

**NPDES SEDIMENT SAMPLING  
NIPPON DYNAWAVE PACKAGING PROPERTY**

**Site Health and Safety Plan**

*Prepared for*  
**Nippon Dynawave Packaging Co.**  
3401 Industrial Way  
Longview, WA 98632

*Prepared by*



719 2nd Avenue  
Suite 700  
Seattle, WA 98104

October 27, 2017

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## **LIST OF ATTACHMENTS**

**Attachment 1. Site Map and Hospital Route**

Site Map

Hospital Route Map

**Attachment 2. Regulatory Notices**

Federal OSHA Right to Know Posters

Washington Workers' Rights Posters

**Attachment 3. Safety Procedures**

**Attachment 4. Safety Data Sheets**

Alconox™

Hexane

Zinc Acetate

**Attachment 5. Employee Exposure/Injury Incident Report**

**Attachment 6. Near-Miss Incident Report**

**Attachment 7. Standard Operating Procedure to Minimize the Spread of Invasive Species  
(Ecology 2012)**



## ACRONYMS AND ABBREVIATIONS

CFR	Code of Federal Regulations
CHSM	Corporate Health and Safety Manager
CPR	cardiopulmonary resuscitation
CRZ	contaminant reduction zone
Ecology	Washington State Department of Ecology
HASP	health and safety plan
HAZWOPER	Hazardous Waste Operations and Emergency Response
IDLH	immediately dangerous to life and health
Integral	Integral Consulting Inc.
OSHA	Occupational Safety and Health Administration
NDP	Nippon Dynawave Packaging
NPDES	National Pollutant Discharge Elimination System
PEL	permissible exposure limit
PFD	personal flotation device
PPE	personal protective equipment
SDS	safety data sheet
SSO	site safety officer
STEL	short-term exposure limit
TBD	to be determined
USCG	U.S. Coast Guard
WISHA	Washington Industrial Safety and Health Administration

## SITE HEALTH AND SAFETY PLAN APPROVAL

This site health and safety plan has been reviewed and approved for surface sediment sampling at the Nippon Dynawave Packaging property in Longview, Washington.

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Project Manager

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Date

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Corporate Health and Safety Manager

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Date

## SITE HEALTH AND SAFETY PLAN ACKNOWLEDGMENT

In the absence of an appropriate subcontractor or consultant health and safety plan, and with the written approval of the corporate health and safety manager, the subcontractor or consultant may utilize this site health and safety plan (HASP), provided there is written concurrence from the subcontractor or consultant that they will directly administer the plan for their employees and assume all risks associated with any possible errors or omissions in the plan. This HASP does not cover any construction activities. This HASP is a minimum standard for the site and will be strictly enforced for all Integral personnel, or its subcontractors or consultants where applicable.

I have reviewed this HASP, dated October 27, 2017, for the Nippon Dynawave Packaging property fieldwork. I understand the purpose of the plan, and I consent to adhere to its policies, procedures, and guidelines while an employee of Integral, or its subcontractors or consultants. I have had an opportunity to ask questions regarding this plan, which have been answered satisfactorily by the lead consultant.

_____ Employee signature	_____ Company	_____ Date
_____ Employee signature	_____ Company	_____ Date
_____ Employee signature	_____ Company	_____ Date
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_____ Employee signature	_____ Company	_____ Date

# **1 INTRODUCTION**

It is the Occupational Safety and Health Administration's (OSHA's) policy that the contractor provides a safe and healthful work environment that is compliant with applicable regulations. No aspect of the work is more important than protecting the health and safety of all workers.

This site health and safety plan (HASP), prepared by Integral Consulting Inc. (Integral), provides general health and safety provisions to protect workers from potential hazards during field activities at the Nippon Dynawave Packaging (NDP) property located in Longview, Washington. This HASP has been prepared in accordance with Washington State and federal OSHA safety regulations (29 CFR [Code of Federal Regulations] 1910 and 29 CFR 1926).

The Washington Industrial Safety and Health Act (WISHA; Chapter 49.17 of the Revised Code of Washington) requires employers to provide safe and healthful workplaces for all employees. All work that the contractor conducts in the State of Washington must conform to the WISHA core rules presented in Title 296, Chapter 296-800 of the Washington Administrative Code. The Division of Safety and Health of the Washington State Department of Labor and Industries administers WISHA. WISHA is the state equivalent of the federal government's Occupational Safety and Health Act, which is administered by OSHA. This HASP follows both WISHA and OSHA hazardous waste operations and emergency response and applicable regulations in 29 CFR 1910 and 29 CFR 1926.

Attachments to the HASP provide a site-specific map and specific routes to the hospital from the site (Attachment 1), regulatory notices (Attachment 2), safety procedures (Attachment 3), safety data sheets (Attachment 4), an employee exposure/injury incident report (Attachment 5), a near-miss incident report (Attachment 6), and final decontamination procedures to prevent the spread of invasive species (Attachment 7).

This HASP has been prepared to identify potential site hazards to the extent possible based on information available to Integral. Integral cannot guarantee the health or safety of any person entering this site. Because of the potentially hazardous nature of this site and the activity occurring thereon, it is not possible to discover, evaluate, and provide protection for all possible hazards that may be encountered. Strict adherence to the health and safety guidelines set forth herein will reduce, but not eliminate, the potential for injury and illness at this site. The health and safety guidelines in this plan were prepared specifically for this site and should not be used on any other site without prior evaluation by trained health and safety personnel.

A copy of this HASP must be in the custody of the field crew during field activities. All individuals performing fieldwork must read, understand, and comply with this plan before undertaking field activities. Once the information has been read and understood, the

individual must sign the Site Health and Safety Plan Acknowledgment form provided as part of this plan. The signed form will become part of the project file.

This plan may be modified at any time based on the judgment of the contractor's site safety officer (SSO) in consultation with the project manager and contractor's corporate health and safety manager (CHSM) or designee. Any modification will be presented to the onsite team during a safety briefing and will be recorded in the field logbook.

## **1.1 OBJECTIVES AND METHODS**

The primary objectives of the NDP sediment characterization are:

- To characterize sediments in the Columbia River adjacent to Outfalls 001/002 belonging to the Nippon Dynawave Packaging (NDP) property, in accordance with requirements of the NDP National Pollutant Discharge Elimination System (NPDES) permit WA0000124 Special Condition S15 following current Washington State Department of Ecology (Ecology) guidance.

To meet these objectives, field activities will include surface sediment sampling. Sediment grab samples will be collected using a stainless-steel 0.3 m<sup>3</sup> power grab sampler. The grab sampler will be attached to a winch and cable and deployed from the research vessel. The lead contractor who will supervise field collection of the sediment samples, coordinate vessel and equipment logistics, ensure conformance to sampling and handling requirements, maintain the field log, and schedule personnel and subcontractor services has yet to be determined.

Additional details on the objectives and methods are presented in the sampling and analysis plan.

## **1.2 ORGANIZATION**

This HASP covers surface sediment sampling field activities. Chemical and physical hazard evaluations are presented in Sections 2 and 3, respectively. Specific health and safety guidelines associated with each task, including a brief description of the work, are discussed in Section 11 (Task-Specific Safety Procedures).

## **1.3 ROLES AND RESPONSIBILITIES**

All personnel, subcontractors or consultants, and visitors on this site must comply with the requirements of this HASP. The specific responsibilities and authority of management, safety and health, and other personnel on this site are detailed in the following paragraphs.

### **1.3.1 Site Safety Officer**

The SSO has full responsibility and authority to implement this HASP and to verify compliance. The SSO reports to the project manager and is onsite or readily accessible to the site during all work operations. The SSO is responsible for assessing site conditions and directing and controlling emergency response activities. The specific responsibilities of the SSO include:

- Managing the safety and health functions on this site
- Serving as the onsite point of contact for safety and health concerns
- Assessing site conditions for unsafe acts and conditions and ensuring corrective action
- Ensuring that all contractors and subcontractors understand and follow the HASP
- Ensuring that daily work schedules and tasks are reasonable for the required levels of effort and weather conditions
- Confirming local emergency response phone numbers and locations
- Conducting and documenting the initial and daily or periodic health and safety briefings
- Evaluating and modifying the level of protective apparel and safety equipment, based on site conditions
- Ensuring that the field team observes all necessary decontamination procedures.

If the SSO determines that site conditions are unsafe, he or she has the authority to suspend field operations until the problem is corrected. The SSO can modify HASP procedures in the field. Any changes must be documented in the field logbook, and field staff must be immediately informed of the change. The project manager and the contractor's CHSM must be notified by phone or e-mail within 24 hours of any major changes to the HASP.

### **1.3.2 Project Manager**

The project manager has overall responsibility to ensure that personnel working onsite are safe. The specific responsibilities of the project manager include:

- Ensuring that the HASP is developed prior to the fieldwork or site visit
- Reviewing and approving the HASP prior to the fieldwork or site visit
- Ensuring employee understanding of and compliance with the HASP.

### 1.3.3 Corporate Health and Safety Manager

The CHSM provides guidance to the project manager and SSO on HASP preparation and reviews and approves the HASP. The CHSM also serves as an arbitrator if there is a conflict between the project manager, SSO, and field personnel. In addition, the CHSM<sup>1</sup> conducts periodic unannounced audits of the contractor's field operations to ensure compliance with the HASP.

### 1.3.4 Field Personnel

All contractors and subcontractors on this site are responsible for reading and complying with this HASP, using the proper personal protective equipment (PPE), reporting unsafe acts and conditions, and following the work and safety and health instructions of the project manager and SSO. All contractors, subcontractors, or consultants can and are encouraged to suspend field operations if they believe conditions have become unsafe.

## 1.4 SITE DESCRIPTION

- **Owners/tenants:** Nippon Dynawave Packaging Co.
- **Site history:** The upland property of NDP comprises 700 acres and extends 3 miles along the Columbia River in Longview, Washington. Weyerhaeuser purchased the undeveloped property in the 1920s. The site has been used to manufacture a variety of forest products during its history. Products and production facilities have included sawmills, plywood production, log export, log debarking, sulfite pulp mill, batch kraft mill, Kaymr Kraft mill, TMP mill, wetlap pulp, newsprint, paperboard, corrugated medium, fine papers, and chlorine/caustic soda production.
- **Current site use:** Businesses currently active on the site include Weyerhaeuser-owned log export, sawmill and planer, and NDP-owned paperboard and wetlap pulp mill. Other businesses currently leasing and active on the site include Norpac (newsprint), EquaChlor (chlorine/caustic), and Specialty Minerals Inc. (precipitated calcium carbonate). Norpac is a joint ownership between Weyerhaeuser and Nippon Paper.
- **Hazardous waste site:** No
- **Industrial waste site:** No
- **Topography (if applicable):** Personnel will be working onboard a sampling vessel in the Mt. Coffin ship access channel and in nearshore areas in front of the facility.
- **Site access:** The site will be accessed via sampling vessel for the surface sediment sampling.

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<sup>1</sup> The audit task may be delegated to an office health and safety representative by the CHSM.

- **Nearest drinking water/sanitary facilities:** The sampling team will bring drinking water with them, which will be left outside the exclusion zone (i.e., in the wheel-house of the sampling vessel). Sanitary facilities will be available at nearby gas station or marina.
- **Nearest telephone:** Field crew cell phones
- **Pathways for hazardous substance dispersion:** Skin contact, eye contact

A detailed site map is provided in Attachment 1 to this HASP.

## 1.5 PROJECT MANAGER AND OTHER KEY CONTACTS

	Name (Affiliation)	Work Telephone	Cell Phone
Project manager	To be determined (TBD)	TBD	TBD
Site safety officer	TBD	TBD	TBD
Corporate health and safety manager	TBD	TBD	TBD
Facility contact	Brian Wood (Weyerhaeuser)	(360) 578-4580	(360) 957-2784
Client contact	Brian Wood (Weyerhaeuser)	(360) 578-4580	(360) 957-2784



## 2 CHEMICAL HAZARD EVALUATION

Potentially hazardous chemicals known to exist at the site are primarily mercury, naphthalene, anthracene, 2-methylnaphthalene, benzo[*a*]pyrene, fluoranthene, pyrene, phenol, and di-sec octyl phthalate. The chemicals of concern, applicable chemical properties, and potential exposure routes are presented in the following sections.

The following table lists the historical site maximum constituent concentrations for constituents at the Weyerhaeuser property. In addition, the table lists the properties of sample preservatives and decontamination chemicals that may be used at the site (i.e., hexane). The table also lists the chemical properties and OSHA permissible exposure limit (PEL), short-term exposure limit (STEL), and immediately dangerous to life and health (IDLH) level. Some chemicals used during equipment decontamination or sample preservation may volatilize and enter the field crew's breathing zone and be inhaled. Breathing zone air can be monitored to ensure that the chemicals do not exceed the PEL. If any of the chemicals exceed the PEL, immediate action is required (e.g., don respirators, leave site) as designated in the Air Monitoring section (Section 5) of this HASP.

### Chemical Properties

Chemical of Concern	Concentration (site maximum or expected)	Media	OSHA PEL	OSHA STEL	OSHA IDLH	Odor Threshold	IP(eV)	Carcinogen or Other Hazard
Hexane	Concentrated	Decon Solvent	500 ppm; NIOSH REL 50 ppm	--	1,100 ppm	--	10.18	Flammable liquid
Mercury	0.03 mg/kg	Sediment	0.01 mg/m <sup>3</sup>	0.03 mg/m <sup>3</sup>	2 mg/m <sup>3</sup>	--	--	P
Naphthalene	13.8 µg/kg	Sediment	10 ppm	15 ppm	250 ppm	--	8.12	Combustible solid
Anthracene <sup>a</sup>	13.8 µg/kg	Sediment	0.2 <sup>a</sup> mg/m <sup>3</sup>	0.2 <sup>a</sup> mg/m <sup>3</sup>	80 mg/m <sup>3</sup>	--	--	Ca
2-Methylnaphthalene	13.8 µg/kg	Sediment	--	--	--	--	--	
Benzo[a]pyrene <sup>a</sup>	74.4 µg/kg	Sediment	0.2 <sup>a</sup> mg/m <sup>3</sup>	0.2 <sup>a</sup> mg/m <sup>3</sup>	80 mg/m <sup>3</sup>	--	--	Ca
Fluoranthene	74.4 µg/kg	Sediment	-	--	--	--	--	
Pyrene <sup>a</sup>	74.4 µg/kg	Sediment	0.2 <sup>a</sup> mg/m <sup>3</sup>	0.2 <sup>a</sup> mg/m <sup>3</sup>	80 mg/m <sup>3</sup>	--	--	Ca
Phenol	4.4 µg/kg	Sediment	5 ppm	--	250 ppm	--	8.50	Combustible solid
Di-sec octyl phthalate	190 µg/kg	Sediment	5 mg/m <sup>3</sup>	10 mg/m <sup>3</sup>	5,000 mg/m <sup>3</sup>	--	--	Ca

#### Notes:

--	=	none established
Ca	=	carcinogen
IDLH	=	immediately dangerous to life and health
IP(eV)	=	ionization potential
NA	=	not available
P	=	poison
PEL	=	permissible exposure limit
STEL	=	short-term exposure limit

<sup>a</sup> Anthracene and benzo[a]pyrene represented as “coal tar pitch volatiles” as shown in: <https://www.osha.gov/dsg/annotated-pels/tablez-1.html>. Pyrene represented as coal tar pitch volatiles in CDC NIOSH Pocket Guide.

The table below summarizes the chemical characteristics and potential chemical exposure routes at the site.

	Likely	Possible	Unlikely
<b>Potential Chemical Exposure Routes at the Site:</b>			
Inhalation		X <sup>a</sup>	X <sup>b</sup>
Ingestion			X
Skin absorption		X	
Skin contact		X	
Eye contact		X	
<b>Chemical Characteristics:</b>			
Corrosive			X
Ignitable	X <sup>a,c</sup>		X <sup>b</sup>
Reactive	X <sup>c</sup>		X <sup>a,b</sup>
Volatile	X <sup>a,c</sup>		X <sup>b</sup>
Radioactive			X
Explosive			X
Biological agent			X
Particulates or fibers			X

If likely, describe:

**Notes:**

Hexane is volatile, and field personnel will stand upwind when using hexane. Hexane will not be used unless area is well ventilated and will be kept away from ignition sources at all times.

<sup>a</sup> Decontamination chemicals and preservative

<sup>b</sup> Sediment

<sup>c</sup> Hexane and zinc acetate preservative

### 3 PHYSICAL HAZARD EVALUATION AND GUIDELINES

The following sections present general physical hazards and overwater work guidelines.

#### 3.1 GENERAL PHYSICAL HAZARDS

The following table presents possible physical hazards that are expected to be present during field activities.

Possible Hazard	Yes	No	Proposed Safety Procedure
Heavy equipment	X		On board the sampling vessel: Stay back from operating equipment; wear safety vests and hard hats; coordinate and maintain eye contact with equipment operator.
Material handling	X		Lift properly; seek assistance if necessary; do not overfill coolers or boxes.
Uneven terrain/tripping	X		Keep decks clear, exercise caution, wear properly fitting boots.
Heat stress	X		Follow heat stress information (Attachment 3); potential for heat stress will depend on season.
Falling objects	X		Wear hard hats near overhead hazards (i.e., winch).
Adverse weather	X		Seek shelter during electrical storms; work in adverse weather conditions only with proper training and equipment.
Drowning	X		Wear personal flotation device (PFD) at all times when working over water. Inspect the PFDs prior to use and do not use defective PFDs. Keep sampling equipment on boats organized at all times. Boats are required to be equipped with a throwable life ring, fire extinguisher, and warning horn and each field member will be briefed on their storage location.

Summary of potential physical hazards posed by proposed site activities:

Activity	Potential Hazard
Surface sediment sampling	Heavy equipment material handling, uneven terrain/tripping, heat stress, falling objects, adverse weather, drowning
Sample handling/ mobilization	Material handling

## 3.2 OVERWATER WORK GUIDELINES

### 3.2.1 General Overwater Safety Guidelines

The overwater safety program requires the following:

- Field staff working over water must wear U.S. Coast Guard (USCG) approved personal flotation device (PFD) at all times when working over water greater than 6 in. deep. Staff will inspect the PFDs prior to use and not use defective PFDs.
- The boat operator must have training in the safe operation of the boat (Section 6.1).
- No smoking is allowed on boats or near refueling activities.
- Sampling equipment on boats will be kept organized at all times.
- Boats are required to be equipped with a throwable life ring, fire extinguisher, first aid kit, eyewash bottle and water (if acids are taken on the boat), drinking water (for long trips), alternate propulsion mechanism (e.g., paddles), rope, and warning horn; each field member will be briefed on the storage location of this equipment on the first day of the field event.
- All equipment must be used in accordance with the manufacturers' recommendations.

The following table summarizes possible physical hazards that are expected to be present during overwater work field activities.

Possible Hazard	Yes	No	Proposed Safety Procedure
Water hazards	X		Wear a USCG-approved PFD at all times when working over water greater than 6 in. deep. Inspect the PFDs prior to use and do not use defective PFDs. Keep sampling equipment on boats organized at all times. Boats are required to be equipped with a throwable life ring, fire extinguisher, and warning horn, and each field member will be briefed on the storage location of these safety items on the first day of the field event.
Vessel operations	X		Exercise prudent overwater safety.

### 3.2.2 Sampling Vessel Operations

The physical hazards associated with the deployment and retrieval of sampling equipment from a sampling vessel result from the equipment's weight and the method of deployment. Only trained personnel will deploy and retrieve sampling gear. Under circumstances of potentially dangerous waves or winds, the vessel pilot and field team leader will employ best professional judgment to ensure safe field operations.

To avoid injuries from heavy equipment, personnel will wear slip-resistant steel-toed boots when working on the work deck or loading/unloading heavy equipment from the vessel. Hard hats will be worn by personnel when present on the work deck due to the proximity of overhead gear. Sample handling equipment, containers, deck lines, hydraulic cables, and water hoses not in immediate use will be kept clear of walkways and work areas until needed. Each time sampling operations at a given location have been completed, excess sediment on the deck will be washed from the deck over the sampling location or, if specified in the field sampling plan (depending the anticipated level of contamination) will be containerized in U.S. Department of Transportation–approved 55-gallon drums to 1) prevent personnel from slipping, 2) minimize personnel exposure to potentially contaminated sediment, and 3) limit cross-contamination between sample locations.

USCG-approved PFDs will be provided for and worn by all personnel working on the deck, or as directed by the contractor's SSO or vessel operator. As mentioned above, the vessel must also be equipped with throwable life rings, fire extinguishers, and warning horns, and each crew member will be briefed on the location of this equipment prior to initiation of the sampling event.

### **3.2.3 Small Craft Operation**

Safety procedures on small boats (i.e., length of 20 ft or less) may necessitate an increased level of protection, depending on boat size, and location on the water body. Small boat procedures will include all the requirements listed above, except that a fire extinguisher is not necessary for a row boat and a throwable seat cushion may be used in place of a life ring. In addition, all personnel onboard will be required to wear USCG-approved PFDs at all times. Any personnel or subcontractors operating small boats must have completed a Coast Guard Auxiliary *Boating Safely* course and have a demonstrated knowledge of the safe handling of these craft.

### **3.2.4 U.S. Coast Guard Notification**

If required for the body of water that will be sampled, USCG will be notified of the schedule and scope of the overwater sampling work. If USCG deems a notice to other mariners to be necessary, then information will be provided by the contractor to USCG to make barge and other river traffic aware of their sampling activities.

## 4 PERSONAL PROTECTIVE EQUIPMENT AND SAFETY EQUIPMENT

The following sections address PPE and safety equipment required for completing the field activities.

### 4.1 PERSONAL PROTECTIVE EQUIPMENT

Based on the hazards identified above in Sections 2 and 3, the following table identifies the PPE required for site activities.

Site Activity	Level of Protection	
	Initial	Contingency <sup>a</sup>
Surface sediment sampling	MD*	Leave site
Sample handling	MD*	Leave site
Decon	MD*	Leave site

**Notes:**

<sup>a</sup> Based on unexpected change in site conditions

Each level of protection will incorporate the following PPE:

Level D	Long pants, shirt, and/or work coveralls, hard hat, latex or nitrile gloves, steel toed boots, personal flotation device, and eye protection. Hearing protection and work gloves, as needed.
Level MD	Same as Level D with addition of rain gear.
Level MD*	Same as Level MD with addition of a personal flotation device.

### Respirator and Respirator Cartridge Information

Is there potential for a respirator to be  
donned during fieldwork?

Yes \_\_\_\_\_ No   X  

### 4.2 SAFETY EQUIPMENT

The following safety equipment will be onsite during the proposed field activities.

**Air Monitoring** (check the items required for this project)

☐ OVM

☐ LEL/O<sub>2</sub> meter

☐ Air sampling pumps

☐ Miniram (particle monitors)

- |   |  |
|---|--|
| <input type="checkbox"/> H <sub>2</sub> S meter                     | <input type="checkbox"/> Radiation meter |
| <input type="checkbox"/> Detector pump and tubes<br>(e.g., benzene) | <input type="checkbox"/> Other:          |

**First Aid Kit** Mandatory, including absorbent compress, adhesive bandages, adhesive tape, antiseptic, burn treatment, medical exam gloves, sterile pad, cardiopulmonary resuscitation (CPR) shield, triangle bandage, scissors—for cutting off the PPE from an injured person (check additional items required for the site)

- |   |   |
|---|---|
| <input checked="" type="checkbox"/> Emergency blanket | <input checked="" type="checkbox"/> Sunscreen |
| <input type="checkbox"/> Insect repellent             | <input type="checkbox"/> Other: _____         |

**Other** (check the items required for this project)

- |  |   |
|--|---|
| <input checked="" type="checkbox"/> Eyewash  | <input type="checkbox"/> Fit test supplies  |
| <input checked="" type="checkbox"/> Drinking water   | <input type="checkbox"/> Fire extinguisher (drill rigs and onboard larger sampling vessels) |
| <input type="checkbox"/> Stopwatch for monitoring heart rate for heat stress monitoring <sup>2</sup> | <input type="checkbox"/> Windsock   |
| <input type="checkbox"/> Thermoscan® thermometer for heat stress monitoring                          | <input checked="" type="checkbox"/> Cellular phone  |
| <input type="checkbox"/> Survival kit <sup>3</sup>   | <input type="checkbox"/> Radio sets   |
| <input checked="" type="checkbox"/> Personal flotation device  | <input checked="" type="checkbox"/> Global positioning system                               |
| <input type="checkbox"/> Cool vests  | <input type="checkbox"/> Other: _____   |

<sup>2</sup> Heart rate monitoring requires special training.

