**INSTALLATION PREVENTIVE MEDICINE AUTHORITY**

**Drinking Water Surveillance Standard Operation Procedures (SOP)**

**NOTE: THIS TEMPLATE MAY CONTAIN INFORMATION THAT IS APPLICABLE TO A SPECIFIC NAVY OR MARINE CORPS INSTALLATION OR REGION. IT IS PROVIDED FOR ILLUSTRATION PURPOSES. EACH PMA SHOULD TAILOR THIS TEMPLATE TO THEIR SPECIFIC LOCATION.**

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**SOP REFERENCES:**

1. BUMEDINST 6240.10C - Department of the Navy Medical Drinking Water Program
2. NAVMED P-5010-5 - Water Quality for Shore Installations
3. Navy Policy Requirements for Drinking Water Exceedances, 5090 N45

Ser/16U132466, 14 Oct 16

1. OPNAVINST 5090.1Environmental Readiness Program
2. CNIC M-5090.1 Navy Overseas Drinking Water Program Ashore Manual
3. EPA PN HANDBOOK 2010

**SECTION 1. DRINKING WATER PROGRAM**

1. Introduction. This Standard Operating Procedure (SOP) outlines the responsibilities for the Preventive Medicine Drinking Water Program. This SOP is in accordance with the agreement between [Navy Region], US Naval Hospital or Clinic [Location/Country], and Navy Facilities Engineering Command (NAVFAC) or Marine Corps Installation Public Works (MCIPW) [Region], and Installation Public Works Department (PWD). Throughout this SOP, PWD will represent NAVFAC and/or MCIPW unless otherwise noted.

2. Preventive Medicine Authority’s Mission. Implement the Bureau of Medicine and Surgery’s (BUMED’s) Drinking Water Surveillance Program for Shore Commands. Reference (a) provides policy for drinking water surveillance and testing on Navy and Marine Corps bases. Reference (a) and (b) describes the medical role in providing assistance and expertise for overseas drinking water (ODW) concerns and requests that NAVFAC reports compliance sampling data to medical for review. Commander Naval Installation Command (CNIC) provides overall awareness and understanding of ODW program within Navy installations.

**SECTION 2. ROLES AND RESPONSIBILITIES**

1. Installation Preventive Medicine Authority (IPMA).

a. Program Coordinator for the installation ODW program. Must be appointed in writing by Installation Commanding Officer (ICO) and maintain letter in Program SOP binder. Manage all requirements set forth in instructions pertaining to Department of the Navy (DoN) ODW program, references (a) through (e). Provide medical advice and consultation to Installation Water Quality Board (IWQB) and to the ICO. The IPMA will notify Navy and Marine Corps Public Health Center (NMCPHC) as required in reference (a) and (c).

b. PMA. The role of PMA may be filled by an Environmental Health Officer, Preventive Medicine Technician, Environmental Health Technician, Independent Duty Corpsman, or an appropriately trained Civilian and Master Labor Contractor. Appointment letter from the ICO is required that designates medical representative [Rank/Grade, Name] as Installation Water Quality Board (IWQB) PMA.

c. Responsibilities.

(1) Develop and maintain a written public health drinking water surveillance plan as set forth in references (a) and (b). Details for surveillance plan are in Section 4 of reference (b).

(2) Coordinate in collaboration with PWD on the collection and testing of samples in accordance with references (a) and (b). The Preventive Medicine Department (PMD) drinking water surveillance program is operated in **addition** to the Public Works drinking water **compliance** testing program for increased quality assurance. ***The PMD medical drinking water surveillance program does not meet the same requirements as a compliance based program.***  As such medical surveillance results are **NOT** to be used for compliance testing purposes.

(3) Participate in all IWQB meetings as the installation medical representative.

(4) Provide public health advice and consultation to the ICO and PWD on health aspects of drinking water quality and assist with proper risk communication for public notifications as set forth in references (a) through (e).

(5) Advise ICO when water consumption may present health risks, to include recommending alternate water sources that are fit for human consumption (FFHC) when indicated. Immediately consult NMCPHC for assistance to include advice on when to request a formal public health risk assessment (PHRA).

(6) If treated water fails to meet water quality standards, then public notification actions described in reference (d) through (f) is recommended to be followed. When acute health effects exist with water quality, the IWQB shall notify the ICO immediately. The ICO determines if the water is or is not FFHC, an alternate water source shall be provided. PMA shall provide public health advice and consultation to the ICO and IWQB regarding water quality violations.

