \ Probability	Almost certain	Likely	Possible	Unlikely	Rare
Catastrophic	H	H	S	S	M
Critical	H	S	S	M	L
Marginal	S	M	M	L	L
Negligible	M	L	L	L	L

Notes: (Field Notes, Review Comments, etc.)

This AHA involves the following:

- Establishing site specific measures for the specified activity
- **BOLD hazards corresponding to Substantial or High Risk**.

This AHA is not an exhaustive summary of all hazards associated with the Site. Refer to the project HASP or client information for additional requirements, and emergency procedures.

Workers to follow general site safety controls for Hazard Signage/PPE, Housekeeping, Slips Trips and Falls, Biological hazards, Mobile equipment, Confined spaces, Fall hazards, Electrical, and any active operating equipment or construction activities.

Step 1: Review each **"Hazard"** to identify Probability and Severity (Refer to Project HSE Risk Characterization Form)

- **"Probability**" is the likelihood to cause an incident, near miss, or accident and identified as: Almost certain, Likely, Possible, Unlikely, Rare.
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Step 2: Identify the RAC-Inherent as H, S, M, or L for each "Hazard" on AHA, ***before* controls are applied.**

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Step 4: Annotate the overall highest RAC-Residual at the top of AHA.

Risk Categories
H = High Risk
S = Substantial Risk
M = Moderate Risk
L = Low Risk

MANAGEMENT OF CHANGE: If there is a change or deviation from the planned activity, you must stop the job and re-evaluate the risk assessment and the precautions taken. Any changes to work described in this AHA shall require review by a Qualified Person.

Check all Life Saving Rules that apply:							
☐ Bypassing Safety Controls	☐ Confined Space	☑ Driving	☐ Energy Isolation				
☐ Hot Work	☑ Line of Fire	☐ Work Authorization	☑ Safe Mechanical Lifting	☐ Working at Height			

Equipment to be Used	Training Requirements/Competent or Qualified Personnel name(s)	Inspection Requirements
When initially entering the Site, the following PPE must be donned: • Work uniform or work clothes • Hard hat*	**Competent / Qualified Personnel:** Name: Wood staff. See the HASP. **Training Requirements:**	• Daily inspection of equipment per manufacturer's instructions. Tag tools that are defective and remove from service. • Inspect power cord sets prior to use. • Inspect all PPE prior to use.

AHA – Mobilization/Demobilization and Site Preparation

Equipment to be Used	Training Requirements/Competent or Qualified Personnel name(s)	Inspection Requirements
• Safety glasses* • Steel-toed boots* • Gloves* • Reflective vests* *Mandatory PPE for ANG projects	• HAZWOPER (40-hour, 8-hour Refresher, Supervisory, if applicable) • Site-Specific HASP Orientation • Toolbox safety meeting • Task kick-off meeting	

Job Steps	Hazards	RAC Inherent	Controls	RAC Residual
1. Prepare for Site Visit	1a) N/A	**L**	Prior to leaving for site: ▪ Obtain and review HASP prior to site visit, if possible ▪ Determine PPE needs – bring required PPE to the site, if not otherwise being provided at the site (e.g., steel toed boots) ▪ Determine training and medical monitoring needs and ensure all required Health and Safety training and medical monitoring has been received and is current ▪ Ensure all workers are fit for duty (alert, well rested, and mentally and physically fit to perform work assignment) ▪ If respiratory protection is required/potentially required, ensure that training and fit-testing has occurred within the past year. ▪ Familiarize yourself with route to the site	**L**
2. Driving to the Site	See Vehicle Travel – Journey Management Plan AHA	**S**	See Vehicle Travel – Journey Management Plan AHA (note: Driving hazards are not counted towards the overall risk assessment code for the task)	**Exempt**
3. Gain permission to enter site	4a) Hostile landowner, livestock, pets	**L**	Hostile landowner, livestock, pets ▪ Talk to land owner, be courteous and diplomatic ▪ Ensure all animals have been secured away from work area	**L**
4. Mobilization/ Demobilization of Equipment and Supplies	4a) **Struck by Heavy Equipment / Vehicles**	**S**	Struck by heavy equipment: ▪ Be aware of heavy equipment operations. ▪ Keep out of the swing radius of heavy equipment. ▪ Ground personnel in the vicinity of heavy equipment operations will be within the view of the operator at all times ▪ Employees shall wear a high visibility vest or T-shirt (reflective vest required if working at night). ▪ Ground personnel will be aware of the counterweight swing and maintain an adequate buffer zone.	**M**

AHA – Mobilization/Demobilization and Site Preparation

Job Steps	Hazards	RAC Inherent	Controls	RAC Residual
			▪ Ground personnel will not stand directly behind heavy equipment when it is in operation.	
	4b) Struck by Equipment / Supplies	**M**	Struck by Equipment/Supplies: ▪ Workers will maintain proper space around their work area, if someone enters it, stop work. ▪ When entering another worker's work space, give a verbal warning so they know you are there.	**L**
	4c) **Overexertion Unloading / Loading Supplies**	**S**	Overexertion Unloading/Loading Supplies: ▪ Train workers on proper body mechanics, do not bend or twist at the waist while exerting force or lifting. ▪ Tightly secure all loads to the truck bed to avoid load shifting while in transit.	**M**
	4d) **Caught in/on/between**	**S**	Caught in/on/between: ▪ Do not place yourself between two vehicles or between a vehicle and a fixed object.	**M**
	4e) Slip/Trip/Fall	**M**	Slip/Trip/Fall: ▪ Mark all holes and low spots in area with banner tape. Instruct personnel to avoid these areas. ▪ Drivers will maintain 3 point contact when mounting/dismounting vehicles/equipment. ▪ Drivers will check surface before stepping, not jumping down.	**L**
	4f) **Vehicle accident**	**S**	Vehicle accident**:** (note: Driving hazards are not counted towards the overall risk assessment code for the task) ▪ Employees should follow Wood E&IS Operation of Company Vehicles procedure and be aware of all stationary and mobile vehicles.	**Exempt**
5. Site Preparation	Slip/Trip/Fall	**M**	Slip/Trip/Fall: ▪ Mark all holes and low spots in area with banner tape. Instruct personnel to avoid these areas	**L**
6. Installation of soil erosion and sediment controls	6a) Overexertion	**M**	Overexertion: ▪ Workers will be trained in the proper method of placing erosion controls. ▪ Do not bend and twist at the waist while lifting or exerting force.	**L**
	6b) Struck by Equipment / Supplies	**M**	Struck by Equipment/Supplies:	**L**

AHA – Mobilization/Demobilization and Site Preparation

Job Steps	Hazards	RAC Inherent	Controls	RAC Residual
			▪ Workers will maintain proper space around their work area, if someone enters it, stop work. ▪ When entering another worker's work space, give a verbal warning so they know you are there.	
7. Driving back from the jobsite	See Vehicle Travel – Journey Management Plan AHA	**S**	See Vehicle Travel – Journey Management Plan AHA (note: Driving hazards are not counted towards the overall risk assessment code for the task)	**Exempt**

AHA – Mobilization/Demobilization and Site Preparation

FIELD ACKNOWLEDGEMENT OF PERSON(S) CARRYING OUT WORK

		SIGNED:	DATE:
NAME(S):			
SITE SUPERVISOR:		SIGNED:	DATE:

BY SIGNING – You Acknowledge that:

- I have read and understand all job steps, hazards and controls associated with today's work.
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For tasks/activities that extend beyond a single day, use DAILY RENEWAL form or Point of Work Risk Assessment (PoWRa).

AHA – Mobilization/Demobilization and Site Preparation

Applicable Procedures / Safe Work Practices (SWP) and Forms for Critical Hazards
(Instruction: Complete and append forms, as applicable)

Hazard	Procedure	SWP	Guidance / Form
Driving	Operation of Company Vehicles	SWP-Journey Management Planning	Required for non-routine or high-risk journeys.

