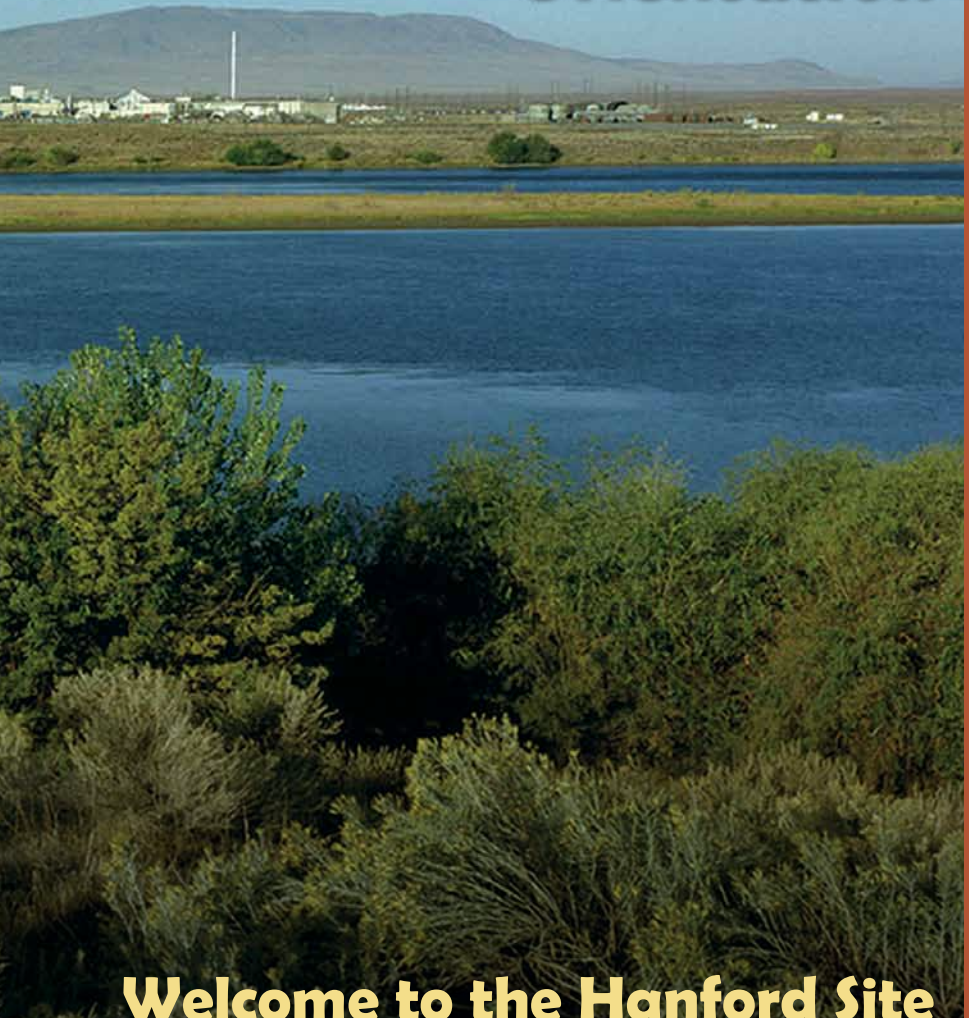


Visitor Orientation



Welcome to the Hanford Site
DOE Department of Energy



Hanford Focus

We take safety, security, and environmental protection seriously

The safety and health of our employees, the public, and those who visit the Hanford Site, in addition to site security and protection of the environment, are fundamental values of the U.S. Department of Energy (DOE) and its contractors. We strive to achieve and sustain a worksite that is free of accidents, injuries, environmental impacts, and security events.

Once you step foot on the Hanford Site, you become a part of our Zero Accident culture. We expect that every individual will go home in the same condition that brought them to the Hanford Site. We are dedicated to impeding unwanted events by preventing unsafe acts, eliminating unsafe conditions, and responding properly to near misses and emergency situations. Rather than just reacting to occurrences and correcting contributing factors, our objective is to be proactive and prevent them from happening in the first place.



