TRAINING HANDBOOK

Hazard Assessment, Mitigation and Training for Workers Exposed to Residential Sewage

Safety and Health Investment Project (SHIP)

Written by: The Washington On-Site Sewage Association in Collaboration the Washington State Department of Labor and Industries

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Program Recognition

SHIP Grant Program — Safety and Health Investment Projects — SafetyGrants.Lni.wa.gov — Funded by the Department of Labor & Industries

Funding and support for this project has been provided by the State of Washington, Department of Labor & Industries, Safety & Health Investment Projects

Program Recognition

WOSSA Board Members

WOSSA Association Members

On-Site Industry Professionals and Service Providers

Laboratories Northwest

Washington State University

Water Management Laboratories, Inc.

This training curriculum was prepared by WOSSA in collaboration with the Dept. of Labor and Industries SHIP Grant Staff. WOSSA would like to thank all who were involved in the research, writing and review of this curriculum.

Purpose of the Grant and Outcomes

- To study pathogen exposures to workers in the On-Site Industry
- Numerous studies have been done on wastewater workers in “Treatment Plant” situations but never in the field work that we do.
- An extensive literature review was completed in the first phase
- Field observations and workplace sampling were conducted in the next phase

Purpose of the Grant and Outcomes

- Quantify the actual exposures to workers on the OSS industry.
- Identify current risk mitigation with commonly used tools and PPE (Personal Protective Equipment).
- Raise awareness to the exposures through education and training
- Provide useful tools and recommendations to identify and manage pathogen exposures in the workplace.

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“Voice of the Industry”

Quantifying the Exposures

to Workers in the OSS Industry with field sampling and Lab Testing

SHIP Safety and Health Investment Projects Grant Program
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Purpose of the Grant and Outcomes

Quantify the actual exposures to workers on the OSS industry

- Field sampling was done in a variety of workplace settings with several methods.
- Three different labs with same protocols were used to ensure valid results.

Purpose of the Grant and Outcomes

Sampling was done on:

- Offices, Shops, Storage areas, Equipment, Clothing, Cell phones, Smokers, Chew, Truck Cabs and more.
- Pumping, jetting, system repairs
- Wastewater in tanks
- Sewer lines
- Drainfield components

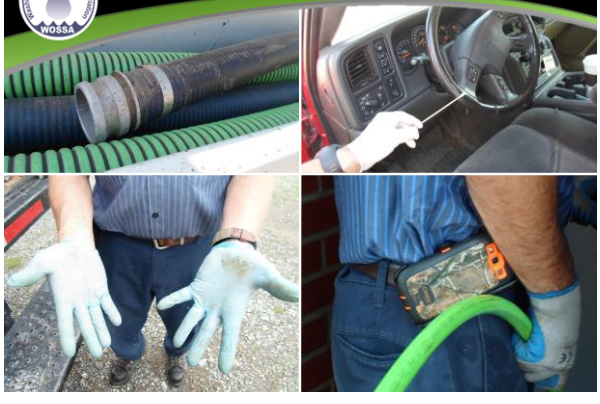
Purpose of the Grant and Outcomes

Laboratory testing procedures:

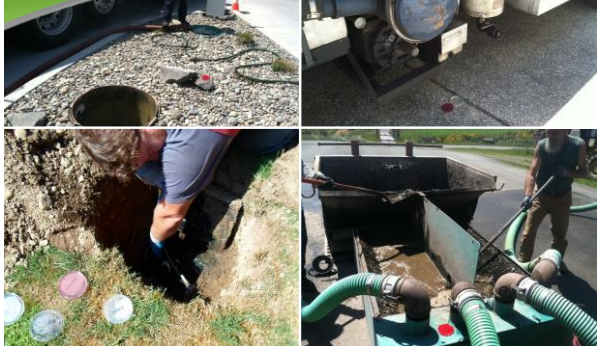
- Fluid testing.
- Contact surface / swab testing.
- Aerosol / vapor testing
- Controls
- Testing laboratories:
  - Laboratories NW (MultiCare)
  - Water Management Lab
  - WSU Food Safety Lab

Fluid Testing

Contact Surface Testing



Aerosol Testing



Field Sampling Controls

Testing Controls

- Quality Control Blanks
  - Trip Blanks
  - Field Blanks
  - Duplicates
  - Split Samples
- Environmental Control

Purpose of the Grant and Outcomes

What we found….

ALMOST EVERYTHING IS CONTAMINATED!

Purpose of the Grant and Outcomes

We also know that …

- You are NOT SURPRISED!
- Up until now … You know that it's DIRTY!
- Today, you will learn how it's UNHEALTHY!

Field Sampling Controls

Laboratory results

- Mixed Bacterial flora
- Bacillus
- Gram negative Rods
- Gram positive Cocci
- Aeronmonas Hydrophila
- Aeromona Caviae
- Streptococcus
- Fungus
- Yeasts
- Enteric type gram negative rods
- Staphylococcus, Coagulase Negative
- Gram positive Coryneform rods
- Aeromonas Sobria
- Escherichia Coli O157:H7
- Fecal Flora
- Spore forming gram positive rods
- Propionibacterium gram positive rods
- MRSA
- Diptheroieds
- Molds and Rare Molds

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Where Do We Go from Here?

General Management Principles of Safety in the OSS Industry

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What we are going to talk about today

- General Management Principles of Safety
- Discuss Safety Management vs Safety Programs
- Characterize Accidents and Illness'
- Management Tools for Risk in Your Workplace

What we are going to talk about today

- Pathogen Exposures in Wastewater
- Work activities with Greatest Exposure
- The Best Things You Can do to Protect Yourself

Overview of Course Handout & Materials

1. Power Point presentation
2. WISHA Occupational Blood Borne Pathogen Summary
3. Personal Protective Equipment (PPE) Guide
4. Eye and Face Protection
5. Hand and Arm Protection
6. Foot and Leg Protection
7. Torso and Body Protection
8. Job Safety & Hazard Assessment tools

Why Should You Care?

"Our Goal is to give you information that helps you stay healthy and protect others while you're working…"

Question: What is the difference between….

"Managing safety"
Owner Level….It has to do with a developing a safe "Company Culture"

"Working safely"
Personal Level…. Your decisions in Practice

Learning the "Lingo"

Terms Used by the On-Site Industry:

- Baptism by Sewage (drenched)
- Swim Jobs
- Digester/Poop Flu

Learning the "Lingo"

Terms Used by Healthcare Providers:

- MDROs (Multi-Drug Resistant Organisms)
- Transmission Vectors
- Direct and Indirect contact
- Infective Dose
- OPIM's (Other Potentially Infectious Material)

Learning the "Lingo"

Terms Used by Labor and Industries:

- Job Safety Analysis (JSA)
- Personal Protective Equipment (PPE)
- Confined Space Entry (CSE)

Washington State Department of Labor & Industries
Division of Occupational Safety and Health

How do we compare to other work settings?

UNIVERSAL PRECAUTIONS

In 2007 A Guideline for Isolation Precautions: Preventing Transmission of Infectious Agents in Healthcare Settings was published by the CDC

It addressed “Best Practice” techniques applied to the Health Care Industry and WOSSA has reviewed parallels to the benefit for wastewater workers in the On-Site Industry …

UNIVERSAL PRECAUTIONS

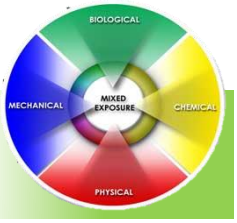
Some of the similarities for both industries :

- Sources of Infectious Agents
- Bio-aerosols and airborne transmission of Infectious agents
- Transmission vectors:
  Direct/Indirect/Aerosol/Droplet
- Mobility exposures to others via clothing

WISHA – Rules of the road

Chapter – 296-823 Occupational Exposures for Blood borne Pathogens …*or OPIM's*

- Occupational Exposures
- Exposure Incident
- Parenteral Contact



WISHA – Rules of the road

"*This chapter applies to you if you have employees with occupational exposure to blood or OPIM, even if no actual exposure incidents have occurred"*

WISHA – Rules of the road

Chapter – 296-823 Occupational Exposures for Blood borne Pathogens and Definitions

- Occupational exposures means "reasonably" anticipated skin, eye, mucous membrane, or parenteral contact with blood *or OPIM* that may result from the performance of an employee's duties

WISHA – Rules of the road

Chapter – 296-823 Occupational Exposures for Blood borne Pathogens and Definitions

- "Other Potentially Infectious Material"
  - Human body fluids: Semen,……. any fluid visibly contaminated with blood, *and <u>all</u> body fluids in situations where it is difficult or impossible to differentiate between body fluids*

Real life On-Site examples from Washington

- Sewage in eyes – Both with "pink eye" needing to go to the Emergency Room
- 2 LNI Claims for "Pink Eye" over $4,000 in paid claims – follow on infections with Sty's
- MRSA infection in nose from Aerosols working in OSS with a one week hospital stay
- Giardia from an open wound exposed to sewage
- Case of E-Coli & Hepatitis
- Employees' less than 6 months on the job…

WISHA – Rules of the road

Chapter – 296-823 Occupational Exposures for Blood borne Pathogens and Definitions

- Exposure incident means a specific eye, mouth or other mucus membrane or non-intact skin or parenteral contact with blood or "*OPIM"* that results from the performance of an employee's duties.
- Examples of non-intact skin include skin with dermatitis, hangnails, cuts, abrasions, chafing or acne

Chapter – 296-823 Occupational Exposures for Blood borne Pathogens and Definitions

- Parenteral contact occurs when mucous membranes, or skin is pierced by needle sticks, human bites, cuts or abrasions

Chapter –296-823-100 – Occupations

- Doctors/PA's, Nurses, Dental Hygienists (and others)
- Housekeepers in Hospitals
- Nuclear medical technologists
- Fire fighters and workers in laundries that service them
- *Employees that handle or pick up regulated waste*

Chapter –296-823-100 – Occupations

- Definitions : Regulated waste is any of the following:
  - Liquid or semi-liquid blood ***or other potentially infectious material (OPIM)***
  - ***Items that are caked with OPIM and are capable of releasing these materials during handling***
  - ***Pathological and microbial wastes containing OPIM***

Where we Work…..

- Residential systems
- Commercial/Schools
- Community systems
- Sewer jobs
- Digesters

What are you working in ?

You JUST Don't KNOW!!!

BUT……

Public beaches are closed when E.Coli levels hit

> 126 /100 ml

Raw Sewage in our field sample studies were commonly

> 160,000 /100 ml

Who Manages us?

- State Board of Health
- Local Health Jurisdictions
- What is their mission?
  - Evaluate and manage risks to the environment and public health from OSS. In areas where increased risks are identified, LHJs determine the appropriate management action

Blackwater vs. Greywater

Parameter	Greywater	Blackwater
BOD_5	63	37
TSS	39	61
Nitrogen	18	82
Phosphorus	70	30
Flow	60	40
FC (#/100 ml)	1,000,000	1,000,000

Who Manages us?

Thornton Creek Bacteria Study

- Public warned to stay out of Thornton Creek due to high bacteria levels; based on an intensive study done by the City of Seattle.
- **We recommend avoiding contact with water from the following creeks: John's Creek, Juanita Creek, Ravenna Creek, Idylwood Creek, and Thornton Creek.**

What should you do First?

If you're the owner of the business...

- Create a simple outline of your Accident Prevention Plan (APP)
- Use the KISS method when approaching this task…
- Involve your workers in workplace safety and health awareness and identification.
- Give new employees job safety orientation and provide the personal protective equipment they need.

The WOSSA WAC

If you're the employee of the business….

Willingness … To take personal responsibility for your safety, your family and the homeowner!

Awareness … To pay attention to the tasks at hand!

Common Sense … If you figure it out ahead of time, its usually pretty easy to do it without increasing your exposure or getting sick!

Understanding the Difference?

Workplace accidents and Illness'

- Your APP plan identifies them to the workplace
- Include them in your safety orientation with new employees
- Use them in your safety meetings:
  - Tailgate, Weeklies, Managers

Why Do Accidents/Illness' Happen?

1. Rushing
   - Not replacing compromised PPE
   - Eating on the go…
2. Eyes not on Path
   - Slips, trips and falls
   - Doing too many things at once
3. Eyes not on Task
   - Impact injuries in a contaminated environment
   - Pay attention to the task at hand
4. Line of Fire
   - Exposure to sewage by "splash back"
   - Less obvious is line of fire by "aerosols"

Why Do Accidents/Illness' Happen?

How Does Illness OTJ Happen?

1. Unaware of exposures
   - Not replacing compromised PPE
   - Eating on the go…
2. Positive reinforcement for negative behaviors
3. Line of Fire
   - Exposure to sewage by "splash back"
   - Less obvious is line of fire by "aerosols"

CLAIM COUNTS AND COSTS BY ACCIDENT TYPE

Claim Received Year	2001		
Accident Type	Number of Claims	Incurred Costs Total	Incurred Costs Average
BODILY REACTION	9,273	$ 103,997,796	$ 11,215
CONTACT ELEC/TEMP/TOXIC BODY	6,634	$ 18,925,539	$ 2,853
FALLS	18,691	$ 226,221,360	$ 12,103
HIGHWAY MOTOR VEHICLE	2,743	$ 45,945,370	$ 16,750
OVEREXERTION	35,993	$ 405,958,497	$ 11,279
STRUCK BY OR AGAINST	49,183	$ 165,825,332	$ 3,372

CLAIM COUNTS AND COSTS Z16 INJURY SOURCE

Claim Received Year 2005

Injury Source	Number of Claims	Incurred Costs Total	Incurred Costs Average
INFECTIOUS AGNT	686	$ 1,238,887	$ 1,806
LIVE ANIMALS	1,506	$ 3,324,104	$ 2,207
STAIRS/STEPS	1,515	$ 8,462,197	$ 5,586
TANKS/BINS	570	$ 3,659,209	$ 6,420

CLAIM COUNTS AND COSTS Z16 INJURY SOURCE

Claim Received Year 2005

	Number	Aggregate Amt	Avg per Claim
LADDERS UNS	312	$ 1,610,948	$ 5,163
PRESSURE LINES	353	$ 2,291,970	$ 6,493
NONPOWER KNIFE	4,420	$ 3,778,130	$ 855
NONPWR TOOL	1,937	$ 8,568,883	$ 4,424
SHOVEL/SPADE	352	$ 2,061,306	$ 5,856

Safety "Management" vs. Safety "Programs"

What do you think this means?

- Safety Management breaks down management as a process
- Looks at three elements:
  - People
  - Planning
  - Control

Safety Management

This approach puts them in context of ways to create a company “Culture” considering:

- Safety Issues
- Health Issues
- Environmental Issues

Safety Management

If Safety “Management” is the Warehouse, Then “Safety Programs” are the Delivery Trucks.

Programs are used to focus workers attention on specific issues…

- Establishing the company “safety culture”
- Team building / Training
- Focus safety issue

Safety Management

Describe in your company “Culture” in two words……

- Needs improvement
- Pretty good
- Comprehensive

How Does Safety Happen?

- **Administrative Controls:** Policy, Management Programs, Training, Vaccines
  - PS:…….Make sure you put these in writing!
- **Elimination/Substitution:** How can I do the work differently and still get it done?
- **Engineering Controls:** Equipment design, Operational Procedures

Making it part of your Culture

- Worker participation in safety planning
- Management walking the talk
- Availability of proper PPE
- Influence of workplace group
- New worker orientation

Making it part of your Culture

Compliance to use of appropriate PPE by task (pumping, jetting, cleaning, repairs) was an issue from field observations in this study.