(7) Regularly review and provide public health comments as needed for:

(a) Consumer confidence reports (CCRs) (annual)

(b) [Navy Region] Sampling SOP (annual)

(c) [Navy Region] Bacteria Monitoring Plan (annual)

(d) [Navy Region] Bacteria monitoring results (monthly)

(e) [Navy Region] Organic/inorganic/LIPA monitoring results (monthly)

(f) [Navy Region] Systems Inventory (once per tour, or if systems change)

(g) [Navy Region] Emergency Contingency Plan (annual)

(h) [Navy Region] Drinking Water Master Plan (once per tour)

(i) IWQB meetings with read-ahead (Quarterly Attendance)

d. Provide public health comments, which requires access to view all-important PWD and documents, test results, sample/distribution plans, and past surveys. CNIC has an Environmental Portal used to store information related to drinking water. The PMA must have access to this portal and review documents regularly. Access can be obtained by contacting NAVFAC Environmental and PWD Environmental. POCs are listed below in Appendix A. The PMA should consult or update key members often.

e. Report installation ODW concerns and all compliance sampling exceedances to Regional Preventive Medicine Authority (RPMA)and NMCPHC immediately for awareness and guidance.

2. Regional Preventive Medicine Authority (RPMA).

a. Responsibilities. Outlined in references (a) and (b). In addition to all responsibilities of the IPMA at [Navy Region], RPMA has responsibility to ensure each installation IPMA is supported and complies with their respective installation responsibilities.

b. Program coordinator for Navy Region [Location]. Provide oversight for each installation within designated RPMA Area of Responsibility (AOR).

c. Installations under RPMA. [Examples Listed Below]

1. Location 1
2. Location 2

d. Provide medical advice and consultation to Regional Water Quality Board (RWQB) and each IWQB via the IPMA on public health concerns, sampling exceedances, and program oversight.

e. Participate in **all** RWQB meetings as the regional medical representative.

(1) Provide public health consultation to the Commander Navy Region [Location] and Navy Facilities [Region] on health aspects of drinking water quality and assist in proper risk communication for public notifications as set forth in references (f.

(2) Advise Region Commander when water consumption may present health risks, to include recommending alternate FFHC water sources when indicated. Immediately consult NMCPHC for assistance to possibly include advice on when to request a formal PHRA.

f. Regularly review and provide public health comments as needed for:

(1) Review all CCRs for region installations (annually)

(2) Review all PMD installation surveillance sampling plans (annual)

(3) Provide Tri-Annual review of installation programs and IPMA engagement

(4) Receive regular updates from each IPMA on program status and surveillance and compliance monitoring results)

(5) Review installations most recent Sanitary Survey (once per tour, and once prior to next survey)

(6) Provide technical assistance and Temporary Additional Duty (TAD) (if needed) prior to installation Sanitary Surveys to review the IPMA’s program prior to BUMED inspector.

3. PWD/NAVFAC. PWD’s Environmental Department is responsible for implementing the [Host Nation], Environmental Protection Agency (EPA), Office of the Chief of Naval Operations (OPNAV), and Commander, Navy Installations Command (CNIC), Marine Corp Installation Command requirements at [Location] and other locations within [Navy Region]. *All compliance monitoring for drinking water analysis for National Primary Drinking Water Regulations must be conducted by an EPA certified laboratory or equivalent* [emphasis added]. ODW program compliance sampling is performed by installation PWD and testing is performed by an EPA certified (or equivalent) laboratory. PWD is required to report all compliance monitoring results to IPMA. **PWD is responsible for requesting, drafting, and releasing public notices after IWQB subject matter expert review**.

4. Operator in Responsible Charge (ORC). Installation Operator responsible for drinking water system process. Per references (d) and (e), training certification for both distribution and treatment processes is required. IPMA should maintain training on file for ORC, and Alternate ORC of the water distribution system. PWD is responsible for ORC and other operator training.

5. Installation Commanding Officer. The ICO is ultimately responsible for all ODW compliance. Only the ICO can declare drinking water FFHC. The ICO is the head of the IWQB.