Our roadmap to Zero Accidents

To achieve our goal of daily excellence in the protection of workers, the public, and the environment, we apply an aggressive approach to integrated safety and security management. To support this process, visitors are responsible for the following:

- Clearly understand the work to be performed.
- Practice and promote safe behaviors and proper work habits.
- Recognize hazards.
- Use good judgment.
- Comply with the standards and guidance described herein *(and as otherwise defined by your escort or host)*.
- Provide notification of unsafe work areas and work processes.

You also have the right to know:

- The potential hazards associated with the areas to which you are exposed.
- The measures to be taken to protect you from the dangers these hazards may impose.

You play a meaningful role in contributing to our success.

Key Visitor Responsibilities

- Respond to all Hanford Site alarms as detailed on page 8. Follow your escort's instructions or the facility's occupants during an event.
- Immediately inform your escort/host of any medical restrictions or physical limitations that may prevent you from performing safely, or of any onset of illness you are experiencing (e.g., dizziness, general feeling of discomfort).
- **STOP WORK immediately** (*or cease what you are doing*) when you identify a potential hazard or problem, or when directed to do so by **anyone** on the Hanford Site.
- Report any spill or release.
- Obey all posted signs and rules on the Hanford Site.
- Conduct only those activities and access only those work areas approved for your visit.
- Wear your security badge conspicuously above the waist and in plain view on your outer-most layer of clothing.
- Do not remove artifacts, disturb wildlife, or pick flowers.
- Do not bring prohibited articles onto the Hanford Site. Prohibited articles are detailed on page 9. NOTE: Visitors are subject to search at all times on the Hanford Site.
- Obey instructions on posted radiological signs. Do not pass radiological boundaries without meeting the entry requirements.
- Complete special safety training if performing any of the designated hazardous activities listed on pages 6 and 7.

Visitor Responsibilities

Fundamentally, visitors have safety and security responsibilities similar to those of Hanford employees. When you enter the Hanford Site, you agree to abide by our policies and procedures and adhere to the following responsibilities.

Occupational Safety and Health

YOU are responsible for your safety.

YOU are expected to take an active role to ensure that you act safely.

YOU have the the right to be in a safe worksite, and the responsibility to keep it safe.

- Conduct only those activities and access only those work areas approved for your visit.
- Immediately inform your escort/host of any medical restrictions or physical limitations that may prevent you from performing safely, or of any onset of illness you are experiencing (e.g., dizziness, general feeling of discomfort).
- **STOP WORK** immediately (*or cease what you are doing*) when you identify a potential hazard or problem, or when directed to do so by **anyone** on the Hanford Site.
- Report accidents, injuries/illnesses, near misses, unusual occurrences, unsafe conditions, potential hazards, spills or releases to your escort or host in a timely manner. Report emergency conditions immediately via a Hanford Site phone (911) or cell phone (509-373-0911).
- When available, use established walkways and crosswalks in your foot-travel, maintaining a personal awareness of tripping and slipping hazards and uneven walking surfaces.
- Use handrails when using stairways.
- Know the location of fire exits and means of entering and exiting buildings on the Hanford Site.
- Maintain our work environment and equipment in a clean and orderly condition.



Security

- Carry photo identification with you at all times. Promptly report to your escort/host, or your temporary supervisor any actual or suspected acts of intentional damage, theft, misuse of government property, or security discrepancies that come to your attention.
- Wear your badge conspicuously above the waist and in plain view on your outer-most layer of clothing.
- Use your badge for official use only. Protect your badge from loss and misuse. Do not transfer or loan your badge to anyone.
- Show your badge and photo identification at all access points. Hanford Patrol may be required to touch your badge.
- Return your photo security badge to your escort/host or any access control clerk at the end of your visit or assignment.
- Notify your escort/host or Hanford Patrol immediately if you lose or misplace your security badge during your visit.
- Only access government computers after you receive approval from company officials and have completed computer security training.