<sup>3</sup> Consult the CHSM for guidance for site-specific survival kits.



## **5 AIR MONITORING**

Air monitoring should be conducted when field staff enter previously uncharacterized sites, when they work in the vicinity of uncontained chemicals or spills, when they open containers and well casings, and before they open confined spaces. (Note: Only trained and authorized personnel can enter confined spaces under any circumstances.) Air monitoring must be conducted to identify potentially hazardous environments and determine reference or background concentrations. Air monitoring can sometimes be used to augment judgment in defining exclusion zones.

The chemicals of potential concern for sediment sampling at the NDP site are not volatile, and no dust will be generated during field activities. No air monitoring will be performed during field activities.

## 6 HEALTH AND SAFETY TRAINING AND MEDICAL MONITORING

The following sections present requirements for health and safety training and medical monitoring.

### 6.1 HEALTH AND SAFETY TRAINING AND MEDICAL MONITORING

State and federal laws establish training requirements for workers at uncontrolled hazardous waste sites (including areas where accumulations of hazardous waste create a threat to the health and safety of an individual, the environment, or both). Contractor and subcontractor personnel are required to complete the following training requirements prior to working at the site.

#### 6.1.1 Training Requirements

Task	No Training	24-Hour	40-Hour <sup>a</sup>	Supervisor <sup>b</sup>	First Aid/CPR <sup>c</sup>	Medical Monitoring
<b>Field Personnel</b>			X	X	X	X
<b>Subcontractors<sup>d</sup></b>						
Vessel operator / deckhands <sup>e</sup>	X					

**Notes:**

<sup>a</sup> Must have current OSHA 8-hour refresher if it has been more than a year since the OSHA 40-hour training.

<sup>b</sup> At least one person onsite must be OSHA HAZWOPER supervisor trained if this is a hazardous waste site.

<sup>c</sup> All field staff onsite must be first aid/CPR trained.

<sup>d</sup> Subcontractors and consultants may have requirements that are more stringent than those listed above. These are minimum training and monitoring requirements required to work on this site.

<sup>e</sup> The vessel operator and deck hand will not be required to have 40-hour training. The vessel operator will stay out of the exclusion and contamination reduction zones during sample collection and decontamination activities. The vessel operator and deckhands are required to have USCG training.

#### 6.1.2 Site Safety Meetings

Site safety meetings must be held before beginning new tasks or when new staff enter the site. Site safety meetings should be held at a minimum of once a week and should be held daily on complex or high hazard projects. Tailgate safety meetings must occur every morning during review of the day's work plan, covering specific hazards that may be encountered. Additional meetings will be held at any time health and safety concerns are raised by any of the personnel. Attendance and topics covered are to be documented in the field logbook.

## 6.2 MEDICAL MONITORING

OSHA requires medical monitoring for personnel potentially exposed to chemical hazards in concentrations in excess of the PEL for more than 30 days per year and for personnel who must use respiratory protection for more than 30 days per year.

Will personnel working at this site be  
enrolled in a medical monitoring  
program?

Yes      X      No

## **7 EMERGENCY RESPONSE PLAN**

The following sections discuss emergency recognition and prevention, emergency response and notification, emergency decontamination, site communications, and use of the buddy system.

### **7.1 EMERGENCY RECOGNITION AND PREVENTION**

It is the responsibility of all personnel to monitor work at the site for potential safety hazards. All personnel are required to immediately report any unsafe conditions to the SSO. The SSO is responsible to immediately take steps to remedy any unsafe conditions observed at the work site.

The following are examples of some emergency situations that could occur during the Weyerhaeuser property field activities:

- Slips, trips, and falls (on sloped areas, steel stairs, etc.)
- Entrainment of clothes or objects in moving equipment or parts
- A person falls overboard
- Serious injury or illness (e.g., physical injury, heart attack)
- Heat related injury.

Immediate actions will be taken by the field team under the leadership of the SSO in response to these emergencies.

### **7.2 EMERGENCY RESPONSE AND NOTIFICATION**

If an emergency at the site warrants it, all personnel must immediately evacuate the affected work area and report to the SSO at the predetermined emergency assembly location:

#### **Field vehicle**

In case of injury, field personnel should take precautions to protect the victim from further harm and notify local or facility emergency services. In remote areas, it will be necessary to have first aid-trained personnel on the field team. The victim may require decontamination prior to treatment if practicable—requirements will vary based on site conditions.

Emergency medical care will be provided by:

- ☒ Local emergency medical provider (i.e., fire department)  
☐ Facility emergency medical provider  
☐ First aid-trained field staff (for remote areas only)

Local Resources	Name	Telephone	Notified Prior to Work (Yes/No)?
Fire	Emergency	911	No
Police	Emergency	911	No
Ambulance	Emergency	911	No
Hospital	St. John Medical Center	(360) 414-2000	No
Site phone	Field crew cell phones	Varies	NA
US Coast Guard Sector Columbia River Emergency	Emergencies/Search & Rescue	(503) 861-2242 or call 911	No
Directions to the hospital:	Consult attached maps		

The SSO must confirm that the hospital listed is still in operation and that it has an emergency room. **It is required that the SSO drive to the hospital so that the directions are practiced and understood prior to initiating fieldwork.**

In case of serious injuries, death, or other emergency, the contractor's CHSM must be notified immediately at the phone numbers listed above. The contractor's CHSM will notify the project manager and contractor's President. The project manager will notify the client.

The following emergency contact list is valid only in the event Integral personnel perform the sediment sampling fieldwork.

Corporate Resource	Name	Work Telephone	Cell Phone
CHSM <sup>a</sup>	Eron Dodak	Office: (503) 943-3614	(503) 407-2933
	Matt Behum	Office: (410) 573-1982	(443) 454-1615
President	Bill Locke	Office: (720) 465-3315	(303) 548-1111
Human Resources Manager	Amy Logan	Office: (720) 465-3312	(720) 467-4442
Medical consultant	Dr. Peter Greaney (WorkCare Partners)	Office: (800) 455-2219 ext. 2114	NA
Incident Intervention (WorkCare)	--	(888) 449-7787	

**Notes:**

If the CHSM cannot be reached, call Ian Stupakoff [Office: (360) 705-3534, ext. 420; Cell: (360) 259-2518].  
If Ian Stupakoff cannot be reached, call David Livermore [Office: (503) 943-3613; Cell: (503) 806-4665].  
If David Livermore cannot be reached, call Barbara Trenary [Office: (206) 248-9645; Cell: (206) 849-0882].

### **7.3 EMERGENCY DECONTAMINATION PROCEDURES**

In case of an emergency, if possible, gross decontamination procedures will be promptly implemented. If a life-threatening injury occurs and the injured person cannot undergo decontamination procedures onsite, then the medical facility will be informed that the injured person has not been decontaminated and given information regarding the most probable chemicals of concern.

Decontamination procedures will only be used if practical and if they will not further injure the person or delay treatment. Decontamination procedures should not be implemented if there is not a reasonable possibility that the injured party requires such intervention. The SSO will make the determination whether or not to decontaminate the injured person. The following steps will be followed for decontaminating injured personnel while onsite:

- If it will not injure the person further, cut off PPE using scissors or scrub the gross contamination from the injured person's PPE (e.g., Tyvek® coveralls, work boots) with a Liquinox® or Alconox® solution followed by a rinse with tap or deionized/distilled water
- Remove PPE if feasible without further injuring the person.

### **7.4 SITE COMMUNICATIONS**

Each field team will carry a cell phone or satellite phone that is in good working order. If there is any type of emergency that requires the site to be evacuated (e.g., severe thunderstorm with lightning, chemical release), the field team leader will blow the air horn three times. When the horn sounds, all personnel will meet at the predetermined emergency assembly location, provided the muster point is in safe territory (field vehicle). All other emergency notifications that do not require evacuation (e.g., a person falling overboard) will be conducted using a cell or satellite phone. Emergency phone numbers are listed above in Section 7.2.

### **7.5 BUDDY SYSTEM**

The buddy system will be used at the site at all times. The buddy system is a system of organizing employees into field teams in such a manner that each employee of the field team is designated to be observed by at least one other employee in the field team. The purpose of the buddy system is to provide rapid assistance to employees in the event of an emergency.

## 8 WORK ZONES

Work zones are defined as follows:

<b>Exclusion zone</b>	The area immediately around the sampling activities. Sample collection and processing, and equipment decontamination will occur in this area. Only properly equipped and trained (i.e., wearing modified D protective clothing) personnel will be allowed in this area. The area will be washed with water between sample stations.
<b>Contamination reduction zone</b>	Not applicable. All activities will occur within the exclusion zone.
<b>Support zone</b>	The pilot house will be the support zone. No chemical or sample handling activities will occur in this area. Personnel will be required to wash chemicals and sediment from raingear before entering this area.
<b>Controls to be used to prevent entry by unauthorized persons:</b>	No unauthorized personnel will be allowed on the sampling vessel.

## 9 EQUIPMENT DECONTAMINATION AND PERSONAL HYGIENE

### 9.1 EQUIPMENT DECONTAMINATION PROCEDURES

After sampling is completed, the exclusion zone will be used as the contaminant reduction zone (CRZ) for decontamination activities.

To minimize or prevent personal exposure to hazardous materials, all personnel working in the exclusion zone and CRZ will comply with the following decontamination procedures:

- PPE will be removed and placed in a garbage sack for proper disposal at a solid waste landfill.

Decontamination equipment required at the site includes the following:

- Buckets or tubs
- Potable water
- Distilled or deionized water
- Scrub brushes
- Liquinox® or Alconox® detergent
- Hexane.

All nondisposable components of the sampling equipment (e.g., stainless steel spoons and bowls) that contact the sediment or surface water will be decontaminated using the following steps:

- Potable or site water rinse
- Alconox® or Liquinox® detergent wash
- Potable or site water rinse
- Distilled water rinse
- Air dry.

If an oily residue is observed on the sampling equipment, hexane may be used to decontaminate the equipment.

Any excess water or sediment remaining after processing will be returned to the river in the vicinity of the collection site. Any water or sediment spilled on the deck of the sampling vessel



will be washed into the surface waters at the collection site before proceeding to the next station. Phosphate-free, detergent-bearing, liquid wastes from decontamination of the sampling equipment will be washed overboard.

The site is located in an area of extreme concern for the invasive New Zealand mud snail. To aid in controlling the spread of this invasive species, final demobilization decontamination procedures will include drying, as specified in Attachment 7 (Ecology 2012).

## **9.2 PERSONAL HYGIENE**

The following personal hygiene practices will be used at the site to reduce exposure to chemicals.

- Long hair will be secured away from the face so it does not interfere with any activities.
- All personnel leaving potentially contaminated areas will wash their hands, forearms, and faces in the CRZ prior to entering any clean areas or eating areas.
- Personnel leaving potentially contaminated areas will shower (including washing hair) and change to clean clothing as soon as possible after leaving the site.
- No person will eat, drink, or chew gum or tobacco in potentially contaminated areas. Single portion drink containers and drinking of replacement fluids for heat stress control will be permitted only in support areas.
- Smoking is prohibited in all areas of the site because of the potential for contaminating samples and for the health of the field team.

## **10 VEHICLE SAFETY, SPILL CONTAINMENT, AND SHIPPING INSTRUCTIONS**

### **10.1 VEHICLE SAFETY**

The vehicle safety program requires the following:

- Cell phone usage while driving is not allowed, including the use of hands-free devices. If it is not feasible to wait to use the cell phone until arriving at the destination, pull off the road and park in a safe location to use the cell phone. Do not pull to the side of the road to use a cell phone because this significantly increases the risk of a rear-end collision.
- All vehicles are to be operated in a safe manner and in compliance with local traffic regulations and ordinances.
- Drivers are to practice defensive driving and drive in a courteous manner.
- Drivers are required to have a valid driver's license and liability insurance (per local state laws).
- Seat belts are to be worn by the driver and all passengers.
- No persons are allowed to ride in the back of any trucks or vans, unless equipped with seatbelts.
- Vehicles are to be driven in conformance with local speed limits.
- Personnel who are impaired by fatigue, illness, alcohol, or illegal or prescription drugs, or who are otherwise physically unfit, are not allowed to drive or work on field sites.
- Personnel are to avoid engaging in other distractions such as changing radio stations while driving.
- Motor vehicle accidents are to be reported to the responsible law enforcement agency, the contractor's human resources manager, and the contractor's CHSM on the same day of occurrence. Documentation of damage should be photographed.
- Personnel who have experienced work-related vehicle accidents or citations may be required to complete a defensive driving program.

### **10.2 SPILL CONTAINMENT**

Hexane for potential use in decontamination will be stored in a bottle with a screw cap. The hexane bottle will be stored double-bagged in resealable plastic bags, and will be dispensed, if

needed, over secondary containment (e.g., sampling bowl). Any spills will be cleaned up with paper towels, which will be allowed to dry before being disposed of as typical solid waste.

### 10.3 SHIPPING INFORMATION

Federal laws and international guidelines place restrictions on what materials may be shipped by passenger and cargo aircraft. In addition, 49 CFR regulates labeling, manifesting, and shipment of all packages containing potentially hazardous materials. In the course of this field investigation, the following items will be shipped to and from the site as shown below:

Item	Hazardous Constituent	Quantity	Packaging	How Shipped
Sediment samples <sup>a</sup>	None	2–5 L of sediment may be collected for up to 24 samples	Coolers	Field vehicle
Solvents	Hexane	500 mL	Cooler	Field vehicle
Calibration gas	None			
Preservatives (Zinc Acetate)	None	250 mL	Cooler	Field vehicle
Other:				

**Notes:**

<sup>a</sup> None of the samples that will be collected during this sampling effort are considered to be “potentially hazardous waste” as defined by 49 CFR.

A 24-hour emergency response number (on any shipping documents such as a Uniform Hazardous Waste Manifest or Shipper’s Declaration of Dangerous Goods) is required for shipments of all dangerous or hazardous goods. Shipment of dangerous or hazardous goods may only occur when an account is set up with a 24-hour emergency response service such as CHEM-TEL (1-813-248-0573). If any hazardous or dangerous goods need to be shipped for a project, they must be shipped directly to the site by the supplier. Any hazardous or dangerous goods that are not used in the course of the field effort must remain at the site.

The samples will be prepared and labeled for shipment in accordance with the sampling and analysis plan developed for the site.

Air shipment of equipment with lithium batteries is required to note the presence of these batteries. Warning labels are available from the equipment rental agency and can be copied.

## **11 TASK-SPECIFIC SAFETY PROCEDURE SUMMARY**

Always wear a USCG-approved PFD when doing any work on the sampling vessel or dock. A hard hat, safety glasses, and steel-toed boots are required at all times without exception. Work gloves and/or nitrile gloves will be worn when handling equipment or sediment. Use hearing protection as needed.

Exercise caution when working on a boat deck. Always be aware of the surroundings and river wave action that can rock the sampling vessel without notice. Keep sampling equipment on boats organized at all times. Boats are required to be equipped with a throwable life ring, fire extinguisher, and warning horn, and each field member will be briefed on the storage location for this equipment.

Avoid getting sediment, decontamination chemicals, and hexane on clothes or skin. If hexane is used during decontamination, wear appropriate PPE and always use it in a well-ventilated area, preferably outside while standing upwind of the operation. Keep away from ignition sources.

Exercise care when lifting, assembling, and decontaminating van Veen grab samplers. Always stay clear of the winch line and be aware of its location.

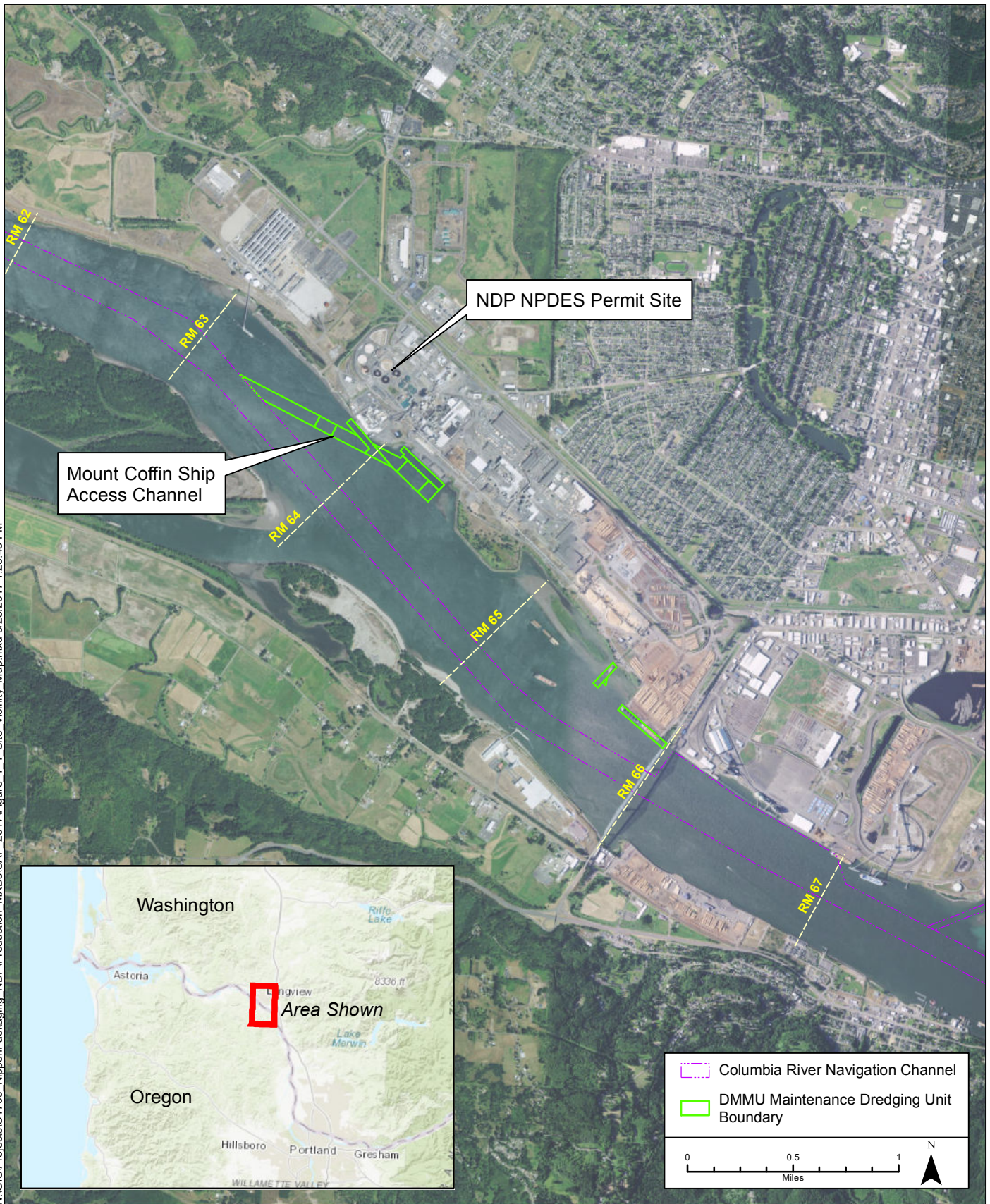
## **ATTACHMENT 1**

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### **SITE MAP AND HOSPITAL ROUTE**



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Hospital Route Instructions from Rainier City Park Boat Ramp to PeaceHealth St. John's Medical Center.

- From Rainier City Park Boat Ramp (W A St, Rainier, OR 97048) take Veterans Way to US-30 W
- Head west on W A St toward Veterans Way (338 ft.)
- Turn left onto Veterans Way (420 ft.)  
(Follow signs for US-30 W and WA-433 N to Oregon Way in Longview)
- Turn right at the 1st cross street onto US-30 W (1.1 mi.)
- Take the exit toward WA-433 N/Lewis and Clark Bridge (0.2 mi.)
- Turn right onto WA-433 N/Lewis and Clark Bridge (1.7 mi.)  
(Follow signs for Longview/Seattle)
- Continue onto Oregon Way (0.8 mi.)
- Continue onto 15<sup>th</sup> Ave (0.3 mi.)
- Turn left onto Delaware St (384 ft.)
- Arrive at PeaceHealth St. John Medical Center, 1615 Delaware St, Longview, WA 98632







## **ATTACHMENT 2**

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### **REGULATORY NOTICES**

# You Have a Right to a Safe and Healthful Workplace. IT'S THE LAW!

- You have the right to notify your employer or OSHA about workplace hazards. You may ask OSHA to keep your name confidential.
- You have the right to request an OSHA inspection if you believe that there are unsafe and unhealthful conditions in your workplace. You or your representative may participate in the inspection.
- You can file a complaint with OSHA within 30 days of discrimination by your employer for making safety and health complaints or for exercising your rights under the *OSH Act*.
- You have a right to see OSHA citations issued to your employer. Your employer must post the citations at or near the place of the alleged violation.
- Your employer must correct workplace hazards by the date indicated on the citation and must certify that these hazards have been reduced or eliminated.
- You have the right to copies of your medical records or records of your exposure to toxic and harmful substances or conditions.
- Your employer must post this notice in your workplace.



The *Occupational Safety and Health Act of 1970 (OSH Act)*, P.L. 91-596, assures safe and healthful working conditions for working men and women throughout the Nation. The Occupational Safety and Health Administration, in the U.S. Department of Labor, has the primary responsibility for administering the *OSH Act*. The rights listed here may vary depending on the particular circumstances. To file a complaint, report an emergency, or seek OSHA advice, assistance, or products, call 1-800-321-OSHA or your nearest OSHA office: • Atlanta (404) 562-2300 • Boston (617) 565-9860 • Chicago (312) 353-2220 • Dallas (214) 767-4731 • Denver (303) 844-1600 • Kansas City (816) 426-5861 • New York (212) 337-2378 • Philadelphia (215) 861-4900 • San Francisco (415) 975-4310 • Seattle (206) 553-5930. Teletypewriter (TTY) number is 1-877-889-5627. To file a complaint online or obtain more information on OSHA federal and state programs, visit OSHA's website at [www.osha.gov](http://www.osha.gov). If your workplace is in a state operating under an OSHA-approved plan, your employer must post the required state equivalent of this poster.

## 1-800-321-OSHA [www.osha.gov](http://www.osha.gov)

# Usted Tiene el Derecho a un Lugar de Trabajo Seguro y Saludable.

## ¡LO ESTABLECE LA LEY!

- Tiene el derecho de notificar a su empleador o a la OSHA sobre cualquier peligro en su lugar de trabajo. Puede pedir a la OSHA que mantenga su nombre en reserva.
- Tiene el derecho de solicitar una inspección de la OSHA si considera que existen condiciones peligrosas y poco saludables en su lugar de trabajo. Usted o su representante puede participar en la inspección.
- Puede presentar un reclamo a OSHA durante un plazo de 30 días si su empleador lo discrimina por presentar reclamos de seguridad y sanidad o por ejercer sus derechos de acuerdo con la Ley.
- Tiene el derecho de ver las citaciones de la OSHA enviadas a su empleador. Su empleador debe colocar las citaciones en un lugar visible en el sitio de la supuesta infracción o cerca de él.
- Su empleador debe corregir los peligros en el lugar de trabajo dentro del plazo indicado en la citación y debe certificar que dichos peligros se hayan reducido o eliminado.
- Tiene el derecho de recibir copias de su historial médico o de los registros de su exposición a sustancias o condiciones tóxicas y peligrosas.
- Su empleador debe colocar este aviso en un lugar visible de su lugar de trabajo.



La Ley de Seguridad y Salud Ocupacionales de 1970 (la Ley), P.L. 91-596, garantiza condiciones ocupacionales seguras y saludables para los hombres y las mujeres que desempeñen algún trabajo en toda la Nación. La Administración de Seguridad y Salud Ocupacionales (OSHA), dependiente del Departamento del Trabajo de los Estados Unidos, es la responsable principal de supervisar la Ley. Los derechos que se indican en este documento pueden variar según las circunstancias particulares. Para presentar un reclamo, informar sobre una emergencia o pedir consejo, asistencia o productos de la OSHA, llame al 1-800-321-OSHA o a la oficina de la OSHA más cercana a usted: • Atlanta (404) 562-2300 • Boston (617) 565-9860 • Chicago (312) 353-2220 • Dallas (214) 767-4731 • Denver (303) 844-1600 • Ciudad de Kansas (816) 426-5861 • Nueva York (212) 337-2378 • Filadelfia (215) 861-4900 • San Francisco (415) 975-4310 • Seattle (206) 553-5930. El número TTY es 1-877-889-5627. Para presentar un reclamo en línea u obtener más información sobre los programas federales y estatales de la OSHA, visite el sitio Web de la OSHA en [www.osha.gov](http://www.osha.gov). Si su lugar de trabajo se encuentra en un estado que funciona según un plan aprobado por la OSHA, su empleador debe colocar en un sitio visible el equivalente estatal de este afiche.

