Public Employees Occupational Safety and Health Program
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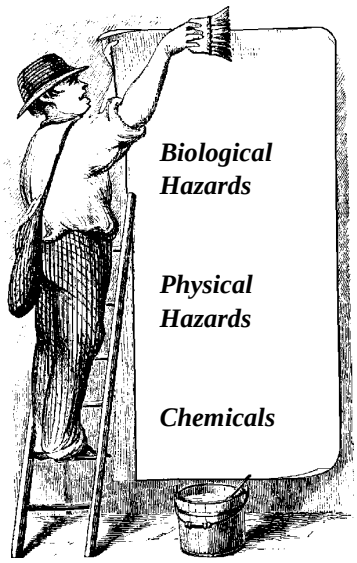
Outdoor Work Health Hazards

April, 2002



This information bulletin provides an overview of the following health hazards associated with outdoor work:

- Poison Ivy
- Lyme Disease
- West Nile Virus
- Heat Stroke
- Cold Stress
- Pesticides

Biological Hazards

Hazardous Plants

Poison ivy, poison oak and poison sumac have the oily irritant urushiol on the plants' leaves, stems, branches and roots. This oily substance can be found even on dead or dormant parts of the plants. It affects exposed skin and can contaminate clothing, tools and other objects.

Contact with urushiol can produce a rash in three out of four people. The rash can begin within a few hours or may take three to five days to develop. It starts with an itchy feeling, the formation of red inflammation and tiny pimples, followed by blisters. The fluid in the blisters hardens to a yellow crust. Left untreated, the rash will last from three to five weeks. The determining factors in a person's response to exposure to poison ivy, oak or sumac include the number of times the person has been exposed in the past and the sensitivity of the individual.

Minimal or limited exposures to these plants can often be cared for without the need for medical attention. However, some people are highly allergic to urushiol. If a rash develops within four hours of exposure and the eyes swell shut and blisters form, medical assistance should be sought immediately.

First Aid:

1. Washing the affected areas with soap and warm water as soon as possible may prevent a rash from developing or minimize the effects of the exposure.
2. To relieve itching, apply cotton cloths soaked in cool water or a colloidal ointment to the area, or sponge the skin with alcohol.
3. Calamine lotion over the rash will also help relieve itching and promote healing.
4. Severe itching may require antihistamines. A moderate to severe reaction may require steroids.

Pregnant women and individuals with health conditions should consult their physician prior to taking any over-the-counter medication. Always read product labels and seek further information if you have any questions about the use of a product.

If a rash becomes extremely painful or severe or if the following conditions develop, seek medical attention:

- The blisters ooze for longer than two weeks;
- A fever develops;
- The lymph nodes in the neck, under the arm or in the groin become swollen and sore.

Medical assistance should also be sought for exposures to body systems other than the skin.

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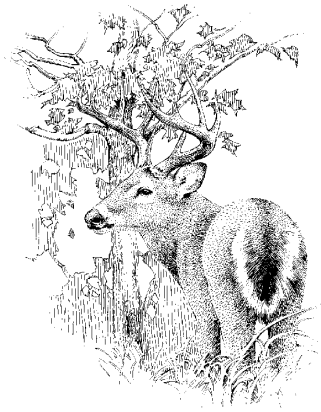
Poison Ivy

For more information visit the PEOSH Web Site:

www.state.nj.us/health/eoh/peoshweb

For more information about diseases visit the Communicable Disease Service Web Site:
www.state.nj.us/health/cd



The most important vector for the spread of Lyme disease is the deer tick.

Poison Ivy: A woody shrub or vine. The vine climbs by aerial rootlets that cling readily to trees. Three leaflets borne on a single petiole make up the leaf. Each leaflet can be up to four inches long and is a dark waxy, shiny green above and lighter green and fuzzy beneath. The flowers grow like berries on very thin stems. During the summer, the flowers are lost and the leaves turn fire-engine red. All parts of the plant are poisonous.