Environmental

- Report spills, releases or any other environmental issues.
- Do not remove artifacts, disturb cultural resources or pick flowers.
- Do not disturb nesting birds or other protected wildlife.
- Be alert for deer and other wildlife that may be on the road.
- If you need to dispose of batteries while on the Hanford Site, give them to your Hanford contact. Batteries may not be thrown in garbage cans.
- Ask your escort about the company's Environmental Management System.
- STOP WORK immediately if you identify any condition that may adversely impact the environment.



Visitor Responsibilities (cont'd)

General

- Obey all instructions of your escort/host and request guidance if you have questions.
- Obey all signs and postings. Safety, security, and radiological postings are located throughout the Hanford Site for your protection.
- Obey Washington state traffic laws.
- Stay on designated roads and walkways.
- Park in designated parking areas. Handicapped parking permits are required to park in handicapped spaces on the Hanford Site.
- Be prepared for changes in road conditions or slow-moving vehicles.
- Do not smoke in any DOE-owned or contractor-leased facility; in any government vehicles; or near flammable gases, liquids, and dry vegetation. Smoking is permitted outside in designated areas only.

Job specific

- Obtain permission from your escort/host to operate any project or facility equipment or machinery.
- Wear suitable clothing for exposure to the environment and activities to which you will be experiencing. Use the prescribed personal protective clothing and equipment specified by your escort/host (*e.g., hard hat, safety glasses, appropriate footwear*).
- Stay clear of overhead work activity and moving equipment/vehicles.
- Review applicable Material Safety Data Sheets before handling hazardous material (*e.g., chemicals*).
- Do not smoke or use open flames/heating sources in proximity to combustible or flammable material.
- Do not enter any radiological areas or handle hazardous materials without specific authorization and training.



- Designated hazardous activities: Special training is required before undertaking any of the following activities. Discuss your needs with your escort/host, in advance.
 - Handling hazardous materials and substances (*e.g., chemicals, toxics, waste*)
 - Required use of respiratory protection
 - Access into a confined space
 - Access onto a roof
 - Exposure to temperature extremes (hot or cold)
 - Working alone
 - Operating power tools or equipment
 - Manual lifting and associated material-handling tasks
 - Use of forklifts, cranes, or hoists to rig and/or transport loads
 - Use of fall arrest or fall restraint systems (*including body harness*)
 - Lockout and/or tagout to control hazardous energy
 - Use of lasers
 - Exposure to noise in areas posted as areas with noise hazards
 - Use of ladders (*for any purpose*)
 - Accessing temporary work platforms or scaffolds
 - Operation of aerial devices or elevating work platforms
 - Accessing a below-grade trench (*excavation*)
 - Use of compressed gases
 - Welding, burning, or other “hot work”
- Keep your exposure “As Low As Reasonably Achievable” (ALARA) (*see page 14*).

- Do not bring sealed or unsealed radioactive sources on the Hanford Site without prior written approval of the appropriate contractor’s Radiological Control organization.
- Health Care Centers are located at Building 2719-WB in the 200 West Area on site, and at 1979 Snyder Street, in Richland. Any injury, illness, or potential exposure must be reported to an escort or you may request assistance from the nearest employee.



Emergency Preparedness and Response

Before you enter the Hanford Site:







- Ensure that you and your escort/host have determined a method to communicate while you are on the Hanford Site (e.g., emergency notifications, directions, etc.).
- Familiarize yourself with the Hanford Site-wide emergency signals below. A tape recording of emergency signals, with response instructions, may be heard by dialing 373-2345.
- Ask your host if a facility-specific emergency orientation is needed for your visit.

In the event of an emergency:

- Call 911 (or 509-373-0911 from a

cellular phone) for fire, medical, Hanford Patrol, hazardous material response, or whenever you believe an emergency situation exists.

- Respond to all facility alarms and site-wide emergency signals. Follow the instructions of your escort/host, or facility occupants. Notify your host of your location.
- Do NOT take cover/shelter in vehicles. Turn off vehicle heating and ventilation system, drive safely to the nearest suitable building, enter the building and stay separated from others, notify building management of your arrival, and notify your host of your location.