**1-800-321-OSHA**  
**[www.osha.gov](http://www.osha.gov)**



**It's the law!** Employers must post this notice where employees can read it  
(Revised Code of Washington 51.14.100).

## If a job injury occurs

Your employer is self-insured. You are entitled to all of the benefits required by the state of Washington's workers' compensation (industrial insurance) laws. These benefits include medical treatment and partial wage replacement if your work-related injury or disease requires you to miss work. Compliance with these laws is regulated by the Department of Labor & Industries (L&I).

## What you should do

**Report your injury.** If you are injured, no matter how minor the injury seems, contact the person listed on this poster.

**Get medical care.** The first time you see a doctor, you may choose any health-care provider who is qualified to treat your injury. For ongoing care, you must be treated by a doctor in the L&I medical network. (Find network providers at [www.FindADoc.Lni.wa.gov](http://www.FindADoc.Lni.wa.gov).)

Qualified health-care providers include: medical, osteopathic, chiropractic, naturopathic and podiatric physicians; dentists; optometrists; ophthalmologists; physician assistants; and advanced registered nurse practitioners.

**File your claim as soon as possible.** For an on-the-job injury, you must file a claim with your employer within one year after the day the injury occurred. For an occupational disease, you must file a claim within two years following the date you are advised by a health-care provider in writing that your condition is work related.

## To report an injury:

If you should become injured on the job or develop an occupational disease, immediately report your injury or condition to the person designated below:

Name: \_\_\_\_\_

Phone: \_\_\_\_\_

For additional information or help with a workers' compensation issue you can contact the Ombudsman for Self-Insured Injured Workers at 1-888-317-0493.

*Other formats for persons with disabilities are available on request. Call 1-800-547-8367. TDD users, call 360-902-5797. L&I is an equal opportunity employer.*

**About required workplace posters**  
Go to [www.Posters.Lni.wa.gov](http://www.Posters.Lni.wa.gov) to learn more about workplace posters from L&I and other government agencies.

Self-Insurance Section  
Department of Labor & Industries  
P.O. Box 44890  
Olympia WA 98504-4890



**¡Es la ley!** Los empleadores deben colocar este aviso en un lugar donde puedan leerlo los empleados.  
(Código Revisado de Washington 51.14.100).

## Si ocurre una lesión en el trabajo

Su empleador está autoasegurado. Usted tiene derecho a todos los beneficios requeridos por las leyes de compensación para los trabajadores (seguro industrial) del estado de Washington. Estos beneficios incluyen tratamiento médico y sustitución parcial de su salario si no puede trabajar como resultado de su lesión o enfermedad. El cumplimiento de estas leyes está regulado por el Departamento de Labor & Industrias (L&I).

## Lo que usted debe hacer

**Reporte su lesión.** Si usted se lesiona, aún cuando la lesión parezca ser mínima, comuníquese con la persona indicada en este cartel.

**Obtenga atención médica.** La primera vez que usted visite a un doctor, usted puede escoger a cualquier proveedor de cuidado de la salud que esté calificado para tratar su lesión. Para cuidado continuo, usted debe recibir tratamiento de un doctor de la red de proveedores médicos de L&I. (Encuentre proveedores de la red en [www.Lni.wa.gov/Spanish/ClaimsIns/Claims/FindaDoc](http://www.Lni.wa.gov/Spanish/ClaimsIns/Claims/FindaDoc).)

Los proveedores de cuidado de la salud calificados incluyen: médicos generales, osteópatas, quiroprácticos, médicos de naturopatía y podiatría, dentistas, optometristas, oftalmólogos, asistentes de doctor y enfermeras registradas de práctica avanzada.

**Presente su reclamo lo más pronto posible.** Para una lesión en el lugar de trabajo, usted tiene que presentar un reclamo con su empleador dentro de un año a partir de la fecha en que ocurrió la lesión. Para una enfermedad ocupacional, usted tiene que presentar un reclamo dentro de dos años después de la fecha en la que un proveedor de cuidado de la salud le haya notificado por escrito que su condición está relacionada con su trabajo.

## Para reportar una lesión:

Si sufre una lesión en el trabajo o se le presenta una enfermedad ocupacional, repórtelo inmediatamente a la persona indicada abajo:

Nombre: \_\_\_\_\_

Teléfono: \_\_\_\_\_

Para información adicional o ayuda con un asunto relacionado con la compensación para los trabajadores, se puede comunicar con el Ombudsman (defensor) de la sección de trabajadores lesionados autoasegurados al 1-888-317-0493.





It's the law! Employers must post this notice where employees can read it.  
(Chapter 49.17 RCW)

All workers have the right to a safe and healthy workplace.

**Employees** — Your employer must protect you from hazards you encounter on the job, tell you about them and provide training.

**You have the right to:**

- Notify your employer or L&I about workplace hazards. You may ask L&I to keep your name confidential.
- Request an L&I inspection of the place you work if you believe unsafe or unhealthy conditions exist. You or your employee representative may participate in an inspection, without loss of wages or benefits.
- Get copies of your medical records, including records of exposures to toxic and harmful substances or conditions.
- File a complaint with L&I within 30 days if you believe your employer fired you, or retaliated or discriminated against you because you filed a safety complaint, participated in an inspection or any other safety-related activity.
- Appeal a violation correction date if you believe the time allowed on the citation is not reasonable.

**The law requires you to follow workplace safety and health rules that apply to your own actions and conduct on the job.**

**Employers** — You have a legal obligation to protect employees on the job.

**Employers must provide workplaces free from recognized hazards that could cause employees serious harm or death.**

**Actions you must take:**

- Comply with all workplace safety and health rules that apply to your business, including developing and implementing a written accident prevention plan (also called an APP or safety program).
- Post this notice to inform your employees of their rights and responsibilities.
- Prior to job assignments, train employees how to prevent hazardous exposures and provide required personal protective equipment at no cost.
- Allow an employee representative to participate in an L&I safety/health inspection, without loss of wages or benefits. The L&I inspector may talk confidentially with a number of employees.
- If you are cited for safety and/or health violations, you must prominently display the citation at or near the place of the violation for a minimum of three days. You cannot remove it until you correct the violation.

**Firing or discriminating against any employee for filing a complaint or participating in an inspection, investigation, or opening or closing conference is illegal.**



**Employers must report all deaths, in-patient hospitalizations, amputations or loss of an eye.**

Report any work-related death or in-patient hospitalization to L&I's Division of Occupational Safety and Health (DOSH) within 8 hours.

Report any work-related non-hospitalized amputation or loss of an eye to DOSH within 24 hours.

For any work-related death, in-patient hospitalization, amputation or loss of an eye, you must report the following information to DOSH:

- Employer contact person and phone number.
- Name of business.
- Address and location where the work-related incident occurred.
- Date and time of the incident.
- Number of employees and their names.
- Brief description of what happened.

**Where to report:**

- Any local L&I office or
- 1-800-423-7233, press 1 (available 24/7)

This poster is available free from L&I at [www.Lni.wa.gov/RequiredPosters](http://www.Lni.wa.gov/RequiredPosters).

**Free assistance from the Division of Occupational Safety and Health (DOSH)**

- Training and resources to promote safe workplaces.
- On-site consultations to help employers identify and fix hazards, and risk management help to lower your workers' compensation costs.



Division of Occupational Safety and Health



[www.Lni.wa.gov/Safety](http://www.Lni.wa.gov/Safety)



1-800-423-7233

*Upon request, foreign language support and formats for persons with disabilities are available. Call 1-800-547-8367. TDD users, call 360-902-5797. L&I is an equal opportunity employer.*

# Ley de seguridad y salud en el trabajo

¡Es la ley! Los empleadores deben colocar este aviso en un lugar donde puedan leerlo los empleados.

Todos los trabajadores tienen derecho a un lugar de trabajo seguro y saludable.

**Empleados** — Su empleador debe protegerlo de los peligros que encuentra en el trabajo, informarle sobre ellos y proporcionarle capacitación.

**Usted tiene el derecho de:**

- Notificarle a su empleador o a L&I sobre los peligros en el lugar de trabajo. Usted puede pedirle a L&I que mantenga su nombre confidencial.
- Solicitar una inspección de L&I del lugar donde trabaja si cree que existen condiciones no saludables o inseguras. Usted y el representante de los empleados pueden participar en una inspección.
- Obtener copias de sus archivos médicos, incluyendo los archivos sobre exposiciones a sustancias o condiciones tóxicas y peligrosas.
- Presentar una queja con L&I dentro de 30 días si usted piensa que su empleador lo despidió o tomó represalias o lo discriminó porque presentó una queja de seguridad, participó en una inspección u otra actividad de seguridad relacionada.
- Apelar la fecha de corrección de una violación, si usted considera que el tiempo permitido en la citación no es razonable.

**La ley requiere que usted siga las reglas de seguridad y salud en el lugar de trabajo que se apliquen a sus propias acciones y conducta en el trabajo.**

**Empleadores** — Ustedes tienen la obligación legal de proteger a los empleados en el trabajo.

**Los empleadores deben proporcionar lugares de trabajo libres de riesgos reconocidos que puedan causar lesiones serias o muerte a los empleados.**

**Acciones que usted debe tomar:**

- Cumpla con todas las reglas de seguridad y salud en el lugar de trabajo que se apliquen a su negocio, incluyendo el desarrollo y la implementación de un Plan de Prevención de Accidentes por escrito (también llamado un APP en inglés o un programa de seguridad).
- Ponga este aviso en un lugar visible para informarle a los empleados de sus derechos y responsabilidades.
- Antes de asignar trabajos, capacite a los empleados sobre cómo prevenir exposiciones peligrosas y proporcione el equipo de protección personal requerido sin costo alguno.
- Permítale a un representante de los empleados que participe en una inspección de seguridad/salud de L&I sin descontarle salarios o beneficios. Es posible que el inspector de L&I hable en forma confidencial con otros empleados.
- Si recibe una citación por una violación de salud y seguridad usted debe poner a la vista la citación en o cerca del lugar de la violación por un mínimo de tres días. No la puede quitar hasta que se corrija la violación.

**Es ilegal despedir o discriminar a cualquier empleado por haber presentado una queja o por haber participado en una inspección, investigación o conferencias de apertura o cierre de las mismas.**



**Los empleadores deben reportar todas las muertes, hospitalizaciones de pacientes, amputaciones o pérdida de ojos.**

Reporte a la División de Seguridad y Salud Ocupacional (DOSH) de L&I sobre cualquier muerte u hospitalización relacionada con el trabajo dentro de 8 horas.

Reporte a DOSH sobre cualquier amputación sin hospitalización o pérdida de un ojo dentro de 24 horas.

Para cualquier muerte relacionada con el trabajo, hospitalización, amputación o pérdida de un ojo, debe reportar la siguiente información a DOSH:

- Nombre del empleador y número de teléfono.
- Nombre del negocio.
- Dirección y lugar donde ocurrió el incidente
- Fecha y hora del incidente.
- Número de empleados y sus nombres.
- Breve descripción de lo sucedido.

**Dónde reportar:**

- Cualquier oficina local de L&I o
- Puede llamar a DOSH al 1-800-423-7233, presione 1 (disponible las 24 horas)

Este cartelón es gratis y está disponible en el sitio Web de L&I en [www.Lni.wa.gov/RequiredPosters](http://www.Lni.wa.gov/RequiredPosters).

**Ayuda gratuita de la División de Salud y Seguridad (DOSH)**

- Capacitación y recursos para promover lugares de trabajo seguros.
- Consultas en su lugar de trabajo para ayudar a los empleadores a identificar y corregir peligros y manejo de riesgos para reducir los costos de compensación para los trabajadores.



División de Seguridad y Salud Ocupacional



[www.Lni.wa.gov/Seguridad](http://www.Lni.wa.gov/Seguridad)



1-800-423-7233

*A petición del cliente, hay ayuda disponible para personas que hablan otros idiomas y otros formatos alternos de comunicación para personas con discapacidades. Llame al 1-800-547-8367. Usuarios de dispositivos de telecomunicaciones para sordos (TDD, por su sigla en inglés) llamen al 360-902-5797. L&I es un empleador con igualdad de oportunidades.*



# Notice to Employees

**It's the law!** Employers must post this notice where employees can read it.

Every worker is entitled to workers' compensation benefits. You cannot be penalized or discriminated against for filing a claim. For more information, call toll-free **1-800-547-8367**.

## If a job injury occurs

Your employer is insured through the Department of Labor & Industries' workers' compensation program. If you are injured on the job or develop an occupational disease, you are entitled to workers' compensation benefits.

### Benefits include:

**Medical care.** Medical expenses resulting from your workplace injury or disease are covered by the workers' compensation program.

**Disability income.** If your work-related medical condition prevents you from working, you may be eligible for benefits to partially replace your wages.

**Vocational assistance.** Under certain conditions, you may be eligible for help in returning to work.

**Partial disability benefits.** You may be eligible for a monetary award to compensate for the loss of body functions.

**Pensions.** Injuries that permanently keep you from returning to work may qualify you for a disability pension.

**Death benefits for survivors.** If a worker dies, the surviving spouse or registered domestic partner and/or dependents may receive a pension.

## About required workplace posters

Go to [www.Lni.wa.gov/RequiredPosters](http://www.Lni.wa.gov/RequiredPosters) to learn more about workplace posters from L&I and other government agencies.

## On the Web: [www.Lni.wa.gov](http://www.Lni.wa.gov)

*Upon request, foreign language support and formats for persons with disabilities are available. Call 1-800-547-8367. TDD users, call 360-902-5797. L&I is an equal opportunity employer.*

## What you should do

**Report your injury.** If you are injured, no matter how minor the injury seems, contact the person listed on this poster.

**Get medical care.** The first time you see a doctor, you may choose any health-care provider who is qualified to treat your injury. For ongoing care, you must be treated by a doctor in the L&I medical network. (Find network providers at [www.Lni.wa.gov/FindADoc](http://www.Lni.wa.gov/FindADoc).)

Qualified health-care providers include: medical, osteopathic, chiropractic, naturopathic and podiatric physicians; dentists; optometrists; ophthalmologists; physician assistants; and advanced registered nurse practitioners.

**Tell your health-care provider and your employer about your work-related injury or condition.** The first step in filing a workers' compensation (industrial insurance) claim is to fill out a Report of Accident (ROA). You can do this online with FileFast ([www.Lni.wa.gov/FileFast](http://www.Lni.wa.gov/FileFast)), by phone at 1-877-561-FILE, or on paper in your doctor's office. Filing online or by phone speeds the claim and reduces hassle.

**File your claim as soon as possible.** For an on-the-job injury, you must file a claim and the Department of Labor & Industries (L&I) must receive it within one year after the day the injury occurred. For an occupational disease, you must file a claim and L&I must receive it within two years following the date you are advised by a health-care provider in writing that your condition is work related.

## Report your injury to:

(Your employer fills in this space.)

### Helpful phone numbers:

Ambulance

Fire

Police





**¡Es la ley!** Los empleadores deben colocar este aviso en un lugar donde puedan leerlo los empleados.

Cada trabajador tiene derecho a recibir beneficios del programa de compensación al trabajador. Usted no puede ser penalizado ni discriminado por haber presentado un reclamo. Para más información, llame a la línea gratuita **1-800-547-8367**.

## Si ocurre una lesión en el trabajo...

Su empleador está asegurado a través del programa de compensación al trabajador del Departamento de Labor e Industrias. Si usted sufre una lesión en el trabajo o desarrolla una enfermedad ocupacional, tiene derecho a recibir beneficios del programa de compensación al trabajador.

### Los beneficios incluyen:

**Atención médica.** Los gastos médicos que resulten de su lesión o enfermedad ocurrida en el trabajo están cubiertos por el programa de compensación al trabajador.

**Ingresos por discapacidad.** Si no puede trabajar como resultado de su lesión o enfermedad ocupacional, podría tener derecho a recibir beneficios de sustitución parcial de su salario.

**Asistencia vocacional.** Bajo ciertas condiciones, usted podría tener derecho a recibir ayuda para regresar a trabajar.

**Beneficios de discapacidad parcial.** Usted podría recibir una indemnización monetaria para compensarlo por la pérdida de funciones corporales.

**Pensiones.** Usted podría tener derecho a una pensión por discapacidad si sus lesiones no le dejan volver a trabajar en forma permanente.

**Beneficios para los sobrevivientes.** Si un trabajador fallece, el cónyuge o pareja doméstica registrada y/o los dependientes sobrevivientes podrían recibir una pensión.

### Sobre los carteles requeridos en el lugar de trabajo

Vaya a [www.Lni.wa.gov/IPUB/101-054-999.asp](http://www.Lni.wa.gov/IPUB/101-054-999.asp) para aprender más sobre los carteles del lugar de trabajo de L&I y otras agencias del gobierno.

### En Internet: [www.Lni.wa.gov](http://www.Lni.wa.gov)

*A petición del cliente, hay ayuda disponible para personas que hablan otros idiomas y otros formatos alternos de comunicación para personas con discapacidades. Llame al 1-800-547-8367. Usuarios de dispositivos de telecomunicaciones para sordos (TDD, por su sigla en inglés) llamen al 360-902-5797. L&I es un empleador con igualdad de oportunidades.*

## Lo que usted debe hacer...

**Reporte su lesión.** Si usted se lesiona, aún cuando la lesión parezca ser mínima, póngase en contacto con la persona indicada en este cartel.

**Obtenga atención médica.** La primera vez que usted visite a un doctor, usted puede escoger a cualquier proveedor de cuidado de la salud que esté calificado para tratar su lesión. Para cuidado continuo, usted debe recibir tratamiento de un doctor de la red de proveedores médicos de L&I. (Encuentre proveedores de la red en [www.Lni.wa.gov/Spanish/ClaimsIns/Claims/FindADoc](http://www.Lni.wa.gov/Spanish/ClaimsIns/Claims/FindADoc)).

Los proveedores de cuidado de la salud calificados incluyen: médicos generales, osteópatas, quiroprácticos, médicos de naturopatía y podiatría, dentistas, optometristas, oftalmólogos, asistentes de doctor y enfermeras registradas de práctica avanzada.

**Dígale a su proveedor de cuidado de la salud y a su empleador sobre su lesión o condición relacionada con el trabajo.** El primer paso para presentar un reclamo de compensación para los trabajadores (seguro industrial) es llenar un Reporte de Accidente (ROA, por su sigla en inglés). Usted puede hacer esto en línea con FileFast ([www.Lni.wa.gov/FileFast](http://www.Lni.wa.gov/FileFast) — en inglés solamente), por teléfono al 1-877-561-3453 o llenar el formulario en la oficina de su doctor. Presentando un reclamo en línea o por teléfono acelera el reclamo y reduce las complicaciones.

**Registre su reclamo lo más pronto posible.** Para lesiones en el trabajo, debe presentar un reclamo y el Departamento de Labor e Industrias (L&I) debe recibirlo dentro de un año a partir del día en que ocurrió la lesión. Para una enfermedad ocupacional, usted debe presentar un reclamo y L&I debe recibirlo dentro de los dos años después de la fecha en que su proveedor de cuidado de la salud le avisó por escrito que su condición está relacionada con su trabajo.

## Reporte su lesión a:

(El empleador llena este espacio)

### Números de teléfono:

Ambulancia

Bomberos

Policía

## ► It's the law!

Employers must post this notice where employees can read it.

## Wage and Hour Laws

### Workers must be paid the Washington minimum wage

Workers in all industries who are 16 years of age or older must be paid at least the minimum wage for all hours worked. Workers who are 14 or 15 may be paid 85% of the minimum wage.

Need to know the current minimum wage? See “Contact L&I” below.

Tips cannot be counted as part of the minimum wage.

### Overtime pay is due when working more than 40 hours

You must be paid one and one-half times your regular rate of pay for all hours worked over 40 in a fixed seven-day workweek that is designated by your employer.

Agricultural workers are generally exempt from overtime.

### There are a few exceptions to minimum wage and overtime laws

A few occupations are not covered by minimum wage or overtime requirements under limited circumstances. See [www.Lni.wa.gov/WorkplaceRights](http://www.Lni.wa.gov/WorkplaceRights) and click on “Minimum Wage” or “Overtime & Exemptions.”

Unless you are exempt, you cannot waive the right to minimum wage or overtime pay.

### Workers need meal and rest breaks

Most workers are entitled to a 30-minute unpaid meal period if working more than five hours in a day. If you must remain on duty or work during your meal period, you must be paid for the 30 minutes.

Most workers are entitled to a 10-minute paid rest break no later than the end of the third hour. Your employer may schedule the break or allow “mini” breaks, such as two five-minute rest breaks. Agricultural workers must have a 10-minute paid rest break within each four-hour period of work.

If you are under 18, check out the **Teen Corner** to see break requirements.

### Your employer must schedule a regular payday

You must be paid at least once a month on a regularly scheduled payday. Your employer must give you a pay statement showing the number of hours worked, rate of pay, number of piece work units (if piece work), gross pay, the pay period and all deductions taken.

### You must agree to deductions from pay

Your employer may deduct from your wages when required by state or federal law and for certain other deductions under an agreement between you and your employer. For complete information, go to [www.Lni.wa.gov/WorkplaceRights](http://www.Lni.wa.gov/WorkplaceRights) and click on “Pay Requirements.”

## Teen Corner (information for teens age 14–17)

- The minimum age for work is generally 14, with different rules for ages 16–17 and for ages 14–15.
- Employers must have a minor work permit to employ teens. This requirement applies to family members except on family farms.
- Teens don’t need a work permit; however, parents must sign the parent/school permission form provided by the employer. If you work during the school year, a school official must sign too.
- Many jobs are not allowed for anyone under 18 because they are not safe.
- Work hours are limited for teens; more restrictions apply during school weeks.
- If you are injured on the job, ask your health-care provider to help you file a workers’ compensation claim.

### Meal and rest breaks for teens

- In agriculture, teens of any age get a meal period of 30 minutes if working more than five hours, and a 10-minute paid break for each four hours worked.
- In all other industries, teens who are 16 or 17 must have a 30-minute meal period if working more than five hours, and a 10-minute paid break for each four hours worked. They must have the rest break at least every three hours.  
Teens who are 14 or 15 must have a 30-minute meal period no later than the end of the fourth hour, and a 10-minute paid break for every two hours worked.

### You can learn more about teen safety, work hours and prohibited jobs:

- Online [www.Lni.wa.gov/TeenWorkers](http://www.Lni.wa.gov/TeenWorkers).
- Call or visit any L&I office or call toll-free: 1-866-219-7321.
- Email a question to [TeenSafety@Lni.wa.gov](mailto:TeenSafety@Lni.wa.gov).

## Leave Laws

Family care, family leave and other leave-related laws are summarized below. To learn more, go to [www.Lni.wa.gov/WorkplaceRights](http://www.Lni.wa.gov/WorkplaceRights) and click on “Leave & Benefits.”

### Washington Family Care Act: Use of paid leave to care for sick family

If you work for an employer with a paid-leave policy (sick, vacation, certain employer-provided short-term disability plans, or other paid time off), you are allowed to use your choice of paid leave to care for sick family. Family includes:

- Children under age 18 with a health condition that requires supervision or treatment.
- Spouse, registered domestic partner, parent, parent-in-law or grandparent with a serious or emergency health condition.
- Adult son or daughter incapable of self-care due to a disability.

### Federal Family and Medical Leave Act (FMLA)

The federal FMLA requires covered employers to provide up to 12 weeks of unpaid job-protected leave every 12 months to eligible employees for certain family and medical reasons. Employees are eligible if they:

- Worked for their employer for at least 1,250 hours over the previous 12 months; and
- The company has at least 50 employees within 75 miles.

For more information, contact the U.S. Department of Labor at 1-866-487-9243 or visit [www.dol.gov/whd/fmla](http://www.dol.gov/whd/fmla).

### Washington Family Leave Act: Additional leave for pregnancy and domestic partner care

Women who qualify for leave under the *federal* FMLA (above) may be entitled to *additional* state family leave for sickness or disability due to pregnancy. Also, Washington’s Family Leave Act provides up to 12 weeks leave to FMLA-eligible registered domestic partners or same-sex spouses who need to care for an ill partner/spouse.