Poison Oak: In the West, poison oak may grow as a vine or a shrub. In the East, it grows as a shrub. Hair grows on the fruit, trunk and leaves. Leaves have three leaflets like poison ivy. The flowers of poison oak are glossy and white-green and grow like berries. In the fall, poison oak is yellowish red and in the winter it is bare . When bare, poison oak can be distinguished by its three branches. All parts of the plant are poisonous.

Poison Sumac: This plant can be a tree or shrub, it can grow up to 25 feet in height with a trunk up to 6 inches in diameter. It is limited to swampy lands but ranges from Maine to Florida and west to Minnesota, Missouri and Louisiana. The leaves alternate and can be 15 inches or more long made up of 7 to 13 alternating thin oval to pointed leaflets. The whole plant is very poisonous.

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Prevention:
Never dispose of poison ivy, oak or sumac by burning. The smoke from such fires may contain urushiol and can cause a serious medical emergency if inhaled. The New Jersey Department of Environmental Protection (DEP) prohibits the open burning of plant debris unless a permit has been issued by the DEP.

- Learn what each plant looks like and avoid contact with them. (If questionable, assume the worst; carry field guides or pamphlets or other information);
- Wear protective gloves and long sleeved shirts;
- Wear long pants and tuck the cuffs into your socks;
- Be careful of dead branches; urushiol may last for years on branches.

Ticks, Insects and Spiders

Ticks

Working in areas where Lyme disease is widespread can place individuals at risk of exposure to an infected tick and therefore to Lyme disease. These occupations include construction, landscaping, forestry, brush clearing, surveying, utility line work, park/ wildlife management and others. Cases of Lyme disease have been reported in 48 of the 50 states as well as the District of Columbia. The states that include the highest risk are those in the Northeast U.S. from Massachusetts to Maryland; the north-central region including Wisconsin and Minnesota; and northern California in the Pacific-Coastal region. According to the Centers for Disease Control and Prevention, the number of Lyme Disease cases reported in New Jersey was 1,565 in the year 2000. The most important vector for the spread of the disease is the deer tick.

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Lyme disease is a multisystem, multistage inflammatory illness caused by *Borrelia burgdorferi*, a corkscrew shaped bacterium. The disease is transmitted to humans by blood-feeding ticks infected with the organism. Lyme disease is not the only tick carried disease. Other tick bite diseases include babesiosis, ehrlichiosis, tularemia, and Rocky Mountain spotted fever. The first line of defense against these diseases is prevention.

To avoid contact with ticks:

- avoid brushy, overgrown grassy, and wooded habitats, particularly in spring and early summer when nymphal ticks feed;
- remove leaves, tall grass and brush from areas surrounding the work area;
- apply tick-toxic chemicals to surrounding work areas.
  Note: Pesticides should only be used in accordance with federal, state and local regulations.

When avoidance is not possible, personal protection can be used to minimize the risk of tick exposure:

- wear light colored clothing so ticks may be more easily seen and removed before attaching;
- wear long sleeved shirts and tuck pant legs into socks or boots;
- wear high boots or enclosed shoes that cover the entire foot;
- wear a hat;
- spray insect repellant on exposed skin, excluding the face;
- shower and wash and dry clothes at a high temperature after outdoor exposure;
- check your body carefully for ticks; once found remove them with tweezers and clean the skin area with an antiseptic.

Mosquitoes

West Nile virus is commonly found in Africa, West Asia and the Middle East. Before August 1999, West Nile virus had never been reported in the United States. In 1999, 62 cases of severe disease and 7 deaths occurred in New York state, including the death of a Canadian infected in New York. In 2000, 20 human cases of West Nile virus infection were confirmed in the United States, including six cases in New Jersey, one fatal.

Mosquitoes become infected when they feed on infected birds. After an incubation period, the mosquitoes, which carry the virus in their salivary glands, can then transmit the virus to humans while biting to take blood. During blood feeding, the virus is injected into the human where it multiplies and may cause disease. Workers can protect themselves from mosquitoes by applying insect repellant before going outside at dawn, dusk or during the evening. Area mosquito repellants can also be used for outside work areas. To report a mosquito nuisance, please contact your County Mosquito Control Agency. Each county has a program which conducts mosquito surveillance and control activities.