Attached Guidance / Forms / Checklists

- Journey Management Plan Form

AHA – Mobilization/Demobilization and Site Preparation

AHA DAILY RENEWAL		
Date:	Weather:	
Changes noted:		
Site Supervisor (Print & Sign):		
Name(s):		
Date:	Weather:	
Changes noted:		
Site Supervisor (Print & Sign):		
Name(s):		
Date:	Weather:	
Changes noted:		
Site Supervisor (Print & Sign):		
Name(s):		

AHA - Vehicle Travel – Journey Management Plan

Activity/Work Task:	Vehicle Travel – Journey Management Plan	Substantial / High Risks:	Collisions, unsafe driving conditions, Intersections, On wet or slick roads, Animals on road, Vehicle accident, Striking other vehicles, objects	Highest RAC: (residual)	**S**
Project Location:	Stratton Air National Guard Base				
Contract Number:	W9133L-19-R-0053				
Date Prepared:	2/21/2020	Date Accepted:	3/24/2020		
Prepared by (Name/Title):	Katie Amann/Technical Professional III				
Reviewed by (Name/Title):	Annette McLean, Sr. EHS Specialist				

Notes: (Field Notes, Review Comments, etc.)

This AHA involves the following:

- Establishing site specific measures for the specified activity
- **BOLD hazards corresponding to Substantial or High Risk**.

This AHA is not an exhaustive summary of all hazards associated with the Site. Refer to the project HASP or client information for additional requirements, and emergency procedures.

Workers to follow general site safety controls for Hazard Signage/PPE, Housekeeping, Slips Trips and Falls, Biological hazards, Mobile equipment, Confined spaces, Fall hazards, Electrical, and any active operating equipment or construction activities.

Risk Assessment Code (RAC) Matrix

Severity \ Probability	Almost certain	Likely	Possible	Unlikely	Rare
Catastrophic	H	H	S	S	M
Critical	H	S	S	M	L
Marginal	S	M	M	L	L
Negligible	M	L	L	L	L

Step 1: Review each **"Hazard"** to identify Probability and Severity (Refer to Project HSE Risk Characterization Form)

- **"Probability**" is the likelihood to cause an incident, near miss, or accident and identified as: Almost certain, Likely, Possible, Unlikely, Rare.
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Risk Categories
H = High Risk
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L = Low Risk

MANAGEMENT OF CHANGE: If there is a change or deviation from the planned activity, you must stop the job and re-evaluate the risk assessment and the precautions taken. Any changes to work described in this AHA shall require review by a Qualified Person.

Check all Life Saving Rules that apply:									
		☐ Bypassing Safety Controls		☐ Confined Space		☑ Driving		☐ Energy Isolation	
	☐ Hot Work		☐ Line of Fire		☐ Work Authorization		☐ Safe Mechanical Lifting		☐ Working at Height

Equipment to be Used	Training Requirements/Competent or Qualified Personnel name(s)	Inspection Requirements
Safe Vehicle	**Competent / Qualified Personnel:** Name – _____ **Training requirements:** Valid driver's license, Defensive Driving	Daily inspection of vehicle

AHA - Vehicle Travel – Journey Management Plan

Job Steps	Hazards	RAC Inherent	Controls	RAC Residual
1. Prepare for travel	1A) Distractions - loss of focus	M	▪ Ensure you have all materials with you necessary to conduct work effort. ▪ Determine training and medical monitoring needs and ensure all required Health and Safety training and medical monitoring has been received and is current. ▪ Ensure all workers are fit for duty (alert, well rested, and mentally and physically fit to perform work assignment). ▪ Determine if trip is considered Non-Routine: o Driving on business makes up <50% of the driver's daily job; o The route is variable and not part of the driver's daily or weekly drive plan; o Trips during darkness in excess of 20 miles (32 km); o Environmental or visibility hazards require a reduction in vehicle operating speed; o The terrain could reasonably be anticipated to impact the shifting of loads and/or require the use of 4-wheel drive; and o Security concerns warrant higher level of caution. ▪ If non-routine, complete a Journey Management Plan ▪ Plan route. Adjust based on driving conditions. Consider: o Communications o Other Wood E&IS vehicles on same route ("convoy") o Emergency plans o Meeting point(s) o Fuel / food / rest points o Review rules and procedures (driving, remote work, lone worker) o Other ▪ If renting vehicle, select best vehicle type for road and travel conditions (e.g., AWD or 4WD if snow/ice, larger vehicle if wildlife encouners are a possibility, etc. ▪ Evaluate weather conditions prior to starting trip. Postpone trip if possible, If travel during bad weather required, adjust route to avoid backroads as much as possible. ▪ Ensure that a copy of the current insurance certificates and incident reporting procedures/forms are available during travel. ▪ If long trip, notify others of your estimated arrival time so they can follow up if you don't arrive on time.	L

	1B) Driver Fatigue	**M**	▪ Get pleanty of rest prior to starting trip ▪ Consider Wood policy on driving and work (duty) hours limitations when planning trip: o Maximum driving time between breaks – 4.5 hours followed by 30 minute break o Maximum duty hours within a rolling 24-hour period – 14 duty hours o Maximum driving hours within a single rolling 24-hour period – 10 hours total, excluding communting time (11 hours including commuting time) o Off duty period in a rolling 7-day period - Minimum of a continuous 24 hour break ▪ Comply with the Jurisdictional P&O Work-Week Schedule Procedures and do not exceed the legislated maximum hours of work, rest periods, and/or Agency Approvals for excess hours of work for the specific activity/project. ▪ Comply with the E&IS HSE Fatigue Management Procedures (CAN: HSE-PRO-100387, US Fatigue Management Procedure) ▪ Consider alternatives (e.g., other modes of transportation such as by air, staying over at site location an extra day, breaking up trip by staying at hotel at halfway point, etc.) ▪ Avoid driving after dark	**L**
	1C) Vehicle defects	**L**	Inspect vehicle for defects such as: ▪ Inadequate fluids (e.g., fuel, antifreeze, oil, windshield washer) ▪ Worn/flat tires ▪ Windshield wipers loose, worn, or torn ▪ Oil puddles under vehicle ▪ Headlights, brake lights, turn signals not working ▪ Exterior or interior damage (e.g., scratches, dents)	**L**
	1D) Insufficient emergency equipment, unsecured loads	**M**	▪ Ensure vehicle has first aid kit and that all contents are current (if first aid kits are not provided at the site). ▪ Ensure vehicle is equipped with warning flashers and/or flares and that the warning flashers work. ▪ Cell phones are recommended to call for help in the event of an emergency. ▪ Vehicles carrying tools must have a safety cage in place; all tools must be properly secured. ▪ Valuables shall be removed from the vehicle overnight if possible. ▪ Ensure parking cones are present, if applicable.	**L**
2. Operating vehicles	2A) **Collisions, unsafe driving conditions**	**S**	▪ Drive defensively! ▪ Each operator shall observe all traffic laws, including established speed limits.	**M**

			▪ Do not use cruise control during inclement (wet/icy) road conditions. ▪ Do not eat or use tobacco products (e.g. smoking or e-cigarettes) in the vehicle. ▪ Avoid any distracting or potentially distracting activities while operating a vehicle, including but not limited to; the use of any device that requires the use of headphones; reaching for items under the seat, in the back seat or in the glove box. ▪ Pets are prohibited to ride in a company vehicle. ▪ Non-Wood employees are prohibited from operating Company vehicles. ▪ Non-Wood employees are prohibited from riding in E&IS vehicles unless their presence is required for the conduct of business for E&IS or its client; nonwork riders (e.g., hitch hikers, girl friend, mother-in-law) allowed in vehicles, unless authorized on a case-by-case basis. ▪ Seat belts must be used at all times by all occupants when the vehicle is in gear. ▪ Drive at safe speed for road conditions. ▪ Maintain adequate following distance. ▪ Pull over and stop if you have to look at a map or use a cell phone. ▪ Cellular telephones are prohibited from use by the operator while driving or even when stopped at stop lights, including texting, emailing including the use of BlueTooth devices or car microphone/speakers. ▪ Mount global positioning satellite (GPS) navigating devices within the vehicle as to not obstruct the driver's view of the roadway and attached so that it will not injure any of the vehicle's occupants in the event of a sudden stop. Window mounting of navigation devices is prohibited. ▪ The use of GPS enabled smartphones is allowed as long as the device is mounted, directions setup prior to driving, has an audio feature, is not adjusted while driving. ▪ Try to park so that you don't have to back up to leave. ▪ If backing is required, walk around vehicle to identify any hazards (especially low level hazards that may be difficult to see when in the vehicle) that might be present. Use a spotter if necessary.	
	2B) **Intersections**	**S**	▪ Proceed carefully through intersections ▪ Ensure that cross traffic has stopped before proceeding, especially if the light has just turned green. Look out for drivers running red lights! ▪ When merging into traffic or turning, ensure vehicles in front have merged/turned (and not stopped) prior to proceeding.	**M**
	2C) Dusty, winding, narrow roads	**M**	▪ Go slow around corners, occasionally clearing the windshield.	**L**
	2D) Rocky or one-lane roads	**M**	▪ Stay clear of gullies and trenches, drive slowly over rocks. ▪ Yield right-of-way to oncoming vehicles---find a safe place to pull over.	**L**
	2E) Stormy weather	**M**	▪ Inquire about conditions before leaving the office.	**L**