### Pregnancy-related disability protected from discrimination

A woman with a pregnancy-related disability is entitled to time off and job protection if she works for an employer with eight or more employees. Her health-care provider determines the amount of time off needed. For more information, contact the Washington State Human Rights Commission at [www.hum.wa.gov](http://www.hum.wa.gov) or call 1-800-233-3247.

### Leave for victims of domestic violence, sexual assault or stalking

Victims and their family members are allowed to take reasonable leave from work for legal or law-enforcement assistance, medical treatment, counseling, relocation, meetings with their crime victim advocate or to protect their safety.

### Leave for military spouses during deployment

Spouses or registered domestic partners of military personnel who receive notice to deploy or who are on leave from deployment during times of military conflict may take a total of 15 days unpaid leave per deployment.

***Your employer may not fire you or retaliate against you for using your leave for these reasons or for filing a complaint alleging a violation of these leave laws.***

## Contact L&I

### Need more information?

#### Questions about filing a worker rights complaint?

Online: [www.Lni.wa.gov/WorkplaceRights](http://www.Lni.wa.gov/WorkplaceRights)  
Call: 1-866-219-7321, toll-free  
Visit: [www.Lni.wa.gov/Offices](http://www.Lni.wa.gov/Offices)  
Email: [ESgeneral@Lni.wa.gov](mailto:ESgeneral@Lni.wa.gov)

### About required workplace posters

Go to [www.Lni.wa.gov/RequiredPosters](http://www.Lni.wa.gov/RequiredPosters) to learn more about workplace posters from L&I and other government agencies.

## Human trafficking is against the law

For victim assistance, call the National Human Trafficking Resource Center at 1-888-3737-888, or the Washington State Office of Crime Victims Advocacy at 1-800-822-1067.



## ► ¡Es la ley!

Los empleadores deben poner este aviso donde los empleados puedan leerlo.

## Leyes de salario y horas

### A los trabajadores se les debe pagar el salario mínimo de Washington

A los trabajadores de 16 años de edad o más en todas las industrias se les debe pagar por lo menos el salario mínimo por todas las horas trabajadas. A los trabajadores de 14 ó 15 años se les podría pagar 85% del salario mínimo.

¿Necesita saber el salario mínimo actual? Vea “Comuníquese con L&I” en la parte de abajo.

Las propinas no pueden incluirse como parte del salario mínimo.

### Se debe pagar horas extras después de más de 40 horas trabajadas

Se le tiene que pagar tiempo y medio de su tarifa regular de pago por todas las horas trabajadas adicionales a las 40 horas en una semana de trabajo de siete días establecida por el empleador.

Generalmente, a los trabajadores agrícolas no se le pagan horas extras.

### Hay algunas excepciones a las leyes de salario mínimo y de horas extras

Algunas ocupaciones están exentas del requisito del pago de horas extras o salario mínimo bajo circunstancias limitadas. Vaya a [www.Lni.wa.gov/Spanish/WorkplaceRights](http://www.Lni.wa.gov/Spanish/WorkplaceRights) y haga clic en “Horas extras y exenciones” o “Salario Mínimo.”

A menos que usted esté exento, no podrá renunciar al derecho a recibir salario mínimo o pago de horas extras.

### Los trabajadores necesitan períodos de comida y de descansos

La mayoría de los trabajadores tienen derecho a un período de comida de 30 minutos no pagados si trabajan más de cinco horas en un día. Si se requiere que usted permanezca trabajando durante su período de comida, se le debe pagar por los 30 minutos.

La mayoría de los trabajadores tienen derecho a 10 minutos de descanso pagado a más tardar al final de la tercera hora de trabajo. Su empleador podría programar el período de descanso o permitir “pequeños” descansos, como por ejemplo dos períodos de descanso de cinco minutos. Los trabajadores de agricultura deben tener derecho a un descanso pagado de 10 minutos por cada período de trabajo de cuatro horas.

Si usted es menor de 18 años, revise el **Rincón para adolescentes** para ver los requisitos de descanso.

### Su empleador debe programar un día fijo de pago

Se le tiene que pagar por lo menos una vez por mes en un día fijo en forma regular. Su empleador debe proporcionarle un comprobante de pago indicando el número de horas trabajadas, la tarifa de pago, el número de unidades por pieza (si trabaja por pieza), salario bruto, el período de pago y todas las deducciones que se le hagan.

### Usted debe estar de acuerdo con las deducciones de pago

Su empleador podría deducir dinero de su salario cuando lo requieran las leyes estatales o federales y cuando haya un acuerdo entre usted y su empleador sobre ciertas otras deducciones. Para obtener información completa, vaya a [www.Lni.wa.gov/Spanish/WorkplaceRights](http://www.Lni.wa.gov/Spanish/WorkplaceRights) y haga clic en “Requisitos de Pago.”

## Rincón para adolescentes (Información para adolescentes entre 14 y 17)

- La edad mínima para trabajar es generalmente de 14 años, con reglas diferentes para las edades de 16–17 y para las edades de 14–15.
- Los empleadores deben tener un permiso de trabajo de menores para emplear adolescentes. Este requisito se aplica a los miembros de la familia excepto en las granjas de familia.
- Los adolescentes no necesitan un permiso de trabajo, sin embargo, los padres deben firmar un formulario de Autorización de los padres y la escuela proporcionado por el empleador. Si usted trabaja durante el año escolar, un oficial de la escuela debe firmarlo también.
- Muchos trabajos están prohibidos para los menores de 18 años porque no son seguros.
- Las horas de trabajo están limitadas para los adolescentes; se aplican más restricciones durante las semanas de escuela.
- Si se lesiona en el trabajo, pídale a su proveedor de cuidado de la salud que lo ayude a someter un reclamo de compensación para los trabajadores.

### Períodos de comida y descanso para los adolescentes

- En la agricultura, los adolescentes de cualquier edad tienen derecho a un período de comida de 30 minutos si trabajan más de cinco horas en el día y a un período de descanso pagado de 10 minutos por cada cuatro horas trabajadas.
- En todas las otras industrias, los adolescentes que tienen 16 ó 17 años deben tener un período para comida de 30 minutos si trabajan más de cinco horas al día y un período de descanso pagado de 10 minutos por cada cuatro horas trabajadas. Ellos deben tener el período descanso por lo menos cada tres horas.

Los adolescentes que tienen 14 ó 15 años deben tener un período de comida de 30 minutos después de cuatro horas y un período de descanso pagado de 10 minutos por cada dos horas trabajadas.

### Aprenda más sobre la seguridad de los adolescentes, horas de trabajo y trabajos prohibidos:

- En línea [www.Lni.wa.gov/Spanish/WorkplaceRights/TeenWorkers](http://www.Lni.wa.gov/Spanish/WorkplaceRights/TeenWorkers).
- Llame o visite cualquier oficina de L&I o llame gratis al: 1-866-219-7321.
- Envíe una pregunta por correo electrónico a [TeenSafety@Lni.wa.gov](mailto:TeenSafety@Lni.wa.gov).

*A petición del cliente, hay ayuda disponible para personas que hablan otros idiomas y otros formatos alternos de comunicación para personas con discapacidades. Llame al 1-800-547-8367. Usuarios de dispositivos de telecomunicaciones para sordos (TDD, por su sigla en inglés) llamen al 360-902-5797. L&I es un empleador con igualdad de oportunidades.*

## Leyes de permisos de ausencia

Las leyes para permiso de ausencia familiar, cuidado de la familia y otros permisos relacionados se han resumido abajo. Para aprender más, vaya a [www.Lni.wa.gov/Spanish/WorkplaceRights](http://www.Lni.wa.gov/Spanish/WorkplaceRights) y haga clic en “Permiso y beneficios.”

### Ley del cuidado de la familia de Washington: Uso del permiso de ausencia pagado para cuidar a un miembro de la familia enfermo

Si usted trabaja para un empleador que tiene un plan para permiso de ausencia pagado (enfermedad, vacaciones, ciertos planes proporcionados por el empleador para la discapacidad a corto plazo u otro permiso pagado) usted puede usar cualquier clase de permiso de ausencia pagado que usted escoja para cuidar a los miembros de su familia que estén enfermos. Los miembros de la familia incluyen:

- Los hijos menores de 18 años con una condición de salud que requiera supervisión o tratamiento.
- Cónyuge, pareja doméstica registrada, padres, suegros o abuelos con una condición de salud seria o de emergencia.
- Hijo o hija adultos que no puedan cuidarse a sí mismos por causa de una discapacidad.

### La Ley Federal de Ausencia Médica y Familiar (FMLA, por su sigla en inglés)

La ley federal FMLA requiere que los empleadores registrados le proporcionen hasta 12 semanas de permiso de ausencia sin pago con protección de empleo cada 12 meses a los empleados que tienen derecho a este beneficio por algunas razones familiares y médicas. Los empleados tienen derecho a FMLA, si ellos:

- Trabajan por lo menos 1,250 horas para su empleador durante los 12 meses anteriores y
- La compañía tiene por lo menos 50 empleados dentro de 75 millas.

Para más información, comuníquese con el Departamento de Trabajo de los EE.UU. al 1-866-487-9243 o visite [www.dol.gov](http://www.dol.gov).

### Ley del Permiso Familiar de Washington: Permiso adicional por maternidad y cuidado de la pareja doméstica registrada

Las mujeres que reúnen los requisitos para permiso de ausencia bajo la ley *federal* de Ausencia Médica y Familiar (FMLA, descrita arriba) podrían tener derecho *adicional* a un permiso de ausencia familiar del estado por enfermedad o por discapacidad debido a maternidad. También, la Ley de Ausencia Familiar de Washington provee hasta 12 semanas de permiso a las parejas domésticas registradas o cónyuges del mismo sexo con derecho a FMLA que necesiten cuidar a una pareja/cónyuge enferma(o).

### La discapacidad relacionada con la maternidad está protegida contra la discriminación

Una mujer con una discapacidad relacionada con la maternidad tiene derecho a permiso de ausencia y protección de empleo si trabaja para un empleador con ocho o más empleados. Su proveedor del cuidado de la salud determina la cantidad de tiempo libre necesario. Para más información, comuníquese con la Comisión de Derechos Humanos del estado de Washington en [www.hum.wa.gov](http://www.hum.wa.gov) o llame al 1-800-233-3247.

### Permiso de ausencia para víctimas de violencia doméstica, asalto sexual o acechamiento

Las víctimas y los miembros de su familia tienen permiso para una ausencia razonable de trabajo para obtener ayuda legal o de la policía, tratamiento médico, asesoramiento, traslado, reuniones con su defensor de víctimas de crimen o para proteger su seguridad.

### Permiso de ausencia para los cónyuges durante una misión militar

Los cónyuges o parejas domésticas registradas del personal militar que reciben una notificación para partir a una misión militar o que se encuentran con permiso de ausencia de una misión militar durante tiempos de conflicto militar podrían tomar un total de 15 días de ausencia no pagada por cada misión militar.

***Su empleador no lo puede despedir o tomar represalias contra usted por usar su permiso para estos propósitos o por presentar una queja alegando una violación a estas leyes de permiso de ausencia.***

## Comuníquese con L&I

### ¿Necesita más información?

### ¿Tiene preguntas sobre cómo presentar una queja sobre los derechos laborales de los trabajadores?

En línea: [www.Lni.wa.gov/Spanish/WorkplaceRights](http://www.Lni.wa.gov/Spanish/WorkplaceRights)  
Llame al: 1-866-219-7321, línea gratuita  
Visite: [www.Lni.wa.gov/Offices](http://www.Lni.wa.gov/Offices) (en inglés solamente)  
Correo electrónico: [ESgeneral@Lni.wa.gov](mailto:ESgeneral@Lni.wa.gov)

### Información sobre los carteles requeridos en el lugar de trabajo

Vaya a [www.Lni.wa.gov/IPUB/101-054-999.asp](http://www.Lni.wa.gov/IPUB/101-054-999.asp) para aprender más sobre los carteles de L&I y de otras agencias gubernamentales para el lugar de trabajo.

## El tráfico humano es contra la ley

Para ayuda a víctimas, llame al Centro Nacional de Recursos para Combatir la Trata de Personas al 1-888-3737-888 o a la Oficina de Defensa de Víctimas de Crímenes del estado de Washington al 1-800-822-1067.

## **ATTACHMENT 3**

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### **SAFETY PROCEDURES**

## FROSTBITE

### What happens to the body:

Freezing in deep layers of skin and tissue; pale, waxy-white skin color; skin becomes hard and numb; usually affects fingers, hands, toes, feet, ears, and nose.

### What to do: (land temperatures)

- Move the person to a warm, dry area. Don't leave the person alone.
- Remove wet or tight clothing that may cut off blood flow to the affected area.
- **Do not** rub the affected area because rubbing damaged the skin and tissue.
- Gently place the affected area in a warm water bath (105°) and monitor the water temperature to **slowly** warm the tissue. Don't pour warm water directly on the affected area because it will warm the tissue too fast, causing tissue damage. Warming takes 25-40 minutes.
- After the affected area has been warmed, it may become puffy and blister. The affected area may have a burning feeling or numbness. When normal feeling, movement, and skin color have returned, the affected area should be dried and wrapped to keep it warm.  
**Note:** If there is a chance the affected area may get cold again, do not warm the skin. If the skin is warmed and then becomes cold again, it will cause severe tissue damage.
- Seek medical attention as soon as possible.

## How to Protect Workers

- Recognize the environmental and workplace conditions that lead to potential cold-induced illnesses and injuries.
- Learn the signs and symptoms of cold-induced illnesses/injuries and what to do to help the worker.
- Train workers about cold-induced illnesses and injuries.
- Select proper clothing for cold, wet, and windy conditions. Layer clothing to adjust to changing environmental temperatures. Wear a hat and gloves, in addition to underwear that will keep water away from the skin (polypropylene.)
- Take frequent short breaks in warm, dry shelters to allow the body to warm up.
- Perform work during the warmest part of the day.
- Avoid exhaustion or fatigue because energy is needed to keep muscles warm.
- Use the buddy system (work in pairs.)
- Drink warm, sweet beverages (sugar water, sports-type drinks.)  
**Avoid drinks with caffeine** (coffee, tea, or hot chocolate) **or alcohol**.
- Eat warm, high-calorie foods like hot pasta dishes.

### Workers are at increased risk when...

- They have predisposing health conditions such as cardiovascular disease, diabetes, and hypertension.
- They take certain medications. Check with your doctor, nurse, or pharmacy and ask if medicines you take affect you while working in cold environments.
- They are in poor physical condition, have a poor diet, or are older.

## HYPOTHERMIA - (Medical Emergency)

### What happens to the body:

Normal body temperature (98.6°F/37°C) drops to or below 95°F/35°C; fatigue or drowsiness; uncontrolled shivering; cool, bluish skin; slurred speech; clumsy movements; irritable, irrational, or confused behavior.

### What to do: (land temperatures)

- Call for emergency help (i.e., ambulance or 911).
- Move the person to a warm, dry area. Don't leave the person alone.
- Remove wet clothing and replace with warm, dry clothing or wrap the person in blankets.
- Have the person drink warm, sweet drinks (sugar water or sports-type drinks) if he is alert. **Avoid drinks with caffeine** (coffee, tea, or hot chocolate) **or alcohol**.
- Have the person move his arms and legs to create muscle heat. If he is unable to do this, place warm bottles or hot packs in the armpits, groin, neck, and head areas. **Do not** rub the person's body or place him in a warm water bath. This may stop his heart.

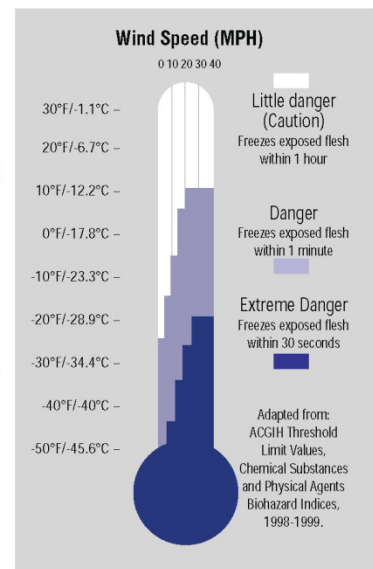
### What to do: (water temperatures)

- Call for emergency help (i.e., ambulance or 911). Body heat is lost up to 25 times faster in water.
- **Do not** remove any clothing. Button, buckle, zip, and tighten any collars, cuffs, shoes, and hoods because the layer of trapped water closest to the body provides a layer of insulation that slows the loss of heat. Keep the head out of the water and put on a hat or hood.
- Get out of the water as quickly as possible or climb on anything floating. **Do not** attempt to swim unless a floating object or another person can be reached because swimming or other physical activity uses body heat and reduces survival time by about 50 percent.
- If getting out of the water is not possible, wait quietly and conserve body heat by folding arms across the chest, keeping thighs together, bending knees, and crossing ankles. If another person is in the water, huddle together with chests held closely.

## THE COLD STRESS EQUATION

### LOW TEMPERATURE + WIND SPEED + WETNESS = INJURIES & ILLNESS

When the body is unable to warm itself, serious cold-related illnesses and injuries may occur, and permanent tissue damage and death may result. Hypothermia can occur when *land temperatures* are **above** freezing or *water temperatures* are below 98.6°F/37°C. Cold-related illnesses can slowly overcome a person who has been chilled by low temperatures, brisk winds, or wet clothing.





## HEAT EXHAUSTION

### What happens to the body:

Headaches, dizziness, or light-headedness, weakness, mood changes, irritability or confusion, feeling sick to your stomach, vomiting, fainting, decreased and dark-colored urine, and pale, clammy skin.

### What should be done:

- Move the person to a cool shaded area. Don't leave the person alone. If the person is dizzy or light-headed, lay him on his back and raise his legs about 6-8 inches. If the person is sick to his stomach, lay him on his side.
- Loosen and remove heavy clothing.
- Have the person drink some cool water (a small cup every 15 minutes) if he is not feeling sick to his stomach.
- Try to cool the person by fanning him. Cool the skin with a cool spray mist of water or wet cloth.
- If the person does not feel better in a few minutes call for emergency help (ambulance or call 911.)

*(If heat exhaustion is not treated, the illness may advance to heat stroke.)*

## How to Protect Workers

- Learn the signs and symptoms of heat-induced illnesses and what to do to help the worker.
- Train workers about heat-induced illnesses.
- Perform the heaviest work during the coolest part of the day.
- Slowly build up tolerance to the heat and the work activity (usually takes up to 2 weeks.)
- Use the buddy system (work in pairs.)
- Drink plenty of cool water (one small cup every 15-20 minutes.)
- Wear light, loose-fitting, breathable (like cotton) clothing.
- Take frequent short breaks in cool, shaded areas (allow your body to cool down.)
- Avoid eating large meals before working in hot environments.
- Avoid caffeine and alcoholic beverages (these beverages make the body lose water and increase the risk of heat illnesses.)

### Workers are at increased risk when...

- They take certain medications. Check with your doctor, nurse, or pharmacy to see if medicines you take affect you when working in hot environments.
- They have had a heat-induced illness in the past.
- They wear personal protective equipment.

## HEAT STROKE - A Medical Emergency

### What happens to the body:

Dry, pale skin (no sweating); hot red skin (looks like a sunburn); mood changes; irritability, confusion, and not making any sense; seizures or fits, and collapse (will not respond).

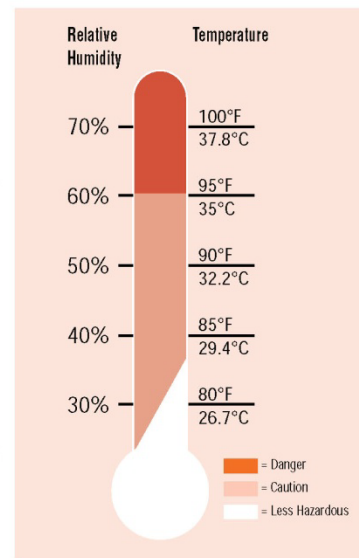
### What should be done:

- Call for emergency help (i.e., ambulance or 911.)
- Move the person to a cool, shaded area. Don't leave the person alone. Lay him on his back and if the person is having seizures, remove objects close to him so he won't hit them. If the person is sick to his stomach, lay him on his side.
- Remove heavy and outer clothing.
- Have the person drink some cool water (a small cup every 15 minutes) if he is alert enough to drink anything and not feeling sick to his stomach.
- Try to cool the person by fanning him or her. Cool the skin with a cool spray mist of water, wet cloth, or wet sheet.
- If ice is available, place ice packs in armpits and groin area.

## THE HEAT EQUATION

### HIGH TEMPERATURE + HIGH HUMIDITY + PHYSICAL WORK = HEAT ILLNESS

When the body is unable to cool itself through sweating, **serious** heat illnesses may occur. The most severe heat-induced illnesses are **heat exhaustion** and **heat stroke**. If actions are not taken to treat heat exhaustion, the illness could progress to heat stroke and **death**.



## **ATTACHMENT 4**

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### **SAFETY DATA SHEETS**

**Safety Data Sheet**

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

**Effective date:** 12.08.2015**Revision :** 12.10.2015**Trade Name:** Alconox**1 Identification of the substance/mixture and of the supplier****1.1 Product identifier****Trade Name:** Alconox**Synonyms:****Product number:** Alconox**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**

Not Applicable

**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:** 12.08.2015**Revision :** 12.10.2015**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. %
<b>CAS number:</b> 7758-29-4	Sodium tripolyphosphate	Skin Irrit. 2 ; H315 Eye Irrit. 2; H319	12-28
<b>CAS number:</b> 68081-81-2	Sodium Alkylbenzene Sulfonate	Acute Tox. 4; H303 Skin Irrit. 2 ; H315 Eye Irrit. 2; H319	8-22
<b>CAS number:</b> 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:** 12.08.2015**Revision :** 12.10.2015**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:** 12.08.2015**Revision :** 12.10.2015**Trade Name:** Alconox**8 Exposure controls/personal protection****8.1 Control parameters :**

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

**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**

<b>Appearance (physical state, color):</b>	White and cream colored flakes - powder	<b>Explosion limit lower:</b> <b>Explosion limit upper:</b>	Not determined or not available. Not determined or not available.
<b>Odor:</b>	Not determined or not available.	<b>Vapor pressure at 20°C:</b>	Not determined or not available.
<b>Odor threshold:</b>	Not determined or not available.	<b>Vapor density:</b>	Not determined or not available.
<b>pH-value:</b>	9.5 (aqueous solution)	<b>Relative density:</b>	Not determined or not available.
<b>Melting/Freezing point:</b>	Not determined or not available.	<b>Solubilities:</b>	Not determined or not available.
<b>Boiling point/Boiling range:</b>	Not determined or not available.	<b>Partition coefficient (n-octanol/water):</b>	Not determined or not available.
<b>Flash point (closed cup):</b>	Not determined or not available.	<b>Auto/Self-ignition temperature:</b>	Not determined or not available.
<b>Evaporation rate:</b>	Not determined or not available.	<b>Decomposition temperature:</b>	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:** 12.08.2015**Revision :** 12.10.2015

<b>Trade Name:</b> Alconox			
<b>Flammability (solid, gaseous):</b>	Not determined or not available.	<b>Viscosity:</b>	a. Kinematic: Not determined or not available. b. Dynamic: Not determined or not available.
<b>Density at 20°C:</b>	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 &gt; 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:** 12.08.2015

**Revision :** 12.10.2015

<b>Trade Name:</b> Alconox
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### 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

<b>14.1 UN Number:</b> ADR, ADN, DOT, IMDG, IATA	None						
<b>14.2 UN Proper shipping name:</b> ADR, ADN, DOT, IMDG, IATA	None						
<b>14.3 Transport hazard classes:</b> ADR, ADN, DOT, IMDG, IATA	<table style="width: 100%;"> <tr> <td style="width: 40%;"><b>Class:</b></td><td>None</td></tr> <tr> <td><b>Label:</b></td><td>None</td></tr> <tr> <td><b>LTD. QTY:</b></td><td>None</td></tr> </table>	<b>Class:</b>	None	<b>Label:</b>	None	<b>LTD. QTY:</b>	None
<b>Class:</b>	None						
<b>Label:</b>	None						
<b>LTD. QTY:</b>	None						
<table style="width: 100%;"> <tr> <td style="width: 50%; vertical-align: top;"> <b>US DOT</b>  <b>Limited Quantity Exception:</b> </td> <td style="width: 50%; vertical-align: top; text-align: center;">None</td> </tr> <tr> <td style="vertical-align: top;"> <b>Bulk:</b>  <b>RQ (if applicable):</b> None  <b>Proper shipping Name:</b> None  <b>Hazard Class:</b> None  <b>Packing Group:</b> None  <b>Marine Pollutant (if applicable):</b> No additional information.                         </td> <td style="vertical-align: top;"> <b>Non Bulk:</b>  <b>RQ (if applicable):</b> None  <b>Proper shipping Name:</b> None  <b>Hazard Class:</b> None  <b>Packing Group:</b> None  <b>Marine Pollutant (if applicable):</b> No additional information.                         </td> </tr> </table>		<b>US DOT</b> <b>Limited Quantity Exception:</b>	None	<b>Bulk:</b> <b>RQ (if applicable):</b> None <b>Proper shipping Name:</b> None <b>Hazard Class:</b> None <b>Packing Group:</b> None <b>Marine Pollutant (if applicable):</b> No additional information.	<b>Non Bulk:</b> <b>RQ (if applicable):</b> None <b>Proper shipping Name:</b> None <b>Hazard Class:</b> None <b>Packing Group:</b> None <b>Marine Pollutant (if applicable):</b> No additional information.		
<b>US DOT</b> <b>Limited Quantity Exception:</b>	None						
<b>Bulk:</b> <b>RQ (if applicable):</b> None <b>Proper shipping Name:</b> None <b>Hazard Class:</b> None <b>Packing Group:</b> None <b>Marine Pollutant (if applicable):</b> No additional information.	<b>Non Bulk:</b> <b>RQ (if applicable):</b> None <b>Proper shipping Name:</b> None <b>Hazard Class:</b> None <b>Packing Group:</b> None <b>Marine Pollutant (if applicable):</b> No additional information.						