6. Installation Water Quality Board.

a. Responsibilities. Board of subject matter experts (SMEs) and program managers within the ODW Program. The IWQB meets officially on an approved set basis to review major projects and ODW program status. Also convenes as needed for distribution system concerns, outages, breaks, or compliance testing exceedances.

b. Members. All members are expected to attend meetings or send a knowledgeable substitute if unavailable. IPMA substitute is [Rank, Name].

1. ICO
2. PWO
3. Public Affairs Officer (PAO)
4. NAVFAC
5. IPMA
6. Judge Advocate General (JAG) Office
7. Chief Staff Officer
8. Other members as the ICO designates

7. Regional Water Quality Board (RWQB).

a. Responsibilities. Board of SMEs and program managers within the ODW from Navy Region [Location]. RWQB CO is [Name]. RWQB consists of two separate chains of command.

1. Commander, Navy [Forces/Region/Installation], which includes the following installations:

Location 1

Location 2

1. Commander, Navy [Forces/Region/Installation], which includes the following installations:

Location 1

Location 2

1. Commander, Navy [Forces/Region/Installation], which includes:

Location 1

b. RWQB meets officially on a quarterly basis for each chain of command to review major projects and ODW program status.

c. Members. All members are expected to attend meetings or send a knowledgeable substitute if unavailable. IRPMA substitute is [Rank, Name].

1. Attendee1
2. Attendee 2

8. Water Quality Oversight Council (WQOC). The WQOC is responsible for monitoring future changes to U.S. drinking water standards applicable to Navy personnel at installations in the United States and applying them to Navy installations overseas. Navy’s Overseas Water Quality Oversight Council (WQOC) will monitor future changes to U.S. drinking water standards and communicate to overseas Navy installations if future gaps are identified. RPMA consults with BUMED and NMCPHC medical representatives on all medical matters affecting RWQB or IWQB matters.

**SECTION 3. DRINKING WATER** **SOURCES**

1. Summary of Distribution System.

[Insert description of system here]

2. Summary of Storage System.

[Insert description of storage system here]

**SECTION 4. SAMPLING PLAN**

1. Sampling Overview. Public Works is responsible for compliance sampling via PWD. Per reference (a) and (b), Preventive Medicine provides surveillance sampling as a form of “checks and balances” for the drinking water distribution system.

2. Surveillance with [Navy Region/Base] PWD Staff. Drinking water sample tests will be performed with the installation PWD sampling team annually. The expectation will be to sample the same sites that PWD samples for the day, and observe the sampling methods of their trained sampling staff. Point of contact (POC) to arrange joint sampling is [Name] (PWD). [Name] or a PMT should attend. EHO should attend at least annually with the PMT.

3. Preventive Medicine Sampling Guidance.

1. Purpose. The purpose for PMD surveillance is to ensure current installation procedures adequately protect the health of [Navy Region/Base] water consumers. It also provides “checks and balances” to the installation compliance program. The sample plan for PMD represents a list of sample sites that were designated to be the best overall representation of the water distribution system. Locations can be changed as needed by the IPMA.
2. Monitoring Frequencies. The minimum Preventive Medicine Authority routine surveillance monitoring frequency provided in the table below is designed to systematically include enough samples collected from more locations of concern on base selected in terms of a public health perspective such as child development and youth centers, galleys and food service establishments, in addition to the representative (geographically-distributed) samples through the distribution system.

|  |  |
| --- | --- |
| **Preventive Medicine Authority Water Surveillance Program Routine Monitoring Frequencies** | |
| **Population** | **Minimum Samples Per Month** |
| 500 or less | 5 |
| 501-5,000 | 10 |
| 5,001- 10110,0010000 | 15 |
| 10,001-greater | 20 |

c. Preventive Medicine Sampling. Treated drinking water is sampled and tested for free available chlorine, pH, temperature, total coliforms, and E. coli using Presence/Absence procedure.

d. Samples are chosen due to their best representation of the overall distribution system. The IPMA should use the following to determine best locations:

(1) Variety of distribution areas on map

(2) Variety of distribution site types (near storage tanks, vs near distribution lines)

(3) Densely populated (high use) areas

(4) Sites at beginning and end of system lines

(5) History of exceedances

(6) Accessibility for testing

(7) Highly susceptible populations (i.e. child development center, schools, etc.)