AHA - Vehicle Travel – Journey Management Plan

			▪ Be aware of oncoming storms.	
	2F) When angry or irritated	**M**	▪ Attitude adjustment; change the subject or work out the problem before driving the vehicle. Let someone else drive.	**L**
	2G) Turning around on narrow roads	**M**	▪ Safely turn out with as much room as possible. ▪ Know what is ahead and behind the vehicle. ▪ Use a spotter if available.	**L**
	2H) Sick or medicated	**M**	▪ Let others on the crew know you do not feel well. ▪ Let someone else drive.	**L**
	2I) **On wet or slick roads**	**S**	▪ Drive slow and safe.	**M**
	2J) **Animals on road**	**S**	▪ Drive slowly, watch for other animals nearby. ▪ Be alert for animals darting out of wooded areas	**M**
	2K) **Vehicle accident**	**S**	▪ Employees should follow Wood E&IS vehicle operation procedure (HSE-PRO-100316) and be aware of all stationary and mobile vehicles.	**S**
3. Parking	3A) Striking other vehicles, objects	**M**	▪ Choose parking spot that is away from other vehicles, if possible. ▪ Choose a spot that will allow the driver to drive forward when leaving the site. ▪ Back into parking spots, or pull through when parking in perpendicular parking spaces (drive forward into angle/herring bone type parking spots). ▪ The vehicle gear must be placed in park and parking brakes engaged, when required. ▪ When two or more occupants are in a Company vehicle, one occupant will act as a spotter and safely stand outside the vehicle, to guide the vehicle into and out of a parking spot to ensure it does not hit another vehicle, pedestrian, barrier or any other object.	**L**
4. Leaving parking spaces	4A) **Striking other vehicles, objects**	**S**	▪ Walk around the vehicle before leaving and identify hazards (low lying objects, location of other vehicles or pedestrians, other vehicles with drivers that may be leaving at the same time, etc. ▪ If backing is unavoidable, use a spotter if a second person is available; if no spotter available, back slowly, checking for other vehicles, pedestrians, etc. ▪ Keep alert!	**M**
5. Driving back from the job site	**See hazards listed for "Operating vehicles" Key Work Step**	**S**	▪ See safe work practices for "Operating Vehicles" Key Work Step	**M**
6. Parking at office	6A) **Striking other vehicles, objects**	**S**	▪ See safe work practices for "Striking other vehicles, objects" Hazard/Potential Hazard for "Parking at job site" Key Work Step	**M**
7. End travel	7A) Vehicle defects	**M**	▪ Inspect vehicle. ▪ Repair or initiate repair of all vehicle deficiencies that occurred due to the trip.	**L**

AHA - Vehicle Travel – Journey Management Plan

FIELD ACKNOWLEDGEMENT OF PERSON(S) CARRYING OUT WORK

		SIGNED:	DATE:
NAME(S):			
SITE SUPERVISOR:		SIGNED:	DATE:

BY SIGNING – You Acknowledge that:

- I have read and understand all job steps, hazards and controls associated with today's work.
- Further, I WILL stop any job I think is unsafe.
- I have completed a site-specific HASP Orientation
- I have participated in a daily tailgate safety meeting

For tasks/activities that extend beyond a single day, use DAILY RENEWAL form or Point of Work Risk Assessment (PoWRa).

AHA - Vehicle Travel – Journey Management Plan

Applicable Procedures / Safe Work Practices (SWP) and Forms for Critical Hazards
(Instruction: Complete and append forms, as applicable)

Hazard	Procedure	SWP	Guidance / Form
Driving	Operation of Company Vehicles	SWP-Journey Management Planning	Required for non-routine or high-risk journeys.
Fatigue	E&IS HSE Fatigue Management Procedures (CAN: HSE-PRO-100387)		

Attached Guidance / Forms / Checklists

- Journey Management Plan Form

AHA - Vehicle Travel – Journey Management Plan

AHA DAILY RENEWAL

Date:	Weather:	
Changes noted:		
Site Supervisor (Print & Sign):		
Name(s):		
Date:	Weather:	
Changes noted:		
Site Supervisor (Print & Sign):		
Name(s):		
Date:	Weather:	
Changes noted:		
Site Supervisor (Print & Sign):		
Name(s):		

DATE:

PROJECT LOCATION: Stratton Air National Guard Base, Schenectady, New York

Daily Field Level Readiness Review- Covid-19 Updates*	
The work today is business essential (i.e. can't be done remotely or postponed).	
If outside your home country, travel is still allowed within this geography.	
If outside your home country, travel is still allowed back into your home country.	
State/provincial/local governments still allow travel from my home to this project destination.	
State/provincial/local governments still allow travel from this project destination back to my home.	
If visiting a client's facility, the client is still open for business and visitors/contractors are allowed.	
Work is still allowed in the area where this project is located (state / provincial / local government has not implemented a shelter in place mandate that would restrict the employee's ability to complete work tasks).	
Hotels are open and available in the area, and confirmed they follow best practice for Covid-19.	
Employees are able to get meals (e.g. restaurants (delivered meals), grocery stores, etc.).	
Adequate supplies of work required PPE (e.g. respirators, protective clothing) are available.	
Gasoline is available for purchase.	
Adequate supplies of disinfectants (e.g. wipes, sprays) are available for cleaning.	
Facilities are available for employees to frequently wash hands (or sanitizer is available).	
Work activities remain LOW to MODERATE risk for COVID-19 exposure.	

***All readiness boxes must be checked in order to continue operations for today.**

If any boxes are not checked, re-evaluate with Manager/Supervisor on "essential" of field work.

Declaration Form (Covid-19)

Prior to entering this facility/site, or mobilizing to visit an office/site, review the questions below and make a declaration if your response to the questions all are 'No.'

If your response to any of the questions is 'YES' then we regret to inform you that you are not to come to work or visit any Wood office/site at this time.

1. Have you, or anyone whom you share a residence with, been in contact with any person suffering or suspected to be suffering from Covid-19 in the last 14 days?
2. Do you have any fever or respiratory symptoms (e.g. cough, sore throat or breathing difficulty)?
3. Have you visited any countries on Wood's restricted list in the last 14 days? *This is area dependent.*

By signing below, it is your declaration that your responses to the questions above is NO, and that this declaration is true and accurate to the best of your knowledge.

Use your own pen (if possible) and/or disinfect regularly shared tools/equipment; and, practice good hand hygiene using soap/water, or hand sanitizer.

Name	Company	Signature	Date

Wood Environment & Infrastructure Solutions, Inc.
271 Mill Road
3rd Floor
Chelmsford, MA
USA
T: 978-692-9090
www.woodplc.com

March 23, 2020

To Whom it May Concern:

Essential Activities in response to COVID-19 Pandemic

The bearer of this letter,_____, is an employee of Wood Environment & Infrastructure Solutions, Inc. ("Wood"). Wood is an Engineering & Consulting company engaged in work that supports:

- Critical public and private infrastructure;
- Industrial & public sector environmental management & hygiene matters;
- Water resources;
- Industrial Technology and automation matters;
- Licensed site clean-up professionals and other workers addressing hazardous spills, waste sites, and remediation; and
- Construction activities and Facility Management:

The bearer of this letter is engaged in the following Essential Activities, that we believe are authorized and permitted by law:

Project Name:

Project Location:

Nature of Essential Work:

Estimated Duration of Essential Work:

Wood is committed to adhering to local requirements while also providing essential services to our communities. The bearer of this letter believes their attendance at the Project in question is necessary for the performance of Essential Activities.