**Safety Data Sheet**

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

**Effective date:** 12.08.2015**Revision :** 12.10.2015

<b>Trade Name:</b> Alconox	
<b>Comments:</b> None	<b>Comments:</b> None
<b>14.4 Packing group:</b> ADR, ADN, DOT, IMDG, IATA	None
<b>14.5 Environmental hazards :</b>	None
<b>14.6 Special precautions for user:</b> <b>Danger code (Kemler):</b> <b>EMS number:</b> <b>Segregation groups:</b>	None None None None
<b>14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code:</b>	Not applicable.
<b>14.8 Transport/Additional information:</b>  <b>Transport category:</b> <b>Tunnel restriction code:</b> <b>UN "Model Regulation":</b>	  None None 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:** 12.08.2015**Revision :** 12.10.2015**Trade Name:** Alconox**Germany MAK:** Not classified.**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.

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.

**NFPA:** 1-0-0

## Safety Data Sheet

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

**Effective date:** 12.08.2015

**Revision :** 12.10.2015

**Trade Name:** Alconox

**HMIS:** 1-0-0



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according to 29CFR1910/1200 and GHS Rev. 3

Effective date : 12.14.2014

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### Hexane (n-Hexane)

#### SECTION 1 : Identification of the substance/mixture and of the supplier

**Product name :** Hexane (n-Hexane)

**Manufacturer/Supplier Trade name:**

**Manufacturer/Supplier Article number:** S25352A

**Recommended uses of the product and uses restrictions on use:**

**Manufacturer Details:**

AquaPhoenix Scientific  
9 Barnhart Drive, Hanover, PA 17331

**Supplier Details:**

Fisher Science Education  
15 Jet View Drive, Rochester, NY 14624

**Emergency telephone number:**

Fisher Science Education Emergency Telephone No.: 800-535-5053

#### SECTION 2 : Hazards identification

**Classification of the substance or mixture:**



**Environmentally Damaging**

Chronic hazards to the aquatic environment, category 2



**Flammable**

Flammable liquids, category 2



**Health hazard**

Aspiration hazard, category 1  
Reproductive toxicity, category 2



**Irritant**

Skin irritation, category 2  
Specific target organ toxicity following single exposure, category 3

STOT SE 3

Aspiration Tox.1

Flammable Liq. 2

Aquatic Chronic 2

Reproductive 2

Skin Irritation, Category 2

STOT RE 2

**Signal word :**Danger

**Hazard statements:**

Explosive; mass explosion hazard

Explosive; severe projection hazard

Heating may cause an explosion

Heating may cause a fire or explosion

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### Hexane (n-Hexane)

Heating may cause a fire

In contact with water releases flammable gases which may ignite spontaneously

May cause fire or explosion; strong oxidizer

Contains gas under pressure; may explode if heated

Toxic if swallowed

Fatal in contact with skin

May be harmful if swallowed

Toxic to aquatic life with long lasting effects

#### Precautionary statements:

Do not eat, drink or smoke when using this product

IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing

IF exposed or concerned: Get medical advice/attention

If skin irritation occurs: Get medical advice/attention

In case of fire: Use ... for extinction

Store in a well ventilated place. Keep container tightly closed

Store locked up

Dispose of contents/container to ...

#### Other Non-GHS Classification:

##### WHMIS



##### NFPA/HMIS



NFPA SCALE (0-4)

Health	2
Flammability	3
Physical Hazard	0
Personal Protection	X

HMIS RATINGS (0-4)

### SECTION 3 : Composition/information on ingredients

Ingredients:		
CAS 110-54-3	n-Hexane	>95 %

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### Hexane (n-Hexane)

Percentages are by weight

#### SECTION 4 : First aid measures

##### Description of first aid measures

**After inhalation:** Move exposed individual to fresh air. Loosen clothing as necessary and position individual in a comfortable position. Seek medical advice if discomfort or irritation persists.

**After skin contact:** Wash affected area with soap and water. Rinse thoroughly. Seek medical attention if irritation, discomfort or vomiting persists.

**After eye contact:** Protect unexposed eye. 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. Do not induce vomiting. Have exposed individual drink sips of water. Seek medical attention if irritation, discomfort or vomiting persists.

##### Most important symptoms and effects, both acute and delayed:

Irritation, Nausea, Headache, Shortness of breath,;

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

If seeking medical attention, provide SDS document to physician.

#### SECTION 5 : Firefighting measures

##### Extinguishing media

**Suitable extinguishing agents:** Carbon dioxide, dry chemical, foam, halon. If in laboratory setting, follow laboratory fire suppression procedures. Use appropriate fire suppression agents for adjacent combustible materials or sources of ignition

**For safety reasons unsuitable extinguishing agents:**

##### Special hazards arising from the substance or mixture:

Combustion products may include carbon oxides or other toxic vapors.

##### Advice for firefighters:

**Protective equipment:**

**Additional information (precautions):** Move product containers away from fire or keep cool with water spray as a protective measure, where feasible.

#### SECTION 6 : Accidental release measures

##### Personal precautions, protective equipment and emergency procedures:

Wear protective equipment. Use respiratory protective device against the effects of fumes/dust/aerosol. Keep unprotected persons away. Ensure adequate ventilation. Keep away from ignition sources. Protect from heat. Stop the spill, if possible. Contain spilled material by diking or using inert absorbent. Transfer to a disposal or recovery container.

##### Environmental precautions:

Prevent from reaching drains, sewer or waterway. Collect contaminated soil for characterization per Section 13

##### Methods and material for containment and cleaning up:

If in a laboratory setting, follow Chemical Hygiene Plan procedures. Collect liquids using vacuum or by use of absorbents. Place into properly labeled containers for recovery or disposal. If necessary, use trained response staff/contractor.

##### Reference to other sections:

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### Hexane (n-Hexane)

#### SECTION 7 : Handling and storage

##### Precautions for safe handling:

Prevent formation of aerosols. Follow good hygiene procedures when handling chemical materials. Do not eat, drink, smoke, or use personal products when handling chemical substances. If in a laboratory setting, follow Chemical Hygiene Plan. Use only in well ventilated areas. Avoid splashes or spray in enclosed areas.

##### Conditions for safe storage, including any incompatibilities:

Store in a cool location. Provide ventilation for containers. Avoid storage near extreme heat, ignition sources or open flame. Store away from foodstuffs. Store away from oxidizing agents. Store in cool, dry conditions in well sealed containers. Keep container tightly sealed.

#### SECTION 8 : Exposure controls/personal protection



##### Control Parameters:

110-54-3, n-Hexan, ACGIH (TLV-TWA) 50 ppm TWA  
110-54-3, n-Hexane, NIOSH (TWA) 50 ppm TWA; 180 mg/m<sup>3</sup> TWA  
110-54-3, n-Hexane, OSHA (PELs) 500 ppm TWA; 1800 mg/m<sup>3</sup> TWA  
110-54-3, n-Hexane, OSHA (STEL) 1000 ppm STEL; 3600 mg/m<sup>3</sup> STEL  
110-54-3, NIOSH, 1100 ppm IDLH (10% LEL)

**Appropriate Engineering controls:** Emergency eye wash fountains and safety showers should be available in the immediate vicinity of use/handling. Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapor or mists below the applicable workplace exposure limits (Occupational Exposure Limits-OELs) indicated above.

**Respiratory protection:** Not required under normal conditions of use. Use suitable respiratory protective device when high concentrations are present. Use suitable respiratory protective device when aerosol or mist is formed. For spills, respiratory protection may be advisable.

**Protection of skin:** The glove material has to be impermeable and resistant to the product/ the substance/ the preparation being used/handled. Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation.

**Eye protection:** Safety glasses with side shields or goggles.

**General hygienic measures:** The usual precautionary measures are to be adhered to when handling chemicals. Keep away from food, beverages and feed sources. Immediately remove all soiled and contaminated clothing. Wash hands before breaks and at the end of work. Do not inhale gases/fumes/dust/mist/vapor/aerosols. Avoid contact with the eyes and skin.

#### SECTION 9 : Physical and chemical properties

<b>Appearance (physical state,color):</b>	Form : liquid Colour : colourless	<b>Explosion limit lower:</b> <b>Explosion limit upper:</b>	Not Determined Not Determined
<b>Odor:</b>	gasoline	<b>Vapor pressure:</b>	341.3 hPa (256.0 mmHg) at 37.7 °C (99.9 °F) 176.0 hPa (132.0 mmHg) at 20.0 °C (68.0 °F)

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### Hexane (n-Hexane)

<b>Odor threshold:</b>	Not Determined	<b>Vapor density:</b>	Not Determined
<b>pH-value:</b>	7.0	<b>Relative density:</b>	0.659 g/mL at 25 °C (77 °F)
<b>Melting/Freezing point:</b>	- 95 °C ( - 139 °F)	<b>Solubilities:</b>	Insoluble
<b>Boiling point/Boiling range:</b>	69 °C (156 °F)	<b>Partition coefficient (n-octanol/water):</b>	Not Determined
<b>Flash point (closed cup):</b>	- 26.0 °C ( - 14.8 °F) - closed cup	<b>Auto/Self-ignition temperature:</b>	234.0 °C (453.2 °F)
<b>Evaporation rate:</b>	5.8	<b>Decomposition temperature:</b>	Not Determined
<b>Flammability (solid,gaseous):</b>	Not Determined	<b>Viscosity:</b>	a. Kinematic:Not Determined b. Dynamic: Not Determined
<b>Density:</b> Not Determined			

### SECTION 10 : Stability and reactivity

**Reactivity:**Nonreactive under normal conditions.

**Chemical stability:**No decomposition if used and stored according to specifications.

**Possible hazardous reactions:**None under normal processing

**Conditions to avoid:**Store away from oxidizing agents, strong acids or bases.Heat, Sparks, Open Flames.

**Incompatible materials:**Strong acids.Strong bases.

**Hazardous decomposition products:**Carbon oxides (CO, CO2).

### SECTION 11 : Toxicological information

<b>Acute Toxicity:</b>		
<b>Oral:</b>	110-54-3	LD50 Rat 25 g/kg
<b>Dermal:</b>	110-54-3	LD50 Rabbit 3000 mg/kg
<b>Inhalation:</b>	110-54-3	LC50 Rat 48000 ppm 4 h
<b>Chronic Toxicity:</b> No additional information.		
<b>Corrosion Irritation:</b> No additional information.		
<b>Sensitization:</b>	No additional information.	
<b>Single Target Organ (STOT):</b>	No additional information.	
<b>Numerical Measures:</b>	No additional information.	
<b>Carcinogenicity:</b>	No additional information.	
<b>Mutagenicity:</b>	No additional information.	
<b>Reproductive Toxicity:</b>	No additional information.	

### SECTION 12 : Ecological information

#### Ecotoxicity

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### Hexane (n-Hexane)

**Fish (acute 110-54-3) :** 96 Hr LC50 Pimephales promelas: 2.1 - 2.98 mg/L [flow-through]

**Persistence and degradability:** Readily degradable in the environment.

**Bioaccumulative potential:**

**Mobility in soil:** Aqueous solution has high mobility in soil.

**Other adverse effects:**

### SECTION 13 : Disposal considerations

#### Waste disposal recommendations:

Product/containers must not be disposed together with household garbage. Do not allow product to reach sewage system or open water. It is the responsibility of the waste generator to properly characterize all waste materials according to applicable regulatory entities (US 40CFR262.11). Consult federal state/ provincial and local regulations regarding the proper disposal of waste material that may incorporate some amount of this product.

### SECTION 14 : Transport information

#### UN-Number

1208

#### UN proper shipping name

Hexanes

#### Transport hazard class(es)



**Class:**

3 Flammable liquids

#### Packing group:II

#### Environmental hazard:

#### Transport in bulk:

#### Special precautions for user:

### SECTION 15 : Regulatory information

#### United States (USA)

##### SARA Section 311/312 (Specific toxic chemical listings):

None of the ingredients is listed

##### SARA Section 313 (Specific toxic chemical listings):

110-54-3 n-Hexane

##### RCRA (hazardous waste code):

None of the ingredients is listed

##### TSCA (Toxic Substances Control Act):

All ingredients are listed.

##### CERCLA (Comprehensive Environmental Response, Compensation, and Liability Act):

None of the ingredients is listed

#### Proposition 65 (California):

##### Chemicals known to cause cancer:

None of the ingredients is listed

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### Hexane (n-Hexane)

#### Chemicals known to cause reproductive toxicity for females:

None of the ingredients is listed

#### Chemicals known to cause reproductive toxicity for males:

None of the ingredients is listed

#### Chemicals known to cause developmental toxicity:

None of the ingredients is listed

### Canada

#### Canadian Domestic Substances List (DSL):

All ingredients are listed.

#### Canadian NPRI Ingredient Disclosure list (limit 0.1%):

None of the ingredients is listed

#### Canadian NPRI Ingredient Disclosure list (limit 1%):

110-54-3 n-Hexane

### SECTION 16 : Other information

This product has been classified in accordance with hazard criteria of the Controlled Products Regulations and the SDS contains all the information required by the Controlled Products Regulations. Note: The responsibility to provide a safe workplace remains with the user. The user should consider the health hazards and safety information contained herein as a guide and should take those precautions required in an individual operation to instruct employees and develop work practice procedures for a safe work environment. The information contained herein is, to the best of our knowledge and belief, accurate. However, since the conditions of handling and use are beyond our control, we make no guarantee of results, and assume no liability for damages incurred by the use of this material. It is the responsibility of the user to comply with all applicable laws and regulations applicable to this material.

#### GHS Full Text Phrases:

#### Abbreviations and acronyms:

IMDG: International Maritime Code for Dangerous Goods

PNEC: Predicted No-Effect Concentration (REACH)

CFR: Code of Federal Regulations (USA)

SARA: Superfund Amendments and Reauthorization Act (USA)

RCRA: Resource Conservation and Recovery Act (USA)

TSCA: Toxic Substances Control Act (USA)

NPRI: National Pollutant Release Inventory (Canada)

DOT: US Department of Transportation

IATA: International Air Transport Association

GHS: Globally Harmonized System of Classification and Labelling of Chemicals

ACGIH: American Conference of Governmental Industrial Hygienists

CAS: Chemical Abstracts Service (division of the American Chemical Society)

NFPA: National Fire Protection Association (USA)

HMIS: Hazardous Materials Identification System (USA)

WHMIS: Workplace Hazardous Materials Information System (Canada)

DNEL: Derived No-Effect Level (REACH)

Effective date : 12.14.2014

Last updated : 03.19.2015

## Safety Data Sheet

according to 29CFR1910/1200 and GHS Rev. 3

Effective date : 10.24.2014

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### Zinc Acetate, Dihydrate,

#### SECTION 1: Identification of the substance/mixture and of the supplier

**Product name:** Zinc Acetate, Dihydrate,

**Manufacturer/Supplier Trade name:**

**Manufacturer/Supplier Article number:** S25634

**Recommended uses of the product and restrictions on use:**

**Manufacturer Details:**

AquaPhoenix Scientific, Inc  
9 Barnhart Drive, Hanover, PA 17331  
(717) 632-1291

**Supplier Details:**

Fisher Science Education  
6771 Silver Crest Road, Nazareth, PA 18064  
(724)517-1954

**Emergency telephone number:**

**Fisher Science Education**  
Emergency Telephone No.: 800-535-5053

#### SECTION 2: Hazards identification

**Classification of the substance or mixture:**



**Irritant**

Eye irritation, category 2A



**Environmentally Damaging**

Acute hazards to the aquatic environment, category 1

Eye Irritant Category 2A.

Acute toxicity, Oral - Category 4.

Acute aquatic toxicity - Category 1.

Acute chronic toxicity - Category 1.

**Signal word:** Warning

**Hazard statements:**

Harmful if swallowed.

Very toxic to aquatic life.

**Precautionary statements:**

If medical advice is needed, have product container or label at hand.

Keep out of reach of children.

Read label before use.

Do not eat, drink or smoke when using this product.

Wash skin thoroughly after handling.

Avoid release to the environment.

IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.

Rinse mouth.

Dispose of contents and container to an approved waste disposal plant.



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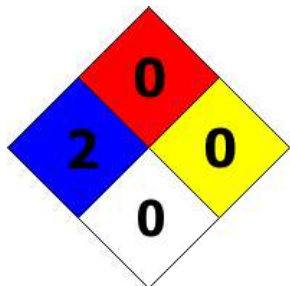
### Zinc Acetate, Dihydrate,

#### Other Non-GHS Classification:

WHMIS



NFPA/HMIS



NFPA SCALE (0-4)

Health	2
Flammability	0
Physical Hazard	0
Personal Protection	X

HMIS RATINGS (0-4)

### SECTION 3: Composition/information on ingredients

#### Ingredients:

CAS 5970-45-6	Zinc Acetate, Dihydrate	>98 %
Percentages are by weight		

### SECTION 4: First aid measures

#### Description of first aid measures

##### After inhalation:

Loosen clothing as necessary and position individual in a comfortable position. Move exposed to fresh air. Give artificial respiration if necessary. If breathing is difficult give oxygen. Get medical assistance if cough or other symptoms appear.

##### After skin contact:

Rinse/flush exposed skin gently using soap and water for 15-20 minutes. Seek medical advice if discomfort or irritation persists.

##### After eye contact:

Protect unexposed eye. 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. Do not induce vomiting. Have exposed individual drink sips of water. Seek medical attention if irritation, discomfort or vomiting persists. Never give anything by mouth to an unconscious person.

#### Most important symptoms and effects, both acute and delayed:

Irritation. Nausea. Headache. Shortness of breath.

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

If seeking medical attention, provide SDS document to physician. Physician should treat symptomatically.

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### Zinc Acetate, Dihydrate,

#### SECTION 5: Firefighting measures

##### Extinguishing media

###### Suitable extinguishing agents:

Use appropriate fire suppression agents for adjacent combustible materials or sources of ignition. Use water, dry chemical, chemical foam, carbon dioxide, or alcohol-resistant foam.

###### Unsuitable extinguishing agents: None

##### Special hazards arising from the substance or mixture:

Combustion products may include carbon oxides or other toxic vapors. Thermal decomposition can lead to release of irritating gases and vapors.

##### Advice for firefighters:

###### Protective equipment:

Use NIOSH-approved respiratory protection/breathing apparatus.

###### Additional information (precautions):

Move product containers away from fire or keep cool with water spray as a protective measure, where feasible. Use spark-proof tools and explosion-proof equipment. Avoid generating dust; fine dust dispersed in air in sufficient concentrations, and in the presence of an ignition source is a potential dust explosion hazard. Avoid inhaling gases, fumes, dust, mist, vapor, and aerosols. Avoid contact with skin, eyes, and clothing.

#### SECTION 6: Accidental release measures

##### Personal precautions, protective equipment and emergency procedures:

Wear protective equipment. Ensure that air-handling systems are operational. Ensure adequate ventilation.

##### Environmental precautions:

Prevent from reaching drains, sewer or waterway. Collect contaminated soil for characterization per Section 13. Should not be released into environment.

##### Methods and material for containment and cleaning up:

Keep in suitable closed containers for disposal. Wear protective eyewear, gloves, and clothing. Refer to Section 8. Always obey local regulations. Dust deposits should not be allowed to accumulate on surfaces, as these may form an explosive mixture if they are released into the atmosphere in sufficient concentration. Avoid dispersal of dust in the air (i.e., clearing dust surfaces with compressed air). Collect solids in powder form using vacuum with (HEPA filter). Evacuate personnel to safe areas.

##### Reference to other sections: None

#### SECTION 7: Handling and storage

##### Precautions for safe handling:

Minimize dust generation and accumulation. Follow good hygiene procedures when handling chemical materials. Refer to Section 8. Do not eat, drink, smoke, or use personal products when handling chemical substances. Avoid contact with eyes, skin, and clothing.

##### Conditions for safe storage, including any incompatibilities:

Store away from incompatible materials. Protect from freezing and physical damage. Keep away from food and beverages. Provide ventilation for containers. Avoid storage near extreme heat, ignition sources or open flame. Store in cool, dry conditions in well sealed containers. Store with like hazards.

#### SECTION 8: Exposure controls/personal protection



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### Zinc Acetate, Dihydrate,

<b>Control Parameters:</b>	No applicable occupational exposure limits.
<b>Appropriate Engineering controls:</b>	Emergency eye wash fountains and safety showers should be available in the immediate vicinity of use/handling. Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapor or dusts (total/respirable) below the applicable workplace exposure limits (Occupational Exposure Limits-OELs) indicated above. It is recommended that all dust control equipment such as local exhaust ventilation and material transport systems involved in handling of this product contain explosion relief vents or an explosion suppression system or an oxygen deficient environment. Ensure that dust-handling systems (such as exhaust ducts, dust collectors, vessels, and processing equipment) are designed in a manner to prevent the escape of dust into the work area (i.e., there is no leakage from the equipment). Use under a fume hood.
<b>Respiratory protection:</b>	Not required under normal conditions of use. Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. When necessary use NIOSH approved breathing equipment.
<b>Protection of skin:</b>	Select glove material impermeable and resistant to the substance. Select glove material based on rates of diffusion and degradation. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Use proper glove removal technique without touching outer surface. Avoid skin contact with used gloves. Wear protective clothing.
<b>Eye protection:</b>	Wear equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses or goggles are appropriate eye protection.
<b>General hygienic measures:</b>	Perform routine housekeeping. Wash hands before breaks and at the end of work. Avoid contact with skin, eyes, and clothing. Before wearing wash contaminated clothing.

### SECTION 9: Physical and chemical properties

<b>Appearance (physical state, color):</b>	White solid	<b>Explosion limit lower:</b>	Not determined
		<b>Explosion limit upper:</b>	Not determined
<b>Odor:</b>	faintly acetic	<b>Vapor pressure at 20°C:</b>	Not determined
<b>Odor threshold:</b>	Not determined	<b>Vapor density:</b>	Not determined
<b>pH-value:</b>	6-7	<b>Relative density:</b>	1.84 g/L
<b>Melting/Freezing point:</b>	100 deg C	<b>Solubilities:</b>	430g/L (20°C) available. Molecular Weight: 219.50.
<b>Boiling point/Boiling range:</b>	Not determined	<b>Partition coefficient (n-octanol/water):</b>	Not determined
<b>Flash point (closed cup):</b>	Not determined	<b>Auto/Self-ignition temperature:</b>	Not determined
<b>Evaporation rate:</b>	Not determined	<b>Decomposition temperature:</b>	241.1 deg C
<b>Flammability (solid, gaseous):</b>	Not determined	<b>Viscosity:</b>	a. Kinematic: Not determined b. Dynamic: Not determined
<b>Density at 20°C:</b>	Not determined		

### SECTION 10: Stability and reactivity

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### Zinc Acetate, Dihydrate,

**Reactivity:**

Nonreactive under normal conditions.

**Chemical stability:**

Stable under normal conditions.

**Possible hazardous reactions:**

None under normal processing.

**Conditions to avoid:**

Incompatible Materials.

**Incompatible materials:**

Strong acids. Strong bases. Oxidizing agents.