- PPE used appropriately 100% the time – Never
- Compliance varied by job task…generally the more complicated or longer the job became, appropriate use of PPE declined and exposure increased.

You Can't Anticipate an Accident

But you can anticipate need

Greatest risk of transmission for workers

- Close contact to contaminated sewage
- Are not trained to the exposure and mitigation (proper use of PPE)
- Do not consistently use PPE
- That N-95 or higher respirators may offer additional protection in those exposed to aerosols

But you can anticipate need

Tools to assess Risk

- What is a JSA?
- Use them to anticipate work place exposures and identify appropriate mitigation for any and all jobs.

Applied JSA exercise

Hazard Assessment Made Specific ... Section 8

Job Hazard Analysis Matrix

Severity of Injury		Probability of an Accident Occurring				
Level	Description	A Frequent	B Several Times	C Occasional	D Possible	E Extremely Improbable
I	Fatal or Permanent Disability	1	1	1	2	3
II	Severe Illness or Injury	1	1	2	2	3
III	Minor Injury or Illness	2	2	2-3	3	3
IV	No Injury or Illness	3	3	3	3	3

Risk Priority

Code	Risk Level	Action Required
1	High	Work activities must be suspended immediately until hazard can be eliminated or controlled or reduced to a lower level.
2	Medium	Job hazards are unacceptable and must be controlled by engineering, administrative, or personal protective equipment methods as soon as possible.
3	Low	No real or significant hazard exists. Controls are not required but may increase the comfort level of employees.

Applied JSA exercise

Job Hazard Analysis for Personal Protective Equipment (PPE) Assessment

Job/Task _____ Location _____

Job/Task Step	Hazard Type	Hazard Source	Body Parts At Risk	Severity	Probability	Risk Code	Control Method*
Playing Hockey	Impact	Hockey Puck	Head	I	B	1	Helmet Required
		Hockey Puck	Torso	II	B	1	
		Hockey Puck	Eyes				Face Mask
		Hockey Stick					
		Body Impact					

(*) Note: Engineering, work practice, and/or administrative hazard controls such as guarding must be used, if feasible, before requiring employees to use personal protective equipment.

Certification of Assessment

*Name of work place _____ *Address _____

*Assessment Conducted By: _____ Title: _____ *Date(s) of Assessment _____

Implementation of Controls Approved By: _____ Title: _____ Date: _____

Make sure you have the tools to do the job!

What does this mean for you?

Personal Protective Equipment (PPE)

- What do I need?
- Is it Available?
- Is it user Friendly? (all work tasks)
- Is it “Fit for Use”?

When needed, will I use it 100% of the time?

How Does Safety Happen?

PPE for sewage exposure refers to a variety of different types of barriers used alone or in combination depending on the task.

- Barrier protection
- Working “Clean to Dirty” techniques
- Clean up steps afterwards

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What are the Pathogen Exposures?

Pathogen Exposures to Workers in The OSS Industry

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How Does Safety Happen?

What are the Pathogen exposures?

- Are they really different from what your exposed to everyday at home, with kids, pets….
- Short answer: Yes…….No…….Maybe

You just don't know what pathogens will present from one job to the next.

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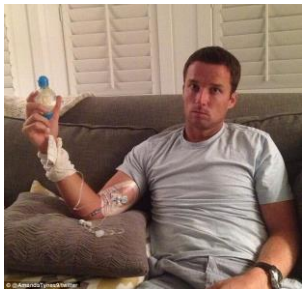
It Won't Happen to Me!

It Won't Happen to Me!

TAMPA (CBSMiami) -

Two Tampa Bay Buccaneers players are being treated for methicillin-resistant staphylococcus aureus (MRSA) infections and neither the team nor the players know where they contracted the disease.



It Won't Happen to Me!

MRSA

Methicillin resistant *Staphylococcus aureus* (**MRSA**) is a bacterium responsible for several difficult-to-treat infections in people

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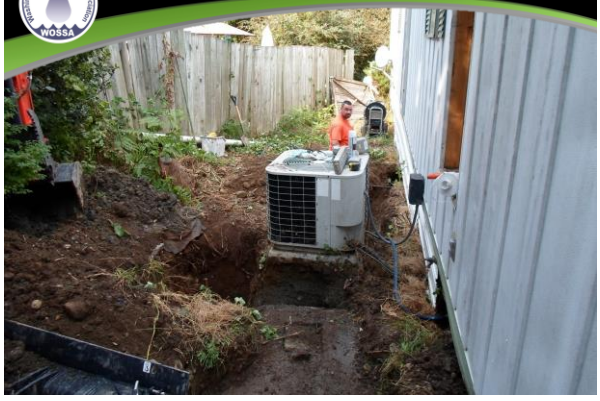

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LABORATORIES Northwest
Tacoma, WA 98415

NAME: BUCKLEY SER,ADVANCED
MR#: WOSSA-8221302 AGE: 6D 08/22/2013 Reprinted Report
PHONE#: SEX: U LOC: WOSSA

FLDS, WOUNDS, MISC SPECIMENS

08/22/13 MRSA Culture Screen
Coll Time ACC. NO.: H70791 Final 08/23/2013
+ 1145 Specimen Description: Fluid
Special Requests: sewage study

Culture Results: 1. MRSA isolated
2. MultiCare Infection Control notified

08/22/13 Enterovirus Culture
Coll Time ACC. NO.: H70792 Final 08/26/2013
+ 1145 Specimen Description: Fluid
Special Requests: sewage study

Culture Results: 1. No Enterovirus including: Coxsackie A & B, Echovirus, Poliovirus or Enterovirus isolated in cell culture.

08/22/13 Giardia/Cryptospor
Coll Time ACC. NO.: H70793 Final 08/22/2013
+ 1145 Specimen Description: Fluid
Special Requests: sewage study

Direct Ag Test: 1. Negative for Cryptosporidium and Giardia lamblia antigens by EIA

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MRSA Infection in the Eye

It Won't Happen to Me!

MRSA

Methicillin resistant *Staphylococcus aureus* (**MRSA**) is a bacterium responsible for several difficult-to-treat infections in people

It Won't Happen to Me!

Exposure Vectors?

- Direct (examples?)
- Indirect (examples?)

PPE Choices

- Sunglasses ?
- Splash shield?
- Goggles?
- N-95 mask?
- Exam Grade Nitrile Gloves
- Double gloves?
- Anti-Bacterial lotion

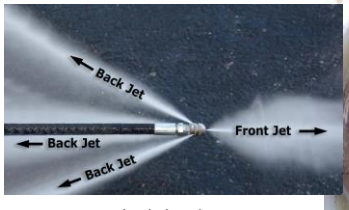
It Won't Happen to Me!

Pink Eye

Common bacteria responsible for non-acute bacterial conjunctivitis are staph and strep and are common in wastewater.

What do you think is the most common vector route?

Most likely cause….



- Splash back
- Aerosols
- Hand to face
- Sweating into eyes

What is the appropriate level of PPE?

What is the appropriate level of PPE?

What is the appropriate level of PPE?

It Won't Happen to Me!

Sty — also called a hordeolum appears as a red, sore lump near the edge of the eyelid.

It is usually caused by a bacterial infection.

A sty will develop at the base of an eyelash if the eyelash follicle (root) is infected.

It Won't Happen to Me!

Exposure Vectors?

- Direct (examples?)
- Indirect (examples?)

PPE Choices

- Sunglasses ?
- Safety glasses with side shields?
- Splash shield?
- Gogoggles?

Behavioral Elements

Everyone is different, But

- Behaviors are learned……
  - Perception of risk
  - Acceptance of risk
  - Past Experience
  - Current need

Poop Flu

Did you experience an illness while on the job, when you first started working in the On-Site industry?

Over half of all Americans will be infected with an intestinal parasite at some point in their lives.

Yet, many of us do not recognize the signs and symptoms of a parasite infection because they can occur weeks or even years after the initial infection, and because a parasitic infection often mimics other similar conditions.

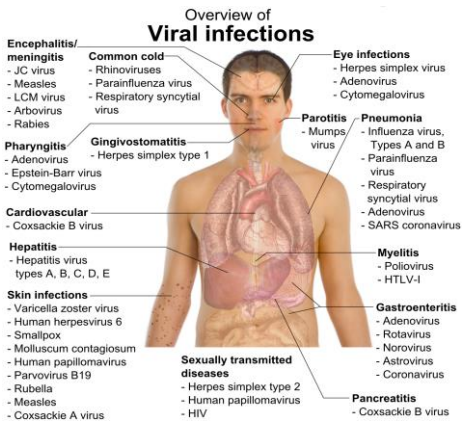
The most common symptoms of a parasite infection include constipation, diarrhea, gas and bloating, irritable bowel syndrome, joint and muscle aches, anemia, allergies, skin conditions, tumors, nervousness, sleep disorders, teeth grinding, chronic fatigue, and immune dysfunction

Bacteria

- Extremely common in sewage
- Found naturally in human intestinal tract, sewage, soil, lakes, streams & ponds
- Three groups: aerobic, anaerobic, facultative
- Responsible for much of treatment of sewage
- Some are pathogenic – indicator organisms

Virus

- Extremely small infective agents – electron microscope is needed to see them.
- Depend on living host cell to supply needs
- More than 100 types found in sewage
- Must be removed or may cause illness



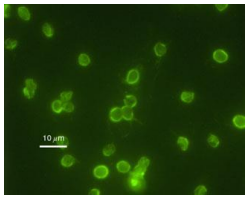
Microbiology of Sewage

Protozoans

- About 50 times bigger than a bacterium, single cell
- Organisms should not survive passage through system, problem with cysts and eggs.
- More than 100 types found in sewage
- Must be removed or may cause illness

Protozoans

Amoeba

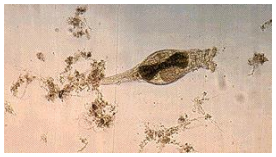


Crypto oocysts

Microbiology of Sewage

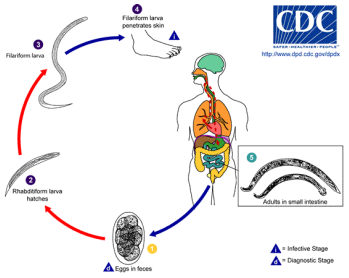
Other organisms

- Worms
- Rotifers & other micro-organisms
- Other macro-organisms



Microbiology of Sewage

Hookworms



Hookworms – Life Cycle

Eggs are passed in the stool , and under favorable conditions (moisture, warmth, shade), larvae hatch in 1 to 2 days. The released larvae grow in the feces and/or the soil , and after 5 to 10 days they become larvae that are infective .

These infective larvae can survive 3 to 4 weeks in favorable environmental conditions. On contact with the human host, the larvae penetrate the skin and are carried through the veins to the heart and then to the lungs.

Entamoeba histolytica	**6-8 days**
Coliforms	**38+ days**
Salmonella	**1-120 days**
Cryptosporidium oocyst	**60-180 days**
Enteroviruses	**8+ days**
Ascaris ova	**up to 7 years**

Worms, viral	**1**
Amoebic Dysentery	**10-20**
Giardiasis	**5-100**
Cryptosporidiosis	**10-100**

Incident Reported Frequency in WA. Annually

Worms -	**Fecal, Oral**	**Many**
Virus'-	**Fecal, Oral**	**Many**
Giardia	**Fecal, Oral**	**520**
Crypto	**Fecal, Oral**	**100**
Shigella	**Fecal, Oral**	**120**

Incident Reported Frequency in WA. Annually

Cholera-	**Fecal, Oral**	**Rare**
MRSA-	**Contact, Inhalation**	**Many**
E.Coli 157:H7-	**Fecal, Oral**	**220**
Campylobacter-	**Fecal, Oral**	**1500**
Hep A Fecal,	**Oral**	**30 (new)**

What are some other factors?

The "Compliance" Barrier….

What are some of the reasons that you think the voluntary use of PPE is so low in our industry?

What are some other factors?

The "Compliance" Barrier….

What are some of the reasons that you think the voluntary use of PPE is so low in our industry?

- Cost
- Peer pressure
- Time
- Nothing really bad has happened…

What are some other factors?

The "Compliance" Barrier….

Independent work group studies have shown some other elements:

- Lack of Time
- Perception that use of the PPE interferes with the ability to do the job
- Physical discomfort of PPE including masks
- PPE not immediately available when needed

Behavioral Elements At Work

- "Attitude" is your *internal guide* to Behavior
- Your perception of risk allows you to lose the ability to accurately identify the risk.
- If you don't adjust to this one thing….you won't consistently minimize your exposure…….
- The result that follows is the …."positive re-enforcement for negative behavior"

It wears away your commitment to personal safety, with justification tactics (your attitude).

Exposure risks identified in the Shop or Yard

- Objective Hazards: What are they?
  - Transfer Storage -
  - Truck Washing
  - Repair Maintenance
  - Personal Items
  - Others?

Not so “Invisible Hazards”

Exposure risks you recognize in the field?

- Objective Hazards: What are they?
  - Pumping
  - Dumping
  - Jetting
  - OSS Component Repair/ Maintenance
  - Personal Actions (smoking, chew, eating)
  - Others? (External conditions – weather: heat/cold)

Not so “Invisible Hazards”

Most Common Exposures - In the Field

- Objective Hazards (Hazard)
  - Direct Contact
  - Aerosols
  - Splash back
  - Inhalation
  - Immersion
  - Secondary (smoking, chew, sweating, clothing)

Hazard Assessment Made Easy…

Hazardous condition + Exposure = Illness, Injury, Death

~~Hazardous condition~~ + Exposure = ~~Illness, Injury, Death~~

Hazardous condition + ~~Exposure~~ = ~~Illness, Injury, Death~~

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How Do I Protect Myself?

Determining what personal protective Equipment is "Fit for Use"

SHIP Grant Program — Safety and Health Investment Projects — Funded by the Department of Labor & Industries

Base Layer Protection

Consideration of PPE includes understanding why we use it in the first place…..

PPE means:

"Specialized clothing or equipment worn by an employee for protection against infectious materials" (OSHA)

Base Layer Protection

Consideration of PPE includes understanding why we use it in the first place…..and is it “Fit for Use”

- Uniforms – protect skin and/or clothing
- Gloves – protect hands
- Masks– protect mouth/nose
- Respirators – protect respiratory tract from airborne infectious agents
- Goggles – protect your eye

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Exposure: Contact/Immersion/Barrier Protection

Glove Grades

Surgical Gloves: Good

As the name suggests, surgical gloves are designed primarily for use in healthcare procedures posing the highest risk for the spread of blood borne pathogens

Exposure: Contact/Immersion/Barrier Protection

Glove Grades

Examination / Medical Gloves (min. 4-6ml): Better

Examination grade gloves, also sometimes referred to as medical gloves, were originally designed for non-surgical medical procedures, but are also used in a variety of other applications. Exam gloves are sold both sterile and non-sterile.

Exposure: Contact/Immersion/Barrier Protection

Glove Grades

Food Service Gloves: Minimal to Poor

Food Service gloves, often referred to as multipurpose gloves, are designed for short-term use and frequent glove changes. No government regulations or inspection program exists for food service gloves.

Instead, the USDA requires that all glove components comply with the provisions of the FDA and Cosmetic Act.