The following is the excel version of the sample site locations and their sample frequency. [EXAMPLE ONLY]

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Water and Ice Sampling Points** | | | | | | | |
| **DATE** | **TYPE** | **BLDG#** | **FACILITY NAME** | **SAMPLING POINT** | **FREQ** | **COMMENTS** | **SAMPLER** |
| 05/12/2018 | WATER | 1400 | USNH GALLEY | 3-COMP SINK | M |  | HM3 SAILOR |
| 05/14/2018 | ICE | 1752 | CO LOUNGE | KITCHEN SINK | Q |  | HM3 SHIPMATE |
| 05/14/2018 | WATER | 1455 | WAREHOUSE | HAND SINK MEN’S RESTROOM | M |  | HM3 SHIPMATE |
| 05/25/2018 | WATER | 1499 | CPO CLUB | KITCHEN HANDSINK | M |  | HM3 SAILOR |

e. Sample **Collection**.

(1) Select water taps supplying cold water from a service main. Don’t take sample from a drinking fountain or a drink machine with an installed filter device. Only sample these taps if a complaint is received or sue to a suspected illness. **If you suspect a possible contamination, re-take the sample.**  When collecting water samples:

* 1. (1) Select water taps supplying cold water from a service main. Don’t take sample from a drinking fountain or a drink machine with an installed filter device. Only sample these taps if a complaint is received or sue to a suspected illness. When collecting water samples:

1. Wear Gloves
2. Remove any attachments from the faucet only if no tools are required.
3. Disinfect faucet using alcohol or an alcohol impregnated swab or disposable cloth.
4. Allow water to flow for 5 to 6 minutes before sampling.
5. Do not rinse or overfill Whirl-Pak® sample bags
6. Always collect cold water; never sample hot water
7. Do not touch the inside of the Whirl-Pak® sample bag.
8. If possible, avoid the following sites for total coliform sampling:

(a) Outdoor faucets

(b) Faucets connected to cisterns, softeners, pumps, pressure tanks or hot water heaters

(c) New plumbing and fixtures or those recently repaired

(d) Threaded taps

(e) Swing spouts

(f) Faucets positioned close to sink or ground

(g) Leaky faucets

e. Inorganic Testing.

(1) **Measure pH**. **[Depending on the type of meter being used. Tailor to your equipment]** Fill 10 mL flask and place analyzer into flask. Press center “read” button and wait until numbers stop changing. Record pH and temperature readings. pH readings should be between 6.5 and 8.5. Results will be included in the monthly water quality report.

(2) **Measure chlorine**. **[This could vary depending on instrument used]** Keep sample container closed until collection begins. Avoid contact with inside of vials. Rinse the sample cell and cap with the blank before the sample cell is filled. Close the sample cell and clean the optical faces of the sample cell with a lint-free cloth. Insert the blank sample cell into the cell holder. Make sure to install the blank sample cell in the correct and considered orientation so that the results are more repeatable and precise. Install the instrument cap over the cell holder. Push to set the instrument to zero. The displays shows “0.000”, or the degree of resolution that was previously selected. Prepare the sample. Rinse the sample cell and cap with the sample three times before the sample cell is filled. Add 1 reagent. Close the sample cell and clean optical surfaces of the cell with a lint-free cloth. Insert the sample into the cell holder. Make sure to install the sample cell in the correct and consistent orientation so that the results are more repeatable and precise. Install the instrument cap over the cell holder. Push ✓. The display shows the results in concentration units or absorbance. Remove the prepared sample from the cell holder. Immediately empty and rinse the sample cell. Rinse the sample cell and cap three times with deionized water. ***Chlorine readings should range from detectable residual to a maximum of no greater than 4.0 parts per million (PPM).*** **Ideally, to have efficacy the chlorine residual should be no less than 0.1 parts per million (PPM).**

**Note: Refer to Hach® Pocket Colorimeter™ Instruction Manual for specific details on measuring free available chlorine (FAC).**

f. Organic Testing.

(1) Total and Fecal Coliform. Samples must be collected in a pre-sterilized 120-mL glass or plastic bottle or a pre-sterilized Whirl-Pak® bag. If the water being sampled is chlorinated, 0.008% sodium thiosulfate should be added to the container. Typically, the Whirl-Pak® bags are used to collect ice samples for coliform testing, while the pre-sterilized 120 mL glass or plastic bottles are used to collect water samples. Whirl-Pak® bags do not contain sodium thiosulfate, and it is not necessary to add it to the bags prior to collecting samples. Sodium thiosulfate will be added to the 120 mL Idexx test vessel prior to transferring the contents of the Whirl-Pak® bags as described in (2)(b) below.

