

vulnerability assessment & gap analysis

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| Public Water System (PWS) ID# |  |
| Name/title of main contact: |  |
| Address: |  |
| City, State, Zip: |  |
| Phone number: |  |
| Email: |  |
| Fax number (if applicable): |  |
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Hazard Rating Analysis

A hazard summary lists the types of events that can disrupt a PWS and the potential magnitude of the hazards associated with these events.

***Estimated Probability*** is the average occurrence appropriate to each PWS. This could be expressed in events per 100 years; rated as high, medium or low.

***Estimated Utility Disruption*** is the potential severity of the hazard; rated as high, medium or low.

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| **Type of Hazard** | **Estimated Probability**  H = High  M = Medium  L = Low | **Estimated Utility Disruption**  H = High  M = Medium  L = Low | **PWS Components Affected** |
| Earthquake |  |  |  |
| Landslide |  |  |  |
| Tsunami |  |  |  |
| Wind storm |  |  |  |
| Storm surge |  |  |  |
| Flooding |  |  |  |
| Severe Weather: | | | |
| Snow or ice |  |  |  |
| Extreme cold |  |  |  |
| Lightning |  |  |  |
| Other severe weather |  |  |  |
| Volcanic eruptions |  |  |  |
| Waterborne diseases |  |  |  |
| Nuclear bomb explosions/fallout |  |  |  |
| Structure fires |  |  |  |
| Wild fires |  |  |  |
| Construction accidents |  |  |  |
| Transportation accidents: | | | |
| Road |  |  |  |
| Rail |  |  |  |
| Water |  |  |  |
| Air |  |  |  |
| Terrorism |  |  |  |
| Vandalism |  |  |  |
| Riots |  |  |  |
| Strikes |  |  |  |
| Deferred maintenance/large scale infrastructure failure |  |  |  |
| Hazardous-material release: | | | |
| Chlorine |  |  |  |
| Other spill |  |  |  |

# Security Vulnerability Self-Assessment for

# Small Community Water Systems (PWS)

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| General Questions for the Entire PWS The first 13 questions in this vulnerability self-assessment are general questions designed to apply to all components of your system (wellhead or surface water intake, treatment plant, storage tank(s), pumps, distribution system, and offices). These are followed by more specific questions that look at individual system components in greater detail. |