Wood employees have been provided information on proper hygiene practices including social distancing and handwashing practices.

Should you have any questions please contact the writer at _____.

Yours Truly,

Kirsteen Toro
Operations Manager
Cell: 978-427-1240

Wood Environment & Infrastructure Solutions, Inc.
271 Mill Road
3rd Floor
Chelmsford, MA
USA
T: 978-692-9090
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March 23, 2020

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Should you have any questions please contact the writer at _____.

Yours Truly,

Kirsteen Toro
Operations Manager
Cell: 978-427-1240

HSSE Field Readiness Checklist/COVID-19 Considerations

Project Name: _____ **Date(s) of travel:** _____

Project Location (city, county, state/province): _____

Describe work to be conducted: _____

This form serves as the COVID-19 risk assessment for travel. If any questions in the Project or Team Members Go/No Go Decision Process sections is answered "No," travel are prohibited for the project or individual. If exemptions must be made, contact the your HSSE Manager.

Project Go/No Go Decision Process				
Criteria	**Yes**	**No**	**NA**	**Comment**
Travel is not allowed if any applicable question in this section is answered "No"				
1. Is travel considered essential (can't be done remotely or postponed)? See Guidance on Non-Essential Travel	☐	☐	☐	
2. If project is outside the country, is travel to that country allowed? Check latest Wood COVID-19 Travel and Business Updates	☐	☐	☐	
3. If project is outside of the country, is travel allowed back into the country that the employee resides?	☐	☐	☐	
4. Do state/provincial/local governments allow travel from home to project destination?	☐	☐	☐	
5. Do state/provincial/local governments allow travel from project destination back home?	☐	☐	☐	
6. Are home and project locations of similar risk levels (where travel from a high-risk location will not potentially impact low risk area)?	☐	☐	☐	
7. If visiting a client's facility, are they open? Are visitors allowed?	☐	☐	☐	
8. If doing work at other business locations, are they open?	☐	☐	☐	
9. Is work allowed in area where project is located (state / provincial / local government has **not** implemented a shelter in place mandate that would restrict the employee's ability to complete work tasks)?	☐	☐	☐	
10. Are hotels open and available in area?	☐	☐	☐	
11. Will employees be able to get meals while traveling?	☐	☐	☐	
a. Are restaurants open in the area (including takeout)? or				
b. Are grocery stores open (food available in stores)? and				
c. Employees able to prepare meals and store food in hotel room (hotel room has refrigerator and microwave)?				
12. Are vehicles available for rent, if applicable?	☐	☐	☐	

Project Go/No Go Decision Process				
Criteria	**Yes**	**No**	**NA**	**Comment**
13. Will gasoline be available for purchase?	☐	☐	☐	
14. If the work requires specific PPE (e.g., respirators):				
a. Is all required PPE available? *If N95 respirators are not available a higher level of respirators can be used (e.g., cartridge, supplied air, etc.).*	☐	☐	☐	
15. Are disinfectants (wipes, sprays) available or can outside cleaning services be used for routine cleaning and disinfecting? *NOTE: verify cleaners would be allowed to clean without additional site-specific training (e.g., HAZWOPER).*	☐	☐	☐	
16. Are facilities available for employees to frequently wash hands or if not, is hand sanitizer available?	☐	☐	☐	
17. Is work of low or moderate COVID-19 risk? *Work does not involve substantial risk of COVID-19 exposure type tasks (e.g., work conducted in a health care facility or medical laboratory).*	☐	☐	☐	

Team Members Go/No Go Decision Process				
Criteria	**Yes**	**No**	**NA**	**Comment**
18. Have potential travelers reviewed the Wood Guide for people at risk of serious coronavirus illness document to verify if they meet the criteria and should avoid traveling? Have they completed the Employee Wood Guide for People at Risk of Serious Coronavirus Illness Acknowledgment Form?	☐	☐	☐	
19. If any employees have been potentially exposed to COVID-19 (close contact) are they self-quarantined and prohibited from travel? (Must complete self-declaration form)	☐	☐	☐	
20. Are employees comfortable traveling (vs. commuting or day trips) and aware that they may be detained, have difficulty getting home, or otherwise required to self-quarantine at the project location or at home?	☐	☐	☐	
21. Do employees have sufficient quantities of prescription medication to bring while on business travel in the event of quarantine or delays getting home? Or can they acquire it locally?	☐	☐	☐	
22. Have subcontractors completed a declaration that indicates that they are admissible to a work site (must complete a declaration form)?	☐	☐	☐	

Team Members Go/No Go Decision Process				
Criteria	**Yes**	**No**	**NA**	**Comment**
23. Are all employees and subs who are required to wear PPE trained, qualified, medically cleared/fit tested (if required/ applicable)?	☐	☐	☐	

Considerations for all Field Projects		
Criteria	**Controls Included in AHA**	**NA**
If criteria are applicable, include controls in HASP, site-specific Field COVID-19 AHA, or attached applicable Wood COVID-19 documents.		
24. Multiple employees traveling to same project site. Determine best method of transportation. *Considerations should include methods to maintain social distancing (e.g., employees traveling in their own vehicle (personal/rental) vs. carpooling.*	☐	☐
25. Evaluate the possibility of employees needing to self-isolation/quarantine when returning to their homes? Required when returning home from a location where local jurisdiction has implemented restrictions such as closing all but essential businesses or requiring shelter in place.	☐	☐
26. Evaluate the possibility of employees being put in self-isolation/ quarantine when arriving at the portal (e.g., airport) of their destination?	☐	☐
27. Develop an emergency plan on how to handle situations where employee is unable to return home should air travel be banned (e.g., are one-way vehicle rentals, trains, buses, etc. viable options)?	☐	☐
28. Implement social distancing on project site (See guide to social distancing).	☐	☐
29. Implement procedures to clear visitors prior to accessing the workplace? (LINK)	☐	☐
30. Develop plan on what to do should an employee become ill while on business travel? *Consider: What can be done if employee is kicked out of hotel due to illness/positive COVID-19 test, if they can stay, does the hotel have room service, how will the employee be transported to a hospital if medical care is required, how will employee get home, etc.*	☐	☐
31. Develop plan on what to do if there is an infection on project site (employees/subcontractors/third-party).	☐	☐
32. Account for potential last-minute changes in travel schedule due to COVID-19. Prior to trip and during entire project work.	☐	☐
33. Complete Journey Management Plan if driving to project site. *Include COVID-19 as criteria to consider*	☐	☐

Considerations for all Field Projects		
Criteria	**Controls Included in AHA**	**NA**
If criteria are applicable, include controls in HASP, site-specific Field COVID-19 AHA, or attached applicable Wood COVID-19 documents.		
34. Ensure all employees have installed the International SOS app on their smart phones and are aware of how to use it? (LINK) (Wood membership number: **14AYCA804666)**	☐	☐
35. If bringing samples or materials back to office or lab, is, verify if office is open according to state/provincial/local government requirements.	☐	☐
36. Verify that the number of workers on the project fall within state/ provincial/ local governmental regulations for maximum permitted assembly.	☐	☐
37. Evaluate restrooms availability/sanitation/toilet paper availability.	☐	☐
38. Assure proper hygiene materials and supplies available in sufficient quantities, trained to use materials, etc., on project sites	☐	☐

Manager/ Project Manager Approval: _____ Date: _____

HSSE Coordinator / Qualified Person Approval: _____ Date: _____

Links:

Wood Coronavirus Webpage And Frequently Asked Questions (LINK)

Wood Guidance documents

- Wood COVID-19 Guidance
- Coronavirus Risk Assessments Library
- Guidance on safety while travelling
- Guidance on non essential travel
- Guide for those at risk of serious illness
- Guidance on self-isolation
- Know the difference
- Guide to successful home working
- Guide to social distancing
- Looking after your mental health in a pandemic
- Stress and Coronavirus
- Tactical pandemic preparedness checklist
- CDC guide on speaking to children about coronavirus
- Mindtools resources

E&IA Coronavirus SharePoint site (LINK)

NATIONAL GUARD BUREAU
111 SOUTH GEORGE MASON DRIVE, AH2
ARLINGTON, VA 22204-1373

NGB-AQ-C 16 Mar 2020

SUBJECT: Contractor's Guidance Coronavirus Disease (COVID-19)

Wood Environment & Infrastructure Solution
751 Arbor Way, Suite 180
Blue Bell, PA 19422

Dear Jay Mullet:

The National Guard recognizes the concerns related to the COVID-19 disease and its potential impact throughout the world. The global spread concerning the COVID-19 virus is rapidly evolving. Communication between the Government and contractors is essential for workforce safety and mission continuity. This letter serves as a notice and reminder that the only official authorized to make or approve changes to your contract is a warranted Contracting Officer.