(a) Using waterproof ink, fill out the container label with sample ID, sample location, sampler’s initials, and date and time of collection.

(b) Wear gloves when collecting samples. Do not rinse the sample containers. The bottles are sterile so care must be taken not to contaminate the bottle or cap. Once the distribution line is flushed and the flow reduced, quickly open the bottle (but do not set the cap down), hold the cap by its outside edges only, and fill the sample bottle to just above the 100 mL line leaving a one inch headspace. Cap the bottle immediately and place it into a cooler with ice for delivery to the laboratory.

(c) If using a Whirl-Pak® bag, fill it to the marked fill line, pull the wire tabs and whirl the bag three times for a tight seal. Place the sealed sample bags into a cooler with ice for delivery to the laboratory.

(d) Be aware of any odor or physical characteristics (e.g., particulate, color) of the water and record notes.

(e) Once all samples have been collected, turn off the water and replace any removed parts (i.e., screen, aerator, strainer or hose).

(2) Test for Total Coliform.

(a) Once back in the laboratory, log in all samples making sure you provide details of the exact sample location and time. If Colilert® reagent powder has been refrigerated, allow snap packs to come to room temperature but not exposed to ambient light.

(b) Pour water samples/melted ice in Whirl-Pak® bags directly into sterile 120 mL Idexx test vessel containing dechlorinating agent (sodium thiosulfate). Do not rinse bottle. Fill up to the 100 mL. Record sample identification information like name of sampler, date and time of sampling on the vessel. Tap the Colilert® snap pack to ensure all of the powder is at the bottom of the pack. Do not touch the opening as you will contaminate the Colilert®. If this happens, throw away the pack and start over.

**NOTE: Be aware that Colilert® is expensive so take care during sampling process to not contaminate sample.**

(c) Add the Colilert® Reagent to the water sample making sure not to touch the top of container opening. Aseptically replace the cap on the test vessel. Gently shake the container until the reagent powder is dissolved. If a transient blue color appears, the sample has an excessive amount of chlorine. Discard and retest from the same site.

(d) Place sample in the incubator for 24 hours at 35 degrees Celsius (95 degrees F) plus or minus 0.5 degrees C for 24 hrs.

(e) At 24 hours compare the water sample color to the Idexx Colilert® Color Comparator. If no yellow is observed, the test is negative for total coliform. Check the vessel for fluorescence by placing a long-wavelength ultraviolet (UV) light within 5 inches of the sample in a dark environment. A fluorescent sample indicates *shigella*-type organisms.

(f) If the color is yellow, equal to or greater than the comparator, the sample is positive for the presence of coliforms. If the color is not uniform, mix by inversion and re-check.

(g) If the sample is accidentally incubated over 28 hours, the following rules apply: a “no yellow color” is a valid negative test. If a yellow color appears, the sample must be discarded and retested.

(3) Test E.coli Fluorescence.

(a) If yellow is observed while recording total coliform results, check the sample for fluorescence by placing the long-wavelength UV light next to the incubator 3-5 inches in front of the sampling vessel.

**Caution: Ensure UV light faces away from recorder’s eyes. Although short wave (254-nm) UV light is known to be more dangerous than long wave (365-nm), both types of UV light can damage eyes and skin and are potentially are carcinogenic. Protect eyes by wearing safety glasses or goggles with solid sidepieces when using UV lights. Shut off the device when not in use.**

(b) If fluorescence is greater than or equal to fluorescence of the comparator, the sample is positive for E. coli.

(4) Collection and testing of ice.

(a) Ice intended for consumption is capable of transmitting pathogenic bacteria and must be manufactured and handled in a strictly sanitary manner.

(b) Collection.

(1) Large Ice Bins. Using facility ice scooper, collect ice from three different locations inside the storage bin. Place ice into Whirl-Pak® sample collection bag without touching inside of the bag.

(2) Small Ice Bins. Using facility ice scooper, collect ice from one or two different locations inside the storage bin. PMT or EHO may determine which is more appropriate. Place ice into Whirl-Pak® sample collection bag without touching inside of the bag.

(3) Soda Machines. Place open Whirl-Pak® sample collection bag under ice dispenser chute and allow ice to fall into bag. Do not let ice touch the outside of the bag.