| **Question** | **Answer** | **Comments** | **Action needed/Taken** |
| --- | --- | --- | --- |
| 1. **Do you have a written emergency response plan (ERP)?** |  | It is essential that you have an ERP. If you do not have an ERP, you can obtain a sample from your state drinking water primacy agency. As a first step in developing your ERP, you should develop your Emergency Contact List.  A plan is vital in case there is an incident that requires immediate response. Your plan should be reviewed at least annually (or more frequently if necessary) to ensure it is up-to-date and addresses security emergencies.  You should designate someone to be contacted in case of emergency regardless of the day of the week or time of day. This contact information should be kept up-to-date and made available to all water system personnel and local officials (if applicable).  Share this ERP with police, emergency personnel, and your state primacy agency. Posting contact information is a good idea only if authorized personnel are the only ones seeing the information. These signs could pose a security risk if posted for public viewing since it gives people information that could be used against the system. |  |
| 1. **Is access to the critical components of the PWS (i.e., a part of the physical infrastructure of the system that is essential for water flow and/or water quality) restricted to authorized personnel only?** |  | You should restrict or limit access to the critical components of your water system to authorized personnel only. This is the first step in security enhancement for your water system. Consider the following:   * Issue water system photo identification cards for employees, and require them to be displayed within the restricted area at all times. * Post signs restricting entry to authorized personnel and ensure that assigned staff escort people without proper ID. |  |
| 1. **Are facilities fenced, including well houses and pump pits, and are gates locked where appropriate?** |  | Ideally, all facilities should have a security fence around the perimeter.  The fence perimeter should be walked periodically to check for breaches and maintenance needs. All gates should be locked with chains and a tamper-proof padlock that at a minimum protects the shank. Other barriers such as concrete "jersey" barriers should be considered to guard certain critical components from accidental or intentional vehicle intrusion. |  |
| 1. **Are your doors, windows, and other points of entry such as tank and roof hatches and vents kept closed and locked?** |  | Lock all building doors and windows, hatches and vents, gates, and other points of entry to prevent access by unauthorized personnel. Check locks regularly. Dead bolt locks and lock guards provide a high level of security for the cost.  A daily check of critical system components enhances security and ensures that an unauthorized entry has not taken place.  Doors and hinges to critical facilities should be constructed of heavy-duty reinforced material. Hinges on all outside doors should be located on the inside.  To limit access to water systems, all windows should be locked and reinforced with wire mesh or iron bars, and bolted on the inside. Systems should ensure that this type of security meets with the requirements of any fire codes. Alarms can also be installed on windows, doors, and other points of entry. |  |
| 1. **Is there external lighting around the critical components of your PWS?** |  | Adequate lighting of the exterior of water systems’ critical components is a good deterrent to unauthorized access and may result in the detection or deterrence of trespassers. Motion detectors that activate switches that turn lights on or trigger alarms also enhance security. |  |
| 1. **Are warning signs (tampering, unauthorized access, etc.) posted on all critical components of your PWS? (For example, well houses and storage tanks.)** |  | Warning signs are an effective means to deter unauthorized access. Examples:   * "Warning - Tampering with this facility is a federal offense" should be posted on all water facilities. These are available from your state rural water association. * "Authorized Personnel Only," "Unauthorized Access Prohibited," and "Employees Only" are examples of other signs that may be useful. |  |
| 1. **Do you patrol and inspect your source intake, buildings, storage tanks, equipment, and other critical components?** |  | Frequent and random patrolling of the water system by utility staff may discourage potential tampering. It may also help identify problems that may have arisen since the previous patrol.  Consider asking your local law enforcement agencies to conduct patrols of your water system. Advise them of your critical components and explain why they are important. |  |
| 1. **Is the area around the critical components of your PWS free of objects that may be used for breaking and entering?** |  | When assessing the area around your water system’s critical components, look for objects that could be used to gain entry (e.g., large rocks, cement blocks, pieces of wood, ladders, valve keys, and other tools). |  |
| 1. **Are the entry points to your PWS easily seen?** |  | You should clear fence lines of all vegetation. Overhanging or nearby trees may also provide easy access. Avoid landscaping that will permit trespassers to hide or conduct unnoticed suspicious activities.  Trim trees and shrubs to enhance the visibility of your water system’s critical components.  If possible, park vehicles and equipment in places where they do not block the view of your water system’s critical components. |  |
| 1. **Do you have an alarm system that will detect unauthorized entry or attempted entry at critical components?** |  | Consider installing an alarm system that notifies the proper authorities or your water system’s designated contact for emergencies when there has been a breach of security. Inexpensive systems are available. An alarm system should be considered whenever possible for tanks, pump houses, and treatment facilities.  You should also have an audible alarm at the site as a deterrent and to notify neighbors of a potential threat. |  |
| 1. **Do you have a key control and accountability policy?** |  | Keep a record of locks and associated keys, and to whom the keys have been assigned. This record will facilitate lock replacement and key management (e.g., after employee turnover or loss of keys). Vehicle and building keys should be kept in a lockbox when not in use.  You should have all keys stamped (engraved) "DO NOT DUPLICATE." |  |
| 1. **Are entry codes and keys limited to PWS personnel only?** |  | Suppliers and personnel from co-located organizations (e.g., organizations using your facility for telecommunications) should be denied access to codes and/or keys. Codes should be changed frequently if possible. Entry into any building should always be under the direct control of water system personnel. |  |
| 1. **Do you have a neighborhood watch program for your PWS?** |  | Watchful neighbors can be very helpful to a security program. Make sure they know whom to call in the event of an emergency or suspicious activity. |  |