Base Layer Protection

Exposure: Contact/Immersion/Barrier Protection

Glove Grades

Mechanics/Industrial Gloves: Poor

Offering greater protection than nothing, nitrile gloves provide resistance to most finishes, solvents, and chemicals. Nitrile material is also *resistant* to punctures, cuts, and snags. Gloves are pre-powdered and contain no natural rubber latex. **Common in our industry but unsuitable for the exposures that we face in Sewage.**

Base Layer Protection

Mechanics/Industrial Gloves: Poor

Base Layer Protection

Mechanics/Industrial Gloves: Poor

Base Layer Protection

Exposure: Contact/Immersion/Barrier Protection

Glove Grades

Double Exam / Medical Gloves: Best

Offering greatest protection used along with, over gloves to provide barrier protection. Nitril material is also *resistant* to punctures, cuts, and snags more so than latex and provides better durability for many tasks.

Eye Protection

Exposure: Splash, Suspended Aerosol's

- Eye protection chosen for specific works depends on the task, potential exposure and personal vision needs
- **Personal eyeglasses and/or contact lenses are not considered adequate eye protection**

Eye Protection

Exposure: Splash, Suspended Aerosol's

- **NIOSH:** States that eye protection must be:
  - Comfortable
  - Allow for sufficient peripheral vision
  - Adjustable to ensure a secure fit

  Indirectly vented goggles with a manufacturer's anti-fog coating may provide the most reliable protection from splashes, spray and airborne droplets from multiple angles.

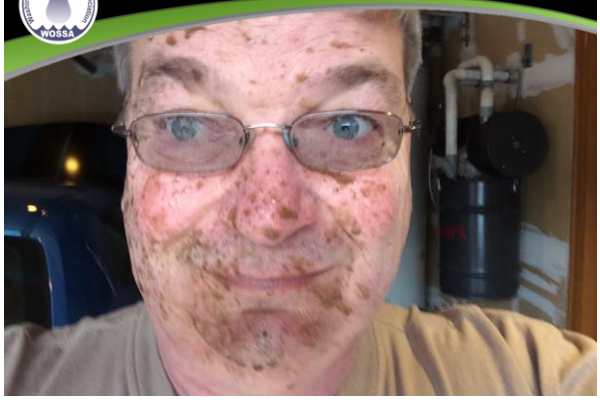
Eye Protection

Exposure: Splash, Suspended Aerosol's

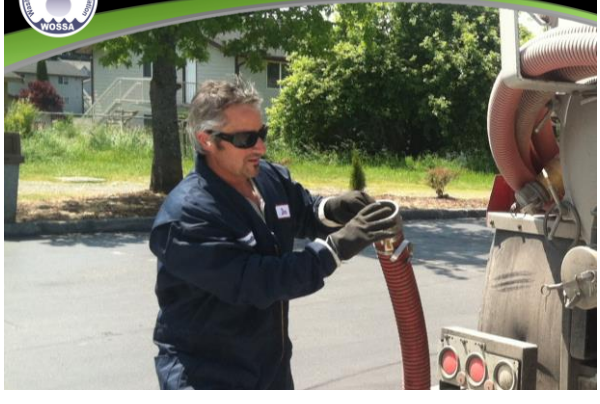
Good - but task specific

Better - all around choice

Eye Protection



Eye Protection



Inhalation Protection

Exposure: Splash, Suspended Aerosol's

A **surgical mask**, also known as a **procedure mask**, is intended to be worn by health care professionals during surgery and at other times to catch the bacteria shed in liquid droplets and aerosols from the wearer's mouth and nose…

Inhalation Protection

Exposure: Splash, Suspended Aerosol's

N-95 Mask: **Best**

It provides the greatest protection from airborne particles to the face for our work tasks.

Belt & Suspender Approach using Immunization

Hepatitis - A – Each year 125,000 to 200,000 people become sick with Hepatitis A

Signs and symptoms of disease include fever, weakness, nausea, abdominal pain, dark urine, yellow skin and eyes

Symptoms usually last less than two months, but 10% to 15% of those infected will have prolonged or relapsing disease lasting up to six months.

This virus is most **commonly spread in stool,** Hepatitis A may be widely spread through contaminated food. In 1983, f 203 people became ill in a county of 7,800 in Oklahoma. Ninety-two percent of those infected had eaten at the same drive-in restaurant between two and six weeks before onset of illness.

Belt & Suspender Approach using Immunization

Hepatitis B – The hepatitis B vaccine is available as a stand alone vaccine or in combination with hepatitis A vaccine.

Hepatitis B virus (HBV) is transmitted from one person to another through blood and body fluids, and primarily infects the liver. In the United States, it is most commonly spread through sexual contact or injection drug use.

Health care workers and others exposed to infected blood or body fluids are also at high risk for infection.

Symptoms of HBV infection vary and may include loss of appetite, fatigue, nausea, and jaundice (yellow eyes and skin), joint pain, and skin rashes.

Belt & Suspender Approach using Immunization

Typhoid - Typhoid fever is a serious disease caused by the bacterium called Salmonella enterica serotype Typhi (*S. Typhi*).

The infection is spread from person-to-person by the fecal-oral route. That means that people get typhoid from food or water contaminated with the feces of infected people.

Typhoid symptoms include high fever, weakness, stomach pains, headache, loss of appetite, and sometimes a rash. Infection can spread to many other places in the body (such as bones) and can cause rupture of the intestine. It kills up to 30% of people who get it, if they are not treated.

Some people who become infected with S. Typhi become chronic carriers—they have **no symptoms but have *S. Typhi* in their feces**

Belt & Suspender Approach using Immunization

Tetanus – Renewable every 10 years

Tetanus (Lockjaw) is caused by toxin-producing spores of a bacterium, *Clostridium tetani* that inhabit the soil and the bowels of animals and humans.

Unlike other vaccine-preventable diseases, it is not spread from person to person. Tetanus infection is most often the result of wound contamination in an unimmunized person or someone who has not had vaccine boosters in many years.

It may also occur following puncture wounds, animal bites, burns, abrasions and surgery.

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Working in the Field

"Best Practice" minimizing potential pathogen exposures in the field

SHIP Grant Program – Safety and Health Investment Projects – Funded by the Department of Labor & Industries

Best Practice - Personal Behaviors

Personal Behaviors:

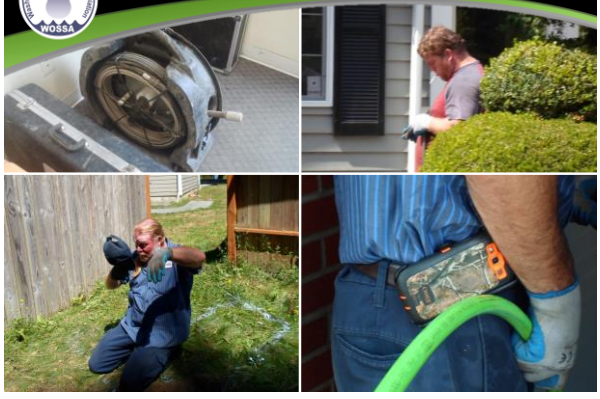
Wash hands immediately after handling wastewater

Avoid touching face, mouth, eyes, nose, or open sores and cuts

Wash your hands before eating or using the toilet

Do not smoke or chew tobacco or gum

Best Practice - Personal Behaviors



Best Practice - Personal Behaviors

Best Practice - Personal Behaviors

Best Practice - Personal Behaviors

Why does accident / illnesses Happen:

1. Rushing
2. Eyes Not On Path
3. Eyes Not On Task
4. Line Of Fire

Best Practice - Personal Behaviors

The "Compliance" Barrier:

1. Cost
2. Peer pressure
3. Time
4. Nothing really bad has happened…

Best Practice – Splashing

Exposure:
Splash
Aerosol's
Line of Fire

PPE Used:
Waterproof Boots

Additional PPE:
Double Gloves
Safety Glasses
N-95 Mask
Coveralls

Best Practice – Splashing

Exposure:
Splash
Aerosol's
Line of Fire

PPE Used:
Double Gloves
Waterproof Boots

Additional PPE:
Safety Glasses
N-95 Mask
Coveralls

Best Practice – Splashing

Exposure:
Splash, Aerosol's
Line of Fire
Direct / Indirect Contact

PPE Used:
Gloves*
Waterproof Boots
Glasses*

Additional PPE:
N-95 Mask
Coveralls

Best Practice – Splashing

Exposure:
Splash
Aerosol's
Line of Fire

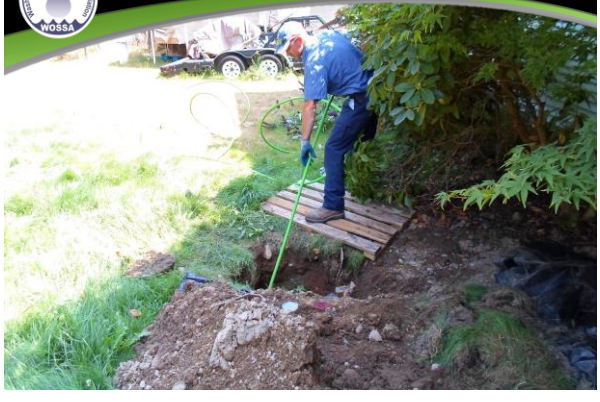
PPE Used:
Double Gloves
Waterproof Boots
Glasses*
Coveralls

Additional PPE:
N-95 Mask

Best Practice – Aerosol

Best Practice – Aerosol

Best Practice – Aerosol



Best Practice – Aerosol

Best Practice – Aerosol

LABORATORIES Northwest
Tacoma, WA 98413

NAME: HERITAGE BANK, COMMERCIAL
MRN: WOSSA-608133 ACE: 68Y 01/01/1945 Interim Report
SEX: M LOC: WOSSA

MS4431 COLL: 08/06/2013 15:00 REC: 08/08/2013 18:28 PHYS: Miscellaneous MD

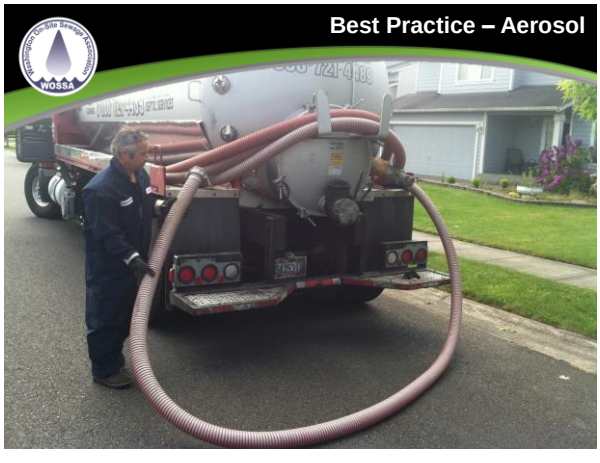
Culture/Gram Stain
SETUP: 08/08/2013 2056
Specimen Description Fluid
Special Requests sewage study, fx 253.770.5656, r/o MRSA.
Culture Results Many mixed organisms including few mixed types of coliforms, mixed coagulase negative staph, diphtheroids, Bacillus species, and rare mold.
Report Status Final 08/12/2013

Best Practice – Aerosol

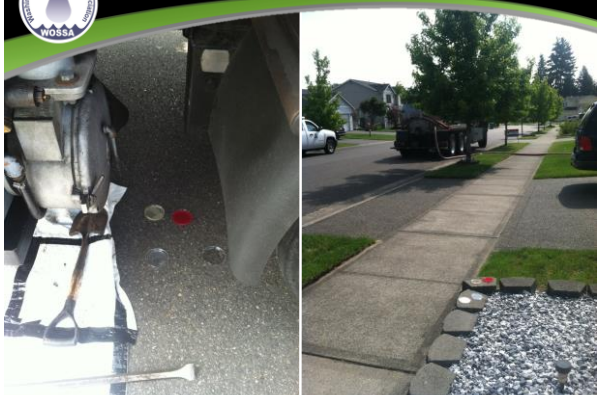
Best Practice – Aerosol

Best Practice – Aerosol

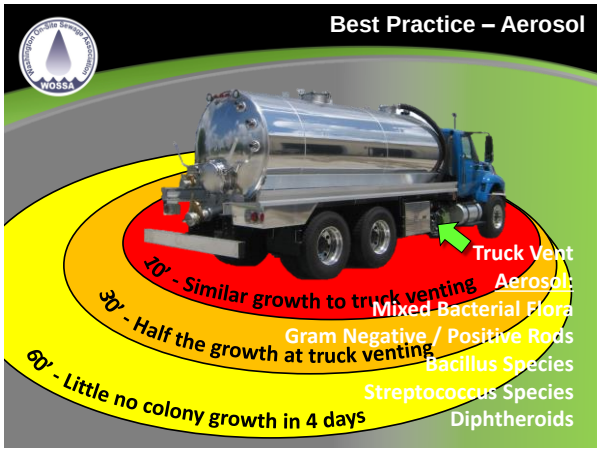
Best Practice – Aerosol



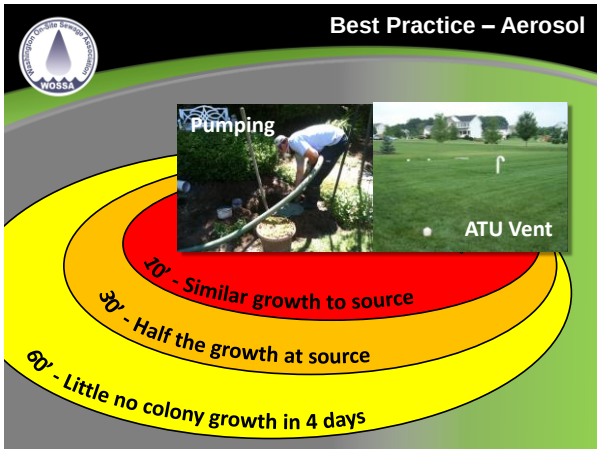
Best Practice – Aerosol



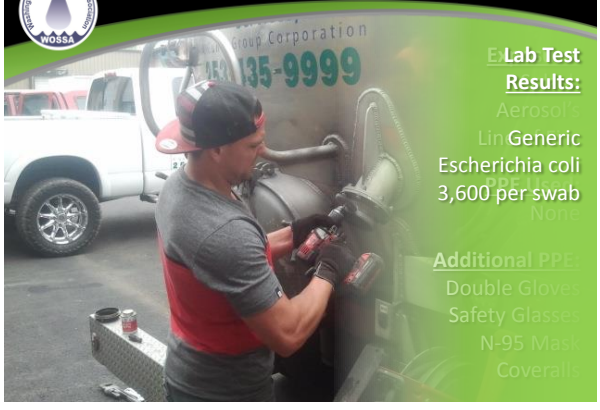
Best Practice – Aerosol



Best Practice – Aerosol



Best Practice – Aerosol



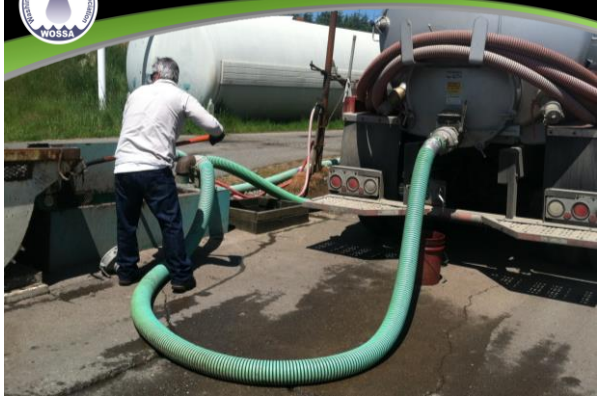
Lab Test Results:

Generic Escherichia coli
3,600 per swab

Additional PPE:

Double Gloves
Safety Glasses
N-95 Mask
Coveralls

Best Practice – Aerosol



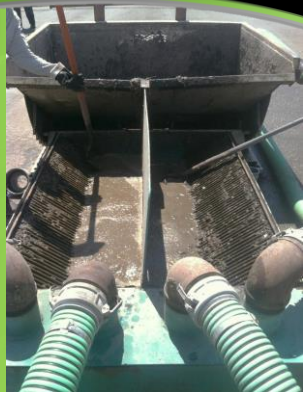
Best Practice – Aerosol

Exposure:

Splash
Aerosol's
Line of Fire

Lab Results:

Enteric Gram Negative Rods
Gram Positive Cocobacillus
Fungus
Gram Positive Rods
Bacillus

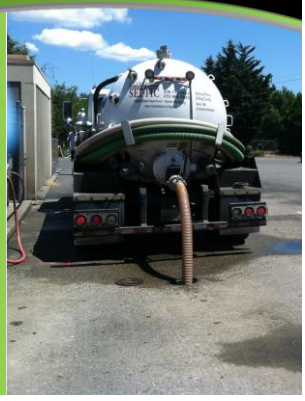


Best Practice – Aerosol

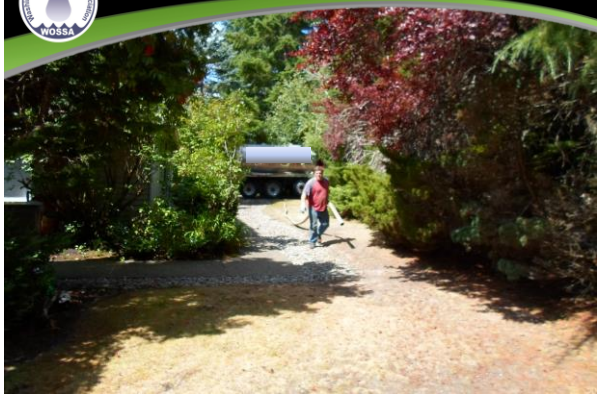
Exposure:
Splash
Aerosol's
Line of Fire

Lab Results:

> 100 Colony Forming Units
Mixed Bacterial Flora
Bacillus
Streptococcus
Gram Negative Rods



Best Practice – Direct / Indirect Contact



Best Practice – Direct / Indirect Contact

Best Practice – Direct / Indirect Contact

FLDS, WOUNDS, MISC SPECIMENS

08/16/13 Culture/Gram Stain
Coll Time ACC. NO.: F36544 Final 08/18/2013
0100 Specimen Description: Fluid
Special Requests: SEWAGE STUDY FX 253 297 0896 OR 253 770 0896

Culture Results: 1. Bacillus species, 3 colony types.
2. Gram negative rods , 2 colony types

Best Practice – Direct / Indirect Contact

Best Practice – Direct / Indirect Contact

LABORATORIES Northwest
Tacoma, WA 98415

NAME: WOODINVILLE,DF REPAIR
MR#: WOSSA-816135 AGE: 48Y 01/01/1965 Final Report
THEMES: SEX: M LOC: WOSSA

---------- FLDS, WOUNDS, MISC SPECIMENS ----------

08/16/13 Culture/Gram Stain
Coll Time ACC. NO.: F34525 Final 08/18/2013
R1800 Specimen Description: Fluid
Special Requests: SEWAGE STUDY FX 253 770 0896

Culture Results: 1. Bacillus species
2. 3 colony types.

Best Practice – Direct / Indirect Contact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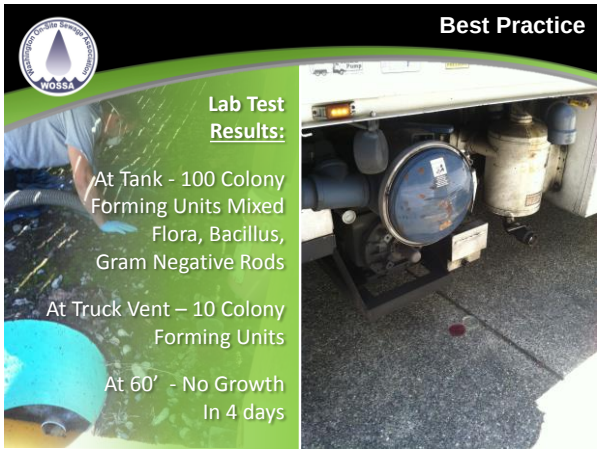
Best Practice – Direct / Indirect Contact


Best Practice
Lab Test Results:
At Tank - 100 Colony Forming Units Mixed Flora, Bacillus, Gram Negative Rods
At Truck Vent – 10 Colony Forming Units
At 60' - No Growth In 4 days

Best Practice

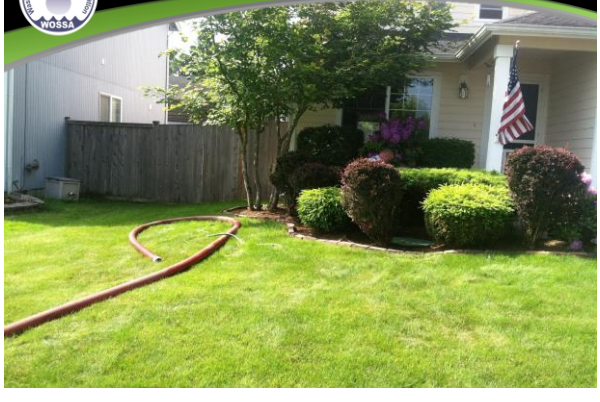
Exposure:
Splash
Aerosol's
Line of Fire

PPE Used:
Double Gloves
Waterproof Boots
Glasses
N-95 Mask

Additional PPE:
Coveralls

Best Practice – Protecting the Public

Best Practice – Protecting the Public



Best Practice – Protecting the Public

Best Practice – Protecting the Public

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Summary

Pathogen Exposures to Workers in The OSS Industry

SHIP Safety and Health Investment Projects Grant Program

Funded by the Department of Labor & Industries

Basic Hygiene Practices for On-Site Workers

Basic Hygiene Practices for On-Site Workers

- Wash hands with soap and water immediately after handling human waste or sewage.
- Avoid touching face, mouth, eyes, nose, or open sores and cuts while handling human waste or sewage.
- After handling human waste or sewage, wash your hands with soap and water *before* eating or drinking.
- Before eating, remove soiled work clothes and eat away from human waste and sewage-handling activities.
- Do **not** smoke or chew tobacco or gum while handling human waste or sewage.
- Carry at least a gallon of fresh water in the truck for emergency eye wash.

Basic Hygiene Practices for On-Site Workers

- Keep open sores, cuts, and wounds covered with clean, dry bandages.
- Gently flush eyes with safe water if human waste or sewage contacts eyes.
- Use Exam/Medical gloves to prevent cuts and contact with human waste or sewage.
- Wear rubber boots at the worksite and during transport of human waste or sewage.
- Remove rubber boots and work clothes before leaving worksite.
- Clean contaminated work clothing daily with 0.05% chlorine solution (1 part household bleach to 100 parts water).

How to Immediately Reduce Your Exposure

1.) Stop touching your face!

2.) Double up on your gloves = Exam grade Nitril w/ Outer Glove

3.) Wear proper eye protection to protect from Splashback and Aerosols

4.) Use N-95 rated mask for tasks that create Aerosols

5.) Make sure your disinfectant % of alcohol is at least 67% or higher

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Questions?

SHIP Grant Program — Safety and Health Investment Projects — Funded by the Department of Labor & Industries

WISHA Bloodborne Pathogens Summary

Occupational Exposure to Bloodborne Pathogens: Chapter 296-823 WAC

This chapter provides requirements to protect employees from exposure to blood or other potentially infectious materials (OPIM) that may contain bloodborne pathogens. Examples of bloodborne pathogens are the human immunodeficiency virus (HIV) and hepatitis B virus (HBV).

This chapter applies to you if you have employees with occupational exposure to blood or OPIM, even if no actual exposure incidents have occurred.

Definitions:

Bloodborne pathogens Pathogenic microorganisms that are present in human blood and can cause disease in humans.

Contaminated The presence or the reasonably anticipated presence of blood or other potentially infectious materials (OPIM) on an item or surface.

Decontamination The use of physical or chemical means to remove, inactivate, or destroy bloodborne pathogens on a surface or item to the point where they are no longer capable of transmitting infectious particles and the surface or item is rendered safe for handling, use, or disposal.

Exposure incident means a specific eye, mouth, other mucous membrane, nonintact skin or parenteral contact with blood or other potentially infectious materials (OPIM) that results from the performance of an employee's duties. Examples of nonintact skin include skin with dermatitis, hangnails, cuts, abrasions, chafing, or acne.

Occupational exposure means reasonably anticipated skin, eye, mucous membrane, or parenteral contact with blood or OPIM that may result from the performance of an employee's duties.

Other potentially infectious materials (OPIM)
Includes the following:

- Human body fluids: Semen, vaginal secretions, cerebrospinal fluid, synovial fluid, pleural fluid, pericardial fluid, peritoneal fluid, amniotic fluid, saliva in dental procedures, any body fluid that is visibly contaminated with blood, and all body fluids in situations where it is difficult or impossible to differentiate between body fluids.

Parenteral contact occurs when mucous membranes or skin is pierced by needlesticks, human bites, cuts, or abrasions.

Personal protective equipment (PPE) Specialized clothing or equipment worn by an employee for protection against a hazard. General work clothes (for example, uniforms, pants, shirts, or blouses) not intended to function as protection against a hazard aren't considered to be PPE.

Universal precautions An approach to infection control. According to the concept of universal precautions, all human blood and certain human body fluids are treated as if known to be infectious for HIV, HBV, and other bloodborne pathogens.

Note:
Universal Blood-Body Fluid Precautions, Body Substance Isolation, and Standard Precautions expand on the concept of universal precautions to include all body fluids and substances as infectious. These concepts are acceptable alternatives to universal precautions.

Determine if you have employees with occupational exposure: WAC 296-823-11005

You must:
Prepare a written exposure determination if your employees have occupational exposure to blood or other potentially infectious materials (OPIM).

- This determination must be made without considering the use of personal protective equipment (PPE).
- Make sure the exposure determination contains:
    - A list of job classifications where all employees have occupational exposure;
    - A list of job classifications where some employees have occupational exposure and a description of all tasks and procedures or groups of related tasks and procedures with occupational exposure for these employees.

Develop and implement a written exposure control plan: WAC 296-823-11010

You must:
Establish a written exposure control plan designed to eliminate or minimize employee exposure in your workplace.

Note:
The elements of your exposure control plan may be located in other documents such as policies and procedures. Make sure to reference their location in your plan.

You must:
Make sure the plan contains at least the following elements:

- The exposure determination, WAC 296-823-11005
- A procedure for evaluating the circumstances surrounding exposure incidents, including documentation of the routes of exposure, and the circumstances under which the exposure incident happened
- How and when you will implement applicable requirements of this rule.

Note:
The implementation dates need to be included only until your exposure control plan is fully implemented or when you are adding new requirements to your plan.

You must:
Document the infection control system used in your workplace to protect employees from exposure to blood or OPIM.

- Use universal precautions or other at least as effective infection control systems.

Note:
Universal precautions is an infection control system that considers the blood and OPIM from all persons as containing a bloodborne disease, whether or not the person has been identified as having a bloodborne disease.

Other effective infection control systems include standard precautions, universal blood-body fluid precautions, and body substance isolation. These methods define all body fluids and substances as infectious. They incorporate not only the fluids and materials covered by universal precautions and this chapter, but expand coverage to include all body fluids and substances.

Provide training to your employees: WAC 296-823-12005

You must:
Make sure all employees with occupational exposure participate in a training program that is:

- Provided at no cost to them
- Conducted during compensated working hours.

Provide training when any of the following occur:

- Before assigning tasks where occupational exposure might occur
- At least annually and within one year of the previous training.

Make sure the content and vocabulary of your training materials are appropriate to the educational level, literacy, and language of your employees.

Make sure the person conducting the required training is knowledgeable about the subject matter as it relates to your workplace

Make sure the training program contains at least the following elements:

- An accessible copy of this chapter and an explanation of the contents
- A general explanation of the epidemiology and symptoms of bloodborne diseases
- An explanation of how bloodborne pathogens are transmitted
- An explanation of your exposure control plan and how the employee can obtain a copy of the written plan

- An explanation of how to recognize tasks and other activities that could involve exposure to blood and other potentially infectious materials (OPIM)
- An explanation of the use and limitations of methods that will prevent or reduce exposure, including:
    - Equipment and safer medical devices
    - Work practices
    - Personal protective equipment

Information about personal protective equipment (PPE) including:

- The types
- Proper use and limitations
- Selection
- Location
- Putting it on and taking it off
- Handling
- Decontamination
- Disposal

Information about what actions to take and persons to contact when exposure to blood or OPIM occurs outside of the normal scope of work

An explanation of the procedure to follow if an exposure incident occurs, including:

- The method of reporting the incident
- The medical evaluation and follow-up that will be available

Information about the post-exposure evaluation and follow-up procedure following an exposure incident.

An opportunity for interactive questions and answers with the trainer at the time of the training session.

Maintain training records: WAC 296-823-12015

You must:
Maintain training records for 3 years from the date of the training

Include the following information in your training records:

- Dates of the training sessions
- Contents or a summary of the training sessions
- Names and qualifications of persons conducting the training
- Names and job titles of all persons attending the training sessions.

Provide these employee-training records upon request for examination and copying to any of the following:

- Employees
- Employee representatives.

Make sure employees clean their hands: WAC 296-823-14030

You must:
Provide handwashing facilities that are readily accessible to employees, wherever feasible. If handwashing facilities aren't feasible, provide either one of the following:

- Antiseptic towelettes
- Antiseptic hand rub product along with clean cloth/paper towels.

Make sure employees clean their hands as soon as feasible after removing gloves and whenever there is the potential for contact with blood or other potentially infectious materials (OPIM). Do one of the following:

- Wash with soap and water
- Use an appropriate waterless antiseptic hand rub product or towelettes, provided there are no signs of visible contamination
- Use an appropriate waterless antiseptic hand rub product or towelettes followed by washing with soap and water as soon as possible, when hands are visibly contaminated and handwashing facilities aren't immediately available.

Note:
An appropriate waterless antiseptic hand rub product is one that contains a 60-95% alcohol solution (isopropanol or ethanol).

Make sure employees wash any skin with soap and water, or flush mucous membranes with water as soon as feasible following contact with blood or OPIM.

Prohibit food, drink, and other personal activities in the work area: WAC 296-823-14035

You must:
Make sure eating, drinking, smoking, applying cosmetics or lip balm, and handling contact lenses are prohibited in work areas where there is occupational exposure

Examine and label contaminated equipment: WAC 296-823-14050

You must:

Examine equipment which could become contaminated with blood or other potentially infectious materials (OPIM) before servicing or handling.

- Decontaminate this equipment and its parts as necessary unless you can demonstrate that decontamination isn't feasible.