Signals	Meanings	Actions
 <p>WAVERING Siren</p>	Take Cover	 <p>Stay Inside</p>
 <p>STEADY Siren</p>	Evacuation	 <p>Go to Staging Area</p>
 <p>HIGH-PITCHED Rapid Tone</p>	Chlorine Alarm	 <p>Move upwind of the Facility</p>

Prohibited Articles

The following items are prohibited articles anywhere on the Hanford Site or in contractor-leased facilities without prior authorization:



- Dangerous weapons or ammunition.
- Explosives or incendiary devices.
- Controlled substances (e.g., illegal drugs and associated paraphernalia, but not prescription medication).
- Alcoholic beverages (including “near” and “non-alcoholic” beer).
- Pets and animals, except guide dogs.



NOTE: Prohibited knives include fixed or folding knives with blades exceeding four inches; knives with blades that are automatically released by spring or mechanical mechanism; knives that open, fall, or are ejected into position by force of gravity; and swords, machetes, hatchets, axes, straight razors, or similar cutting devices.

If you are in possession of any of the above items, **DECLARE THEM NOW!** To claim prohibited articles after normal business hours, contact Hanford Patrol at 373-3800.

Vehicle access at site barricades

- Privately owned campers, motor homes, boats, and camp trailers ARE NOT authorized through the barricades.
- Vehicles towing a second vehicle or trailer ARE NOT authorized through the barricades with the following exceptions:
 - Commercial towing vehicles, with the appropriate tow request
 - DOE-RL/Contractor-owned boats or trailers
 - Construction contractors and vendors completing deliveries with trailers.

NOTE: Contractor and vendor vehicles pulling a trailer must display a company logo on the vehicle or provide vehicle registration showing the vehicle is registered to the contractor. In some instances (i.e., independent contractors), the vehicle will be registered to the contractors name versus a company name. Vehicles leased or rented by a contractor must have the lease/rental agreement on hand.

Hanford Site Map



Emergency Phone Numbers

Emergency (Medical/Fire/Spills/Security).....	911
	(509/373-0911 cell phone)
Hanford Patrol (non-emergency)	373-3800
Benton County Sheriff's Office.....	735-6555
PNNL.....	375-2400

General Information Phone Numbers

ATL.....	376-7411	MSA.....	376-7411
CHPRC.....	376-7411	PNNL.....	375-2121
CSC.....	376-3333	WCH	375-4640
DOE.....	376-7411	WRPS.....	376-7411

Job-Specific and Background Information

The remainder of this booklet contains requirements only for specific types of work, together with background information about the Hanford Site. Read those sections that apply to you and any other material in which you may have an interest.

If you will be making an unescorted entry into a radiologically controlled area, you will be asked to sign a document which indicates you have read and understand the Radiation Safety Training section contained in this pamphlet.

Hanford Site Security Area Access

Without prior authorization, the following controlled articles are prohibited within areas that process or control classified matter or quantities of special nuclear material. These limited areas and protected areas have barriers and are clearly identified.

- Radio frequency transmitting equipment
- Cellular telephones
- Computers and associated media (*includes personal electronic devices, e.g., personal digital assistants [PDA]*)

Hanford Site Security Area Access (cont'd)

- Recording equipment (*audio, video, and data*)
- Cameras (*still, motion-picture, and video*)
- Electronic equipment with a data exchange port capable of being connected to automated information system equipment

NOTE: Government-provided desktop computers and associated media are not considered controlled articles.

In addition to the items listed above, all personal protective sprays (*e.g., mace, pepper spray*) are prohibited within **protected areas**.

The following items are prohibited in

rooms in which classified information is processed or discussed. These items are prohibited in such locations even if they are listed on a valid prohibited/controlled article pass.

- Cordless and cellular telephones
- Recording equipment (*audio, video, and data*)
- Cameras (*still, motion-picture, and video*)
- Electronic equipment with a data exchange port capable of being connected to automated information system equipment
- Radio frequency transmitting equipment

Beryllium Hazards

Beryllium is a metal. Historically, work at Hanford was conducted directly with beryllium or beryllium-containing materials because of its desirable properties of being durable, strong, and lightweight. Because beryllium is a health hazard, today

very little work is conducted with beryllium or beryllium-containing materials. We are primarily concerned with the spread of legacy beryllium contamination from past beryllium operations.