We encourage you to monitor the Centers for Disease Control and Prevention (CDC) website at www.cdc.gov for current information. While managing your federal contract and contractor personnel, we request that you immediately notify the undersigned on any COVID-19 impacts that may impede your ability to perform in accordance with the terms and conditions of your contract as well as notifying us of any employee health concerns that could have impacts on our workforce necessitating quarantine and/or screening.

In extreme circumstances, if a contractor cannot complete a contract within a required performance period, they may qualify for an excusable delay in accordance with the terms and conditions of their contract. Epidemics and quarantine restrictions do qualify as actions outside of a contractor's control in some cases, but not always, such as non-commercial contracts whereby a subcontractor may not be able to perform but, the items or service needed can be obtained by another subcontractor. As always, the contracting officer is required to review the facts of each contract to determine if the contract in question, along with the supporting documentation qualifies. If supported, a contractor may be entitled to additional time but, not monetary compensation. It is important to note that the federal government and the contractor have no control over the non-compensable delay. Therefore, both parties assume their individual additional costs. The contractor absorbs its delay costs for being out on the project longer, and the federal government absorbs its costs by granting a time extension to the contractor and extending the contract, if eligible.

If you have any questions regarding your contract, please contact the undersigned at 703-604-1661 or email at stephanie.a.mackay.civ@mail.mil.

Sincerely,

Stacy MacKay
Contracting Officer

Utility Clearance Form

Site Name: _____ Project No./Task No.: _____

Site Address: _____ One Call Ticket No.: _____

Ticket Good until: _____

Project Manager Name: _____ PM Phone No.: _____

Locations cleared by facility? _____ Date Cleared: _____

Utility Clearance:

Potential Utilities		Identified		Colors	Utility Company Name(s)	Utilities
Member of One Call	*Non Members	Utility Marked	Utility Responded not Present			
						WHITE - Proposed Excavation
						****PINK** - Temporary Survey Markings
						RED - Electric Power Lines, Cables, Conduit and Lighting Cables
						YELLOW - Gas, Oil, Steam, Petroleum or Gaseous Materials
						ORANGE - Communication, Alarm or Signal Lines, Cables or Conduit
						BLUE - Potable Water
						PURPLE - Reclaimed Water, Irrigation and Slurry Lines
						GREEN - Sewers and Drain Lines

*Contact local municipality

** Survey markings need to be protected. If disturbed or destroyed, replace markings.

Private Utility Locator/Geophysical Survey

Method to be used:
___ Pipe and Cable Location
___ Ground Penetrating Radar
___ Magnetics and Electromagnetics

Non-Destructive Excavation Method to be used

___ *Hand Dig
___ Soil Vacuum
___ Air Knife
___ Water Knife

* Use electrically insulated gloves if potential for power lines

Field Clues Observed/Evaluated:

___ Overhead power lines
___ Cell phone/radio antennas
___ Trench patches
___ Trench settlement
___ Trench drains
___ Utility manholes
___ Manholes just outside building
___ Valve risers
___ Floor cleanout covers
___ Floor drains
___ Patches in concrete floors
___ Drainage ditches in area
___ Utility vaults
___ Transformer pads
___ Conduits from power panels into slab
___ Above ground propane tanks
___ Fire protection rooms
___ Fire protection lines
___ Fire hydrant locations – valves in ground
___ Footings under structural columns
___ Guard shack – service utilities
___ Bathroom and kitchen facilities
___ Radiant heat systems in slabs (ask)
___ Cooling units outside building
___ Process water to equipment in factory
___ Sprinkler system landscaping
___ Grounding systems near perimeter
___ Water tower on site.
___ Foundation drains - building perimeter

Additional Notes/Remarks: _____

_____

Confidence Level that All Utilities have been identified:

___ High ___ Medium High ___ *Moderate ___ *Medium Low ___ *Low

*Contact PM. Get PM and OM permission prior to proceeding

*Cleared by PM? _____ *Cleared by OM? _____

Attachment D

Incident Reporting Forms

Wood E&IS Early Injury Case Management Program

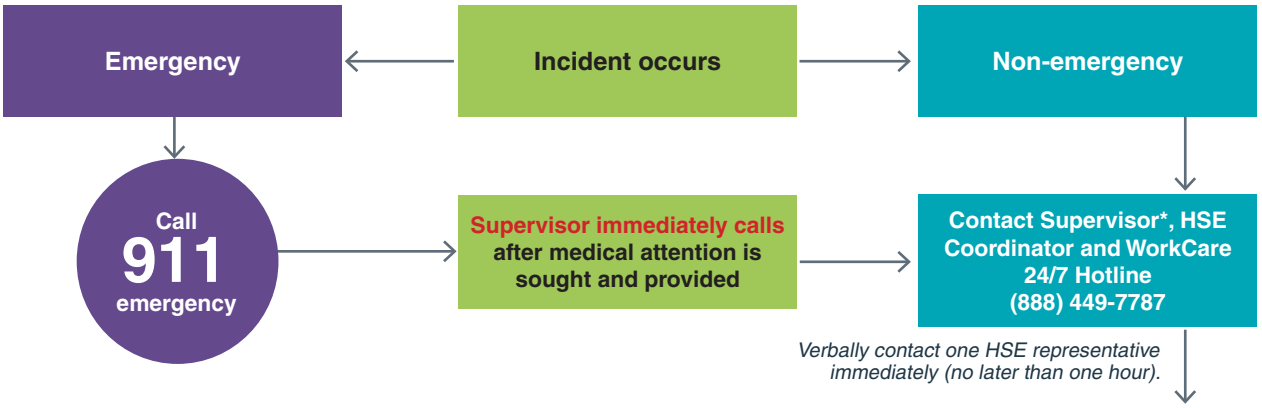
NON-EMERGENCY INCIDENT	EMERGENCY INCIDENT
Steps 1 & 2 must be completed before seeking medical attention other than local first aid. 1. Provide first-aid as necessary. Report the situation to your immediate supervisor AND HSE coordinator (all incidents with the apparent starting event should be reported within 1 hour of occurrence). 2. Injured employee:	1. Provide emergency first aid. Supervisor on duty must immediately call 911 or local emergency number; no employee may respond to outside queries without prior authorization. Any outside media calls concerning this incident must be referred immediately to Lauren Gallagher at 602-757-3211. 2. Once medical attention is sought and provided, the supervisor must:
Call WorkCare 24/7 Hotline* (888) II-XPRTS or (888) 449-7787	
WorkCare will assess the situation and determine whether the incident requires further medical attention. During this process, WorkCare will perform the following: • Explain the process to the caller. • Determine the nature of the concern. • Provide appropriate medical advice to the caller. • Determine appropriate path forward with the caller. • Maintain appropriate medical confidentiality. • Help caller to execute path forward, including referral to the appropriate local medical facility. • Send an email notification to the Corporate HSE Department.	WorkCare will be responsible for performing the following: • Contact the treating physician. • Request copies of all medical records from clinic. • Send an email update to the Corporate HSE Department.

3. IMMEDIATELY after contacting WorkCare send a brief email notification AND inform verbally (direct contact is required) ONE of HSE corporate representatives See the Incident Flow Chart on the next page.
4. Make all other local notifications and client notifications.
5. Local Supervisor, HSE Coordinator, SSHO and any applicable safety committees to complete preliminary investigation, along with the initial Incident Report within 24 hours.
6. Corporate Loss Prevention Manager to complete Worker's Compensation Insurance notifications as needed.
7. Corporate HSE to conduct further incident notifications, investigation, include in statistics, classify, and develop lessons learned materials.