Make sure your worksite is maintained in a clean and sanitary condition: WAC 296-823-14055

You must

Develop an appropriate written schedule for cleaning and decontamination based upon the following:

- The location within the facility
- Type of surface to be cleaned
- Type of contamination present
- Tasks or procedures being performed in the area.

Clean and decontaminate environmental and working surfaces and all equipment after contact with blood or other potentially infectious materials (OPIM).

- Decontaminate work surfaces with an appropriate disinfectant at these times:
    - After completion of a procedure
    - Immediately or as soon as possible when surfaces are clearly contaminated or after any spill of blood or OPIM

Note:

An appropriate disinfectant is one that is effective against tuberculosis or HBV and HIV such as:

- Diluted bleach solution (1:10 or 1:100).
    - Use the 1:10 bleach solution for spills and the 1:100 bleach solution for routine cleaning
- You can make your own bleach solution. Using household bleach (5.25% sodium hypochlorite) follow these directions:
    - For a 1:100 solution add 2 teaspoons (10 ml) to a container, then add water to make a quart (946 ml).
    - For a 1:10 solution, add 1/3 cup (79 ml) and 1 tablespoon (15 ml) in a container, then add water to make a quart (946 ml)
- EPA registered:
    - Tuberculocidals (List B)
    - Sterilants (List A)
    - Products registered against HIV/HBV (List D).

Any of the above products are considered effective when used according to the manufacturers' instructions. Higher level disinfection may be required depending on the agent or level of decontamination.

Handle contaminated laundry properly and safely: WAC 296-823-14065

You must:
Handle laundry contaminated with blood or other potentially infectious material (OPIM) as little as possible and with a minimum of agitation

Bag contaminated laundry or put it into a container at the location where it was used

- Don't sort or rinse at the location of use
- Place and transport contaminated laundry in bags or containers that are properly labeled

Place and transport wet contaminated laundry that is likely to soak through or leak to the outside, in bags or containers that will prevent such leakage.

- You need to follow additional requirements to make sure that employees who have contact with contaminated laundry wear protective gloves and other personal protective equipment (PPE) as appropriate, see WAC 296-823-150, Personal Protective Equipment.

Provide and make sure personal protective equipment is used when there is occupational exposure: WAC 296-823-15005

You must:
Provide at no cost to employees, appropriate personal protective equipment such as:

- Gloves
- Gowns
- Face shields or a combination of masks and eye protection
- Pocket masks
- Other ventilation devices.

Note:
PPE is considered "appropriate" only if it does **not** permit blood or other potentially infectious materials (OPIM) to pass through to or reach the employee's work clothes, street clothes, undergarments, skin, eyes, mouth, or other mucous membranes, under normal conditions of use **and** for the duration of time which the protective equipment will be used.

Make sure that employees use appropriate PPE.

- In rare and extraordinary circumstances, employees can briefly and temporarily choose not to use PPE if, in their professional judgment, they believe that using PPE would prevent the delivery of health care or public safety services **or** pose an increased hazard to themselves or coworkers.

If the employee makes this judgment, you must investigate and document to determine if changes can be made to prevent future occurrences of the same situation.

Make sure that appropriate PPE, in sizes to fit your employees, is readily accessible at the worksite or issued to employees.

Make sure employees remove all PPE before leaving the work area.

Make sure gloves are worn: WAC 296-823-15010

You must

Make sure gloves appropriate to the situation are worn when:

- It can be reasonably anticipated that the employee may have hand contact with blood, other potentially infectious materials (OPIM).
- Handling or touching contaminated items or surfaces.

Make sure employees who are allergic to the gloves that are normally provided have ready access to at least one of the following:

- Nonlatex gloves
- Glove liners
- Powderless gloves
- Other similar alternatives.

Replace disposable (single use) gloves such as surgical or examination gloves:

- As soon as practical when contaminated
- As soon as practical if they are torn or punctured
- When their ability to function as a barrier is compromised.

Make sure disposable (single use) gloves are used only once

Discard utility gloves if they are cracked, peeling, torn, punctured, or show other signs of deterioration or when their ability to function as a barrier is compromised.

- You may decontaminate utility gloves for reuse if they can continue to function as a barrier.

Make sure appropriate masks, eye protection, and face shields are worn: WAC 296-823-15015

You must
Make sure either chin-length face shields or a combination of masks and eye protection are used, whenever splashes, spray, spatter, or droplets of blood or other potentially infectious materials (OPIM) may be generated and eyes, nose, or mouth contamination can be reasonably anticipated.

Note:
Examples of eye protection devices include goggles and glasses with solid side shields

Wear appropriate protective clothing: WAC 296-823-15020

You must
Make sure appropriate protective clothing is worn when splashes to skin or clothes are reasonably anticipated. The type and characteristics will depend upon the sort of work being done and how much exposure is anticipated.

Note:
Examples of protective clothing include:

- Gowns
- Aprons
- Lab coats
- Clinic jackets
- Similar outer garments
- Surgical caps or hoods
- Shoe covers or boots.

You must
Remove a garment as soon as feasible if blood or other potentially infectious materials (OPIM) penetrate it.

Make a confidential medical evaluation and follow-up available to employees who experience an exposure incident: WAC 296-823-16005

You must
Make immediately available a confidential post-exposure evaluation and follow-up to all employees with occupational exposure to blood or OPIM who report an exposure incident.

Definition:

Exposure incident means a specific eye, mouth, other mucous membrane, nonintact skin or parenteral contact with blood or other potentially infectious materials (OPIM) that results from the performance of an employee's duties. Examples of nonintact skin include skin with dermatitis, hangnails, cuts, abrasions, chafing, or acne.

You must

Make sure that the post-exposure medical evaluation and follow-up are all of the following:

- Immediately available following an exposure incident
- Confidential
- At no cost to the employee
- At a reasonable time and place
- Administered by or under the supervision of a licensed physician or by another licensed health care professional
- Provided according to recommendations of the United States Public Health Service current at the time these evaluations and procedures take place.

You must

Make sure that the evaluation and follow-up includes **at least** these elements:

- Documentation of the routes of exposure, and the circumstances under which the exposure incident happened
- Identification and documentation of the source individual, unless you can establish that identification is infeasible or prohibited by state or local law
- Collection and testing of blood to detect the presence of HBV and HIV
- Post-exposure preventive treatment, when medically indicated, as recommended by the United States Public Health Service
- Counseling
- Evaluation of reported illnesses.

Make sure that all laboratory tests are conducted by a laboratory licensed by the state or Clinical Laboratory Improvement Amendments Act (CLIA).

Note:

The employer or a third-party heath care provider identified by the employer may do the evaluation.

Provide the results of the source person's blood test to the exposed employee: WAC 296-823-16015

You must
Make sure the results of the source person's blood test are provided to the exposed employee, if possible

Make sure the exposed employee is informed of applicable laws and regulations regarding disclosure of the identity and infection status of the source person.

Note:
Laws and regulations that currently apply are:

- Chapter 70.02 RCW, Medical Records--Health Care Information Access and Disclosure.
- Chapter 70.24 RCW, Control and Treatment of Sexually Transmitted Diseases.
    - Both rules can be found at: http://www.leg.wa.gov/rcw/ and click on Title 70 to find these rules.

Collect and test the blood of the exposed employee: WAC 296-823-16020

You must
Arrange to have the exposed employee's blood collected and tested as soon as feasible after consent is obtained.

- If the employee consents to baseline blood collection, but doesn't give consent at that time for HIV serologic testing, the sample must be preserved for at least 90 days. If, within 90 days of the exposure incident, the employee chooses to have the baseline sample tested, it must be done as soon as possible.

Provide information to the health care professional evaluating the employee: WAC 296-823-16025

You must
Provide **all** of the following information to the health care professional evaluating an employee after an exposure incident:

- A copy of WAC 296-823-160
- A description of the job duties the exposed employee was performing when exposed
- Documentation of the routes of exposure and circumstances under which exposure occurred
- Results of the source person's blood testing, if available
- All medical records that you are responsible to maintain, including vaccination status, relevant to the appropriate treatment of the employee.

Personal Protective Equipment (PPE) Guide

Personal Protective Equipment: Chapter 296-823 WAC

This guide is designed to be used by supervisors, lead workers, managers, employers, and anyone responsible for the safety and health of employees. Employees are also encouraged to use information in this guide to analyze their own jobs, be aware of work place hazards, and take active responsibility for their own safety.

This guide will help you to comply with the WISHA (Washington Industrial Safety and Health Act) Personal Protective Equipment rules. Volume 1: General Personal Protective Equipment, covers PPE requirements used to protect the head, eyes and face, hand and arm, foot and leg, and body (torso) in most work environments. Future volumes will cover other PPE, such as Hearing Protection, Respiratory Protection, Fall Protection, etc., which have specific requirements, including separate written programs.

This guide features a Resource section containing:

- Sample checklists and forms that you can use and modify (Microsoft Word format) to fit the needs of your particular work place.

- Optional PPE policies which you may choose to incorporate into your Accident Prevention Program. (If you need assistance with your Accident Prevention Program, you can consult the Accident Prevention Program Guide.)

- Information on particular types of PPE to help you select the appropriate equipment.

This guide is not a substitute for the WISHA standards. You need to refer to the Washington Administrative Code (WAC) chapters listed below to make sure you comply with the rules when using this guide.

For this user guide on general PPE, refer to PPE in the Core Rules..... **Chapter 296-800-160**

Introduction

When an injury occurs in the workplace, not only does the worker suffer but the costs, medical and time loss payments, loss in productivity, costs for a replacement worker, and potential increase in insurance premium costs, can be great. According to the Department of Labor & Industries, there were 11,240 claims for eye injuries alone in the year 2000, totaling over five million dollars (total costs to date) and averaging $452 per claim.

As an employer, you are required by Washington States occupational safety and health rules to provide a safe and healthful work place for your employees. You must identify and anticipate hazards your workers are or may be exposed to, and provide appropriate protective measures. One type of protective measure is personal protective equipment (PPE).

PPE is equipment or a device that protects a workers body from hazards and any harmful conditions (existing and potential) that may result in injury, illness, or possibly death. PPE may be an item worn on the body, such as gloves, or a device, such as a protective shield or barrier. (See table of examples on next page.)

PPE is the least effective way to protect workers because it does not eliminate or reduce the hazard; it only places a barrier between the worker and the hazard. If the PPE fails or is not used, then the worker is not protected from the hazard. Therefore, try considering more effective methods to control the hazard before resorting to PPE. Use a system of strategies, called the "Hierarchy of Controls," which prioritizes control methods that try to remove or reduce the hazard:

Hierarchy of Controls

1. Engineering Controls
2. Work Practice Controls
   Administrative Controls
3. Personal Protective Equipment

If engineering, work practice, and/or administrative controls do not adequately protect your employees and PPE is used, you must comply with the safety and health requirements under WAC 296-800-160 Personal Protective Equipment (PPE).

What are you required to do

The Personal Protective Equipment (PPE) Rule WAC 296-800-160 says you must

- Do a Hazard Assessment for PPE and document it
- Select and provide appropriate PPE to your employees
- Provide training to your employees and document it
- Make sure your employees use their PPE properly
- Make sure PPE is in safe and good condition

Do a Hazard Assessment for PPE and document it

Before you can know if your employees need PPE, you must assess your work place for hazards. It will help you select the appropriate PPE for any hazards present or likely to be present. WISHA also requires you to document that you have done a hazard assessment. As the person responsible for conducting the hazard assessment, you are accountable both for the quality and thoroughness of the hazard assessment.

Involve the employees throughout the process: review the job steps, discuss potential hazards, and recommend solutions together. They are the most familiar with their jobs and their work area, and can provide information about their job that you may not necessarily see when you observe them at work. They may have ideas or have already worked out some practical solutions, and will be more likely to accept and adhere to changes in policies and procedures if they are involved in the decision-making process.

Document (either on paper or electronically, as long as it is available to safety and health personnel from the Department of Labor and Industries) that the PPE hazard assessment has been done with the information required under WAC 296-800-16010 Document your hazard assessment for PPE.

Reassess hazards

It is a good idea to reassess hazards periodically and on an as-needed basis. You may want to review your hazard assessment every year and update it whenever there are changes in your work place, such as

- job/task changes
- you get new equipment
- there has been an accident

Even if no changes have been made in a job, you might find hazards you missed in the previous analysis. Incorporate any new PPE requirements that you have developed into your written accident prevention program.

Select and provide appropriate PPE to your employees

If PPE is determined to be necessary, select PPE for your employees that is suitably matched to the hazard to provide the appropriate protection. The PPE must be of safe design and construction for the work.

This includes PPE for

- eye and face protection (p. 87)
- hand and arm protection (p. 93)
- foot and leg protection (p. 97)
- torso (body) protection (p. 99)

Discuss the selections with the employees required to use the PPE and provide them with the appropriate PPE that

- Is durable.
- Fits snugly to assure maximum protection.
- Doesn't interfere with the employee's movements.

PPE items/devices are not "one size fits all." PPE that fits poorly will not properly protect the wearer and may make it more difficult to work. For example, loose-fitting protective clothing can get caught in moving machine parts; poorly fitting gloves will increase the effort required to do a job. Also, an employee is less likely to use PPE that causes discomfort.

Provide training to your employees and document it

There are several ways in which you can provide your employees with the proper training on the PPE they are required to use. You can

- Provide your own training
- Borrow safety and health videotapes from L&I's video library
- Call your local L&I Office's Consultation Services for free assistance with your training program.
- and/or
- Seek the services of an outside consultant specializing in safety and health training

The training must be customized to the particular processes and hazards at your work place and it must be documented (see WAC 296-800-16035 Document PPE Training).

Retraining:
You must retrain an employee

- whose work habits or demonstrated knowledge indicates a lack of the necessary understanding, motivation, and skills required to use the PPE (i.e., uses PPE improperly)
- when changes in the work place make previous training out-of-date (for example, when you get new equipment)
- when changes in the types of PPE to be used make previous training out-of-date

Don't forget to document any retraining that you do.

Make sure your employees use their PPE properly
Make sure that your employees are using required PPE properly and are following the policies and procedures regarding PPE established at your work place. Have supervisors or lead workers regularly monitor, supervise, reinforce, and enforce the correct use and care of PPE by employees. Provide follow-up training if necessary to ensure that each employee has the adequate skill, knowledge, and ability to use his/her personal protective equipment.

If necessary, you may have to take measures to enforce PPE use.

If employees choose to provide their own PPE, make sure that it is adequate for the work place hazards, and that it is maintained in a clean and reliable condition.

Make sure PPE is in safe and good condition
Make sure that PPE is inspected before each use, and that it is cleaned and maintained according to manufacturers, recommendations and instructions. Cleaning is particularly important for eye and face protection where dirty or fogged lenses could impair vision.

DISCARD DEFECTIVE PPE!
Do not use any defective equipment, including any employee-supplied equipment.

Defective equipment can be worse than no PPE at all. Employees would avoid a hazardous situation if they knew they were not protected; but they would get closer to the hazard if they wrongly believed they were protected (by defective equipment) and therefore would be at greater risk.

What is a hazard?

A hazard is an existing (or potential) hazardous or unsafe condition or work practice that, by itself or in combination with other conditions, could cause injury, illness, or death to workers, as well as cause property damage.