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| Water Sources In addition to the above general checklist for your entire PWS (questions 1-13), you should give special attention to the following issues, presented in separate tables, related to various PWS components. Your water sources (surface water intakes or wells) should be secured. Surface water supplies present the greatest challenge. Typically they encompass large land areas. Where areas cannot be secured, steps should be taken to initiate or increase law enforcement patrols. Pay particular attention to surface water intakes. Ask the public to be vigilant and report suspicious activity. |

| **Question** | **Answer** | **Comments** | **Action needed/Taken** |
| --- | --- | --- | --- |
| 1. **Is your source of water secured?** |  | A properly sealed wellhead decreases the opportunity for the introduction of contaminants. If you are not sure whether your wellhead is properly sealed, contact your well drilling/maintenance company, your state drinking water primacy agency, your state rural water association, or other technical assistance providers. |  |
| 1. **Are well vents and caps screened and securely attached?** |  | Properly installed vents and caps can help prevent the introduction of a contaminant into the water supply.  Ensure that vents and caps serve their purpose, and cannot be easily breached or removed. |  |
| 1. **Are observation/test and abandoned wells properly secured to prevent tampering?** |  | All observation/test and abandoned wells should be properly capped or secured to prevent the introduction of contaminants into the aquifer or water supply. Abandoned wells should be either removed or filled with concrete. |  |
| 1. **Do PWS personnel regularly visit the water source?** |  | Where areas cannot be secured, steps should be taken to initiate or increase patrols by water utility personnel and law enforcement agents. |  |

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| Treatment Plant and Suppliers Some small systems provide easy access to their PWS for suppliers of equipment, chemicals, and other materials for the convenience of both parties. This practice should be discontinued. |

| **Question** | **Answer** | **Comments** | **Action needed/Taken** |
| --- | --- | --- | --- |
| 1. **Are deliveries of chemicals and other supplies made in the presence of PWS personnel?** |  | Establish a policy that an authorized person, designated by the water system, must accompany all deliveries. Verify the credentials of all drivers. This prevents unauthorized personnel from having access to the water system. |  |
| 1. **Have you discussed with your supplier(s) procedures to ensure the security of their products?** |  | Verify that your suppliers take precautions to ensure that their products are not contaminated. Chain of custody procedures for delivery of chemicals should be reviewed. You should inspect chemicals and other supplies at the time of delivery to verify they are sealed and in unopened containers. Match all delivered goods with purchase orders to ensure that they were, in fact, ordered by your water system.  You should keep a log or journal of deliveries. It should include the driver’s name (taken from the driver’s photo I.D.), date, time, material delivered, and the supplier’s name. |  |
| 1. **Are chemicals, particularly those that are potentially hazardous or flammable, properly stored in a secure area?** |  | All chemicals should be stored in an area designated for their storage only, and the area should be secure and access to the area restricted. Access to chemical storage should be available only to authorized employees.  You should have tools and equipment on site (such as a fire extinguisher, drysweep, etc.) to take immediate actions when responding to an emergency. |  |
| 1. **Do you monitor raw and treated water so that you can detect changes in water quality?** |  | Monitoring of raw and treated water can establish a baseline that may allow you to know if there has been a contamination incident. Some parameters for raw water include pH, turbidity, total and fecal coliform, total organic carbon, specific conductivity, ultraviolet adsorption, color, and odor. Routine parameters for finished water and distribution systems include free and total chlorine residual, heterotrophic plate count (HPC), total and fecal coliform, pH, specific conductivity, color, taste, odor, and system pressure.  Chlorine demand patterns can help you identify potential problems with your water. A sudden change in demand may be a good indicator of contamination in your system. For those systems that use chlorine, absence of a chlorine residual may indicate possible contamination. Chlorine residuals provide protection against bacterial and viral contamination that may enter the water supply. |  |
| 1. **Are tank ladders, access hatches, and entry points secured?** |  | The use of tamper-proof padlocks at entry points (hatches, vents, and ladder enclosures) will reduce the potential for of unauthorized entry.  If you have towers, consider putting physical barriers on the legs to prevent unauthorized climbing. |  |
| 1. **Are vents and overflow pipes properly protected with screens and/or grates?** |  | Air vents and overflow pipes are direct conduits to the finished water in storage facilities. Secure all vents and overflow pipes with heavy-duty screens and/or grates. |  |
| 1. **Can you isolate the storage tank from the rest of the system?** |  | A water system should be able to take its storage tank(s) out of operation or drain its storage tank(s) if there is a contamination problem or structural damage.  Install shut-off or bypass valves to allow you to isolate the storage tank in the case of a contamination problem or structural damage.  Consider installing a sampling tap on the storage tank outlet to test water in the tank for possible contamination. |  |
| Distribution Hydrants are highly visible and convenient entry points into the distribution system. Maintaining and monitoring positive pressure in your system is important to provide fire protection and prevent introduction of contaminants. | | | |