(c) Sample management.

(1) Place Whirl-Pak® sample collection bags into the laboratory sink in the sample tray (to avoid contamination of sink or bags).

(2) Allow time for ice to melt. Although melted ice does not need to be at room temperature, it should be fully melted before testing.

(3) Transfer the melted ice to a sampling vessel until the 100 mL mark is reached. Once melted, ice testing procedure is the same as drinking water.

4. Laboratory Equipment and Instrumentation Analysis Guidance.

a. There is no requirement for the Preventive Medicine Water Laboratory to be certified by the EPA since PMD does not provide compliance sampling for [Navy Region]. Since the Preventive Medicine laboratory is not EPA accredited/certified, all testing is categorized as “other water types for non-compliance purposes” (Standard Methods 9060 B. 1d, Holding Time and Temperature).

**NOTE: No samples from Preventive Medicine can be used for compliance data for any reason or any amount of time on behalf of [Navy Region] compliance requests.**

b. The Preventive Medicine Water Laboratory uses EPA approved chlorine residual method 4500-Cl G (DPD Colorimetric Method 8021, Low Range) and microbiological standard method 9223B (Enzyme Substrate Coliform Test [Presence/Absence]). All parts and equipment replacements must meet EPA accreditation specifications. Non-EPA accredited equipment, while cheaper, are NOT approved for drinking water surveillance.

c. Calibration and Maintenance. Maintain and calibrate laboratory equipment and instruments in accordance with manufacturer directions.

(1) pH meter. Use a meter capable of measuring pH range from 0 to 14.00, with high resolution and accuracy of 0.01 pH and temperature range from -5° to 90° C (23° to 193° F). (pH meters do not have to meet EPA standards)

## (2) Chlorine Meter. Use a chlorine meter Use the chlorine Pocket that is USEPA approved Free and Total Chlorine methods in Drinking Water and Total Chlorine method in wastewater analyses. Example: Hach® Pocket Colorimeter™ #5870000 or Hach® Pocket Colorimeter™ DR300 #LPV445.97.00110 **[STATE THE METER YOU ARE USING HERE]**

(3) Incubator. Check and record temperature twice daily (morning and afternoon) on the shelves in use. Place incubator in an area where room temperature is maintained between 16 and 27 degrees C (60 to 80 degrees F).

**NOTE: If incubator fails to maintain proper temperature, take immediate action to facilitate repairs. The incubator must not be used if it cannot maintain proper temperature for samples.**

(5) Long-Wavelength Ultraviolet Light. Disconnect light monthly and clean bulbs with a soft cloth moistened with ethanol. Protect eyes by wearing safety glasses or goggles with solid side pieces. Shut off the device when not in use.

**SECTION 5. NOTIFICATIONS**

1. Preventive Medicine Surveillance Sampling Exceedance.

1. Contact Public Works Department and notify them of your finding and follow-up actions.
2. Rule out the possibility of technical error or cross contamination.

c. Resample potable water sites within 24 hours.

(1) Performance of confirmation tests for positive total coliforms is **mandatory**.

(2) Ensure re-sampling one site above and below the water sample point.

d. If repeat sample is unsatisfactory, contact Public Works Department and inform them of finding. The PMA should notify base leaders if waterborne contamination or illness is suspected. **However**, **positive results reported to PWD shall be vetted and resampled via PWD sampling team prior to any additional action or notification since compliance sampling is required before notification and base action takes place.**

e. Unsatisfactory Bacteriological Ice Results. There is no requirement to test ice except per reference (g) testing ice in food service facilities is recommended but not mandatory. If conducting sampling contact the supervisor of the food facility making sure you record your point of contact’s full name and title, date, and time. Your recommendation to the person in charge will be to empty, clean and sanitize ice making/dispensing unit in accordance with manufacturer’s recommendations. Resample when sanitizing is complete. Facilities are encouraged to clean the ice machine within two working days. Facility must call PMD when this is completed. The facility’s inspector must diligently follow-up to ensure this is done and the ice machine is retested as soon as possible. The ice machine cannot be put back into service until retested and found to be negative for bacteria.