**Hazardous decomposition products:** None

### SECTION 11: Toxicological information

**Acute Toxicity:****Oral:**

LD50 rat: 2510mg/kg

**Chronic Toxicity:** No additional information.

**Corrosion Irritation:** No additional information.

**Sensitization:** No additional information.

**Numerical Measures:** No additional information.

**Carcinogenicity:** No additional information.

**Mutagenicity:** No additional information.

**Reproductive Toxicity:** No additional information.

### SECTION 12: Ecological information

**Ecotoxicity:** No additional information.

**Persistence and degradability:** No additional information.

**Bioaccumulative potential:** No additional information.

**Mobility in soil:** No additional information.

**Other adverse effects:** No additional information.

### SECTION 13: Disposal considerations

**Waste disposal recommendations:**

Contact a licensed professional waste disposal service to dispose of this material. Dispose of empty containers as unused product. Product or containers must not be disposed with household garbage. It is the responsibility of the waste generator to properly characterize all waste materials according to applicable regulatory entities (US 40CFR262.11). 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. Ensure complete and accurate classification.

### SECTION 14: Transport information

**US DOT**

**UN Number:**

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### Zinc Acetate, Dihydrate,

ADR, ADN, DOT, IMDG, IATA

3077

**Limited Quantity Exception:**

None

**Bulk:**

**RQ (if applicable):** None

**Proper shipping Name:** Environmentally hazardous substances, solid, n.o.s. (Zinc di(acetate)).

**Hazard Class:** None

**Packing Group:** III.

**Marine Pollutant (if applicable):** No additional information.

**Comments:** None

**Non Bulk:**

**RQ (if applicable):** None

**Proper shipping Name:** Environmentally hazardous substances, solid, n.o.s. (Zinc di(acetate)).

**Hazard Class:** None

**Packing Group:** III.

**Marine Pollutant (if applicable):** No additional information.

**Comments:** None

### SECTION 15: Regulatory information

#### United States (USA)

**SARA Section 311/312 (Specific toxic chemical listings):**

Acute

**SARA Section 313 (Specific toxic chemical listings):**

None of the ingredients are listed.

**RCRA (hazardous waste code):**

None of the ingredients are listed.

**TSCA (Toxic Substances Control Act):**

All ingredients are listed.

**CERCLA (Comprehensive Environmental Response, Compensation, and Liability Act):**

None of the ingredients are listed.

#### 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.

#### Canada

**Canadian Domestic Substances List (DSL):**

All ingredients are listed.

**Canadian NPRI Ingredient Disclosure list (limit 0.1%):**

None of the ingredients are listed.

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### Zinc Acetate, Dihydrate,

#### Canadian NPRI Ingredient Disclosure list (limit 1%):

None of the ingredients are listed.

#### SECTION 16: Other information

This product has been classified in accordance with hazard criteria of the Controlled Products Regulations and the SDS contains all the information required by the Controlled Products Regulations. Note. The responsibility to provide a safe workplace remains with the user. The user should consider the health hazards and safety information contained herein as a guide and should take those precautions required in an individual operation to instruct employees and develop work practice procedures for a safe work environment. The information contained herein is, to the best of our knowledge and belief, accurate. However, since the conditions of handling and use are beyond our control, we make no guarantee of results, and assume no liability for damages incurred by the use of this material. It is the responsibility of the user to comply with all applicable laws and regulations applicable to this material.

**GHS Full Text Phrases:** None

#### Abbreviations and Acronyms:

IMDG International Maritime Code for Dangerous Goods.  
IATA International Air Transport Association.  
GHS Globally Harmonized System of Classification and Labelling of Chemicals.  
ACGIH American Conference of Governmental Industrial Hygienists.  
CAS Chemical Abstracts Service (division of the American Chemical Society).  
NFPA National Fire Protection Association (USA).  
HMIS Hazardous Materials Identification System (USA).  
WHMIS Workplace Hazardous Materials Information System (Canada).  
DNEL Derived No-Effect Level (REACH).  
PNEC Predicted No-Effect Concentration (REACH).  
CFR Code of Federal Regulations (USA).  
SARA Superfund Amendments and Reauthorization Act (USA).  
RCRA Resource Conservation and Recovery Act (USA).  
TSCA Toxic Substances Control Act (USA).  
NPRI National Pollutant Release Inventory (Canada).  
DOT US Department of Transportation.

**Effective date:** 10.24.2014

**Last updated:** 06.17.2015

# SAFETY DATA SHEET

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## 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

**Product Name:** Zinc Acetate Solution 2N  
**Catalog Number:** 1470332

Hach Company  
P.O.Box 389  
Loveland, CO USA 80539  
(970) 669-3050

Emergency Telephone Numbers:  
(Medical and Transportation)  
(303) 623-5716 24 Hour Service  
(515)232-2533 8am - 4pm CST

**MSDS Number:** M01270  
**Chemical Name:** Not applicable  
**CAS Number:** Not applicable  
**Additional CAS No. (for hydrated forms):** Not applicable  
**Chemical Formula:** Not applicable  
**Chemical Family:** Not applicable  
**Intended Use:** Standard solution

---

## 2. HAZARDS IDENTIFICATION

**GHS Classification:**

**Hazard categories:** . Serious Eye Damage/Eye Irritation:Eye Irrit. 2 Hazardous to the Aquatic Environment:  
Aquatic Chronic 2

**GHS Label Elements:**

WARNING



**Hazard statements:** . Causes serious eye irritation. Toxic to aquatic life with long lasting effects.

**Precautionary statements:** . Handle environmental release according to local, state, federal, provincial requirements. Wear protective gloves / protective clothing / eye protection / face protection. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention. Collect spillage. Dispose of contents/container according to state, local, federal or national regulations.

**HMIS:**

**Health:** 1

**Flammability:** 0

**Reactivity:** 0

**Protective Equipment:** X - See protective equipment, Section 8.

**NFPA:**

**Health:** 1

**Flammability:** 0

**Reactivity:** 0

**Symbol:** Not applicable

**WHMIS Hazard Classification:** Not applicable

**WHMIS Symbols:** Not applicable

---

## 3. COMPOSITION / INFORMATION ON INGREDIENTS

**Hazardous Components according to GHS:**

**Zinc Acetate**

**CAS Number:** 557-34-6  
**Chemical Formula:**  
**GHS Classification:**  
**Percent Range (Trade Secret):** 15.0 - 25.0  
**Percent Range Units:** weight / volume  
**PEL:** Not established  
**TLV:** Not established

**WHMIS Symbols:** Not applicable  
**Hazardous Components according to GHS:** No  
**Demineralized Water**

**CAS Number:** 7732-18-5  
**Chemical Formula:** H<sub>2</sub>O  
**GHS Classification:** Not a dangerous substance according to GHS.  
**Percent Range (Trade Secret):** 75.0 - 85.0  
**Percent Range Units:** volume / volume  
**PEL:** Not established  
**TLV:** Not established

**WHMIS Symbols:** Not applicable

---

#### 4. FIRST AID MEASURES

**General Information:** In the event of exposure, show this Material Safety Data Sheet and label (where possible) to a doctor.  
**Advice to doctor:** Treat symptomatically.  
**Eye Contact:** Immediately flush eyes with water for 15 minutes. Call physician.  
**Skin Contact (First Aid):** Wash skin with soap and plenty of water for 15 minutes.  
**Inhalation:** None required.  
**Ingestion (First Aid):** Give large quantities of water. Call physician immediately.

---

#### 5. FIRE FIGHTING MEASURES

**Flammable Properties:** Material will not burn.  
**Fire Fighting Instruction:** As in any fire, wear self-contained breathing apparatus pressure-demand and full protective gear.  
**Extinguishing Media:** Dry chemical. Carbon dioxide. Alcohol foam.  
**Extinguishing Media NOT To Be Used:** Not applicable. Not applicable. Not applicable.  
**Fire / Explosion Hazards:** This product will not burn or explode.  
**Hazardous Combustion Products:** This material will not burn.

---

#### 6. ACCIDENTAL RELEASE MEASURES

**Spill Response Notice:**  
Only persons properly qualified to respond to an emergency involving hazardous substances may respond to a spill according to federal regulations (OSHA 29 CFR 1910.120(a)(v)) and per your company's emergency response plan and guidelines/procedures. See Section 13, Special Instructions for disposal assistance.  
**Containment Technique:** Stop spilled material from being released to the environment.  
**Clean-up Technique:** Scoop up spilled material into a large beaker and dissolve with water. Flush the spilled material to the drain with a large excess of water.  
**Evacuation Procedure:** Evacuate local area (15 foot radius or as directed by your facility's emergency response plan) when: a gallon or more of liquid is spilled. If conditions warrant, increase the size of the evacuation.  
**DOT Emergency Response Guide Number:** Not applicable

---

#### 7. HANDLING AND STORAGE



**Handling:** Avoid contact with eyes skin clothing Wash thoroughly after handling. Maintain general industrial hygiene practices when using this product.

**Storage:** Store away from: oxidizers

**Flammability Class:** Not applicable

---

## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

**Engineering Controls:** Maintain general industrial hygiene practices when using this product.

**Personal Protective Equipment:**

**Eye Protection:** safety glasses with top and side shields

**Skin Protection:** disposable latex gloves

**Inhalation Protection:** adequate ventilation

**Precautionary Measures:** Avoid contact with: eyes skin clothing Wash thoroughly after handling.

**TLV:** Not established

**PEL:** Not established

**For Occupational Exposure Limits (OEL) for ingredients, see section 3 - Composition/Information on Ingredients.:**

---

## 9. PHYSICAL AND CHEMICAL PROPERTIES

**Appearance:** Clear, colorless liquid

**Physical State:** Liquid

**Molecular Weight:** Not applicable

**Odor:** Not determined

**Odor Threshold:** Not available

**pH:** 5.8

**Metal Corrosivity:**

**Corrosivity Classification:** Not classified as corrosive to metals according to GHS criteria.

**Steel:** Not determined

**Aluminum:** Not determined

**Specific Gravity/ Relative Density (water = 1; air = 1):** 1.118

**Viscosity:** Not determined

**Solubility:**

**Water:** Miscible

**Acid:** Miscible

**Other:** Not determined

**Partition Coefficient (n-octanol / water):** Not applicable

**Coefficient of Water / Oil:** Not applicable

**Melting Point:** Not applicable

**Decomposition Temperature:** Not determined

**Boiling Point:** ~100°C

**Vapor Pressure:** Not determined

**Vapor Density (air = 1):** Not determined

**Evaporation Rate (water = 1):** Not determined

**Volatile Organic Compounds Content:** Not applicable

**Flammable Properties:** Material will not burn.

**Flash Point:** Not applicable

**Method:** Not applicable

**Flammability Limits:**

**Lower Explosion Limits:** Not applicable

**Upper Explosion Limits:** Not applicable

**Autoignition Temperature:** Not applicable

**Explosive Properties:**

Not applicable

**Oxidizing Properties:**

Not applicable

**Reactivity Properties:**

Not classified as self-reactive, pyrophoric, self-heating or emitting flammable gases in contact with water according to GHS criteria.

**Gas under Pressure:**

Not classified according to GHS criteria.

---

## 10. STABILITY AND REACTIVITY

**Chemical Stability:** Stable when stored under proper conditions.

**Mechanical Impact:** None reported

**Static Discharge:** None reported.

**Reactivity / Incompatibility:** May react violently in contact with: zinc salts acacia alkalies and their carbonates oxalates phosphates sulfides lime water

**Hazardous Decomposition:** No hazardous decomposition products known.

**Conditions to Avoid:** Heating to decomposition.

---

## 11. TOXICOLOGICAL INFORMATION

**Toxicokinetics, Metabolism and Distribution:** No information available for mixture.

**Toxicologically Synergistic Products:** None reported

**Acute Toxicity:** Acute Toxicity Estimate (ATE) - Calculated from Ingredient Toxicity Data  
ATEmix LD50 = 4035mg/kg

**Specific Target Organ Toxicity - Single Exposure (STOT-SE):** No data found

**Specific Target Organ Toxicity - Repeat Exposure (STOT-RE):** Not applicable

**Skin Corrosion/Irritation:** Not applicable

**Eye Damage:** Irritating to eyes.

**Sensitization:** Based on classification principles, the classification criteria are not met.

**CMR Effects/Properties (carcinogenic, mutagenic or toxic to reproduction):** Based on classification principles, the classification criteria are not met.

This product does NOT contain any IARC listed chemicals.

This product does NOT contain any NTP listed chemicals.

This product does NOT contain any OSHA listed carcinogens.

**Symptoms/Effects:**

**Ingestion:** Very large doses may cause: abdominal pain vomiting liver damage

**Inhalation:** No effects anticipated

**Skin Absorption:** None Reported

**Chronic Effects:** None reported

**Medical Conditions Aggravated:** Pre-existing: Skin conditions Eye conditions

---

## 12. ECOLOGICAL INFORMATION

**Product Ecological Information: --**

Do not release into the environment.

**Ingredient Ecological Information: --**

CEPA categorization for ingredients are as follows:

CEPA Categorization: Persistent and inherently toxic to non-human organisms (PiT).

Fish 96hr LD50 = 0.88 mg/l, Alga 72hr EC50 = 1.7 mg/l, Alga 96hr EC50 = 4.2 mg/l. Not Bioaccumulative

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## 13. DISPOSAL CONSIDERATIONS

**EPA Waste ID Number:** Not applicable

**Special Instructions (Disposal):** Dilute material with excess water making a weaker than 5% solution. Open cold water tap completely, slowly pour the material to the drain.

**Empty Containers:** Rinse three times with an appropriate solvent. Dispose of empty container as normal trash.

**NOTICE (Disposal):** These disposal guidelines are based on federal regulations and may be superseded by more stringent state or local requirements. Please consult your local environmental regulators for more information. In Europe: Chemical and analysis solutions must be disposed of in compliance with the respective national regulations. Product

packaging must be disposed of in compliance with the country-specific regulations or must be passed to a packaging return system.

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## 14. TRANSPORT INFORMATION

### **D.O.T.:**

**D.O.T. Proper Shipping Name:** Not Currently Regulated

--

**Hazard Class:** NA

**Subsidiary Risk:** NA

**ID Number:** NA

**Packing Group:** NA

### **T.D.G.:**

**Proper Shipping Name:** Not Currently Regulated

--

**Hazard Class:** NA

**Subsidiary Risk:** NA

**UN Number/PIN:** NA

**Packing Group:** NA

### **I.C.A.O.:**

**I.C.A.O. Proper Shipping Name:** Not Currently Regulated

--

**Hazard Class:** NA

**Subsidiary Risk:** NA

**ID Number:** NA

**Packing Group:** NA

### **I.M.O.:**

**Proper Shipping Name:** Not Currently Regulated

--

**Hazard Class:** NA

**Subsidiary Risk:** NA

**ID Number:** NA

**Packing Group:** NA

**Marine Pollutant:**

**Additional Information:** There is a possibility that this product could be contained in a reagent set or kit composed of various compatible dangerous goods. If the item is NOT in a set or kit, the classification given above applies. If the item IS part of a set or kit, the classification would change to the following: UN3316 Chemical Kit, Class 9, PG II or III. If the item is not regulated, the Chemical Kit classification does not apply.

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## 15. REGULATORY INFORMATION

### **U.S. Federal Regulations:**

**O.S.H.A.:** This product meets the criteria for a hazardous substance as defined in the Hazard Communication Standard. (29 CFR 1910.1200)

### **E.P.A.:**

**S.A.R.A. Title III Section 311/312 Categorization (40 CFR 370):** Immediate (Acute) Health Hazard

**S.A.R.A. Title III Section 313 (40 CFR 372):** This product contains a chemical(s) subject to the reporting requirements of Section 313 of Title III of SARA.

Zinc compounds

**302 (EHS) TPQ (40 CFR 355):** Not applicable

**304 CERCLA RQ (40 CFR 302.4):** Zinc Acetate 1000 lbs.

**304 EHS RQ (40 CFR 355):** Not applicable

**Clean Water Act (40 CFR 116.4):** Zinc acetate - RQ 1000 lbs.

**RCRA:** Contains no RCRA regulated substances.

### **State Regulations:**

**California Prop. 65:** No Prop. 65 listed chemicals are present in this product.

**Identification of Prop. 65 Ingredient(s):** Not applicable

**California Perchlorate Rule CCR Title 22 Chap 33:** Not applicable

**Trade Secret Registry:** Not applicable

**National Inventories:**

**U.S. Inventory Status:** All ingredients in this product are listed on the TSCA 8(b) Inventory (40 CFR 710).

**CAS Number:** Not applicable

**Canadian Inventory Status:** All ingredients of this product are DSL Listed.

**EEC Inventory Status:** All ingredients used to make this product are listed on EINECS / ELINCS.

**Australian Inventory (AICS) Status:** Not determined

**New Zealand Inventory (NZIoC) Status:** Not determined

**Korean Inventory (KECI) Status:** Not determined

**Japan (ENCS) Inventory Status:** Not determined

**China (PRC) Inventory (MEP) Status:** Not determined

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## 16. OTHER INFORMATION

**References:** Vendor Information. TLV's Threshold Limit Values and Biological Exposure Indices for 1992-1993. American Conference of Governmental Industrial Hygienists, 1992. Technical Judgment. The Merck Index, 11th Ed. Rahway, New Jersey: Merck and Co., Inc., 1989. Sax, N. Irving. Dangerous Properties of Industrial Materials, 7th Ed. New York: Van Nostrand Reinhold Co., 1989. CCINFO RTECS. Canadian Centre for Occupational Health and Safety. Hamilton, Ontario Canada: 30 June 1993. CCINFO MSDS/FTSS. Canadian Centre for Occupational Health and Safety. Hamilton, Ontario Canada: 30 June 1993. Air Contaminants, Federal Register, Vol. 54, No. 12. Thursday, January 19, 1989. pp. 2332-2983. 29 CFR 1900 - 1910 (Code of Federal Regulations - Labor). Gosselin, R. E. et al. Clinical Toxicology of Commercial Products, 5th Ed. Baltimore: The Williams and Wilkins Co., 1984.

**Complete Text of H phrases referred to in Section 3:** Not applicable H319 Causes serious eye irritation. H411 Toxic to aquatic life with long lasting effects.

**Revision Summary:** . Substantial revision to comply with EU Reg 1272/2008, Reg 1907/2006 and UN GHS (ST/SG/AC.10/36/Add.3).

**Date of MSDS Preparation:**

**Day:** 24

**Month:** November

**Year:** 2014

**MSDS Prepared:** MSDS prepared by Product Compliance Department extension 3350

**CCOHS Evaluation Note:** It is offered under exemption from WHMIS labeling as specified in the Controlled Products Regulation (CPR) Section 17.

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**Legend:**

NA - Not Applicable	w/w - weight/weight
ND - Not Determined	w/v - weight/volume
NV - Not Available	v/v - volume/volume

**USER RESPONSIBILITY:** Each user should read and understand this information and incorporate it in individual site safety programs in accordance with applicable hazard communication standards and regulations.

**THE INFORMATION CONTAINED HEREIN IS BASED ON DATA CONSIDERED TO BE ACCURATE. HOWEVER, NO WARRANTY IS EXPRESSED OR IMPLIED REGARDING THE ACCURACY OF THESE DATA OR THE RESULTS TO BE OBTAINED FROM THE USE THEREOF.**

**HACH COMPANY ©2015**

## **ATTACHMENT 5**

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### **EMPLOYEE EXPOSURE/INJURY INCIDENT REPORT**

## Employee Exposure/Injury Incident Report

(completed by the CHSM or designee)

Employee:			
Office or field location:			
Incident:			
Potential or known exposure (describe):			
Physical injury or illness (describe):			
Location (city and state):		Project and Contract No.	
Date of incident:		Time of incident:	
Date incident reported:		Person to whom incident was reported:	
Weather condition during incident:	Temperature:	Precipitation:	
Wind speed and direction:		Cloud cover:	
Name of materials potentially encountered (chemical exposure):			
Chemical and phase (i.e., liquid, solid, gas, vapor, fume, mist), radiological, etc.:			
Describe the exposure/injury in detail and the parts of the body affected (attach extra sheets if necessary):			
Describe exact onsite or offsite location where the incident occurred:			
What was the employee doing when the exposure/injury occurred? (Describe briefly as site reconnaissance, soil sampling, etc.):			

How did the incident occur? Describe fully the factors that led to or contributed to the incident:				
Was medical treatment given? <input type="checkbox"/> Yes <input type="checkbox"/> No If yes, when?				
By whom?		Name of paramedic:		
		Name of physician:		
		Other:		
Where?	Onsite		Offsite	
If offsite, name of hospital or clinic:				
Length of inpatient stay (dates):				
Was Contractor management notified? <input type="checkbox"/> Yes <input type="checkbox"/> No If yes, when?				
Name and title of manager(s) notified:				
Did the exposure/injury result in permanent disability or death? <input type="checkbox"/> Yes <input type="checkbox"/> No				
If yes, explain:				
Number of days away from work			Number of days of restricted work activity:	
Has the employee returned to work? (Yes / No) If yes, date:				
Names of other persons affected during the incident:				
Names of persons who witnessed the incident:				
Name and title of field team leader or immediate supervisor at the site:				
Was the operation being conducted under an established safety plan? <input type="checkbox"/> Yes <input type="checkbox"/> No				

If yes, attach a copy. If no, explain:				
Was personal protective equipment (PPE) used by the employee? <input type="checkbox"/> Yes <input type="checkbox"/> No				
If yes, list items:				
Did any limitations in safety equipment or PPE affect or contribute to exposure? <input type="checkbox"/> Yes <input type="checkbox"/> No				
If yes, explain:				
Attachments to this report:		Medical report(s) (if not confidential)		Site safety plan
		Other relevant information		
Employee's signature				Date
Site safety officer's signature				Date
Project manager's signature				Date

**Corporate health and safety manager review and comments**

Corrective action/procedure changes carried out on the project:				
Corrective actions to be taken to prevent similar incidents at other sites:				
Corporate Health and Safety Manager's signature				Date



## **ATTACHMENT 6**

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### **NEAR-MISS INCIDENT REPORT**

## Near-Miss Incident Report

(completed by field staff)

Employee:			
Office or site location:			
Near-Miss Incident (check one or more):    Exposure <input type="checkbox"/> Physical injury <input type="checkbox"/> Property damage <input type="checkbox"/>			
Location (city and state):		Project and Contract No.	
Date of incident:		Time of incident:	
Fully describe the incident, including how it happened, persons involved, if chemicals were involved in the incident, etc.:			
Was the operation being conducted under an established safety plan? <input type="checkbox"/> Yes <input type="checkbox"/> No			
If yes, attach a copy. If no, explain:			
Employee's signature		Date	
Project Manager's signature		Date	
Site safety officer's signature		Date	

**Corporate health and safety manager review and comments**

Corrective action/procedure changes carried out at the site:		
Corrective actions to be taken to prevent similar incidents at other sites:		
Corporate Health and Safety Manager's signature		Date

## **ATTACHMENT 7**

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STANDARD OPERATING  
PROCEDURE TO MINIMIZE THE  
SPREAD OF INVASIVE SPECIES  
(ECOLOGY 2012)

Washington State Department of Ecology

Environmental Assessment Program

Standard Operating Procedures to Minimize the Spread of Invasive Species  
Version 2.0

Author -Jenifer Parsons, Dave Hallock, Keith Seiders, Bill Ward, Chris Coffin, Evan Newell,  
Casey Deligeannis, Kathy Welch

Date -

Reviewer - Bob Cusimano, EAP Western Operation Section Manager

Date -

QA Approval - William R. Kammin, Ecology Quality Assurance Officer

Date – April 30, 2012

EAP070

Approved: April 30, 2012

SIGNATURES ON FILE

*Please note that the Washington State Department of Ecology's Standard Operating Procedures (SOPs) are adapted from published methods, or developed by in-house technical and administrative experts. Their primary purpose is for internal Ecology use, although sampling and administrative SOPs may have a wider utility. Our SOPs do not supplant official published methods. Distribution of these SOPs does not constitute an endorsement of a particular procedure or method.*

*Any reference to specific equipment, manufacturer, or supplies is for descriptive purposes only and does not constitute an endorsement of a particular product or service by the author or by the Department of Ecology.*

*Although Ecology follows the SOP in most instances, there may be instances in which Ecology uses an alternative methodology, procedure, or process.*

# SOP Revision History

Revision Date	Revision number	Summary of changes	Sections	Reviser(s)
5/15/2009	1.0	Initial draft, formatting	All	Jenifer Parsons
Sep 2009		Add boat information		Keith Seiders
11/10/09		Revise to apply to all sampling		Jenifer Parsons
11/24/09		Review		Dave Hallock
1/4/10		Added Chris & Keith's comments		Jenifer Parsons
1/29/10		Address comments from committee		Jenifer Parsons
3/23/2010	1.0	Cover Page		Bill Kammin
2/13/12	2.0	Draft revision to combine moderate and extreme concern SOPs and to comply with Invasive Species Council SOP	All	Jenifer Parsons
4/30/2012		Change approval date	Cover	Bill Kammin

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<b>1.0</b>	<b>Purpose and Scope</b>
<b>2.0</b>	<b>Applicability</b>
<b>3.0</b>	<b>Definitions</b>
<b>4.0</b>	<b>Personnel Qualifications/Responsibilities</b>
<b>5.0</b>	<b>Equipment and Supplies</b>
<b>6.0</b>	<b>Procedures</b>
6.1	Planning - <i>Prior to Conducting Field Work and During Field Work</i>
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6.3	Where to Perform Treatment
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<b>7.0</b>	<b>Equipment storage</b>
<b>8.0</b>	<b>Special Considerations for Consturction and Restoration Projects</b>
<b>9.0</b>	<b>Quality Control and Quality Assurance Section</b>
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<b>11.0</b>	<b>References and Related Documents</b>
<b>Attachment A – Decontamination Treatment Options</b>	
<b>Attachment B – Additional Cleaning Information for Boats and Motors</b>	
<b>Appendix</b>	<b>Procedure Summary and Flow Chart</b>



## Environmental Assessment Program

### Standard Operating Procedures to Minimize the Spread of Invasive Species

#### **1.0 Purpose and Scope**

- 1.1 Environmental ethics and Washington law prohibit the transportation of all aquatic plants, animals, and many noxious weeds.. Specifically, it is a misdemeanor to “transport aquatic plants on any state or public road, including forest roads” or to “knowingly import, move within the state, or export” animals.
- 1.2 This document is the Environmental Assessment Program (EAP), Standard Operating Procedure (SOP) to minimize the risk of spreading any organisms, especially aquatic invasive species (AIS), within or between waterbodies or other field sites as a result of fieldwork, reconnaissance activities or other operations.
- 1.3 This SOP combines and implements the prevention and control measures identified in Ecology’s Hazard Analysis and Critical Control Point (HACCP) Plans for conducting operations in Areas of Extreme Concern and Areas of Moderate Concern. See Aquatic Invasive Species web page--  
<http://www.ecy.wa.gov/programs/eap/InvasiveSpecies/AIS-PublicVersion.html>
- 1.4 This SOP supersedes the Washington Invasive Species Council SOP ‘Reducing Accidental Introductions of Invasive Species’. It covers all points considered in that protocol and is more stringent in some areas.