Hazards may exist from

- Processes, procedures — Any series of actions or operations (manufacturing, equipment, product flow, etc., and handling) that convert raw material into a product
- Unsafe equipment, machinery, or tools — For example damaged tools, unguarded blades or unguarded moving parts, etc.
- Unsafe work practices — Allowing untrained workers to perform hazardous tasks, taking unsafe shortcuts, being distracted, working long shifts, etc.

The table below describes some common types of hazards. It does not cover all the possible hazards that employees may face or for which personal protective equipment may be required. Some hazards, such as noisy environments or those that may require respirators, must be evaluated with appropriate test equipment to quantify the exposure level when overexposure is suspected.

Hazard Type	General Description	Examples
Impact	Person can strike an object or be struck by a moving or flying or falling object.	• movement of machine parts • chips thrown from machines • falls from elevation or on the same level
Penetration	Person can strike, be struck by, or fall upon an object or tool that would break the skin.	• sharp edges or protrusions on tools, machines, or in aisles
Crush or pinch	An object(s) or machine may crush or pinch a body or body part.	• a falling, rolling, or dropped object that causes crushing injury to hands or feet • press
Harmful Dust	Presence of dust that may cause irritation, or breathing or vision difficulty. May also have ignition potential.	• wood • sand • grain

Hazard Type	General Description	Examples
Chemical - Inhalation - Contact or - Absorption	Exposure from spills, splashing, or other contact with chemical substances or harmful dusts that could cause illness, irritation, burns, asphyxiation, breathing or vision difficulty, or other toxic health effects. May also have ignition potential.	• solids • coolants (not elsewhere classified) • liquids • chemical dusts • gases • abrasives • vapors • fiberglass • fumes • slivers • mists • lubricants
Heat	Exposure to radiant heat sources, splashes or spills of hot material, or work in hot environments that could cause burns to the skin, injury to the eyes, or ignition of clothing.	• molten metal • stoves/ovens
Light (optical) Radiation	Exposure to strong light sources, glare, or to intense light that is a by-product of a process that could cause burns to the eyes or skin.	• welding • torch cutting • furnaces • high intensity or ultraviolet light
Electrical Contact	Exposure to contact with or working close to live or potentially live electrical objects.	• power lines
Ergonomic hazards	Repetitive movements, awkward postures, vibration, heavy lifting, etc.	• stocking overhead shelves • loading heavy objects
Environmental hazards	Conditions in the work place that could cause discomfort or negative health effects.	• cold • lighting • heat • energy • noise • pressure • vibration
Radiological hazards, radiation	Any type of radiological process or threat (lifetime doses, mutational impacts, personal reproductive issues, quality of life)	• radioisotopes • X-rays
Biological hazards	Microorganisms	• viruses • fungi • bacteria • parasites

It takes both a **hazardous condition** of some kind and **exposure** to that condition to cause an **injury / illness.** Therefore, the hazardous condition and/or the exposure can be eliminated or reduced and an accident can be prevented.

Hazardous condition	+	Exposure	=	Injury, illness, or death
~~Hazardous condition~~	+	Exposure	=	~~Injury, illness, or death~~
Hazardous condition	+	~~Exposure~~	=	~~Injury, illness, or death~~

A hazard is usually described by stating the condition and the injury or illness a person can suffer from contact with the hazard. For example,

Condition		Injury/illness resulting from contact with hazard
• operating a table saw without a guard on the blade	→	exposed to a cut or amputation hazard
• working near a noisy machine	→	exposed to a hearing loss hazard
• walking on a second floor balcony without a guardrail at the edge	→	exposed to a fall hazard
• Several conditions taken together may create a hazard:		
• (1) operating a table saw that has a guard on the blade, (2) but is talking with a co-worker while cutting wood	→	exposed to cut or amputation hazard

A potential hazard usually involves a condition that can reasonably be predicted to occur. For example,

- If one or more bolts holding a table saw blade guard in place are loose or missing, then the guard may fall off, exposing an employee to injury.

A potential exposure exists when it is reasonably predictable that an employee could be exposed to the hazard. For example,

- Does an employee's expected work pattern, travel, or simple presence in an area pose a danger?
- Has anything been done to prevent access to hazardous equipment that someone may use?

How do you control hazards?

To control hazardous and unsafe conditions and work practices, use the most effective control methods feasible at your work place. Try to reduce employee exposure by implementing effective controls that do not primarily rely on individual employee behavior. Follow a system of strategies, called the "Hierarchy of Controls," which prioritizes control methods that try to remove or reduce the hazard:

Hierarchy of Controls (most to least effective)

1. Eliminate/reduce the hazard	• Engineering Controls
2. Reduce the hazard	• Work Practice Controls • Administrative Controls
3. Put barrier between worker and hazard if needed	• Personal Protective Equipment (PPE)

Controls that depend on successful employee behavior (for example, depending on an employee's work technique to minimize exposure) are a last resort since they are less reliable than controls that don't allow the employee to be exposed to the hazard. Controls that are designed and implemented to prevent or reduce employee exposure (such as engineering controls) require less reliance on behavior to be effective.

Engineering Controls

Engineering controls are the best and the "first line of defense" against injury/illness, because they focus on the hazard itself and have the potential to completely eliminate the hazard or to reduce the probability of harmful exposure. This may be done by removing the employee from the hazard or providing distance between the worker and the hazard. If you can physically change the machine or work environment to prevent employee exposure to the potential hazard, then you have eliminated the hazard with an engineering control.

Engineering controls also do not rely on human behavior to be effective. For example, instead of requiring employees to wear respiratory protection which must be monitored, inspected, trained, and managed, it is much more effective to install a ventilation system that does not require any of those management activities.

In general, when considering engineering controls, follow these principles:

1. If feasible, design the facility, equipment, or process to remove the hazard and/or substitute something that is not hazardous or is less hazardous.

2. If removal is not feasible, enclose the hazard to prevent exposure in normal operations.

3. If complete enclosure is not feasible, establish barriers or local ventilation to reduce exposure to the hazard in normal operations.

Work Practice Controls

Work practice controls reduce employee exposure to hazards by changing or redesigning safe work practices into job procedures. They also include changing work procedures to reduce overexertion, lifting, and exposure to extremes in temperature. If you can reduce your employees' exposure to the potential hazard by changing the way they do their jobs, then you have reduced the hazard with work practice controls.

Using work practice controls is not as effective as engineering controls because in most cases, they only reduce exposure – they don't eliminate the hazard. Work practice controls rely on human behavior which must be managed, and they must also be accompanied by good worker training, reinforcement, and consistent and reasonable enforcement.

Examples of work practice controls may include

- wetting down surfaces to reduce dust or contaminants in the air
- housekeeping and maintenance
    - removal of tripping, blocking, and slipping hazards
    - removal of accumulated toxic dust on surfaces
- using safe lifting techniques
- maintaining equipment and tools in good repair

Administrative Controls

Administrative controls limit employees' exposures to hazards through scheduling breaks, changing the number of workers doing a job, and other changes in the frequency and duration of exposure. If you can limit your employees' exposure to the potential hazard by manipulating their schedules, then you have reduced the hazard with an administrative control.

As with work practice controls, using administrative controls is not as effective as engineering controls because in most cases, they only reduce exposure - they don't eliminate the hazard. Also, administrative controls do rely on human behavior which must be managed.

Administrative controls may include

- reducing shift length
- increasing the number of breaks
- increasing break time/recovery time
- rotating workers through different jobs
- varying the duties of a worker to limit exposure and allow variety of work
- using additional relief workers

Personal Protective Equipment (PPE)

When hazards cannot be engineered completely out of normal operations or maintenance work, and when safe work practices and other forms of administrative control cannot provide sufficient additional protection, use PPE as a supplementary method of control. PPE is the least effective way to protect workers because it does not eliminate or control the hazard itself, but rather

places a barrier between the worker and the hazard. PPE devices alone should not be relied on to provide protection against hazards; if the equipment fails, the worker is immediately exposed to the hazard.

Ask these questions:

- What PPE is available to deal with this kind of hazard?
- How intense is the hazard?

  For example,
  - Will the PPE prevent penetration of the projectile?
  - Will the gloves be harmed by this chemical through absorption or disintegration?
  - How long will the PPE last before it wears out?

- What type of hazard is it, how severe is it, and what capabilities must the PPE have? Select the appropriate PPE based on the answers to these questions.
- What is the minimum protection required? Then provide a greater protection than the minimum so that it will be adequate under less than optimum conditions and will have a reasonably long life.

Eye and Face Protection

Facts About Eye Protection in the Workplace

Everyday an estimated 1,000 eye injuries occur in American work places. The financial cost of these injuries is enormous - more than $300 million per year in lost production time, medical expense and workers' compensation.

And no dollar amount can adequately reflect the personal suffering and pain that these accidents inflict on injured workers.

The Department of Labor and Industries and the Occupational Safety and Health Administration (OSHA) are working together to reduce the number of eye injuries in America's workforce.

Take a moment to think about possible eye hazards at your workplace. A survey of 1,000 minor eye injuries by the U.S. Labor Department's Bureau of Labor Statistics (BLS) revealed how and why many on-the-job eye accidents occur.

What contributes to eye injuries at work

- Not wearing eye protection: The BLS reported that nearly three out of every five workers injured were not wearing eye protection at the time of their accident

- Wearing the wrong kind of protection for the job: About 40 percent of the injured workers were wearing eyeglasses without side shields, although some injuries still can occur when full-cup and flat-fold side shields are worn. Tight-fitting goggles offer the most complete protection and should be worn for liquid chemical hazards.

- Flying particles: The BLS found that almost 70 percent of the accidents studied resulted from flying or falling objects striking the eye. Injured workers estimated that nearly 60 percent of the objects were smaller than a pin head.

- Contact with chemicals caused about 20 percent of the injuries. Other accidents were caused by objects swinging from a fixed or attached position - such as tree limbs, ropes, and chains or tools that contacted the eye while the worker was using them.

How can eye injuries be prevented?

- Always wear effective eye protection

  WISHA standards require that employers provide, and workers wear, suitable eye protection. To be effective, the eyewear must be the appropriate type and properly fitted. For example, the BLS survey revealed that 94 percent of injuries to workers wearing eye protection resulted from objects or caustics going around or under the protector. Only 13 workers injured while wearing eye protection reported breakage of the protective device. Nearly 20 percent of the injured workers with eye protection wore face shields or welding helmets. But less than six percent of the injuries happened to workers wearing goggles, which generally offer a tighter fit around the eyes.

- Better training and education

  BLS reported that most workers were injured while doing their regular jobs. Workers injured while not using protective eyewear most often said they believed that protection was not required in that situation. Even though the vast majority of the employers furnished eye protection at no cost to employees, about 40 percent of the workers received no information on where and what types of eye protection should be used. If you are afraid that an eye injury could occur at your job, don't be hesitant about asking your employer for eye protection and training.

Provide your employees with appropriate protection if they are exposed to hazards that could injure their eyes and/or faces, such as:

- Flying particles
- Molten metal splashes
- Liquid chemicals
- Acids or caustic liquids
- Chemical gases or vapors
- Harmful light radiation or any light that could injure the eyes such as lasers, ultraviolet, or infrared light
- Blood and other potentially infectious body fluids that might splash, spray, or splatter. Wear your safety glasses to keep objects out of your eye!

Generally, Safety glasses/goggles are the primary protection for eyes. Side shields (such as clip-on or slide- on side shields) are required for flying objects.

A face shield is not sufficient protection for both the face and eyes. If eye protection is required, appropriate eye PPE must also be worn. Masks and face shields are the primary protection for the face; secondary protection for the eyes. Be aware that you may need to protect against more than one hazard at the same time. E.g., welding rays and flying particles.

TYPE	HAZARD PROTECTION	DESCRIPTION	
Safety Glasses	Protect eyes from moderate impact from particles	• Safety frames • Tempered glass or plastic impact resistant lenses • Temples and side shields • Corrective (prescription) lenses available	
Safety Glasses Side Shields	Protect against particles that might enter the eyes from the side	• Made of wire mesh or plastic • Eye-cup type side shields provide the best protection	
Safety Goggles	Protect eye, eye sockets and surrounding facial area from impact, dust, splashes and other hazards	• Vinyl framed goggles of soft pliable body design • Clear or tinted lenses • Perforated, port vented, or non-vented frames • Single lens goggles similar protection to spectacles, may be worn in combination with spectacles or corrective lenses to ensure protection along with proper vision	
Chemical goggles	Protects eyes from liquid chemicals	• Have ventilation covers to allow air circulation but prevent easy entry of	

		liquids through the vents • If the atmosphere is gaseous, will not protect the person's eyes since gas will travel through the vents. If eye hazard from the gas is an issue then a full face respirator would be necessary	
Welder's goggles	Protects eyes from sparking, scaling, or splashing metals; harmful light rays	• Impact resistant lenses, available in graduated shades of filtration	
Chippers/Grinders goggles	Protects eyes from flying particles	• Dual protective eye cups • Impact resistant clear lenses with individual cover plates	
Laser safety goggles	Protects eyes from intense concentrations of light from lasers	• Protect for the specific wavelength of the laser and be of optical density adequate for the energy involved	
Face shield (*should only be worn over primary eye protection – spectacles or goggles)	Protect eyes and entire face against flying particles, metal sparks, and chemical/ biological splash or spray	• Adjustable headgear • Face shield of tinted/transparent acetate or polycarbonate materials, or wire screen • May be polarized for glare protection • Various sizes tensile strength, impact/heat resistance, and light ray filtering capacity • Does not protect from impact hazards – must be used with primary eye protection	

		(spectacles or goggles)	
Welding shields	Protection from infra-red or radiant light burns, flying sparks, metal splatter and slag chips –	• Vulcanized fiber or glass fiber body • Filter and cover plate holder • Does not protect from impact hazards – must be used with primary eye protection (spectacles or goggles)	

The following chart provides general guidance for the proper selection of eye and face protection to protect against hazards associated with the listed hazard "source" operations.

Eye and Face Protection Selection Chart		
Hazard Source	Assessment of Hazard	Type of Eye/Face Protection
IMPACT		
Chipping, grinding, machining, drilling, chiseling, riveting, sanding, etc.	Flying fragments, objects, large chips, particles, sand, dirt, etc.	Spectacles with side protection, goggles, face shields. For severe exposure, use face shield over primary eye protection.
HEAT		
Furnace operations, pouring, casting, hot dipping, and welding.	Hot sparks	Face shields, goggles, spectacles with side protection. For severe exposure use face shield.
	Splash from molten metals	Face shields, reflective face shields.
	High temperature exposure	Screen face shields, reflective face shields.
CHEMICALS		
Acid and chemicals handling	Splash	Goggles, eyecup and cover types. For severe exposure, use face shield over primary eye protection
	Irritating mists	Special-purpose goggles
DUST		
Woodworking, buffing, general dusty conditions	Nuisance dust	Goggles, eyecup and cover types.
LIGHT and/or RADIATION		
Welding - electric arc	Optical radiation	Welding helmets or welding shields. Typical shades: 10-14

Welding - gas	Optical radiation	Welding goggles or welding face shield. Typical shades: gas welding 4-8, cutting 3-6, brazing 3-4
Cutting, torch brazing, torch soldering	Optical radiation	Spectacles or welding face shield. Typical shades: 1.5-3
Glare	Poor vision	Spectacles with shaded or special-purpose lenses, as suitable.