| **Question** | **Answer** | **Comments** | **Action needed/Taken** |
| --- | --- | --- | --- |
| 1. **Do you control the use of hydrants and valves?** |  | Your water system should have a policy that regulates the authorized use of hydrants for purposes other than fire protection. Require authorization and backflow devices if a hydrant is used for any purpose other than firefighting.  Consider designating specific hydrants for use as filling station(s) with proper backflow prevention (e.g., to meet the needs of construction firms). Then, notify local law enforcement officials and the public that these are the only sites designated for this use.  Flush hydrants should be kept locked to prevent contaminants from being introduced into the distribution system, and to prevent improper use. |  |
| 1. **Does your system monitor for, and maintain, positive pressure?** |  | Positive pressure is essential for firefighting and for preventing backsiphonage that may contaminate finished water in the distribution system. Refer to your state primacy agency for minimum drinking water pressure requirements. |  |
| 1. **Has your system implemented a backflow prevention program?** |  | In addition to maintaining positive pressure, backflow prevention programs provide an added margin of safety by helping to prevent the intentional introduction of contaminants. If you need information on backflow prevention programs, contact your state drinking water primacy agency. |  |
| Personnel You should add security procedures to your personnel policies. | | | |

| **Question** | **Answer** | **Comments** | **Action needed/Taken** |
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| 1. **When hiring personnel, do you request that local police perform a criminal background check, and do you verify employment eligibility (as required by the Immigration and Naturalization Service, Form I-9)?** |  | If you use contract personnel, check on the personnel practices of all providers to ensure that their hiring practices are consistent with good security practices. |  |
| 1. **Are your personnel issued photo-identification cards?** |  | For positive identification, all personnel should be issued water system photo-identification cards and be required to display them at all times.  Photo identification will also facilitate identification of authorized water system personnel in the event of an emergency.  It is good practice to have all job candidates fill out an employment application. You should verify professional references. Background checks conducted during the hiring process may prevent potential employee-related security issues. |  |
| 1. **When terminating employment, do you require employees to turn in photo IDs, keys, access codes, and other security-related items?** |  | Former or disgruntled employees have knowledge about the operation of your water system, and could have both the intent and physical capability to harm your system. Requiring employees who will no longer be working at your water system to turn in their IDs, keys, and access codes helps limit these types of security breaches. |  |
| 1. **Do you use uniforms and vehicles with your PWS name prominently displayed?** |  | Requiring personnel to wear uniforms, and requiring that all vehicles prominently display the water system name, helps inform the public when water system staff is working on the system. Any observed activity by personnel without uniforms should be regarded as suspicious. The public should be encouraged to report suspicious activity to law enforcement authorities. |  |
| 1. **Have PWS personnel been advised to report security vulnerability concerns and to report suspicious activity?** |  | Your personnel should be trained and knowledgeable about security issues at your facility, what to look for, and how to report any suspicious events or activity.  Periodic meetings of authorized personnel should be held to discuss security issues. |  |
| 1. **Do your personnel have a checklist to use for threats or suspicious calls or to report suspicious activity?** |  | To properly document suspicious or threatening phone calls or reports of suspicious activity, a simple checklist can be used to record and report all pertinent information. Calls should be reported immediately to appropriate law enforcement officials. Checklists should be available at every telephone. Sample checklists are included in Attachment 3.  Also consider installing caller ID on your telephone system to keep a record of incoming calls. |  |

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| Information storage/computers/controls/maps Security of the system, including computerized controls like a Supervisory Control and Data Acquisition (SCADA) system, goes beyond the physical aspects of operation. It also includes records and critical information that could be used by someone planning to disrupt or contaminate your PWS. |