#### **2.0 Applicability**

- 2.1 This SOP covers all field operations.
- 2.2 These procedures also apply to contractors operating under contract to EAP. They don’t apply to other organizations conducting joint field work with EAP.

#### **3.0 Definitions**

- 3.1 AIS – Aquatic Invasive Species: any freshwater or marine species that is not native to an ecosystem and whose introduction does or is likely to cause economic, human health, or environmental harm.
- 3.2 Areas of Extreme Concern –Areas of the state documented as having established Aquatic Invasive Species (AIS) that are considered to be a particular environmental or economic threat and hard to remove from sampling equipment, such as areas with New Zealand mudsnail (NZMS) populations. Most equipment and sampling gear used in these areas must undergo rigorous inspection and decontamination procedures to prevent accidental introductions to other waters. (Maps of these areas are available at  
<http://www.ecy.wa.gov/programs/eap/InvasiveSpecies/AIS-PublicVersion.html>)

- 3.3 Areas of Moderate Concern – Areas of the state not documented as having established NZMS or other species of extreme concern. These areas may have other invasive species, including plants, animals, fish, invertebrates, and fish pathogens that should not be spread.
- 3.4 Decontamination – a method used to kill invasive species that may be lodged in or on equipment. These include drying, hot water wash, freezing and chemical treatments.
- 3.5 Ecology – Washington State Department of Ecology.
- 3.6 EAP – Environmental Assessment Program.
- 3.7 HACCP – Hazard Analysis and Critical Control Point. This is a systematic analysis tool used to identify the risks and the preventative procedures needed to significantly reduce the spread of aquatic species from our sampling equipment and operations. (HACCPs for areas of both Moderate and Extreme Concern are available at at <http://www.ecy.wa.gov/programs/eap/InvasiveSpecies/AIS-PublicVersion.html>)
- 3.8 Invasive Species – any organism that is not native to an ecosystem and whose introduction does, or is likely to cause, economic, human health, or environmental harm.
- 3.9 New Zealand mudsnail – This AIS from New Zealand has been spreading across North America since its introduction in the late 1980s. They are very small (<1/8 inch) and just one individual is capable of producing 230 juveniles per year. They are easily transported into uninfected waters by hitchhiking on waders or other aquatic equipment. They are considered an environmental and economic threat to the state (Washington Invasive Species Council, 2008).
- 3.10 Noxious weed – a plant included on the State Noxious Weed List. They are invasive, non-native plants that are a threat to the natural resources, ecology and economy of Washington State. The list of noxious weeds and information about the State Noxious Weed Control Board is available at <http://www.nwcb.wa.gov/>
- 3.11 Equipment – This means all equipment that contacts water, sediment, plants, or the ground during site access, reconnaissance, and sample collection. Such equipment includes but is not limited to: wading boots or shoes, samplers, ropes, nets, boats, trailers, vehicles, anchors, chain, water and sediment grab samplers, cables, probes, multi-probes, flow measuring or gaging devices, and others.

- 3.12 Felt-sole waders – waders with any sort of fibrous surface affixed to the sole. They require decontamination because of their ability to trap and hold mud, vegetation and moisture.

#### **4.0 Personnel Qualifications/Responsibilities**

- 4.1 Field operations require training specified in EAP's Field Safety Manual (Ecology, 2010) such as First Aid, CPR, and Defensive Driving, as well as training in field gear cleaning methods specified in EAP Procedure #1-15.

#### **5.0 Equipment and Supplies**

- 5.1 The following may be required, depending on the equipment used in sampling and the decontamination method being used:

- 5.1.1 Clean water supply (free of mud and debris)
- 5.1.2 Scrub brushes and bucket
- 5.1.3 Hose adapters for flushing outboard boat motors
- 5.1.4 Hand tools for attaching hoses or taking apart equipment if necessary
- 5.1.5 If decontamination is required:
  - 5.1.5.1 Treatment chemicals if that is the decontamination method to be used, along with a backpack sprayer, squirt bottle, tub, buckets, bags or other method to apply, contain and transport chemicals.
  - 5.1.5.2 Thermometer to monitor temperature of treatment if using hot water for decontamination.
  - 5.1.5.3 Watch to monitor treatment times
  - 5.1.5.4 Adequate supply of hot water if that is the decontamination method used.

#### **6.0 Procedures**

Note: a one-page procedure summary is at the end of this document

##### **6.1 Planning - Prior to Conducting Field Work and During Field Work**

- 6.1.1 **Determine if the field activity is located within an Area of Extreme Concern** by checking the current maps at this link: <http://www.ecy.wa.gov/programs/eap/InvasiveSpecies/AIS-PublicVersion.html> If so, the extra decontamination step (section 6.2.1.2) will need to be followed for all equipment that contacted aquatic sediment, aquatic vegetation or fish. (Note: felt sole wading boots must be decontaminated no matter where they are used).

- 6.1.2 **Use equipment which can be easily inspected and cleaned** to both avoid spreading invasive species and reduce impacts to planned field schedules. If possible, bring extra sets of “back up” field equipment in case cleaning and decontamination (if required) can’t be done in the field prior to arrival at a new sampling site. Where feasible, especially when working in areas of extreme concern, dedicate gear to be used only in that waterbody.
- 6.1.3 *Note: wading gear has been implicated in the spread of New Zealand mudsnails as well as other AIS such as didymo (the diatom Didymosphenia geminata) and fish and amphibian diseases. Felt soles can be particularly problematic because of their tendency to stay moist for long periods. The laces and eyelets of lace-up wading boots can also be problem spots because they are difficult to clean. To the extent possible, consider using non-felt soles and boot-foot waders. Information about new boots is available at <http://www.ecology.ecy.wa.gov/programs/eap/InvasiveSpecies/AlternativesToFeltBoots.html> Because of these risks from felt sole waders, they must go through the decontamination step (section 6.2.1.2) in all parts of the state.*
- 6.1.4 Conduct field activities to **minimize contact between equipment and potential sources of invasive species**, particularly aquatic plants, sediment and fish. This can include the following:
- 6.1.4.1 Sample from least to most contaminated areas, for example, sample upstream to downstream or from areas of less weed growth to dense weed growth.
- 6.1.4.2 Minimize wading and avoid running boats onto sediment.
- 6.1.4.3 Avoid getting plants, sediment and fish inside boats or other sampling gear.
- 6.1.4.4 Use a catch pan underneath dredges, etc., to keep potential AIS off boat decks and out of bilges.
- 6.1.4.5 Avoid driving or walking through areas of mud and high weed growth
- 6.2 After Field Work
- 6.2.1 Inspect, clean and if working in an area of extreme concern, decontaminate equipment – this step is divided into two parts:
- 6.2.1.1 ***First – inspect, clean and drain all equipment***
- 6.2.1.1.1 **Inspect and clean** all equipment that contacted (terrestrial or aquatic) soil, vegetation, or water. Remove any visible vertebrates, invertebrates, plants, algae or sediment. If necessary, use a scrub brush and rinse with clean water either from the site or brought for that purpose. Continue this process until the equipment is clean. **Drain** all water in bilges, samplers or other equipment that could hold water from the site. Flush areas that can’t be seen with clean water until the rinse water is clean. Information on cleaning boats and motors is in Attachment B.

- 6.2.1.1.2 Do the initial treatment (scrubbing and rinsing) before leaving the sampling site (if possible). If cleaning after leaving the field site, ensure that no debris will leave the equipment and potentially spread invasive species during transit or cleaning. Acceptable interim sites for cleaning include: Ecology OC or Regional Offices, commercial car wash businesses, or other facilities (e.g. WADOT shops), provided drains do not lead to surface waters. A table with commercial car wash locations is available to Ecology employees  
<http://aww.ecology.ecy.wa.gov/programs/eap/InvasiveSpecies/AIS-EAPPage.html>
- 6.2.1.2 *Second – decontaminate felt sole waders and, in areas of extreme concern, equipment that contacted aquatic sediment, aquatic vegetation, or fish.*
- 6.2.1.2.1 **Wipe smooth surfaced sampling equipment that can be easily and fully wiped down until dry.** The equipment must be smooth enough so there are no cracks or crevices that could harbor a sand-grain-sized juvenile New Zealand mudsnail while being wiped dry.
- 6.2.1.2.2 **Use one of the decontamination treatments from Attachment A for all other equipment.** For additional information on cleaning boats and motors, see Attachment B.
- 6.2.1.2.3 Decontamination treatments should take place where the procedure can be carried out effectively and safely. Keep in mind that wash and rinse water must not drain to surface water, and all chemicals must be disposed of to a sanitary sewer.
- 6.3 Relaxing Requirements
- 6.3.1 Equipment should be cleaned whenever leaving a field site, however, decontamination procedures as described in this SOP need not be followed under the following circumstances.
- 6.3.2 Documented exceptions:
- 6.3.2.1 If procedures in this SOP are not workable for a particular project, exceptions may be documented and approved following QAPP guidance.
- 6.3.3 Moving short distances:
- 6.3.3.1 If moving by foot within the same watershed, equipment may be used without following procedures in this SOP. Keep in mind to work from upstream to down whenever possible. Procedures laid out in this SOP must be followed when leaving the area.
- 6.3.4 Sampling by boat:
- 6.3.4.1 When transiting by boat to different sites within a waterbody, procedures detailed in this SOP may not be necessary. However, when boating from site to site, don't move water, sediment, organisms or vegetation on sampling gear, boat props, etc. Leaving the waterbody requires implementing this SOP.

### 6.3.5 Float Planes

- 6.3.5.1 In marine systems, the pontoons of float planes should not represent a problem and special cleaning should not be required unless motoring through weedy areas, in which case they should be visually inspected before taking off. Amphibious planes (with wheels) should be avoided because they are more likely to catch and transport material. The use of float planes and helicopters in freshwater is not covered in this SOP and should be explicitly addressed in the project QAPP; however, float planes should not be used between waterbodies with invasive plant species.

## 7.0 Equipment storage

- 7.1 When moving between field sites, and upon returning from the field, **store gear in a manner to facilitate drying**. For example, boots and waders should be stored on a drying rack until dry, not left in a gear bag; open hatches and leave out drain plugs on boats.

## 8.0 Special Considerations for Construction and Restoration Projects

- 8.1 Avoid moving weed infested gravel, rock, and other fill material to relatively weed-free locations. Gravel and fill should come from weed-free sources. Inspect gravel pits and fill sources to identify weed-free sources.
- 8.2 Identify and remove existing noxious weeds in areas of construction to avoid contaminating construction equipment
- 8.3 Minimize ground-disturbing activities
- 8.4 Use only certified weed-free straw and mulch for erosion control

## 9.0 Quality Control and Quality Assurance Section

- 9.1 Follow the procedures of this SOP.

## 10.0 Safety

- 10.1 Follow all EA Program Safety Manual procedures. Take precautions if using hot water for decontamination to avoid burns.

## 11.0 References and Related Documents

- 11.1 Ecology, 2010. Environmental Assessment Program Safety Manual. Olympia, WA. 168 pp.
- 11.2 Ecology, 2006. Chemical hygiene plan and hazardous material handling plan. Olympia, WA.

- 11.3 Washington Invasive Species Council. Invaders at the Gate: Washington Invasive Species Council 2008 Strategic Plan.  
<http://www.invasivespecies.wa.gov/documents/InvasiveSpeciesStrategicPlan.pdf>
- 11.4 10.4 Reducing Accidental Introductions of Invasive Species: State Agency Field Work Protocols  
<http://www.invasivespecies.wa.gov/documents/invasive%20species%20prevention%20protocol.pdf>
- 11.5 Environmental Assessment Program Policy on Minimizing the Spread of Aquatic Organisms. EAP Procedure 1-15. *(Requires all EAP field work to follow approved procedures for minimizing the spread of aquatic organisms.)*
- 11.6 Invasive Species Internet page.  
(<http://www.ecy.wa.gov/programs/eap/InvasiveSpecies/AIS-PublicVersion.html> )  
*(Includes maps, SOPs, and supporting documentation, a section on alternatives to felt-soled waders, a list of car washes and other hot water sources, contacts and links to more information.)*
- 11.7 [RCW 77.15.290](#): Unlawful transportation of fish or wildlife — Unlawful transport of aquatic plants — Penalty.  
(<http://apps.leg.wa.gov/rcw/default.aspx?cite=77.15.290>)
- 11.8 Washington Weed Laws: links to three laws pertaining to noxious weed and quarantine laws [http://www.nwcb.wa.gov/ab\\_weedlaws.htm](http://www.nwcb.wa.gov/ab_weedlaws.htm)

## **Attachment A – Decontamination treatment options**

Decontamination employs chemicals, freezing, drying, or hot water. While chemical treatments can be used, they are not generally recommended for most equipment, boats, and trailers. The effects of chemical treatments on some equipment have yet to be researched. Several of the chemicals contain ammonia compounds that could contaminate ammonia samples. Also, chemical treatments need to address safe and environmentally sound storage, handling, and disposal of the chemicals.

The treatment options listed in Table A-1 utilize temperature (heat or cold) or chemicals to ensure that contaminants such as New Zealand mudsnails that may have been missed during the initial treatment will be killed. At this time, hot water or drying are the recommended treatments for large equipment such as boats and boat trailers. Additional information about hot water sources and treatment methods is provided in Figure A-1.

Table A-1. Options for decontaminating equipment that has contacted sediment, aquatic vegetation or fish in areas of extreme concern.

<b>Treatment</b>	<b>Concentration or temperature</b>	<b>Exposure Time</b>	<b>comments</b>
hot water wash or soak (see <b>Figure A-1</b> )	60° C (140° F)	5 min for felt-soled boots and nets; 5 sec for all other equipment	Ensure all parts of the equipment reach temperature for the full exposure time
	49° C (120° F)	10 min for felt-sole boots and nets; 5 min for other equipment	Ensure all parts of the equipment reach temperature for the full exposure time
cold	-4° C	4 hours minimum	Time starts after the equipment reaches -4 °C
drying	low humidity, in sunlight is best	48 hours	Time starts after the equipment is thoroughly dry
Formula 409 All-Purpose Cleaner <sup>1</sup>	100% (full strength)	10 min	Follow proper procedures for storage and handling.
sparquat 256 <sup>2</sup>	3.1% or higher	10 min	Follow proper procedures for storage and handling.
Quat 128	4.60%	10 min	Follow proper procedures for storage and handling.
Hydrogen peroxide <sup>3</sup>	30,000 ppm (3%)	15 min	Spray on until soaked, then keep damp for contact time (cover or place gear in a dry bag)
Virkon Aquatic®	2%	20 min	Must soak (not spray on) Follow proper procedures for storage and handling <sup>4</sup>

<sup>1</sup> Must be antibacterial (make sure it has quaternary ammonia, otherwise it is ineffective)

<sup>2</sup> Sparquat is corrosive; read the MSDS and use with caution.

<sup>3</sup> May be corrosive; read the MSDS and follow safety precautions

<sup>4</sup> Rinse gear after soak to prolong life. Solution degrades, lasts up to 7 days, best if mixed fresh



*Note:* additional options, details of the exposure times necessary to kill various organisms, and references are provided in a spreadsheet on EAP's internet page

(<http://www.ecy.wa.gov/programs/eap/InvasiveSpecies/AIS-PublicVersion.html>)

*Note:* All chemicals must be disposed of to a sanitary sewer.

MSDS forms for all chemicals are available at the following websites:

Formula 409® All Purpose Cleaner Antibacterial Kitchen Lemon Fresh Msds

<http://www.thecloroxcompany.com/products/msds/409products/formula409antibacallpurposecleanerlemonfresh8-07.pdf>

Sparquat 256

<http://www.spartanchemical.com/sfa/MSDSRep.nsf/DocId/ee80d47508fb542285257416004e8342!OpenDocument>

Buckeye Sanicare Quat-128

<http://www.buckeyeinternational.com/support/msds/msds/Eng/SanicareQuat-1285087.pdf>

Hydrogen peroxide

<http://www.lamarpa.edu/dept/pp/msds/hydrogenperoxide3.pdf>

Virkon aquatic solution

<http://www.wchemical.com/Assets/File/Virkon%20Docs/Virkon%201-2%25%20solution.pdf>

### **Figure A-1 Sources and methods for treating equipment with hot water**

#### **Hot Water Sources**

- Hot tap water is available at EAP's OC in the Skookum Bay. (Note: Tap water at the Spills Program washdown bay by the HQ loading dock can be used for rinsing, but it is not hot enough to meet decontamination requirements.)
- A hot water pressure washer is available at EAP's OC (special training required).
- Other facilities may have hot water, such as Ecology's regional offices, WA DOT shops, and local government maintenance facilities.
- A portable hot water heater is available at the OC. The system uses propane to power an on-demand heater. It may be difficult to maintain 60° C with this equipment in the field. It is recommended to use the wash/soak times for 49° C (Table A-1) to ensure proper decontamination when using the portable hot water heater.
- Car washes can be used for rinsing and cleaning, but are not an option for decontamination: the water is not hot enough to kill aquatic organisms.

#### **Treating Equipment with Hot Water**

- Wear appropriate personal protection equipment to prevent burns to self and others.
- Avoid or protect parts of equipment that might be damaged by hot water.
- Ensure that the water is at least 60° C at the discharge side of whatever's being treated.
- Flush for at least 5 sec. for all equipment except felt soles and nets; 5 min for felt-soled boots and nets at 60° C (10 min at 49°C)
- After treatment, ensure equipment drains and dries before re-stowing equipment.

## **Attachment B – Additional Cleaning Information**

**Use one of the decontamination options in Table A1 if needed.**

**HOT WATER is preferred for decontaminating boating equipment at this time.**

### **Felt Sole Waders**

Felt soles can trap aquatic organisms and hold moisture that can sustain them for long periods.

1. First, rinse and brush soles to remove visible mud and debris.
2. Then use one of the treatment options in Table A-1.
3. Hot water, freezing or drying are recommended because they are effective against the widest variety of species and don't involve chemicals.
4. If hot water, freezing, or drying are not possible, choose a different option from Table A-1. Hydrogen peroxide is inexpensive, readily available, and relatively innocuous to humans and the environment; however, its effectiveness at killing organisms besides New Zealand mudsnails is not clear. Or see other options in the 'treatment options' chart on <http://www.ecy.wa.gov/programs/eap/InvasiveSpecies/AIS-PublicVersion.html>

### **Hydrolabs**

Cleaning recommendations for Hydrolabs that are deployed in areas of Extreme Concern and contact aquatic sediment or vegetation

1. Follow procedures in section 6.2.1.2.1 (wipe smooth surfaces until clean and dry). Decontaminate any parts of the hydrolab that can't be wiped clean of sand grain-sized particles using one of the methods listed in Table A-1
2. Parts of the hydrolab that can not withstand those methods (the probes) should be soaked in the low pH buffer solution (pH 4) overnight. (PH 4 buffer is the recommended storage solution.)

### **Boat Trailers**

1. Flush all interior and exterior surfaces of trailers, wheels, and tires until clean. Interior surfaces are the inside of the trailer's metal tube framing.

### **Boat Hulls: Exterior and Interior**

1. Remove gear as needed (e.g. deck mat, dip nets, net anchors, boat anchor and line, ropes) to provide access to all areas of the boat to allow for effective cleaning.
2. Wash down the boat working from bow to stern, and top to bottom. Flush all nooks and crannies to get at all areas where aquatic species may have gotten into. Wash all boat-related gear.
3. Wash all bilge areas where accessible using hot water, working from bow to stern. However, do not flush the bilge of the jet sled with hot water because of the fuel tank located there.
4. Raise bow of boat for effective draining of water and muck that gets into bilge. Work all of the bilge water, sediment, and muck out of drain on transom.

5. Flush all interior and exterior thru-hull pipes and screens. These may be located on the bottom of the hull, on the transom, or inside the hull (e.g. Skookum's strainers for washdown pumps and engine cooling system). Try backflushing bilge pumps by introducing water into the bilge pump discharge port (on transom or hull exterior) and check to see if water flows through the bilge pump and into the bilge.
6. If using hot water or chemicals on inflatable boats, ensure that such treatments won't damage the boat's material or adhesives

### **Boat Engines: Propeller and Jet Pump**

Boat engines pump ambient water through them for cooling and can pick up and harbor unwanted material – which may be transported to another waterbody. While most boat engines have fine-mesh screens (~2 mm) that can prevent debris from getting into the engine, sand and mud particles may pass through. Jet-pump engines operating in shallow waters often move sediment and fine debris through the cooling passages, so more effort is needed to clean jet-pump engines. The external parts of engines can also collect weeds or other debris, especially propellers and other parts submerged in the water. Clean external parts of engines to remove all visible debris. Clean internal parts of engines by flushing with water as described below.

- Some engines have an adaptor that accepts garden hoses (electrofisher, jet sled, and Whaler #2). Connect hose or adaptor and run water through the engine. Check to ensure that water is reaching and running from the cooling water pump intake areas.
- Some engines need the “ear muff” type flushing adaptor (many smaller engines): Connect hose to adaptor and attach adaptor to the engine. Turn on water. Start engine and let run at idle speed.
- Some engines have no flushing adaptor (some smaller engines): Mount the engine so that the lower unit can be submerged in a large container (e.g. 18 gallon tote) filled with water. Start engine and let run at idle speed.

NOTE that all engines can be run while being flushed with cold water. However, running some engines while flushing with hot water could damage the engine, so DO NOT run engines while flushing with hot water. The exception to this is the electrofishing boat's outboard engine and generator – these may be run while flushing with hot water (monitor temperature for possible overheating condition). Many engines can be flushed with hot water as long as the engine is not run at the same time.

Table B-1 at the end of this section shows all of EAP's boat engines, their location, and the method needed for flushing each engine (electric motors excluded).

### **Electrofishing Boat: Fish Tank, Outboard, Generator, Pumps, and Plumbing Systems**

#### **Fish Holding Tank (Live Well)**

1. Remove all standpipes and screens to get at trapped muck.
2. Wash interior thoroughly using scrub brush, and hot water (60° C; 140° F).
3. Soak and scrub all standpipes, and screens with hot water.
4. Let wash water and muck drain out of tank through transom.