West Nile virus is **NOT** transmitted from person to person. There is also no evidence that a person can get the virus from handling live or dead infected birds. However, avoid barehanded contact when handling dead animals, including birds. Since crows are very susceptible to West Nile virus, they are useful as sentinel animals to monitor the virus. Please report any sighting of a sick or dead crow (or hawk/falcon) to your local health department as soon as possible. If the local health department can not use the bird for disease surveillance, use gloves or double plastic bags to place the carcass in a garbage can.

Stinging Insects

Stinging insects can present an occupational health problem, especially for sensitive individuals. The most severe allergic reactions to stings can be life threatening. Symptoms of allergic reactions include:

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If you are allergic to insect stings, talk to your physician about shots that can help desensitize your body to insect venom. Always carry an allergy kit containing epinephrine. Emergency care is still necessary even if you have the shots or use your kit.

There is no evidence that a person can get West Nile virus from handling live or dead infected birds.

Flies can carry and transmit various diseases. Foods should be covered or kept in secure areas. The major pathogenic organisms mechanically transmitted by house flies include:

- *Salmonella* spp.;
- *Shigella* spp.;
- *Treponema pertenue* (yaws);
- *Vibrio cholerae; and*
- *Entamoeba histolytica.*

(Continued from page 3)

- breathing problems;
- swelling of the lips or throat;
- faintness;
- confusion;
- rapid heartbeat; and
- hives.

If you experience any of these symptoms after being stung, seek immediate emergency care.

Swarming Insects

Wasps, hornets, yellow jackets and other insects can be very aggressive when their nests are disturbed. These insects will sting when threatened. Preferred nesting areas include garbage dumpsters, picnic areas, decks and pools–any area that provides a food source. Yellow jackets nest in the ground while many other wasps and hornets build nests above ground.

Many pesticides are available for controlling insect population nesting sites. The manufacturers' instructions must be followed to effectively treat nesting sites. Personal protective equipment such as goggles, heavy clothing, gloves and nets may also be necessary. Treating nests at night is often the safest course of action. During the night the insects are all in the nest and the risk of being stung is minimized. Workers should also be aware of both the entrance and exit to the nest.

Flies

The common house fly is another potential source of disease. Proper hygiene methods should always be used to discourage fly infestations. Fly control requires the removal of breeding places, such as garbage, and the exclusion of flies from buildings with screens and air doors. Control indoors includes the use of light traps, fly strips and aerosol pesticides approved for flying insects.

Spider Bites

Only a few spiders are dangerous to humans The black widow (*Lactrodectus mactans*) is known for the red hour glass marking on its underside. Spiders prefer warmer climates and dark dry places where flies are plentiful. For these reasons, they often live in outdoor toilets. If possible, it is best to capture the spider for identification.

Bites from spiders may feel like a pinprick and may not even be noticed, but within hours, swelling at the site and breathing problems may occur. Emergency help should be immediately sought. A cloth dampened with cold water or filled with ice may be applied to the bite while awaiting help.

Animals

The potential for animal bites and scratches is another occupational hazard that may be encountered when working outside. If you are bitten or scratched, wash the wound with soap and water and consult your physician.

Rabies, a viral disease, is a dangerous, fatal disease. Animals that are acting abnormally may be exhibiting signs of rabies. These signs may include nervousness, aggressiveness, friendliness, excessive drooling and foaming at the mouth. The rabies virus may be transmitted to humans by the bite or the scratch of an infected animal. Wild animals may transmit the disease to dogs, cats and other pets, so care should be taken with any animal. If an injured or ill animal is found in or around a structure, it should be removed. Because injured animals will try to bite when handled, they should be picked up with tongs or a shovel. (If you are uncomfortable removing the animal, contact your local animal control officer.) If the animal has bitten or scratched someone, capture the animal without touching it with your hands and without crushing its head. If the animal is dead, refrigerate it (DO NOT freeze) and contact your local health department immediately for instructions. The animals which are potentially of highest risk for rabies in New Jersey are raccoons, skunks, foxes, groundhogs, bats and cats, while small rodents are the lowest risk.