Posting and Signs

Postings and signs alert workers to the potential for beryllium and entry requirements. To protect your health, follow all signage.



Radiation Safety Training

The Hanford Site contains ionizing radiation hazards from a variety of sources ranging from radioactivity from past DOE operations and activities to radioactivity contained in safety and industrial equipment. This section describes the basics of radiological hazards and the protective measures we take to minimize risk from those radiological hazards.

The pamphlet Radiation Safety Training content used for this orientation satisfies the General Employee Radiological Training (GERT) requirements of 10 CFR 835.901(a) for non-Hanford personnel unescorted access to Radiological Control Areas (RCA) or Radioactive Material Area (RMA) unless otherwise posted. Additional information and/or training may be required for access to other Radiological Areas. Answers to questions may be obtained from your Hanford sponsor's radiation protection organization.

Basic radiation concepts

What is radiation?

Radiation is energy emitted from an unstable atom. It can be in the form of a particle (*alpha, beta, or neutron radiation*) or a ray (*gamma or x-ray*).

Radiation also can be classified as **ionizing** or **non-ionizing**. Ionizing radiation has enough energy to remove electrons from the atoms through which it passes. This section of the booklet covers ionizing radiation. Non-ionizing radiation

lacks the energy to remove any electrons from neighboring atoms. Examples of non-ionizing radiation are radiowaves, lasers, and microwaves.

Another term associated with radiation is **radioactive contamination**. In simple terms, radioactive contamination is having radioactive material in an unwanted location. Radioactive contamination areas are strictly controlled at the Hanford Site to prevent the spread of contamination.

What about radiation exposure?

Everyone is exposed to naturally occurring radiation every day. This exposure is expressed as a dose equivalent. The unit of its measure is called "rem." The vast majority of exposure at the Hanford Site is measured in millirem or "mrem," which is 1/1000 of a rem. In the United States, the average person receives a radiation dose of approximately 620 mrem each year from naturally occurring background radiation and manufactured sources.

How do I identify radiological hazards?

Any area in which there is a potential for exposure above background to radioactive materials is strictly controlled. A combination of special training, administrative controls, and physical controls (*including radiological postings [signs] and barriers*) is used to restrict access to these areas.

Examples of these areas are:

- Fixed contamination areas
- Underground radioactive material areas
- Radioactive material areas
- Radiation areas

Radiation Safety Training



All radiological hazards at the Hanford Site are easily identifiable by the use of the international sign for radiation—a black or magenta

trefoil on a yellow background with the words “Caution” or “Danger.” Entry into any of these areas requires specific training and strict compliance with access requirements.

Radiation Risks

The risks associated with occupational doses are very small and considered acceptable when compared to that of other occupational health risks (e.g., being a coal miner or construction worker). Although the scientific community lacks consensus on how much exposure is acceptable, most experts believe that you should limit your exposure to radioactive materials.

Remember that it is impossible to prevent your exposure to naturally occurring sources of radiation exposure. However, you can control your exposure to manufactured sources of radiation.

Chronic exposure occurs when an individual receives a dose of radiation (*typically a low dose*) over an extended period of time (*usually months to years*). Exposure to naturally occurring background radiation



is an example of chronic exposure.

Acute exposure occurs when an individual receives a high dose of radiation in a short period of time (*seconds to days*). Firefighters at the Chernobyl Plant received acute doses of radiation.

Heritable effects are passed from one generation to the next. High levels of radiation exposure to animals have been demonstrated to produce such effects. However, no heritable effects have been observed in humans as a result of radiation exposure.

Is there a “safe” dose of ionizing radiation?

The scientific community has not developed a definitive answer to this question. The potential risk of working with or around radioactive materials can be compared to other accepted risks in our everyday lives.