Hand and Arm Protection

Hazards requiring hand protection

Provide your employees with the appropriate hand protection if they are exposed - or likely to be exposed - to any of the following hazards that may result in potential hand injury:

- Severe cuts, lacerations, or abrasions
- Punctures
- Thermal burns
- Harmful temperature extremes
- Chemical hazards
    - Absorption of harmful substances
    - Chemical burns
    - Rashes, irritation

You should also examine the work activities of the employee to select the PPE that will fit the task and needs of the employee best:

- the degree of dexterity required
- the glove length based upon the hazard
- the physical stresses that will be applied (the strength of the glove)
- the chemical use based on shortest breakthrough time of chemical combination used
- how easy it is to remove the PPE without contaminating the user

Make sure that the hand and arm protection worn by your employees meet the requirements in WAC 296-800-16065.

Chemical Hazards

In particular, more than any other part of the body, our hands are most likely to come in contact with hazardous chemicals.

No glove currently available will provide protection against all potential hand hazards, and commonly available glove materials provide only limited protection against many chemicals. (Generally, any "chemical resistant" glove can be used for dry powders.) Therefore, it is important to select the most appropriate glove for a particular application.

When selecting gloves for protection against chemical hazards, consider the following:

- Choose the most appropriate type for a particular application.
- Determine the toxic properties of the chemical(s), in particular the ability of the chemical to cause local effects on the skin and/or to pass through the skin and cause systemic effects.
- Determine how long it can be worn.
- Make sure employees are able to remove the gloves in such a manner as to prevent skin contamination.
- Determine whether the glove can be reused.

Read instructions and warnings on chemical container labels and MSDSs before working with any chemical. Recommended glove types are often listed in the section for personal protective equipment. Check with your PPE supplier to make sure the list is current and accurate.

How long can a glove be used

Chemicals will eventually soak through or "permeate" most glove materials, making them unsafe. The permeation rate measures the length of time it takes a given material (glove) to become saturated by the chemical through absorption. Another term used with chemical hazards is the Breakthrough or Penetration rate, which measures the speed it takes for a given chemical to break through the layer(s) of the glove to contact the skin.

Gloves can be used safely for limited time periods if the specific use, thickness, permeation rate, and time are known. Your PPE supplier or the manufacturer can be a good source to assist in determining the specific type of glove material that should be worn for a particular chemical. Work closely with them to select the appropriate hand protection based on an evaluation of the performance characteristics of the hand protection.

One more consideration is that as long as the performance characteristics are acceptable, in certain circumstances, it may be more cost effective to regularly replace less expensive gloves than to reuse more expensive types.

Common types of protective gloves

The following table is a guide to some common types of protective work gloves and the types of hazards they can guard against:

Types	Protection	Use/Properties
Leather gloves	• sparks • moderate heat • blows • scraping against rough objects	• welding • can be also used in combination with an insulated liner when working with electricity
Aluminized gloves	• insulation against intense heat	• most commonly when working with molten materials - welding, furnace, and foundry work • requires an insert made of synthetic materials that protect against heat & cold
Aramid fiber	• heat and cold • cut- and abrasive-resistant	synthetic material; wears well
Metal Mesh	• cuts and scratches	most commonly when working with cutting tools or other sharp instruments
Other synthetic materials	• heat and cold • cut- and abrasive-resistant • may withstand some diluted acids (but not alkalis and solvents)	
Fabric and coated fabric gloves	Varying degrees	Generally used to improve grip when handling slippery objects. They also help insulate hands from mild heat or cold
• Fabric	Dirt, slivers, chafing, and abrasion	Does not provide sufficient protection against rough, sharp, or heavy materials
• Coated fabric	General-purpose slip-resistant hand protection	Handling bricks, wire rope, chemical containers, etc. Cotton flannel with napping on one side, plastic coating on unnapped side
Chemical and liquid resistant gloves	Burns, irritation, and dermatitis caused by contact with oils, greases, solvents, and other chemicals; also reduces the risk of exposure to blood and other potentially infectious substances	
• Butyl rubber	Nitric acid, sulfuric acid, hydrofluoric acid, red fuming nitric acid, rocket fuels, and peroxide; highly impermeable to gases, chemicals, and water vapor; resist oxidation and ozone corrosion; resist abrasion	Remain flexible at low temperatures

• Natural latex or rubber	Resist abrasions caused by sandblasting, grinding, and polishing; protection against most water solutions of acids, alkalis, salts, and	Comfortable wear and pliability. Cause of allergic reactions in some people (hypoallergenic gloves, glove liners, and powderless gloves are possible
• Neoprene	Hydraulic fluids, gasoline, alcohols, organic acids, and alkalis	Good pliability, finger dexterity, high density, and tear resistance
• Nitrile rubber	Chlorinated solvents; resist abrasions, punctures, snags, and tears	For jobs requiring dexterity and sensitivity; sturdy

Foot and Leg protection

Provide your employees with appropriate protection if they are exposed to hazards that could injure their feet, such as

- Objects which could
    - Fall (impact hazard)
    - Roll (compression hazard)
    - Pierce or cut the sole or uppers (puncture hazard)
- Electrical hazards
- Chemical hazards

The foot protection must meet the requirements listed in WAC 296-800-16060. Look at the ANSI label, which is typically located on the underside of the tongue.

Make sure that appropriate protection is provided for the legs against splashes or impacts from

- heat hazards
    - molten metal
    - welding sparks
- chemical hazards
- sharp objects
- woodworking or grinding (ballistic nylon chaps or pads are required when using a chain saw)

Select the appropriate protection:

If work activities involve	Then use
• carrying or handling materials which could be dropped -packages -objects - parts - heavy tools • other activities where objects might fall onto the feet	safety shoes/boots with impact protection - steel-toed safety shoes
• skid trucks (manual material handling carts) • working around bulk rolls (such as paper rolls) • working around heavy pipes (could potentially roll over employees' feet	safety shoes/boots with compression protection - steel-toed safety shoes
• working in areas where sharp objects could be stepped on - nails, tacks, screws - wire - large staples - scrap metal parts	safety shoes/boots with puncture protection - puncture-resistant soles
• working on tops of logs	caulk or other non-slip footwear
• (in construction) working around materials which could - burn, scald -cut - penetrate/puncture	safety shoes/boots with leather or equivalent firm material (Note: leather provides poor absorption protection.)
• exposure to hot substances or dangerous chemical spills	leggings or high boots of leather, rubber, or other suitable material

Torso and Body Protection

Provide your employees with appropriate protection if they are exposed to hazards that could injure their torso, such as:

- Intense heat
- Splashes of hot metals and other hot liquids
- Impacts from tools, machinery, and materials
- Cuts
- Hazardous chemicals
- Contact with potentially infectious materials, like blood
- Radiation

Some types of PPE for the body include

- Vests
- Aprons
- Coveralls
- Jackets
- Body Suits
- Welding Leathers
- Protective clothing for temperature extremes:
    - Heat: Cooling vests, Long-sleeved shirt and pants
    - Cool: Parkas, Heavy gloves, Hoods, Insulated protective outer wear

Specialized protective wear may be necessary for certain jobs or work conditions:

- Fire-resistant clothing (Nomex) for working in refineries
- Heat-resistant (aluminized) suits for extreme situations, such as working around smelters or forges
- Body armor for police officers
- High-visibility or reflective clothing, such as when directing traffic or doing night work

Other Protective Clothing Materials

Material	Protection	Comments
Paper-like fiber	Dust and splashes	Disposable
Treated wool and cotton	Dust, abrasions, rough and irritating surfaces	Adapts well to changing work place temperatures; comfortable; fire resistant
Duck	Cuts and bruises when handling heavy, sharp, or rough materials	Closely woven cotton fabric
Leather	Dry heat and flame	
Rubber, rubberized fabrics, neoprene, and plastics	Certain acids and other chemicals	

Be aware that different materials will protect against different chemical and physical hazards. **When chemical or physical hazards are present, check with the clothing manufacturer** to make sure that the material selected will provide protection from the specific chemical or physical hazards in your work place.

Option 2

Job Hazard Analysis Assessment for PPE

Use with WAC 296-800-160 Personal Protective Equipment (PPE)

The Job Hazard Analysis (JHA) approach to doing a hazard assessment for PPE is a more comprehensive method and may be more useful in larger businesses with many hazards and/or complex safety issues. It also helps you assign a *Risk Priority Code* to the hazard to determine the course of actions you need to take to control the hazard.

Follow the instructions as you conduct your hazard assessment and fill in the hazard assessment form. You can make copies of the form or customize it to fit the needs of your work place. ***(For more detailed explanations of the instructions and guidance on doing the hazard assessment, including completed sample forms, see the "Additional Guidelines on Conducting a JHA Hazard Assessment for PPE," pages 25-30 in the guide.)***

This tool can also serve as written certification that you have done a hazard assessment as required by WAC 296-800-16010 Document your hazard assessment for PPE. Make sure that the blank fields at the bottom of the form (indicated by *) are filled out.

*Name of your work place

*Address of the work place where you are doing the hazard assessment

*Name of person certifying that a workplace hazard assessment was done

*Date the hazard assessment was done

Job Hazard Analysis Assessment for PPE:

Instructions

1. **Conduct a walk through survey of your business.** For each job/task step, note the presence of any of the following hazard types (see table below), their sources, and the body parts at risk. Fill out the left side of the hazard assessment form (for help, see samples on p.29-30 in the guide). Gather all the information you can.
   - Look at all steps of a job and ask the employee if there are any variations in the job that are infrequently done and that you might have missed during your observation.
   - For purposes of the assessment, assume that no PPE is being worn by the affected employees even though they may actually be wearing what they need to do the job safely.
   - Note all observed hazards. ***This list does not cover all possible hazards that employees may face or for which personal protective equipment may be required.*** Noisy environments or those which may require respirators must be evaluated with appropriate test equipment to quantify the exposure level when overexposure is suspected.

Hazard Type	General Description of Hazard Type
Impact	Person can strike an object or be struck by a moving or flying or falling object.
Penetration	Person can strike, be struck by, or fall upon an object or tool that would break the skin.
Crush or pinch	An object(s) or machine may crush or pinch a body or body part.
Harmful Dust	Presence of dust that may cause irritation, or breathing or vision difficulty. May also have ignition potential.
Chemical	Exposure from spills, splashing, or other contact with chemical substances or harmful dusts that could cause illness, irritation, burns, asphyxiation, breathing or vision difficulty, or other toxic health effects. May also have ignition potential.
Heat	Exposure to radiant heat sources, splashes or spills of hot material, or work in hot environments.
Light (optical) Radiation	Exposure to strong light sources, glare, or intense light exposure which is a byproduct of a process.
Electrical Contact	Exposure to contact with or proximity to live or potentially live electrical objects.
Ergonomic hazards	Repetitive movements, awkward postures, vibration, heavy lifting, etc.
Environmental hazards	Conditions in the work place that could cause discomfort or negative health effects.

2. **Analyze the hazard.** For each job task with a hazard source identified, use the Job Hazard Analysis Matrix table and discuss the hazard with the affected employee and supervisor. Fill out the right side of the hazard assessment form:
   - Rate the SEVERITY of injury that would *reasonably* be expected to result from exposure to the hazard.
   - Rate the PROBABILITY of an accident actually happening.
   - Assign a RISK CODE based upon the intersection of the SEVERITY and PROBABILITY ratings on the matrix.

Job Hazard Analysis Matrix						
Severity of Injury		**Probability of an Accident Occurring**				
Level	Description	A Frequent	B Several Times	C Occasional	D Possible	E Extremely Improbable
I	Fatal or Permanent Disability	1	1	1	2	3
II	Severe Illness or Injury	1	1	2	2	3
III	Minor Injury or Illness	2	2	2-3	3	3
IV	No Injury or Illness	3	3	3	3	3

Risk Priority		
Code	**Risk Level**	**Action Required**
1	**High**	Work activities must be suspended immediately until hazard can be eliminated or controlled or reduced to a lower level.
2	**Medium**	Job hazards are unacceptable and must be controlled by engineering, administrative, or personal protective equipment methods as soon as possible.
3	**Low**	No real or significant hazard exists. Controls are not required but may increase the comfort level of employees.

3. **Take action on the assessment.** Depending on the assigned Risk Level/Code (or Risk priority), take the corresponding action according to the table above:
   - If Risk priority is LOW (3) for a task step → requires no further action.

     <u>Note</u>: If you assign a risk code of 3, be sure that there isn't a WISHA standard that requires specific protection be provided. For example: WAC 296-24-65003 requires personal protective equipment when using compressed air for cleaning.
   - If Risk priority is MEDIUM (2) → select and implement appropriate controls.
   - If Risk priority is HIGH (1) → immediately stop the task step until appropriate controls can be implemented.

     A high risk priority means that there is a reasonable to high probability that an employee will be killed or permanently disabled doing this task step and/or a high probability that the employee will suffer severe illness or injury!

4. **Select PPE:**
   - Try to reduce employee exposure to the hazard by first implementing engineering, work practice, and/or administrative controls. If PPE is supplied, it must be appropriately matched to the hazard to provide effective protection, durability, and proper fit to the worker. Note the control method to be implemented in the far right column.

5. **Certify the hazard assessment:**
   - Certify on the hazard assessment form that you have done the hazard assessment and implemented the needed controls.
   - Incorporate any new PPE requirements that you have developed into your written accident prevention program.

Job Hazard Analysis for Personal Protective Equipment (PPE) Assessment

Job/Task: _____ Location: _____

Job/Task Step	Hazard Type	Hazard Source	Body Parts At Risk	Severity	Probability	Risk Code	Control Method[1]

(1) Note: Engineering, work practice, and/or administrative hazard controls such as guarding must be used, if feasible, before requiring employees to use personal protective equipment.

Certification of Assessment

***Name of work place**: _____ ***Address** _____

***Assessment Conducted By**: _____ Title: _____ ***Date(s) of Assessment** _____

Implementation of Controls Approved By: _____ Title: _____ Date: _____

Page

Job Hazard Analysis for Personal Protective Equipment (PPE) Assessment

Job/Task: On-Site Septic Designer / Engineer Location: _____

Job/Task Step	Hazard Type	Hazard Source	Body Parts At Risk	Severity	Probability	Risk Code	Control Method[1]
Onsite Septic Evaluation							
• Walking site / drainfield	Direct Contact	Surfacing Effluent		III	C	2	Require Rubber Boots
	Indirect Contact	Surfacing Effluent		III	C	3	Be attentive
• Accessing tankage	Direct Contact	Removing Lids / Tank Evaluation		III	B	2	Require Gloves
	Indirect Contact	Removing Lids / Tank Evaluation		III	B	2	Require Gloves
	Splash	Removing Lids / Tank Evaluation		II	E	3	Be attentive
	Immersion	Removing Lids / Tank Evaluation		II	E	3	Be attentive
Onsite Septic Repair							
• Walking site / drainfield	Direct Contact	Surfacing Effluent		III	C	2	Require Rubber Boots
	Indirect Contact	Surfacing Effluent		III	C	3	Be attentive
• Accessing tankage /	Direct Contact	Removing Lids / Tank Evaluation		III	B	2	Require Gloves
distribution box	Indirect Contact	Removing Lids / Tank Evaluation		III	B	2	Require Gloves
	Splash	Removing Lids / Tank Evaluation		II	E	3	Be attentive
	Immersion	Removing Lids / Tank Evaluation		II	E	3	Be attentive

(1) Note: Engineering, work practice, and/or administrative hazard controls such as guarding must be used, if feasible, before requiring employees to use personal protective equipment.