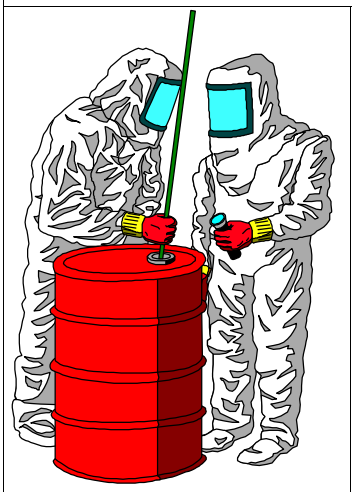
Physical Hazards

Heat

The Occupational Safety and Health Administration (OSHA) has published ten suggestions for employers to help employees stay cool during seasons of high temperatures and high humidity. Many heat-related disorders are easily avoided and it is important to remember that employees do not have to be in the sun to be affected by the heat or for heat stress to occur. During heat stress workers may experience rashes, cramps, fainting, heat exhaustion or heat stroke. In the most severe cases, heat stress can be life threatening.

OSHA's Ten Suggestions to Employers for Helping Workers Stay Cool in Hot Workplaces:

1. Encourage workers to drink plenty of water (without salt) - about one cup of cool water every 15 minutes, even if they are not thirsty. Avoid alcohol, coffee, tea, and caffeinated soft drinks, which contribute to dehydration;
2. Help workers adjust to heat by assigning a lighter workload and longer rest periods for the first five to seven days of intense heat. This process needs to start over again when a worker returns from vacation or absence due to illness or injury;
3. Encourage workers to wear light-weight, loose fitting, light colored clothing. Workers should change their clothing if it gets completely saturated;
4. Use general ventilation and spot cooling at points of high heat production. Good airflow increases the evaporation and cooling of the skin. Stagnant atmospheric conditions and poor air quality can induce heat-related illnesses;
5. Learn to spot the signs of heat stroke, which can be fatal. The symptoms are severe headache, mental confusion/loss of consciousness, flushed face and hot dry skin. If someone has stopped sweating, seek medical attention immediately. Other heat-induced illnesses include heat exhaustion, heat cramps, skin rashes, swelling and loss of mental and physical work capacity;
6. Train first-aid workers to recognize and treat the signs of heat stress. Be sure that all workers know who is trained to render first aid. Supervisors should also be able to detect early signs of heat-related illness and permit workers to interrupt their work if they become extremely uncomfortable;
7. Consider a worker's physical condition when determining fitness to work in hot environments. Obesity, lack of conditioning, pregnancy and inadequate rest can increase susceptibility to heat stress;
8. Alternate work and rest periods, with longer rest periods in a cooler area. Shorter, but frequent, work-rest cycles are best. Schedule heavy work for cooler parts of the day and use appropriate protective clothing;
9. Certain medical conditions, such as heart conditions, or treatments like low-sodium diets and some medications, increase the risk from heat exposure. Seek medical advice in these cases;
10. Monitor temperatures, humidity, and workers' responses to heat at least hourly.



Learn to spot the signs of heat stroke, which can be fatal.

"Many heat related disorders are easily avoided and it is important to remember that employees do not have to be in the sun to be affected by the heat or for heat stress to occur."

Cold

At the other end of the thermometer are the potential hazards associated with working in extremely low temperatures. Prolonged exposure to freezing temperatures can result in health problems as serious as trench foot, frostbite and hypothermia.

An individual gains body heat from food and muscular activity and loses it through convection, conduction, radiation and sweating to maintain a constant body temperature. When the body temperature drops even a few degrees below its normal temperature of 98.6° F (37° C), the blood vessels constrict, decreasing peripheral blood flow to reduce heat loss from the surface of the skin. Shivering generates heat by increasing the body's metabolic rate.

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Other Available Information Bulletins:

1. *Respiratory Protection*
2. *Personal Protective Equipment*
3. *Emergency Eyewashes and Showers*
4. *Health Hazards Associated with Bird and Bat Droppings*

Trench Foot— a painful condition of the feet resembling frostbite and marked by inflammation, swelling, mottled discoloration, burning pain, blisters and, in severe cases, gangrene due to the combined effect of cold and wet upon the feet.