| **Question** | **Answer** | **Comments** | **Action needed/Taken** |
| --- | --- | --- | --- |
| 1. **Is computer access** "**password protected?**" **Do you have Internet firewall software installed on your computer?** |  | All computer access should be password protected. Passwords should be changed every 90 days and (as needed) following employee turnover. When possible, each individual should have a unique password that they do not share with others. If you have Internet access, a firewall protection program should be installed on your computer. |  |
| 1. **Is virus protection installed and software upgraded regularly and are your virus definitions updated at least daily?** |  | Consider contacting a virus protection company and subscribing to a virus update program to protect your records. |  |
| 1. **Do you have a plan to back up your computers?** |  | Backing up computers regularly will help prevent the loss of data in the event that your computer is damaged or breaks. Backup copies of computer data should be made routinely and stored at a secure off-site location. |  |
| 1. **Is there information on the Web that can be used to disrupt your system or contaminate your water?** |  | Posting detailed information about your water system on a Web site may make the system more vulnerable to attack. Web sites should be examined to determine whether they contain critical information that should be removed.  You should do a Web search (using a search engine such as Google, Yahoo!, or Lycos) using key words related to your water supply to find any published data on the Web that is easily accessible by someone who may want to damage your water supply. |  |
| 1. **Are maps, records, and other information stored in a secure location?** |  | Records, maps, and other information should be stored in a secure location when not in use. Access should be limited to authorized personnel only.  You should make back-up copies of all data and sensitive documents. These should be stored in a secure off-site location on a regular basis. |  |
| 1. **Are copies of records, maps, and other sensitive information labeled confidential, and are all copies controlled and returned to the PWS?** |  | Sensitive documents (e.g., schematics, maps, and plans and specifications) distributed for construction projects or other uses should be recorded and recovered after use. You should discuss measures to safeguard your documents with bidders for new projects. |  |
| 1. **Are vehicles locked and secured at all times?** |  | Vehicles are essential to any water system. They typically contain maps and other information about the operation of the water system. Water system personnel should exercise caution to ensure that this information is secure.  Water system vehicles should be locked when they are not in use or left unattended.  Remove any critical information about the system before parking vehicles for the night.  Vehicles also usually contain tools (e.g., valve wrenches) that could be used to access critical components of your water system. These tools should be secured and accounted for daily. |  |

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| Public Relations You should educate your customers about your system. You should encourage them to be alert and to report any suspicious activity to law enforcement authorities. |

| **Question** | **Answer** | **Comments** | **Action needed/Taken** |
| --- | --- | --- | --- |
| 1. **Do you have a program to educate and encourage the public to be vigilant and report suspicious activity to assist in the security protection of your PWS?** |  | Advise your customers and the public that your system has increased preventive security measures to protect the water supply from vandalism. Ask for their help. Provide customers with your telephone number and the telephone number of the local law enforcement authority so that they can report suspicious activities. The telephone number can be made available through direct mail, billing inserts, notices on community bulletin boards, flyers, and consumer confidence reports. |  |
| 1. **Does your PWS have a procedure to deal with public information requests, and to restrict distribution of sensitive information?** |  | You should have a procedure for personnel to follow when you receive an inquiry about the water system or its operation from the press, customers, or the general public.  Your personnel should be advised not to speak to the media on behalf of the water system. Only one person should be designated as the spokesperson for the water system. Only that person should respond to media inquiries. You should establish a process for responding to inquiries from your customers and the general public. |  |
| 1. **Do you have a procedure in place to receive notification of a suspected outbreak of a disease immediately after discovery by local health agencies?** |  | It is critical to be able to receive information about suspected problems with the water at any time and respond to them quickly. Procedures should be developed in advance with your state drinking water primacy agency, local health agencies, and your local emergency planning committee. |  |
| 1. **Do you have a procedure in place to advise the community of contamination immediately after discovery?** |  | As soon as possible after a disease outbreak, you should notify testing personnel and your laboratory of the incident. In outbreaks caused by microbial contaminants, it is critical to discover the type of contaminant and its method of transport (water, food, etc.). Active testing of your water supply will enable your laboratory, working in conjunction with public health officials, to determine if there are any unique (and possibly lethal) disease organisms in your water supply.  It is critical to be able to get the word out to your customers as soon as possible after discovering a health hazard in your water supply. In addition to your responsibility to protect public health, you must also comply with the requirements of the Public Notification Rule. Some simple methods include announcements via radio or television, door-to-door notification, a phone tree, and posting notices in public places. The announcement should include accepted uses for the water and advice on where to obtain safe drinking water. Call large facilities that have large populations of people who might be particularly threatened by the outbreak: hospitals, nursing homes, the school district, jails, large public buildings, and large companies. Enlist the support of local emergency response personnel to assist in the effort. |  |
| 1. **Do you have a procedure in place to respond immediately to a customer complaint about a new taste, odor, color, or other physical change (oily, filmy, burns on contact with skin)?** |  | It is critical to be able to respond to and quickly identify potential water quality problems reported by customers. Procedures should be developed in advance to investigate and identify the cause of the problem, as well as to alert local health agencies, your state drinking water primacy agency, and your local emergency planning committee if you discover a problem. |  |