Certification of Assessment

***Name of work place**: _____ ***Address** _____

***Assessment Conducted By**: _____ Title: _____ ***Date(s) of Assessment** _____

Implementation of Controls Approved By: _____ Title: _____ Date: _____

Job Hazard Analysis for Personal Protective Equipment (PPE) Assessment

Job/Task: On-Site Regulator Location: _____

Job/Task Step	Hazard Type	Hazard Source	Body Parts At Risk	Severity	Probability	Risk Code	Control Method[1]
Onsite Septic Evaluation							
• Walking site / drainfield	Direct Contact	Surfacing Effluent		III	C	2	Require Rubber Boots
	Indirect Contact	Surfacing Effluent		III	C	3	Be attentive
• Accessing tankage	Direct Contact	Removing Lids / Tank Evaluation		III	B	2	Require Gloves
	Indirect Contact	Removing Lids / Tank Evaluation		III	B	2	Require Gloves
	Splash	Removing Lids / Tank Evaluation		II	E	3	Be attentive
	Immersion	Removing Lids / Tank Evaluation		II	E	3	Be attentive
Onsite Septic Repair							
• Walking site / drainfield	Direct Contact	Surfacing Effluent		III	C	2	Require Rubber Boots
	Indirect Contact	Surfacing Effluent		III	C	3	Be attentive
• Accessing tankage /	Direct Contact	Removing Lids / Tank Evaluation		III	B	2	Require Gloves
distribution box	Indirect Contact	Removing Lids / Tank Evaluation		III	B	2	Require Gloves
	Splash	Removing Lids / Tank Evaluation		II	E	3	Be attentive
	Immersion	Removing Lids / Tank Evaluation		II	E	3	Be attentive

(1) Note: Engineering, work practice, and/or administrative hazard controls such as guarding must be used, if feasible, before requiring employees to use personal protective equipment.

Certification of Assessment

***Name of work place**: _____ ***Address** _____

***Assessment Conducted By**: _____ Title: _____ ***Date(s) of Assessment** _____

Implementation of Controls Approved By: _____ Title: _____ Date: _____

Job Hazard Analysis for Personal Protective Equipment (PPE) Assessment

Job/Task: On-Site Septic Installer Location: _____

Job/Task Step	Hazard Type	Hazard Source	Body Parts At Risk	Severity	Probability	Risk Code	Control Method[1]
Onsite Septic Evaluation							
• Walking site / drainfield	Direct Contact	Surfacing Effluent		III	C	2	Require Rubber Boots
	Indirect Contact	Surfacing Effluent		III	C	3	Be attentive
• Accessing tankage	Direct Contact	Removing Lids / Tank Evaluation		III	B	2	Require Gloves
	Indirect Contact	Removing Lids / Tank Evaluation		III	B	2	Require Gloves
	Splash	Removing Lids / Tank Evaluation		II	E	3	Be attentive
	Immersion	Removing Lids / Tank Evaluation		II	E	3	Be attentive
Onsite Septic Repair							
• Walking site / drainfield	Direct Contact	Surfacing Effluent		III	C	2	Require Rubber Boots
	Indirect Contact	Surfacing Effluent		III	C	3	Be attentive
• Accessing tankage /	Direct Contact	Removing Lids / Tank Evaluation		III	B	2	Require Gloves
distribution box	Indirect Contact	Removing Lids / Tank Evaluation		III	B	2	Require Gloves
	Splash	Removing Lids / Tank Evaluation		II	E	3	Be attentive
	Immersion	Removing Lids / Tank Evaluation		II	E	3	Be attentive

(1) Note: Engineering, work practice, and/or administrative hazard controls such as guarding must be used, if feasible, before requiring employees to use personal protective equipment.

Certification of Assessment

***Name of work place**: _____ ***Address** _____

***Assessment Conducted By**: _____ Title: _____ ***Date(s) of Assessment** _____

Implementation of Controls Approved By: _____ Title: _____ Date: _____

Job Hazard Analysis for Personal Protective Equipment (PPE) Assessment

Job/Task: On-Site Septic Installer Location: _____

Job/Task Step	Hazard Type	Hazard Source	Body Parts At Risk	Severity	Probability	Risk Code	Control Method[1]
Onsite Septic Repair							
• Work in drainfield	Direct Contact	Effluent	Hands / Torso	III	C	2	Require Rubber Boots, Gloves, removable clothing
	Indirect Contact	Effluent	Hands / Torso	III	B	2	Require Rubber Boots, Gloves, Removable Clothing
	Splash	Ponding Effluent	Face / Eyes	II	D	2	Require Safety Goggles
	Immersion	Ponding Effluent		II	E	3	Be attentive
• Work in tank /	Direct Contact	Effluent	Hands / Torso	III	C	2	Require gloves, Removable Clothing
distribution box	Indirect Contact	Effluent	Hands / Torso	III	B	2	Require gloves, Removable Clothing
	Splash	Effluent	Face / Eyes	II	D	2	Require Safety Goggles
	Immersion	Effluent		II	E	3	Be attentive
• Work in distribution	Direct Contact	Effluent	Hands / Torso	III	C	2	Require Gloves, Removable Clothing
Piping / UV Light	Indirect Contact	Effluent	Hands / Torso	III	B	2	Require Gloves, Removable Clothing
	Splash	Ponding Effluent	Face / Eyes	II	D	2	Require Safety Goggles

(1) Note: Engineering, work practice, and/or administrative hazard controls such as guarding must be used, if feasible, before requiring employees to use personal protective equipment.

Certification of Assessment

***Name of work place**: _____ ***Address** _____

***Assessment Conducted By**: _____ Title: _____ ***Date(s) of Assessment** _____

Implementation of Controls Approved By: _____ Title: _____ Date: _____

Job Hazard Analysis for Personal Protective Equipment (PPE) Assessment

Job/Task: On-Site Septic Operations and Maintenance Professional Location: _____

Job/Task Step	Hazard Type	Hazard Source	Body Parts At Risk	Severity	Probability	Risk Code	Control Method[1]
Onsite Septic Evaluation							
• Walking site / drainfield	Direct Contact	Surfacing Effluent		III	C	2	Require Rubber Boots
	Indirect Contact	Surfacing Effluent		III	C	3	Be attentive
• Accessing tankage	Direct Contact	Removing Lids / Tank Evaluation		III	B	2	Require Gloves
	Indirect Contact	Removing Lids / Tank Evaluation		III	B	2	Require Gloves
	Splash	Removing Lids / Tank Evaluation		II	E	3	Be attentive
	Immersion	Removing Lids / Tank Evaluation		II	E	3	Be attentive
Onsite Septic Maintenance							
• Walking site / drainfield	Direct Contact	Surfacing Effluent		III	C	2	Require Rubber Boots
	Indirect Contact	Surfacing Effluent		III	C	3	Be attentive
• Accessing tankage /	Direct Contact	Removing Lids / Tank Evaluation		III	B	2	Require Gloves
distribution box	Indirect Contact	Removing Lids / Tank Evaluation		III	B	2	Require Gloves
	Splash	Removing Lids / Tank Evaluation		II	E	3	Be attentive
	Immersion	Removing Lids / Tank Evaluation		II	E	3	Be attentive

(1) Note: Engineering, work practice, and/or administrative hazard controls such as guarding must be used, if feasible, before requiring employees to use personal protective equipment.

Certification of Assessment

***Name of work place**: _____ ***Address** _____

***Assessment Conducted By**: _____ Title: _____ ***Date(s) of Assessment** _____

Implementation of Controls Approved By: _____ Title: _____ Date: _____

Job Hazard Analysis for Personal Protective Equipment (PPE) Assessment

Job/Task: On-Site Septic Operations and Maintenance Professional Location: _____

Job/Task Step	Hazard Type	Hazard Source	Body Parts At Risk	Severity	Probability	Risk Code	Control Method[1]
Onsite Septic Maintenance							
• Work in drainfield	Direct Contact	Effluent	Hands / Torso	III	C	2	Require Rubber Boots, Gloves, removable clothing
	Indirect Contact	Effluent	Hands / Torso	III	B	2	Require Rubber Boots, Gloves, Removable Clothing
	Splash	Ponding Effluent	Face / Eyes	II	D	2	Require Safety Goggles
	Immersion	Ponding Effluent		II	E	3	Be attentive
• Work in tank /	Direct Contact	Effluent	Hands / Torso	III	C	2	Require gloves, Removable Clothing
distribution box	Indirect Contact	Effluent	Hands / Torso	III	B	2	Require gloves, Removable Clothing
	Splash	Effluent	Face / Eyes	II	D	2	Require Safety Goggles
	Immersion	Effluent		II	E	3	Be attentive
• Work in distribution	Direct Contact	Effluent	Hands / Torso	III	C	2	Require Gloves, Removable Clothing
Piping / UV Light	Indirect Contact	Effluent	Hands / Torso	III	B	2	Require Gloves, Removable Clothing
	Splash	Ponding Effluent	Face / Eyes	II	D	2	Require Safety Goggles
• Tank Entry (Confined	Direct Contact	Effluent	Hands / Torso	II	A	1	Require Rubber Boots, Gloves, Removable Clothing
Space Entry)	Splash	Effluent	Hands / Torso	II	A	1	Require Rubber Boots, Gloves, Removable Clothing
	Aerosol	Effluent	Face / Eyes	I	A	1	Require N-95 Mask & Ventilation (WISHA CSE)

(1) Note: Engineering, work practice, and/or administrative hazard controls such as guarding must be used, if feasible, before requiring employees to use personal protective equipment.

Certification of Assessment

***Name of work place**: _____ ***Address** _____

***Assessment Conducted By**: _____ Title: _____ ***Date(s) of Assessment** _____

Implementation of Controls Approved By: _____ Title: _____ Date: _____

Job Hazard Analysis for Personal Protective Equipment (PPE) Assessment

Job/Task: On-Site Septic Pumper Location: _____

Job/Task Step	Hazard Type	Hazard Source	Body Parts At Risk	Severity	Probability	Risk Code	Control Method[1]
Onsite Septic Evaluation							
• Walking site / drainfield	Direct Contact	Surfacing Effluent		III	C	2	Require Rubber Boots
	Indirect Contact	Surfacing Effluent		III	C	3	Be attentive
• Accessing tankage	Direct Contact	Removing Lids / Tank Evaluation		III	B	2	Require Gloves
	Indirect Contact	Removing Lids / Tank Evaluation		III	B	2	Require Gloves
	Splash	Removing Lids / Tank Evaluation		II	E	3	Be attentive
	Immersion	Removing Lids / Tank Evaluation		II	E	3	Be attentive
Onsite Septic Pumping							
• Walking site / drainfield	Direct Contact	Surfacing Effluent		III	C	2	Require Rubber Boots
	Indirect Contact	Surfacing Effluent		III	C	3	Be attentive
• Accessing tankage /	Direct Contact	Removing Lids / Tank Evaluation		III	B	2	Require Gloves
distribution box	Indirect Contact	Removing Lids / Tank Evaluation		III	B	2	Require Gloves
	Splash	Removing Lids / Tank Evaluation		II	E	3	Be attentive
	Immersion	Removing Lids / Tank Evaluation		II	E	3	Be attentive

(1) Note: Engineering, work practice, and/or administrative hazard controls such as guarding must be used, if feasible, before requiring employees to use personal protective equipment.

Certification of Assessment

***Name of work place**: _____ ***Address** _____

***Assessment Conducted By**: _____ Title: _____ ***Date(s) of Assessment** _____

Implementation of Controls Approved By: _____ Title: _____ Date: _____

Job Hazard Analysis for Personal Protective Equipment (PPE) Assessment

Job/Task: On-Site Septic Pumper Location: _____

Job/Task Step	Hazard Type	Hazard Source	Body Parts At Risk	Severity	Probability	Risk Code	Control Method[1]
Onsite Septic Pumping							
• Work in drainfield	Direct Contact	Effluent	Hands / Torso	III	C	2	Require Rubber Boots, Gloves, removable clothing
	Indirect Contact	Effluent	Hands / Torso	III	B	2	Require Rubber Boots, Gloves, Removable Clothing
	Splash	Ponding Effluent	Face / Eyes	II	D	2	Require Safety Goggles
	Immersion	Ponding Effluent		II	E	3	Be attentive
• Work in tank /	Direct Contact	Effluent	Hands / Torso	III	C	2	Require gloves, Removable Clothing
distribution box	Indirect Contact	Effluent	Hands / Torso	III	B	2	Require gloves, Removable Clothing
	Splash	Effluent	Face / Eyes	II	D	2	Require Safety Goggles
	Immersion	Effluent		II	E	3	Be attentive
• Work in distribution	Direct Contact	Effluent	Hands / Torso	III	C	2	Require Gloves, Removable Clothing
Piping / UV Light	Indirect Contact	Effluent	Hands / Torso	III	B	2	Require Gloves, Removable Clothing
	Splash	Ponding Effluent	Face / Eyes	II	D	2	Require Safety Goggles
• Tank Entry (Confined	Direct Contact	Effluent	Hands / Torso	II	A	1	Require Rubber Boots, Gloves, Removable Clothing
Space Entry)	Splash	Effluent	Hands / Torso	II	A	1	Require Rubber Boots, Gloves, Removable Clothing
	Aerosol	Effluent	Face / Eyes	I	A	1	Require N-95 Mask & Ventilation (WISHA CSE)

(1) Note: Engineering, work practice, and/or administrative hazard controls such as guarding must be used, if feasible, before requiring employees to use personal protective equipment.

Certification of Assessment

***Name of work place**: _____ ***Address** _____

***Assessment Conducted By**: _____ Title: _____ ***Date(s) of Assessment** _____

Implementation of Controls Approved By: _____ Title: _____ Date: _____

Job Hazard Analysis for Personal Protective Equipment (PPE) Assessment

Job/Task: On-Site Septic Pumper Location: _____

Job/Task Step	Hazard Type	Hazard Source	Body Parts At Risk	Severity	Probability	Risk Code	Control Method[1]
Onsite Septic Pumping							
• Pumping Tank	Direct Contact	Effluent	Hands / Torso	II	A	1	Require Rubber Boots, Gloves, Removable Clothing
	Indirect Contact	Effluent	Hands / Torso	III	B	2	Require Rubber Boots, Gloves, Removable Clothing
	Splash	Effluent	Face / Eyes	II	C	2	Require Safety Goggles
	Immersion	Effluent		II	E	3	Be attentive
	Aerosol	Effluent	Face / Eyes	III	C	2	Require N-95 Mask & Ventilation (WISHA CSE)
• Loading and Off -	Direct Contact	Effluent	Hands / Torso	II	A	1	Require Gloves, Removable Clothing
Loading Pump Truck	Indirect Contact	Effluent	Hands / Torso	III	B	2	Require Gloves, Removable Clothing
	Splash	Effluent	Face / Eyes	II	C	2	Require Safety Goggles
	Immersion	Effluent		II	E	3	Be attentive
	Aerosol	Effluent	Face / Eyes	III	C	2	Require N-95 Mask & Ventilation (WISHA CSE)

(1) Note: Engineering, work practice, and/or administrative hazard controls such as guarding must be used, if feasible, before requiring employees to use personal protective equipment.

Certification of Assessment

***Name of work place**: _____ ***Address** _____

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Implementation of Controls Approved By: _____ Title: _____ Date: _____