* - **NOTE: Step 2 is only applicable to the North-American operations and to incidents involving WOOD personnel. High potential near misses, subcontractors' incidents, regulatory inspections, spills and property damages above $1,000 should be reported immediately, following directions from Step 3.**

Incident flow chart

Call immediately



E&IS Corporate HSE department contact list

Name/email	Office location	Contact information
Bruce Voss bruce.voss@woodplc.com	Cathedral City, CA	760.202.3737 (office) 951.897.6381 (cell)
Chad Barnes chad.barnes@woodplc.com	Phoenix, AZ	602.733.6000 (office) 480.495.9846 (cell)
Cindy Sundquist cynthia.sundquist@woodplc.com	Portland, ME	207.828.3309 (office) 207.650.7593 (cell) 207.892.4402 (home)
Gabe Sandholm gabe.sandholm@woodplc.com	Minneapolis, MN	612.252.3785 (office) 206.683.9190 (cell)
Lori Dowling lori.dowling@woodplc.com	Prince George, BC	250.564.3243 (office)
Philip Neville philip.neville@woodplc.com	Thorold, ON	905.687.6616 (office) 905.380.4465 (cell)
Tim Kihn tim.kihn@woodplc.com	Edmonton, AB	780.944.6363 (office) 780.717.5058 (cell)
Vladimir Ivensky (can call 24/7) vladimir.ivensky@woodplc.com	Plymouth Meeting, PA	610.877.6144 (office) 484.919.5175 (cell) 215.947.0393 (home)
Kirby Lastinger kirby.lastinger@woodplc.com	Lakeland, FL	836-667-2345 x207 (office) 863-272-4775 (cell)
Stephen Paxton stephen.paxton@woodplc.com	Kennesaw, GA	770-499-6842 (office) 678-270-0980 (mobile)
Chris Miele christopher.miele@woodplc.com	Capital Projects - Kirkland, WA	425-368-0946 (office) 425-864-9011 (mobile)

High potential near misses, unsafe work refusals, workplace violence/harassment and security incidents, subcontractor incidents, regulatory inspections, spills, and property damage should be reported immediately to one of the above HSE Representatives.

*Supervisor Responsible For:

- D&A Testing Coordination as per client and Wood E&IS requirements, Local/Client Notifications, and Completing Initial IAR within 24 hours and forwarding to Corporate HSE.

Check one
Initial Report: ☐
Update: ☐
Final Report: ☐ ____

INCIDENT ANALYSIS REPORT (IAR)

Wood E&IS

Confidential - Privileged

Incident Potential Severity
Letter: Select One
Number: Select One
Investigation Level: Select One
Severity Matrix (LINK)

Group: Select One Group HSE Manager: ____ Incident Review Panel Team (if applicable): ____

Incident Date: _____ Report Date: _____ Incident Assigned to: Select One

Section 1 – General Information

Employee Name: ____ Sex: ☐ M ☐ F Date of Birth: ____ or Age Range: Select One

Job Position: Select One Hire Date: ____ Time employee began work: _____ Time of incident: ____ ☐ am | ☐ pm

Business Line: Select One Department Number: ____ Project Manager: ____

Project Name: ____ Project Number: ____ Client: ____

Employee home office: ____ State/Province: ____ Immediate Supervisor: ____ Hours employee worked during last 7 days: ____ hrs

Location: Select One Is this a Company controlled work site: ☐ Yes ☐ No Location description: ____

Section 2 – Incident Type - Process (**mark at least ONE BOLD TYPE** and all that apply)

☐ **Fatality** ☐ **Environmental** ☐ **Injury/Illness Incident** If Injury/illness: Select One

☐ **Security** ☐ **Near Miss/Hazard ID** ☐ **Property Damage** If Damage: Select One ☐ 3rd Party?

☐ Hospitalization ☐ **Regulatory Inspection** ☐ **Notice of Violation or Citation** ☐ Agency Reportable

☐ Motor Vehicle Incident Involving Injury ☐ Other (describe): ____

Outcome/Result: Select One If "other", specify: ____ Source of Hazard: Select One If "other", specify: ____

Immediate Cause: Select One

A. If **injury/illness**: Indicate the part of the body: Select One If "other", specify: ____

Indicate body part location: Select One If "other", specify: ____

Injury Type: Select One If "other" specify: ____ Illness Type: Select One If "other", specify: ____

☐ Bleeding? Select One If yes, "First Aider" name: ____ ☐ Contact with blood/infectious material? Select One

Exposure Control Precautions taken by First Aider (check all that apply):

- ☐ None (If none, contact WorkCare)
- ☐ Immediate Personal Hygiene
- ☐ Eye protection
- ☐ Gloves
- ☐ One-way CPR valve
- ☐ Face mask
- ☐ Previous HBV Immunization
- ☐ Recommended for HBV Immunization
- ☐ Other (describe): ____

☐ Blood contaminated work area / surface? If contaminated, describe cleanup/disposal: ____

☐ Medical treatment provided (i.e. prescriptions, referrals, etc.). If medical treatment, describe: ____

☐ Physical limitations received from physician? If limitations, describe: ____ ☐ Modified Work Offer provided.

☐ Second medical opinion? If second opinion, describe: ____

☐ Workers Compensation claim filed? If filed, claim number: ____

B. If **property damage**: describe what happened and estimate ($) of damage to all objects involved? ____

C. If **environmental**: Environmental incident category: ☐ Pollution Event ☐ Non-conformance

Was Regulatory Action Taken: Select One If "Yes" describe: ____

Type of pollution event: Select One Type of substance: Select One Name, CAS#, physical state: ____

Quantity: ____ Substance Unit: Select One Source of release: Select One If "other", specify: ____

Duration of Breach: Select One Receiving Environment: Select One If "other", specify: ____

Level of Non-conformance: Select One Describe Non-conformance: ____

D. If **security**: Security Incident Type: Select One If Physical: Select One If Criminal: Select One If Intellectual: Select One

E. If an **inspection by a regulatory agency**, what agency, who were the inspectors, inspector contact information? ___

Section 3 – Incident Description

Attach and number additional pages, as needed, to ensure all details related to the incident are captured.

A. List the names of all persons involved in the incident, and employer information: ___

B. List the names of any witnesses, their employer, and a local/company telephone number or address: ___

C. Name of Employee's supervisor: ___ Contact phone number for supervisor: ___

D. What specific job/task or action was the employee(s) doing just prior to the incident: ___

E. Was a tool or equipment involved? ☐ Yes ☐ No What was it: ___ Last Inspection Date: ___Defects: ___

F. Explain in **detail** what happened: ___

G. Explain in **detail** what object or substance directly harmed the employee: ___

H. What were the weather conditions at time of incident?: ___

I. What was the lighting like at time of incident? Bright ☐ Shadows ☐ Dark ☐ Other: ___

J. List any damaged equipment or property (other than motor vehicles). Provide model and serial number **and** estimated costs to repair/replace damaged equipment or property, if applicable: ___

Section 4 - Incident Analysis

A. Was a Health and Safety Plan (HASP) or Activity Hazard Analysis (AHA) completed for the work being performed? ☐ Yes ☐ No
If "yes", Who prepared the document?: ___

B. Who and when was the last manager (Project, Unit, etc.) at the site of the incident?: ___

C. When and what safety training **directly related** to the incident has the person(s) involved had?: ___

D. List attached documentation (HASP acknowledgement forms, kickoff/daily/weekly meetings, inspections, photographs): ___

Section 5 - Incident Investigation Results and Corrective Actions

This section to be completed by the HSE Manager/IRP with support from location where incident occurred, in accordance with A-Z List of Accident Causes and Glossary of A-Z Causes (click links).

Causal Factors (Acts or Omissions / Conditions)

(Attach and number any additional pages as needed to completely address this section)

	IMMEDIATE CAUSE	IMMEDIATE CAUSE SUB-TYPE	DESCRIPTION
1	Select One	_____	_____
2	Select One	_____	_____
3	Select One	_____	_____
4	Select One	_____	_____

Root Cause(s) Analysis - The below items represents major root cause categories which have been determined to be Less Than Adequate (LTA). A more detailed determination of the root cause will be facilitated, if needed, by the applicable Group HSE Manager / IRP.

	ROOT CAUSE TYPE	ROOT CAUSE SUB-TYPE	DESCRIPTION
1	Select One	_____	_____

2	Select One	____	____
3	Select One	____	____
4	Select One	____	____

Life Saving Rules and Safety Essentials (click links).