5. Flush the fish tank fill pump and its plumbing with hot water for five minutes. To do this, remove access cover located inside live well on starboard side aft. Place hose through access and into tall stand pipe. Hot water will flush through the fish tank fill plumbing and pump, and out through the hull intake. While flushing, turn on fish tank fill pump for five seconds to stir out any debris. Do not run fish tank fill pump for extended period of time because this could burn up pump.
6. Decontaminating the recirculation pump can be skipped. The recirculation pump has been decommissioned and no longer in use. If the recirculation system becomes operational in the future follow these procedures: once fish tank and fish tank pump are thoroughly cleaned, fill fish tank with 4" of hot water and operate the recirculation pump for five minutes to help flush system of debris. If needed, remove and clean aerator (sprinkler) heads located in upper corners of live well.

### Outboard Engine

1. Use 13mm socket and ratchet to unscrew and remove water intake bolt located on the lower jet unit, near jet pump bearing zerk fitting (see pictures 2A-2C below). Next, hand screw outboard flushing adapter to lower jet unit. Do not over tighten adapter to lower jet unit, finger tight is okay. Attach water hose to outboard flushing adapter.
2. Turn on water supply with the outboard engine off. Water will begin to spill out lower jet unit, and seams.
3. Turn on "Outboard Cranking Battery" selector located on stern (ensure water is on and spilling out of jet unit).
4. Turn outboard engine on, and run at idle speed. Outboard ignition key is located on throttle control box, port side of diver's console. Note: Do not run the outboard above idle speed. Throttle controller should be in neutral position. Ensure idle lever is all the way down, do not increase RPMs.
5. With the outboard engine on, water will discharge from the lower jet unit, seams, and indicator pilot hole located on starboard side of engine. At this point, water is flushing through entire cooling system.
6. Once flushing is complete, turn off outboard engine. Next, turn off "Outboard Cranking Battery" selector located on stern.
7. Turn off water and disconnect hose and adapter from lower jet unit.
8. Replace water intake bolt on lower jet unit.
9. **Note:** If flushing the outboard engine with hot water, you may notice grease seeping out from "Excess-Grease Exit Hose" (see picture 2A), this is normal. If grease seeps out, apply an adequate amount of grease using electrofishing boat grease gun. Pump enough grease to just fill the exit hose.

## Generator

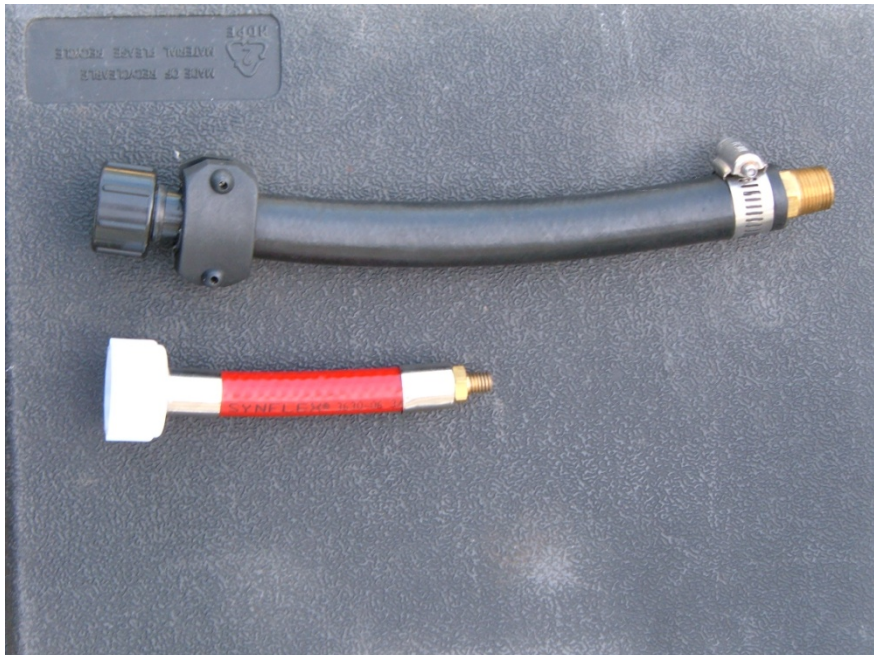
1. Unscrew “Generator Raw Water Strainer” located on the port side of driver’s console (see picture 3A below). Remove mesh strainer from strainer cup. Rinse out debris from strainer and strainer cup. Ensure not to lose strainer cup o-ring during rinsing. After rinsing is complete, replace mesh strainer back into strainer cup, and attach strainer cup to port side of driver’s console – do not bend edges of mesh strainer while attaching to driver’s console.
2. Next, use 11/16” open end wrench to unscrew “Generator Test Water” fitting pipe plug located on the base of generator cover, port side aft (see pictures 3B-3C). Next, hand screw generator flushing adapter into “Generator Test Water” fitting. Do not over tighten, finger tight is okay. Attach water hose to the generator flushing adapter.
3. Turn on water supply with the generator off (do not run generator at this point). Water will back flush plumbing through generator strainer, and out through hull intake. Flush for several minutes.
4. Once the plumbing from the hull intake through generator strainer has been flushed, the generator can now be started. Turn the main battery selector located on port side of driver’s console to battery 1 or 2 (see picture 3A). Ensure water is spilling out of hull intake before starting generator. Turn on generator ignition key located on driver’s console. Once the generator is started, water will flush the cooling system from the raw water pump, through the heat exchanger, and out the exhaust located on the transom. Continue flushing system for several minutes.
5. Once flushing is complete, turn off the generator. Leave the adapter and hose attached to the “Generator Test Water” fitting, with the water on. Proceed to flush washdown pump.

## Washdown Pump

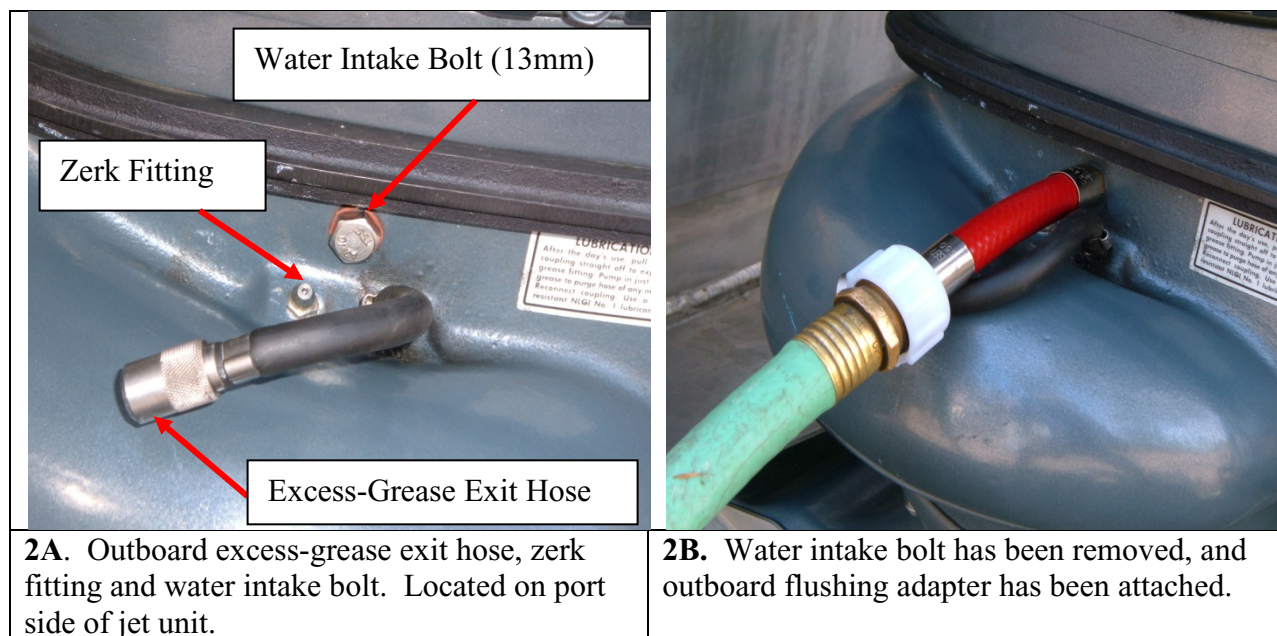
1. Follow steps 1 – 4 from generator section above. As the water back-flushes through generator strainer and out hull intake, it’s also priming the wash down pump.
2. Turn main battery selector to either battery 1 or 2 (see picture 3A). Next, turn generator ignition key to the accessories position. Turn on the washdown pump switch located on driver’s console. Remove washdown hose/spray nozzle from access port located on the starboard side of driver’s console.
3. Spray washdown hose to flush washdown pump and internal plumbing.
4. Once flushing is complete, turn off washdown pump switch. Next, turn generator ignition key off. Turn off main battery selector.
5. Turn off water supply, disconnect hose and adaptor from “Generator Test Water” fitting.
6. Replace pipe plug in the “Generator Test Water” fitting located at the base of generator cover, port side aft. Finger tighten pipe plug, then  $\frac{3}{4}$  turn with 11/16” open end wrench to snug down. Do not over tighten the brass pipe plug because it is prone to stripped threads.

## Nets and Related Gear

1. Clean weeds off the net and attached gear while retrieving in order to reduce loading the boat with weed fragments.
2. When ashore at the boat launch, find a way to hang nets and manually pick off all weeds from mesh, lead line, and float line. For gillnets, hang 30-50 foot sections of net at a time between the truck and boat and gather the cleaned section into a clean tub. Repeat for the rest of the net.
3. Clean other nets and gear (e.g. beach seines, fyke net, dip nets, and trawl nets) similarly to gill nets.
4. Ensure that floats, anchors, and anchor line are cleaned of all visible foreign material.
5. After adequately hand-picking and cleaning nets and related gear, one of the treatments in Table A-1 is required. Preferably a hot water soak.
6. If unable to clean while in the field, nets and gear can be cleaned upon return to the OC - provided they are not being used in another waterbody
7. NOTE: chemical treatments may damage nets so testing should be done before using chemicals.



**1A.** Large black hose adapter for flushing electrofishing boat generator. Small red hose adapter for flushing electrofishing boat outboard engine.

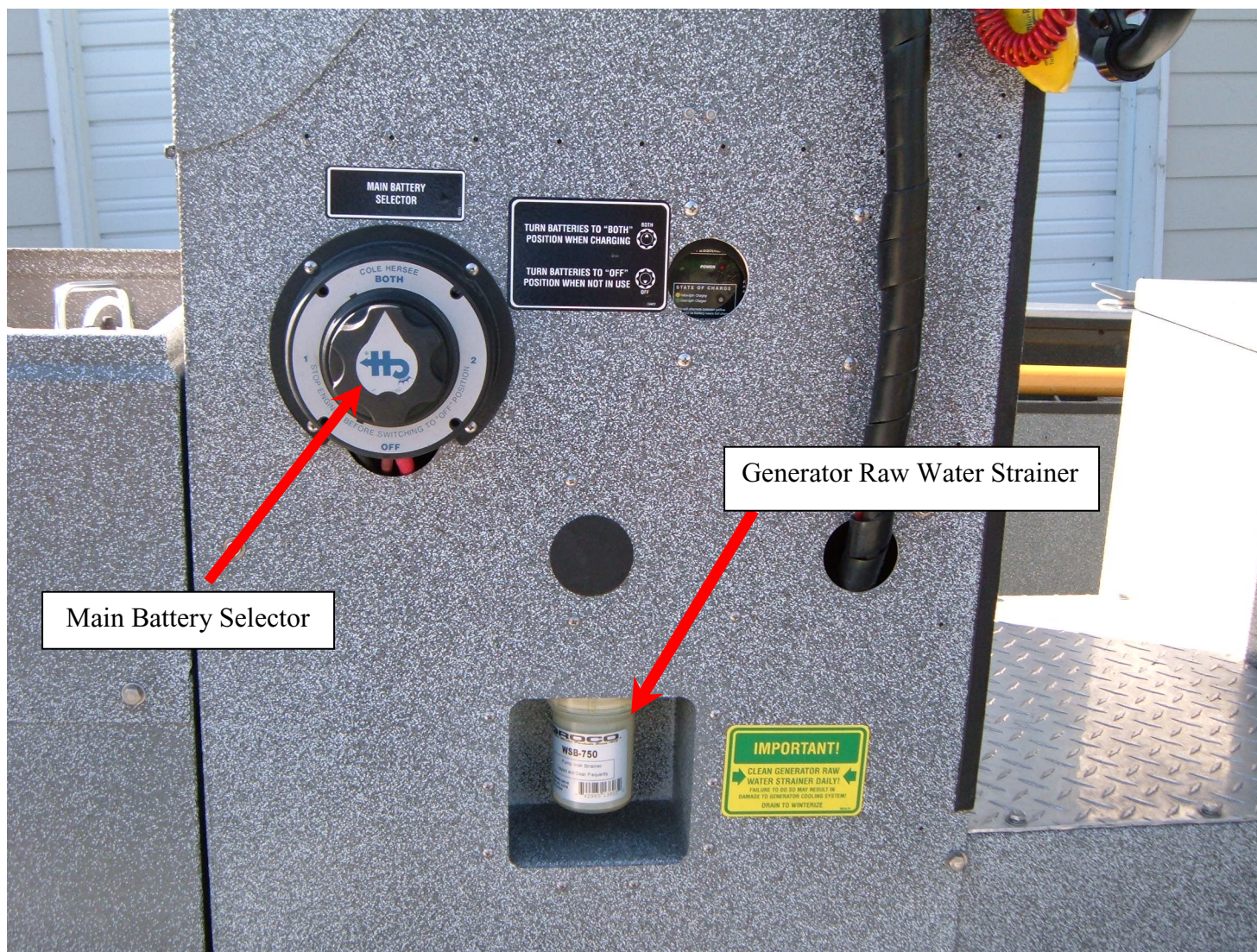






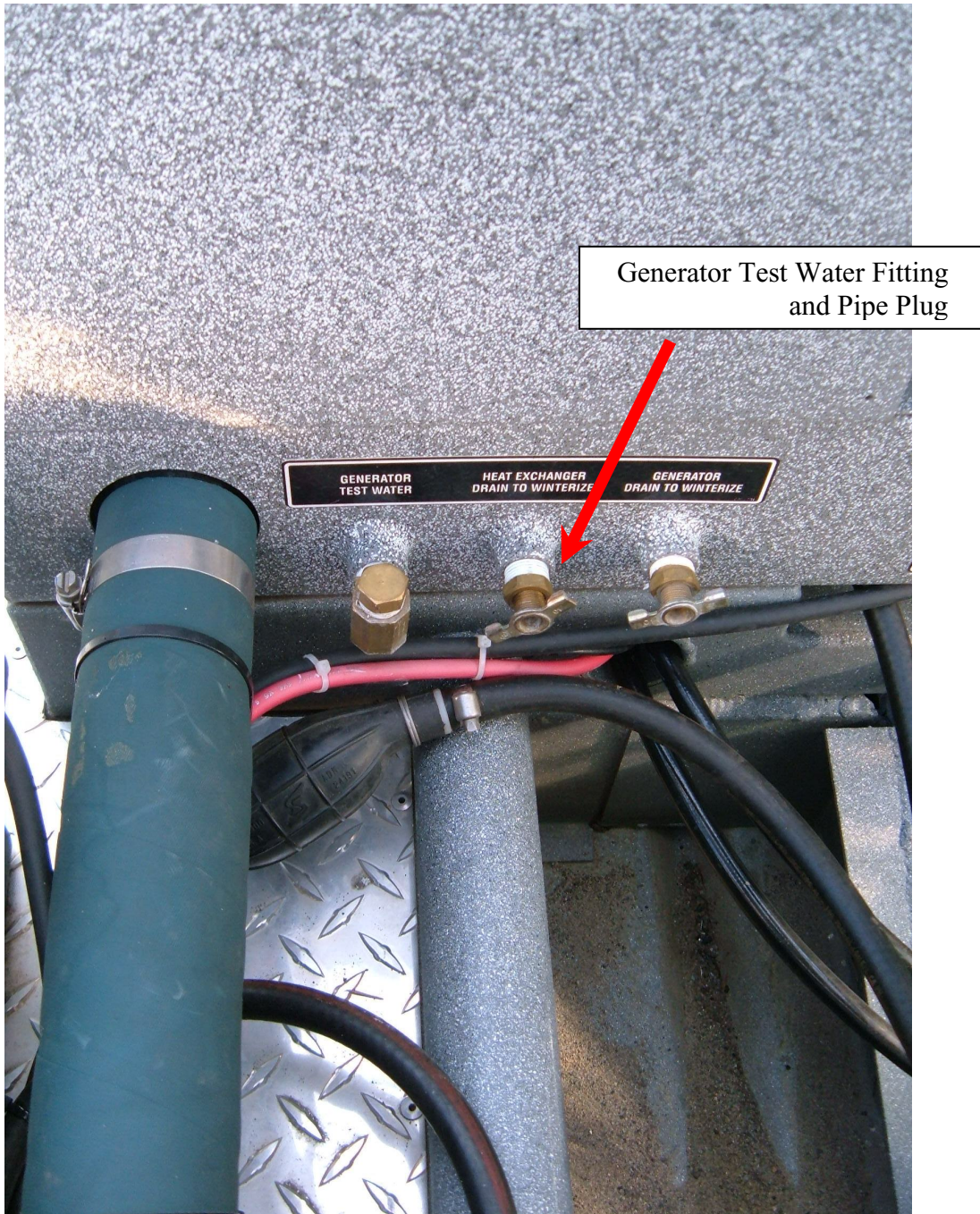
**2C.** Outboard flushing adapter attached to lower jet unit. Ready to turn on water supply and flush outboard system.





3A. Generator raw water strainer, and main battery selector are located on port side of diver's console.





**3B.** Generator raw water flushing connection (i.e. Generator Test Water Fitting). Located on the base of generator cover, port side aft.





3C. Pipe plug has been removed, and generator flushing adapter has been attached.



3D. Generator flushing adapter is attached. Ready to turn on water supply and flush generator and washdown pump systems.

**Table B-1. Boat Engine Information for Cleaning to Minimize Spread of Aquatic Species.  
(1/28/10).**

Boat Name and Type	Engine Information	Location	Flushing Method
Skookum Almar "Sounder" 26'x8.5'	Volvo-Penta 200HP Diesel Model AD 41/DP 2002	OC main engine on boat	Ear Muffs
Large Whaler 20' "Outrage" Boston Whaler	Evinrude 150 HP 2-cycle Model E150FPXEE Serial # G04651401 Tag # E120972 (12/98)	ERO main engine on boat	Ear Muffs
Large Whaler 20' "Outrage" Boston Whaler	Evinrude 5 HP 4-cycle Model E15FRLED Serial # G04070374 Tag# E117261	ERO spare engine on boat	Ear Muffs
Electro-Fisher Smith-Root SR-18 18'	Yamaha 115 HP 4-cycle Model F115TJRC Serial #68VL1070897J Tag # E133353 2007	OC main engine on boat	Hose connection and adaptor  Generator also uses hose connection and adaptor
Whaler #1 ("old") 17' "Montauk" Boston Whaler	Evinrude 70 HP 2-cycle Model E70TLED Serial # G03842907 Tag # E116488 Feb-95	OC main engine on boat	Ear Muffs
Whaler #1 ("old") 17' "Montauk" Boston Whaler	No motor on boat as of 1/12/09	OC	n/a
Whaler #2 ("new") 17' "Montauk" Boston Whaler	Evinrude 90 HP 2-cycle Model E-TEC Serial # 05227247 Tag # new 2008	OC main engine on boat	Hose connection
Jet Sled Wooldridge 16 Xtra Plus (16.5')	Evinrude 115/80 HP 2-cycle Model E-TEC Serial # 05250809 Tag # E135285 2008	OC main engine on boat	Hose connection and adaptor

**Table B-1 (continued). Boat Engine Information for Cleaning to Minimize Spread of Aquatic Species.**

Boat Name and Type	Engine Information	Location	Flushing Method
McKee Craft 16'	Honda 90 HP 4-cycle Model Serial # BEB...a7...1007464 ? Tag # E135305	CRO main engine on boat	Hose connection
Jon Boat Valco P-14'	OMC 8HP 2-cycle #1 (in red lettering) Model E8REV Serial # G04323535 Tag # E118561 1997	OC  on floor caddy	Flushing Tub
Little Jon Grumman Model 1237	Evinrude 6HP 2-cycle #3 (in white ? lettering) Model E6RETB Serial # B08967546 Tag # E121292	OC on floor caddy	Flushing Tub
AVON 1 Roll-Up inflatable 2.85 9'x4'9"	Honda 5 HP 4-cycle Model ?? Serial # Tag # 2005	CRO location?	Hose connection
AVON 2 Roll-Up inflatable 2.85 9'x4'9"	Evinrude 6 HP 2-cycle #2 (in white lettering) Model E6RERE Serial # B09048443 Tag #E115547 Jun-94	location unknown	Flushing Tub
No Boat Assigned	Evinrude 6 HP 2-cycle #1 (in white lettering) Model E6R...? Serial # B8984343 Tag # E114122	OC on floor caddy	Flushing Tub
No Boat Assigned	OMC 8HP 4-cycle #2 (in red lettering) Model E8REVR Serial # H09363061 Tag # E119579 1997	OC on upright stand	Ear Muffs

# Appendix

## Summary of Field Gear Cleaning and Decontamination Procedure

### Prior to field work:

- Check if the sampling will take place in an area of extreme concern – maps at this link: <http://www.ecy.wa.gov/programs/eap/InvasiveSpecies/AIS-PublicVersion.html>
- Plan field activities to minimize contact between equipment and potential sources of invasive species, particularly aquatic plants and sediment.

### After conducting field work:

- **Inspect and clean** all equipment. Remove any visible soil, vegetation, vertebrates, invertebrates, aquatic plants, algae or sediment. If necessary, use a scrub brush and rinse with clean water either from the site or brought for that purpose. Continue this process until the equipment is clean. **Drain** all water in bilges, samplers or other equipment that could harbor water from the site. This step should take place before leaving the sampling site or at an interim site. If cleaning after leaving the sampling site, ensure that no debris will leave the equipment and potentially spread invasive species during transit or cleaning.
- **Additional Requirements for felt sole waders used anywhere in the state and equipment that contacted sediment, aquatic vegetation or fish in areas of extreme concern:**
  - **Smooth surfaced sampling equipment that can be easily and fully wiped down – wipe until dry.** The equipment must be smooth enough so there are no cracks or crevices that could harbor a sand-grain-sized juvenile New Zealand mudsnail while being wiped dry.
  - **For all other equipment, use one of the decontamination treatments found in the table below.** Conduct decontamination where the procedure can be carried out effectively and safely. Wash and rinse water must not drain to surface water, and all chemicals must be disposed of to a sanitary sewer.

### Equipment Storage:

- **Dry** – Between field sites and upon returning from the field, when cleaning and decontamination requirements are complete store gear to facilitate drying.

Table. Decontamination Options

Treatment	Concentration or temperature	Exposure Time	Comments
<b>hot water wash or soak</b>	60° C (140° F)	5 min for felt-soled boots and nets; 10 sec for all other equipment	Ensure all parts of the equipment reach temperature for the full exposure time
	49° C (120° F)	10 min for felt-sole boots and nets; 5 min for other equipment	Ensure all parts of the equipment reach temperature for the full exposure time
cold	-4° C	4 hours minimum	Time starts after the equipment reaches -4 °C
drying	low humidity, in sunlight is best	48 hours	Time starts after the equipment is thoroughly dry
Formula 409 All-Purpose Cleaner <sup>1</sup>	100% (full strength)	10 min	Follow proper procedures for storage and handling.
sparquat 256 <sup>2</sup>	3.1% or higher	10 min	Follow proper procedures for storage and handling.
Quat 128	4.60%	10 min	Follow proper procedures for storage and handling.
Hydrogen peroxide <sup>3</sup>	30,000 ppm (3%)	15 min	Spray on until soaked, then keep damp for contact time (cover or place gear in a dry bag)
Virkon Aquatic®	2%	20 min	Must soak (not spray on) Follow proper procedures for storage and handling <sup>4</sup>

<sup>1</sup> Must be antibacterial (make sure it has quaternary ammonia, otherwise it is ineffective)

<sup>2</sup> Sparquat is corrosive; read the MSDS and use with caution.

<sup>3</sup> May be corrosive; read the MSDS and follow safety precautions

<sup>4</sup> Rinse gear after soak to prolong life. Solution degrades, lasts up to 7 days, best if mixed fresh

## Summary Flow Chart