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| Safety and Health Plans You should have a well-documented safety effort in place to protect employee safety and health. Each utility needs to meet OSHA requirements and standards for workplace safety. |

| **Question** | **Answer** | **Comments** | **Action needed/Taken** |
| --- | --- | --- | --- |
| **Do you have safety procedures in place including:**  **46a. Written safety plan** |  | Utility operators should have a written safety and health plan that addresses all hazards that employees may be exposed to. This plan should include a process for hazard identification and control. The plan should be reviewed annually and all employees should receive required training and be knowledgeable about all aspects of the plan. |  |
| **46b. Updated MSDS’s** |  | The Material Safety Data Sheet (MSDS) is a compilation of the information known about a chemical that relates to assessing the hazards of that chemical. Chemical manufacturers are required by OSHA to provide MSDS for all hazardous chemicals.  The MSDS can tell you what Personal Protective Equipment (PPE) is needed when handling that specific chemical, what to do in case of a spill, and first aid procedures. Before using any chemical, read the container label and the appropriate MSDS. |  |
| **46c. PPE Assessment** |  | Personal Protection Equipment (PPE) is designed to be used as protection from harm resulting from contact with hazards in the workplace, such as toxic chemicals.  OSHA requires employers to use PPE to reduce employee exposure to hazards when engineering and administrative controls are not feasible or effective. Employers are required to determine all exposures to hazards in their workplace and determine if PPE should be used to protect their workers.  If PPE is to be used to reduce the exposure of employees to hazards, a PPE program should be initialized and maintained. This program should contain the following:   * identification and evaluation of hazards in the workplace and if use of PPE is an appropriate control measure; * if PPE is to be used, how it is selected, maintained and its use evaluated; * training of employees using the PPE; and * vigilance of the program to determine its effectiveness in preventing employee injury or illness. |  |
| **46d. PPE on site** |  | It is important to know what PPE to keep on site at all times, when to use PPE, and what type of PPE to use in a particular situation. |  |
| **46e. Evacuation plan** |  | When considering personnel safety the following factors should be taken into account:   * Training and Information: Train staff and personnel in evacuation, shelter, and other safety procedures. * Evacuation Planning: Develop PWS evacuation policy and procedures. * Evacuation Routes and Exits: Designate primary and secondary evacuation routes and ensure that they are clearly marked, well lit, unobstructed at all times, and unlikely to expose evacuating personnel to additional hazards. * Assembly Areas and Accountability: Obtaining an accurate account of personnel requires planning and practice. Designate assembly areas where personnel should gather after an evacuation and specify procedures for taking a head count and identifying personnel. * Shelter: In some major events, the best means of protection is to take shelter (also known as shelter in place) either within the PWS or away from the PWS in another building.   OSHA requires management to see that a program is instituted and is frequently reviewed and updated. The input and support of all employees must be obtained to ensure an effective program.  For emergency evacuation, the use of floor plans or workplace maps that clearly show the emergency escape routes and safe or refuge areas should be included in the plan. All employees must be told what actions they are to take in emergency situations that may occur in the workplace, such as a designated meeting location after evacuation.  This plan must be reviewed with employees initially when the plan is developed, whenever the employees' responsibilities under the plan change, and whenever the plan is changed. A copy should be kept where employees can refer to it at convenient times. In fact, to go a step further, the employer could provide the employees with a copy of the plan, particularly all new employees. |  |
| **46f. Emergency equipment** |  | You should have written procedures for using and maintaining your emergency response equipment. This should apply to any emergency equipment relevant to a response involving a toxic chemical, including all detection and monitoring equipment, alarms and communications systems, and Personal Protective Equipment (PPE) not used as part of normal operations. |  |
| **46g. First aid kit** |  | Discuss proper first aid and emergency medical treatment for employees and others who are onsite at the PWS. This should include standard safety precautions for victims as well as more detailed information for medical professionals. Maintain a comprehensive first aid kit onsite. |  |
| **46h. First aid/CPR training** |  | All staff should be prepared with the knowledge and skills necessary to prevent, recognize, and provide basic care for injuries and sudden illnesses until advanced medical personnel arrive and take over. Encourage staff to obtain Red Cross training and stay current. Indicate also who is likely to be responsible for providing the appropriate treatment (i.e., an employee with specialized training or a medical professional). |  |
| **46i. Hazard Communications** |  | Under the provisions of the Hazard Communication Standard, employers are responsible for informing employees of the hazards and the identities of workplace chemicals to which they are exposed.  Complying with the HAZCOM standard requires the following elements:   * + Identify and list hazardous chemicals in their workplaces.   + Obtain MSDSs (Material Safety Data Sheet) and labels for each hazardous chemical (should be provided by the manufacturer, importer, or distributor).   + Develop and implement a written hazard communication program, including labels, MSDSs, and employee training, on the list of chemicals, MSDSs and label information.   Communicate hazard information to their employees through labels, MSDSs, and formal training programs. |  |
| **46j. Lockout/Tag out** |  | Plant machinery and equipment power by electricity must be de-energized and isolated before maintaining or servicing. Isolation and de-energizing equipment is required to protect yourself and other workers from unexpected start-up of the equipment or machinery or from release of energy (grounding). OSHA standards require each facility to have a lockout/tagout plan.  The most effective way to protect operators or maintenance personnel is to use a lockout device or an energy-isolating device. Tagout means to place a warning tag on or near the lockout or energy-isolating device. The tag must include the name of the person applying the tag, the date and the reason that the equipment is being locked out. |  |
| **46k. Confined space entry** |  | A confined space means a space that:   * is large enough and configured such that an employee can enter and perform assigned work. * has limited or restricted means for entry or exit * was not designed for continuous occupancy.   In general, employers must evaluate the workplace to determine if spaces are permit-required confined spaces. If there are permit spaces in the workplace, the employer must inform exposed employees of the existence, location, and danger posed by the spaces. This can be accomplished by posting danger signs or by another equally effective means.  Air monitoring should be conducted before entering a confined space and while workers remain in the space. The buddy system should be used when working in a confined space, with one person ***always***remaining outside the confined space. In the event of an accident, the person on the outside of the confined space should ***never***enter the space to attempt a rescue. That person should immediately call for help. If you are required to enter confined spaces on a regular basis, it is recommended that you attend a confined space entry class. |  |