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The four environmental conditions that cause cold-related stress are low temperatures, high/cool winds, dampness and cold water. Wind chill, a combination of temperature and velocity, is a crucial factor to evaluate when working outside.

The major risk factors associated with cold related stresses are:

- Wearing inadequate or wet clothing;
- Taking certain drugs or medications such as alcohol, nicotine, caffeine, and medications that inhibit the body's response to cold, facilitate heat loss or impair judgment;
- Having a cold or certain diseases, such as diabetes, heart, vascular and thyroid problems;
- Becoming exhausted or immobilized; and
- Aging.

The harmful effects of cold include:

- Trench foot (see insert);
- Frostbite; and
- General hypothermia.

Perhaps the most important step in protecting workers from the elements is providing adequate layers of insulation. At least three layers of clothing should be worn to protect workers from cold-related stress:

- An outer layer to break the wind and allow some ventilation;
- A middle layer of wool or synthetic fiber to absorb sweat and insulate in a damp environment. Down is a useful lightweight insulator; however, it is ineffective when wet; and
- An inner layer of cotton or synthetic to allow ventilation.

The risk of cold-related injuries can also be reduced by engineering and work practice controls:

- Use an on-site heat source, such as air jets, radiant heaters, or contact warm plates;
- Shield work areas from drafty or windy conditions;
- Provide a heated shelter for employees who experience prolonged exposure to equivalent wind chill temperatures of 20°F (-6°C) or less;
- Use thermal insulating material on equipment handles when temperatures drop below 30°F (-1°C);
- Allow a period of adjustment to the cold before embarking on a full work schedule;
- Permit employees to set their own pace and take extra work breaks when needed;
- Reduce, as much as possible, the number of activities performed outdoors; select the warmest hours of the day and minimize activities that reduce circulation, such as using vibrating tools like jack-hammers;
- Ensure that employees remain hydrated;
- Establish a buddy system for outdoor work;
- Educate employees about the symptoms of cold-related stress – which include severe shivering, uncomfortable coldness, severe fatigue, drowsiness and euphoria.

Pesticides and Herbicides

Pesticides and herbicides are used for the control of outdoor pests and poisonous plants. Only certified applicators should use pesticides and herbicides and all employees should be aware of their use. To ensure that all employees are informed about the potential hazards of pesticide and herbicide use, employers should provide:

- Pesticide and herbicide safety training;
- Access to Material Safety Data Sheets (MSDS's), NJDHSS Right to Know Hazardous Substance Fact Sheets and safety and first aid information; and

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- Relevant phone numbers and emergency contact information.

Always follow the manufacturers' application directions and use necessary personal protective equipment. The PEOSH Personal Protective Equipment and Respiratory Protection Standards will be applicable if such equipment is required to protect employees and is provided by the employer. These standards have requirements for employee training and education.

For more information on these standards see the PEOSH Information Bulletins on each topic.

They are available on our web site – www.state.nj.us/health/eoh/peoshweb or call (609) 984-1863 for copies.

Other Resources

Information used in this bulletin was obtained from documents published by the US Departments of Labor and Health and Human Services. These include the Occupational Safety and Health Administration (OSHA), the Centers for Disease Control and Prevention (CDC), and the National Institute for Occupational Safety and Health (NIOSH).

For further information contact:

New Jersey Department of Health and Senior Services
Public Employees Occupational Safety and Health Program
PO Box 360 7th Floor
Trenton, NJ 08625-0360
(609) 984-1863
http://www.state.nj.us/health/eoh/peoshweb

Occupational Health Surveillance Program
PO Box 360 7th Floor
Trenton, NJ 08625-0360
(609) 984-1863
http://www.state.nj.us/health/eoh/survweb

Occupational Safety and Health Administration
U.S. Department of Labor
http://www.osha.gov

Directory of Local Health Departments in New Jersey
http://www.state.nj.us/health/ih/olh.htm

Centers for Disease Control and Prevention
U.S. Department of Health and Human Services
http://www.cdc.gov

New Jersey Department of Environmental Protection
http://www.state.nj.us/dep

Poison Control
(800) 222-1222

This document was prepared by Thomas J. Olszak, M.P.H.
NJDHSS PEOSH Program

Appendix I

The following information sheets may be photocopied and distributed to workers for quick reference.