The following information addresses the expected effect on the average lifespan of a large population of individuals subjected to the listed risk factor/behavior.

Health Risk*	Estimated Loss of Life Expectancy
Smoking 20 cigarettes a day	6 years
Overweight (<i>by 15%</i>)	2 years
Alcohol Consumption (<i>U.S. Average</i>).....	1 year
Construction accidents	227 days
Auto accidents	207 days
Home accidents	74 days
All natural hazards	7 days
<i>(earthquakes, lightning, flood)</i>	
Medical radiation	6 days
Occupational radiation dose (1 rem/yr)	51 days
from the age of 18 to 65 years (47 rem)	

(Note: the average DOE radiation worker receives less than 0.1 rem/yr)

*Reference: DOE-HDBK-1130-2008 Table 2-2



How are radiological risks managed at the Hanford Site?

The key to managing radiological risks at the Hanford Site is to keep exposures to radiation and other hazardous materials “As Low As Reasonably Achievable” or “ALARA.” The cornerstone of the ALARA philosophy is to evaluate all hazards before operations begin and design

appropriate controls into the project. The main ALARA tools are:

- Reduce TIME near the hazard
- Increase the DISTANCE from the hazard
- Increase the SHIELDING between you and the hazard
- Reduce the amount of radioactive material (*e.g., decontamination*)

Radiation Safety Training (cont'd)

What are the radiological controls at the Hanford Site?

Engineered and administrative controls keep radiation exposures ALARA.

Engineered controls are physical and/or mechanical devices used to reduce the risk from hazards (*radiation, chemical, etc.*). Engineered controls are the primary means of controlling radiation exposure at the Hanford Site. They include:

- Shielding
- Proper ventilation
- Containment devices, such as gloveboxes
- Interlocks on enclosures

Administrative controls are procedures and policies used to minimize the risk from hazards. Administrative controls supplement engineered controls to provide a safer workplace. Administrative controls include:

- Warning signs (*e.g., radiological postings*)
- Safety procedures
- Radiological Work Permits

The DOE dose limit for general employees is 5,000 mrem/year. General employees who also are qualified as Radiological Workers are assigned an administrative control level starting at 500 mrem/year in order to control annual occupational radiation exposure well below DOE

dose limits. Individuals who complete only this GERT training are members of the public and should not receive more than 100 millirem/yr occupational dose. Additional radiological training is required to exceed this value.

What about pregnant women?

The embryo/fetus is more sensitive to radiation and other environmental hazards than adults.

If you are pregnant, you must decide if the expected benefits of your visit outweigh any risks associated with the embryo/fetus potentially receiving radiation exposure.

Radiological workers who declare their pregnancy have their exposure controlled such that the embryo/fetus is limited to less than 500 mrem for the duration of the gestation period.

Individuals have the right to declare their pregnancy for the purpose of protection of the embryo/fetus from occupational radiation exposure, and to revoke their declaration. Individuals also have the right to elect not to declare their pregnancy.

If you are unsure or have any concerns or you want to declare your pregnancy, talk to your escort/host, who will contact the Radiation Protection organization to discuss radiation effects during pregnancy.

How do I protect myself and others in the event of a radiological event or emergency?

- Refer to the “Emergency Preparedness and Response” section of this booklet on page 8.

What are the rights and responsibilities of each person accessing the Hanford Site?

- Refer to the “Visitor Responsibilities” and “Escort/Host Responsibilities” sections of this booklet on pages 4-7.

Will I have to wear a dosimeter at Hanford?

A dosimeter is a device used to measure an individual’s exposure to external radiation. Typically, most employees do not receive a measurable occupational dose. Radiological workers wear dosimeters to measure their dose. **Most likely, you will not be entering areas that require you to wear a dosimeter.** You will be issued a dosimeter if you will be entering areas where dosimeters are required, or if you have the potential to receive a dose that requires monitoring by dosimetry.

Are there any special instructions for wearing and caring for a dosimeter?