Life Saving Rules **Select all applicable breaches of rules or** ☐ None		**Safety Essentials** **Select all applicable breaches of behavioral expectations or** ☐ None	
☐ Confined Space ☐ Working at Height ☐ Permit to Work ☐ Isolations (energy) ☐ Dropped Objects (height) ☐ Excavations	☐ Personal Security ☐ Moving and Energized Equipment ☐ Working over or close to water ☐ Overhead electricity ☐ Driving ☐ Suspended Loads	☐ Always Take Care ☐ Follow the Rules ☐ Do a Risk Assessment	☐ You Must Intervene ☐ Manage Any Change ☐ Wear the Correct PPE

Corrective Actions

Root Cause #	**Corrective Actions Taken** (Attach additional pages as needed to completely address this section)	**Responsible Person**	**Proposed Completion Date**	**Closed on Date**	**Verified by and Date Verified**
____	____	____	____	____	____
____	____	____	____	____	____
____	____	____	____	____	____
____	____	____	____	____	____
____	____	____	____	____	____

Section 6 - Notifications, Certification & Approvals

Check the appropriate boxes indicating the applicable reports have been made to the following applicable organizations:

Auto Insurance Carrier was called ☐ **HSE Manager Notified** ☐

WorkCare was called ☐ **Post-incident Drug/Alcohol Testing Performed** ☐

Incident Report prepared by: ___

Employee (s): ___	Date: ___	Employee's Supervisor: ___	Date: ___
HSE Coordinator/Project/Unit Manager: ___	Date: ___	Group HSE Manager: ___	Date: ___

VEHICLE INCIDENT REPORT (VIR)

Wood E&IS

Confidential - Privileged

Section 1 - General Information

Date of Incident: _____

Time incident occurred: _____ ☐ am | ☐ pm | Illumination: ☐ Dark ☐ Dusk ☐ Light | Road Condition: ☐ Dry ☐ Wet ☐ Icy/snow

Were police summoned to scene? ☐ Yes ☐ No Police Department and Location: _____

Report #; _____ Officer's Name: _____ Officer's Badge Number: _____

Section 2 - Company Driver and Vehicle

Driver's name: _____ D/L #: _____ State: _____

Driver's home office address: _____ Driver's Phone #: _____

Company Vehicle #: _____ Year: _____ Model: _____ License #: _____ State: _____

Company car?: ☐ Yes ☐ No Personal Vehicle?: ☐ Yes ☐ No Rental Vehicle?: ☐ Yes ☐ No

If rental, rented from: _____

Passenger/Witness Name(s): _____ Address: _____ Telephone: _____

Passenger/Witness Name(s): _____ Address: _____ Telephone: _____

Damage to vehicle: _____

Was an employee injured?: ☐ Yes ☐ No If yes, please describe: _____

Injuries to others?: ☐ Yes ☐ No If yes, please describe: _____

Vehicle was being used for: Company business ☐ Yes ☐ No Personal business ☐ Yes ☐ No

Towed?: ☐ Yes ☐ No If yes, by whom?: _____ To Where?: _____

Section 3 - Other Driver and Vehicle Information

Driver's Name: _____ D/L # : _____ State: _____

Current address: _____ City: _____ State: _____

Telephone: _____ Work: _____ Cell: _____

Registered Owner's Name: _____ Address: _____ City: _____ State: _____

(verify registration document)

The Other Vehicle: Make: _____ Model: _____ Year: _____ License #: _____ State: _____

Insurance company name: _____ Address: _____ Phone #: _____

Policy No.: _____ Contact Person: _____ Phone #: _____

Passenger/Witness Name(s): _____ Address: _____ Telephone: _____

Passenger/Witness Name(s): _____ Address: _____ Telephone: _____

Damage: (*Make note of pre-existing damage and take pictures if possible – you may attach additional pages if necessary):* _____

Injuries to other driver/passengers: _____

Section 4 – Approvals (signatures required)

Form completed by (please print): _____ Date: _____

Signature: _____

Office/Project Manager (please print): _____ Date: _____

Signature: _____

Things to Do First In The Event Of a Motor Vehicle Incident

GENERAL INFORMATION

1. Do not decide on your own whether a particular incident is "covered" by insurance. Should there be any doubt, it is always preferable to report an occurrence, as this will allow Insurers/Group Insurance to determine if a covered loss has taken place.

2. Policy Conditions do require that all losses and occurrences, which may result in a claim be promptly reported.

3. Do not admit liability or offer your opinion on liability to anyone.

4. Complete this IAR/VIR form promptly and forward with all applicable supporting documentation. It is essential both division and location information be provided.

5. For automobile collisions within the **United States**, please indicate on the IAR form that you have contacted our Fleet Management Vendor, Donlen, at:

Donlen Hotline: 1-800-377-3192
Select Prompt "3" for accident management
24 hours a day, 7 days a week

6. For automobile collisions within **Canada**, please indicate on the IAR form that you have contacted the Control Adjuster and Group Insurance at:

Crawford Adjusters Canada - Claims Alert
1-888-218-2346
Email: newcrawfordclaims@crawco.ca
Copy: claims.insurance@woodgroup.com
Copy: amecfwinsurance@amecfw.com
24 hours a day, 7 days a week
Some provinces (BC, SK, MB) require incidents involving owned or leased vehicles also be reported to the Provincial Agency (Except for 1) Special lease agreements; 2) Third Party injury accidents; 3) Rented vehicles)

7. Information on the use of rental and personal vehicles at work and insurance are at the links for **Canada** and **US**.

The more details you have the better but, don't delay reporting if you don't have all of the information - that may be obtained later. A trained operator will answer your call and ask for all relevant information regarding the incident, and follow-up to obtain any additional information. The initial information required includes:

- Entity Name, Address & Location/Site Code – advise that you are a Wood company, E&IS
- Contact details of the person reporting the incident
- Wood vehicle details -i.e. license plate/serial number/make and model
- Injury details (if applicable)
- Driver & passenger details
- Date, location and circumstances of the accident
- Damage to your vehicle/Location of the vehicle/whether the vehicle is mobile or immobile
- Witness details
- The number of the Police Officer (if applicable) who is dealing with the incident and the name of his Police Station
- Details of the third party (if applicable) including
    a. Name, address and telephone number
    b. Vehicle details, License number, make and model
    c. Insurance company, policy number, address and telephone number.
    d. Name, address and telephone number of any passengers.
    e. Details of injuries/Hospital to which they have been taken. information (i.e., name, phone number, address, vehicle information, insurance information)

Call 911 if there are serious injuries!

If you are injured or think you were injured, **contact your supervisor and call WorkCare at 888-449-7787**. Your supervisor will notify your HSE Coordinator and your Group HSE Manager. For additional instructions on what to do, go to E&IS HSE website at:

https://eiapps.amecfw.com/she/sheweb/incident_reporting.htm

1. Call for an officer if the incident occurred on public property (streets, highways or roads). Disputes often arise between the parties involved as to who was at fault; therefore, a police report is important. If an officer is unable to attend the scene of the collision, a counter police report may be filed at most stations. Insurance companies rely on police reports to determine liability.

2. Complete the Incident Investigation Report and the Vehicle Incident Report forms. It is important that both these forms are completed in detail. Include a diagram of the incident on the provided sheet. Incomplete information may lead to delays in processing associated claims and in helping to prevent this type of incident from occurring again.

3. Give only information that is required by the authorities or as directed by Wood contractual requirements.

4. Sign only those statements required by the authorities or as directed by Wood contractual requirements. Do not sign away your or the company's rights.

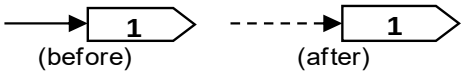
Vehicle Incident Diagram

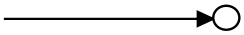
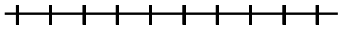
This or a similar diagram must be completed with all VIRs

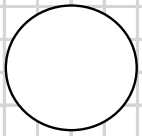
Instructions:

1. Number each vehicle and show directions 

2. Use a solid line to show path before incident and use a dotted line to show path after incient



3. Show pedestrian/non-motorist by: 
4. Show railroad by 
5. Indicate north by arrow as: 
6. Show street or highway names or numbers
7. Show signs, signals, warning and traffic controls.