**Gap Analysis**

**Prioritization of Needed Actions**

As you completed the "Vulnerability Self-Assessment Questions," the "Emergency Response Plan Template," and went through the planning process using the Emergency Response Planning CD, the results of the questionnaire were collected for this Gap Analysis. You should now review all of the documents produced by this CD (paying close attention to the ERP) and note the actions identified that you need to take to improve your system’s security. For all questions to which you answered "No" on the Self-Assessment Questionnaire the "Needed Action" items have been included in the Gap Analysis table. This list summarizes the areas where your system has vulnerability concerns. You may also wish to add missing information for the ERP, such as phone numbers, names, etc. This Gap Analysis list can help you prioritize the actions you should take to protect your system from vulnerabilities.

During the planning process you have identified items such as:

* Data needed to complete the ERP (such as a phone number, vendor or supplier);
* Any necessary form revisions (for example you may need to edit the Threat Evaluation Worksheet to make it more applicable to your utility);
* Working out a written agreement with an alternate water provider; or
* Budgeting, ordering and installing security enhancements (such as locks, lighting or fences) for infrastructure protection.

Use the form on the next page to help you rank your priorities in numerical order or based on the categories of high, medium, and low. Be sure to consider single points of failure (i.e., disabling a pump) that severely limit your capability to conduct your primary mission and serve your critical customers, such as hospitals, power plants, schools, or waste water treatment facilities.

**Gap Analysis**

**Prioritization of Needed Actions from the VA Questions**

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Name of Person Completing Report Date