If you are required to wear a dosimeter, follow these instructions:

- Wear the dosimeter facing out on the upper part of your body, with no obstructions that may shield the dosimeter (*including plastic cards*).
- Do not wear your Hanford Site dosimeter in facilities other than those at the site.
- If you have received or will be receiving medical treatments involving radiopharmaceuticals, do not wear the dosimeter. Notify your escort/host, who will in turn notify the Radiation Protection organization.
- Do not expose your dosimeter to excessive heat or moisture.
- If you lose or damage your dosimeter, immediately report the occurrence to the Radiation Protection organization.

Dose reports

Dosimeters must be returned when you finish your visit. Visitors assigned a dosimeter will receive a report 30 to 90 days after their visit. You may request a dose report by calling PNNL Dosimetry at (509) 376-6790.

Escort/Host Responsibilities

- Follow company hosting procedures and processes.
- Determine the facilities and areas where access will be required.
- Determine training, escort, and personal protective equipment requirements for areas being visited and the scope of activity related to the visit.
- Arrange for appropriate training, escort(s), and dosimetry.
- Provide for facility-specific training and orientation, where applicable.
- Ensure visitors receive appropriate training before allowing access to radiological areas.
- Obtain special approval and training for any visitors who are not U.S. citizens. For more information, contact the Foreign National Visits and Assignments Office at 376-3066.
- Complete history forms for visitors issued a dosimeter when requested by the issuing dosimetry location.
- Ensure visitors access only areas and/or materials authorized by the visit including sensitive and proprietary information.
- Ensure visitors wear their badge and dosimeter (*if one was issued*).
- Ensure visitor's picture badge is returned at the end of the visit or assignment.
- Limit visitor's access into radiological areas.
- Ensure prohibited items are not brought onto the Hanford Site. Refer to the "Prohibited Articles" section on page 9.

The location of dangerous waste and other hazards must be communicated to the visitor.

Except for public access areas, security badges are required in all Hanford Site areas and all DOE leased or government-owned facilities. In some cases, a building-specific badge will be issued in lieu of a visitor's badge. A self-expiring visitor badge with a large "S" does not authorize personnel access beyond the in town administrative areas.

Hanford Patrol personnel are authorized to confiscate security badges that are misused, damaged, or invalid.



General Hanford Information

DOE manages the Hanford Site through 8 major contractors.

Below is a brief description of services:

- **Advanced Technologies and Laboratories International, Inc. (ATL)** provides analytical and testing services at Hanford's 222-S Laboratory.
- **Battelle** operates the Pacific Northwest National Laboratory (PNNL) providing research and development in environmental science and technology.
- **Bechtel National, Inc. (BNI)** is designing, constructing, and commissioning a Waste Treatment Plant to vitrify the Hanford's Site tank waste.
- **CH2MHill Plateau Remediation Company (CHPRC)** is the prime contractor for the safe, environmental cleanup of the Central Plateau.
- **CSC Hanford Occupational Health Services (CSC)** provides a full range of occupational health services.
- **Mission Support Alliance (MSA)** provides integration of infrastructure, information technology and other services vital to Hanford site cleanup.
- **Washington Closure Hanford LLC (WCH)** is the river corridor closure contractor executing cleanup of contaminated soil, groundwater, and inactive nuclear facilities.
- **Washington River Protection Solutions (WRPS)** manages the storage, characterization, and retrieval of underground tank wastes.

The federal government acquired the Hanford Site in 1943. The site occupies 586 square miles (1,517 square kilometers) in southeastern Washington state. Facilities are grouped together in the following major areas:

100 Area	The site of nine deactivated plutonium production reactors
200 Areas (East & West)	Laboratory support, waste characterization, and environmental restoration
300 Area	Nuclear research and development facilities
400 Area	Fast Flux Test Facility (FFTF) and related support facilities
600 Area	Hanford Site not designated as 100, 200, 300, and 400 Areas
700 Area	Administrative buildings in Richland (e.g., Federal Building)
Richland Industrial Center	Site support services (e.g., general stores and transportation maintenance)
3000 Area	Facilities for Pacific Northwest National Laboratory

Other Hanford Information

Additional information related to the Hanford Site is available at www.hanford.gov



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