Prepared by: _____ Date: _____

GROUND DISTURBANCE INCIDENT REPORT (GDR)

Wood E&IS

Section 1 – General Information

Employee Name: _____ Time of incident: _____ ☐ am | ☐ pm Time Reported:_____ ☐ am | ☐ pm Report Date: _____

Project Name: _____ Project Number: _____ Client: _____

List of All Parties Present

Name	Company	Telephone No.	Role
____	____	____	____
____	____	____	____
____	____	____	____
____	____	____	____
____	____	____	____

Describe the chronological description of the incident and response:____

Section 2 – Date and Location of Event

A. *Date of Event: (MM/DD/YYYY)

B. ***Country** ***State** ***County** **City**

C. **Street address** **Nearest Intersection**

D. *Right of Way where event occurred

E. Public: ☐ City Street ☐ State Highway ☐ County Road ☐ Interstate Highway ☐ Public-Other

F. Private: ☐ Private Business ☐ Private Land Owner ☐ Private Easement

G. ☐ Pipeline ☐ Power /Transmission Line ☐ Dedicated Public Utility Easement

☐ Federal Land ☐ Railroad ☐ Data not collected ☐ Unknown/Other

List attached documentation (Public Utility Locates, Private Utility Locates, Copy of notifications submitted to Owner or other utility Owners, photographs): _____

Section 3 – Affected Facility Information

***What type of facility operation was affected?**

☐ Cable Television ☐ Electric ☐ Natural Gas ☐ Liquid Pipeline ☐ Sewer (Sanitary Sewer)

☐ Steam ☐ Telecommunications ☐ Water ☐ Unknown/Other

***What type of facility was affected?**

☐ Distribution ☐ Gathering ☐ Service/Drop ☐ Transmission ☐ Unknown/Other

Was the facility part of a joint trench?

☐ Unknown ☐ Yes ☐ No

Was the facility owner a member of One-Call Center?

☐ Unknown ☐ Yes ☐ No

Section 4 – Excavation Information

***Type of Excavator**

☐ Contractor ☐ County ☐ Developer ☐ Farmer ☐ Municipality ☐ Occupant
☐ Railroad ☐ State ☐ Utility ☐ Data not collected ☐ Unknown/Other

***Type of Excavation Equipment**

☐ Auger ☐ Backhoe/Trackhoe ☐ Boring ☐ Drilling ☐ Directional Drilling
☐ Explosives ☐ Farm Equipment ☐ Grader/Scraper ☐ Hand Tools ☐ Milling Equipment
☐ Probing Device ☐ Trencher ☐ Vacuum Equipment ☐ Data Not Collected ☐ Unknown/Other

***Type of Work Performed**

☐ Agriculture ☐ Cable Television ☐ Curb/Sidewalk ☐ Bldg. Construction ☐ Bldg. Demolition
☐ Drainage ☐ Driveway ☐ Electric ☐ Engineering/Survey ☐ Fencing
☐ Grading ☐ Irrigation ☐ Landscaping ☐ Liquid Pipeline ☐ Milling
☐ Natural Gas ☐ Pole ☐ Public Transit Auth. ☐ Railroad Maint. ☐ Road Work
☐ Sewer (San/Storm) ☐ Site Development ☐ Steam ☐ Storm Drain/Culvert ☐ Street Light
☐ Telecommunication ☐ Traffic Signal ☐ Traffic Sign ☐ Water ☐ Waterway Improvement
☐ Data Not Collected ☐ Unknown/Other

Section 5 – Pre-Excavation Notification

***Was the One-Call Center notified?**

☐ Yes ☐ No If Yes, which One-Call Center? Ticket number:

Was Private Contract Locator used?

☐ Yes ☐ No

Section 6 – Locating and Marking

***Type of Locator**

☐ Utility Owner ☐ Contract Locator ☐ Data Not Collected

***Were facility marks visible in the area of excavation?**

☐ Yes ☐ No ☐ Data Not Collected

***Were facilities marked correctly?**

☐ Yes ☐ No ☐ Data Not Collected

What technology was used to locate utilities?

☐ Maps ☐ Active(transmitter+receiver) ☐ Passive (receiver only) ☐ GPR
☐ Acoustic ☐ Magnetic ☐ Infrared ☐ Unknown/Other

What Factors affected the ability to locate services?

☐ Soil Type:_____ ☐ Non-Grounded ☐ Common Bonded ☐ Depth
☐ Electromagnetic interference ☐ Parallel facilities ☐ Congested facilities ☐ Unknown/Other

Section 7 – Excavator Downtime

Did Excavator incur down time?

☐ Yes ☐ No

If yes, how much time?

☐ Unknown ☐ Less than 1 hour ☐ 1 hour ☐ 2 hours ☐ 3 or more hours Exact Value _____If

Estimated cost of down time?

☐ Unknown ☐ $0 ☐ $1 to 500 ☐ $501 to 1,000 ☐ $1,001 to 2,500 ☐ $2,501 to 5,000
☐ $5,001 to 25,000 ☐ $25,001 to 50,000 ☐ $50,001 and over Exact Value _____

Section 8 – Description of Damage

***Was there damage to a facility?**
☐ Yes ☐ No (i.e. near miss)
***Did the damage cause an interruption in service?**
☐ Yes ☐ No ☐ Data Not Collected ☐ Unknown/Other
If yes, duration of interruption
☐ Unknown ☐ Less than 1 hour ☐ 1 to 2 hrs ☐ 2 to 4 hrs ☐ 4 to 8 hrs ☐ 8 to 12 hrs ☐ 12 to 24 hrs
☐ 1 to 2 days ☐ 2 to 3 days ☐ 3 or more days ☐ Data Not Collected Exact Value _____
Approximately how many customers were affected?
☐ Unknown ☐ 0 ☐ 1 ☐ 2 to 10 ☐ 11 to 50 ☐ 51 or more Exact Value _____
Estimated cost of damage / repair/restoration
☐ Unknown ☐ $0 ☐ $1 to 500 ☐ $501 to 1,000 ☐ $1,001 to 2,500 ☐ $2,501 to 5,000
☐ $5,001 to 25,000 ☐ $25,001 to 50,000 ☐ $50,001 and over Exact Value _____
Number of people injured
☐ Unknown ☐ 0 ☐ 1 ☐ 2 to 9 ☐ 10 to 19 ☐ 20 to 49 ☐ 50 to 99
☐ 100 or more Exact Value _____
Number of fatalities
☐ Unknown ☐ 0 ☐ 1 ☐ 2 to 9 ☐ 10 to 19 ☐ 20 to 49 ☐ 50 to 99
☐ 100 or more Exact Value _____
Was there a Product Release?
Product Release: ☐ No ☐ Yes ☐ N/A Type: ____ **If Yes, Incident Type is Environmental Report.**
Volume: ____ Spill Controls: ____
Repair Process: ____

Section 9 – Description of the Root Cause Link to GDR Root Cause Tip Card

Please choose one

One-Call Notification Practices Not Sufficient
☐ No notification made to the One-Call Center
☐ Notification to one-call center made, but not sufficient
☐ Wrong information provided to One Call Center

Locating Practices Not Sufficient
☐ Facility could not be found or located
☐ Facility marking or location not sufficient
☐ Facility was not located or marked
☐ Incorrect facility records/maps

Excavation Practices Not Sufficient
☐ Failure to maintain marks
☐ Failure to support exposed facilities
☐ Failure to use hand tools where required
☐ Failure to test-hole (pot-hole)
☐ Improper backfilling practices
☐ Failure to maintain clearance
☐ Other insufficient excavation practices

Miscellaneous Root Causes
☐ One-Call Center error
☐ Abandoned facility
☐ Deteriorated facility
☐ Previous damage
☐ Data Not Collected
☐ Other

Provide explanation of selected root cause/s:____

Section 10 - Notifications, Certification & Approvals

Check the appropriate boxes indicating the applicable reports have been made to the following applicable organizations:

One Call was called ☐ **Spills Reporting Agency Notified** ☐

Emergency Responders (Fire) was called ☐ **Post-incident Drug/Alcohol Testing Performed**

List of All Agencies Contacted

Name/Agency	Phone #	Date	Time

Incident Report prepared by: ____

Employee (s): ____	Date: ____	Employee's Supervisor: ____	Date: ____
HSE Coordinator/Project/Unit Manager: ____	Date: ____	Group HSE Manager:____	Date: ____

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