Public Employees Occupational Safety and Health Program

Clifton R. Lacy, M.D.
Acting Commissioner

James E. McGreevey
Governor

Albert G. Kroll
Commissioner

Outdoor Work Health Hazards

Worker Information

Hazardous Plants

Poison Ivy: A woody shrub or vine. The vine climbs by aerial rootlets that cling readily to trees. Three leaflets borne on a single petiole make up the leaf. Each leaflet can be up to four inches long and is a dark waxy, shiny green above and lighter green and fuzzy beneath. The flowers grow like berries on very thin stems. During the summer, the flowers are lost and the leaves turn fire-engine red. All parts of the plant are poisonous.

Poison Oak: In the West, poison oak may grow as a vine or a shrub. In the East, it grows as a shrub. Hair grows on the fruit, trunk and leaves. Leaves have three leaflets like poison ivy. The flowers of poison oak are glossy, white-green and grow like berries. In the fall, poison oak is yellowish red and in the winter it is bare. When bare, poison oak can be distinguished by its three branches. All parts of the plant are poisonous.

Poison Sumac: This plant can be a tree or shrub, it can grow up to 25 feet in height with a trunk up to 6 inches in diameter. It is limited to swampy lands but ranges from Maine to Florida and west to Minnesota, Missouri and Louisiana. The leaves alternate, can be 15 inches or more long made up of 7 to 13 alternating thin oval to pointed leaflets. The whole plant is very poisonous.

First Aid:

1. Immediately wash the affected areas with soap and warm water.
2. To relieve itching; apply cotton cloths soaked in cool water or a colloidal ointment to the area, or sponge the skin with alcohol.
3. Calamine lotion over the rash will help relieve itching and promote healing.
4. Severe itching may require antihistamines. A moderate to severe reaction may require steroids.

Pregnant women and individuals with health conditions should consult their physician prior to taking any over-the -counter medication. Always read product labels and seek further information if you have any questions about the use of a product.

Ticks, Insects and Spiders

To avoid contact with ticks:

- avoid brushy, overgrown grassy, and wooded places, particularly in spring and early summer when young ticks feed;
- remove leaves, tall grass and brush from areas surrounding the work area;
- apply tick-toxic chemicals to surrounding work areas.
  Note: Pesticides should only be used in accordance with federal, state and local regulations.

When avoidance is not possible, personal protection can be used to lessen the risk of tick exposure:

- wear light colored clothing so ticks may be more easily seen and removed before attaching;
- wear long sleeved shirts and tuck pant legs into socks or boots;
- wear high boots or enclosed shoes that cover the entire foot;

- wear a hat;
- spray insect repellant on exposed skin, excluding the face;
- shower and wash and dry clothes at a high temperature after outdoor exposure;
- check carefully for ticks; once found remove them with tweezers and clean the skin area with an antiseptic.

Physical Hazards

Heat
Occupational Safety and Health Administration (OSHA)
Ten Suggestions to Employers for Helping Workers Stay Cool in Hot Workplaces:

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10. Monitor temperature, humidity, and workers' responses to heat at least hourly.

Cold

The risk of cold-related injuries can be reduced by engineering and work practice controls:

1. Use of an on-site heat source, such as air jets, radiant heaters, or contact warm plates;
2. Shield work areas from drafty or windy conditions;
3. Provide a heated shelter for employees who experience lengthy exposure to equivalent wind chill temperatures of 20°F (-6°C) or less;
4. Use thermal insulating material on equipment handles when temperatures drop below 30°F (-1°C);
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6. Permit employees to set their own pace and take extra work breaks when needed;
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3. Relevant phone numbers and emergency contact information.

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For further information contact:

New Jersey Department of Health and Senior Services
Public Employees Occupational Safety and Health Program
PO Box 360, 7th Floor
Trenton, NJ 08625-0360
(609) 984-1863
http://www.state.nj.us/health/eoh/peoshweb

Occupational Health Surveillance Program
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Trenton, NJ 08625-0360
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Occupational Safety and Health Administration
U.S. Department of Labor
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