2. Installation PWD Compliance Sampling Exceedance.

a. Per references (a) through (e) the installation PMA provides public health advice and consultation on health effects of exceedances from drinking water compliance testing.

b. All drinking water violations must be reported immediately to PMA. This requires the PMA to work regularly and closely with the installation PWD to ensure open communication between PWD and PMD teams before any exceedance is reported. Since PWD provides **compliance sampling, all positive bacteriological samples reported from PWD must be acted upon immediately.**

3. Public Notification (PN).

a. All exceedances that **require** a PN must be reviewed by the PMA for the following 10 EPA minimum requirements as outlined in reference (f):

(1) Description of the violation.

(2) When the violation occurred.

(3) Potential adverse health effects.

(4) Population at risk.

(5) Whether alternative water supplies should be used.

(6) Actions consumers should take, including when to seek medical help. Must include medical POC information (typically a designated clinic or provider for certain circumstances)

(7) What is being done to correct the violation.

(8) When it is expected to return to compliance.

(9) Where to find additional information.

(10) Standard language throughout document.

b. Notification Timeline. Exceedances within the drinking water distribution are categorized into 3 tiers that determine notification timeline requirements. Tier 1 exceedances must be reported within 24 hours. Tier 2 exceedances must be reported within 30 days, and Tier 3 exceedances must be reported within 1 year (usually in conjunction with the Consumer Confidence Report). Verify PWD categorized the tiered notice correctly. Details can be found in reference (f).

c. Risk Communication. Ensure medical information is clear, jargon free, and appropriate for the context of the health effects expected for an exceedance. If an exceedance is low enough that it does not reach the “health threshold” for a chemical, ensure the notification is clear. NMCPHC offers a Risk Communication course that provides guidance for PMAs.

d. Acute vs chronic contaminants. Drinking water contaminants can enter the body through ingestion, dermal absorption, or inhalation. Consult the Centers for Disease Control and Prevention’s (CDC) Toxicology index to determine possible exposure categories. The IPMA should recommend alternate water source when acute health hazards exist or if water is determined to be not FFHC. IPMA MUST contact NMCPHC before making recommendations.

4. Public Health Risk Assessments (PHRA).

a. PHRA is a scientifically defensible process conducted by a multidisciplinary team of SMEs at NMCPHC. It uses a weight of evidence approach and typically includes hazard identification and characterization, toxicity assessment, exposure assessment and risk characterization.

b. At locations within CNIC’s ODW program, a determination of FFHC or Not FFHC must include consultation with the PMA. When this consultation warrants a PHRA, the PMA must consult with NMCPHC and inform the Regional PMA prior to advising the ICO. Situations where the PMA would consult with NMCPHC may include but are not limited to, contamination of the overseas drinking water system by unregulated substances (i.e. no MCL established), or where the ICO has determined the drinking water is not FFHC and requests an evaluation for other consumptive uses (i.e. cooking, oral hygiene, dishwashing, bathing, showering and hand-washing).

c. A PHRA may not be required in every instance of an installation PN of a drinking water violation. Refer to PN procedures in reference (f).

NOTE: PHRAs should be infrequent and are interim assessments not intended to delay or defer maintenance or repair to overseas drinking water systems for purposes of compliance with applicable regulations and delivering water that is FFHC.

**SECTION 6. DRINKING WATER OUTAGES**

1. Emergency Management Plan. [Navy Region/Base] water systems are potentially vulnerable to damage caused by [earthquake hurricanes, typhoons, flooding, hazardous materials leaks/spills, etc.]. The following is a summary of the [Navy Region/Base] Emergency Contingency Plan (ECP), located [location specific information] at [Navy Region/Base] Environmental Portal.

a. Responsibilities.

(1) PWD has the in-house capability to repair damages to the water system and has an inventory of water system components.

(2) NAVFAC PWD provides integral support to the overall [Navy Region/Base] Emergency Management Program.

(3) PMA provides health information if water should be secured due to unsafe contamination or distribution issues. PMA may consult with NMCPHC on recommended guidance for [Navy Region/Base]. PMA medical guidance may include:

(a) Boil Water Notice

(b) Do not consume hygiene use is safe

(c) Secure completely; Do Not Use; Not Fit for Human Consumption

b. Alternate Sources. **(MUST BE ARMY VETERINARY SERVICE APPROVED)**

(1) [List approved alternate drinking water sources]

**NOTE:** **A close working relationship between the PWO and PMA is critical to ensure rapid notification in emergencies**.

2. Water Line Breaks.

a. [describe local plans and procedures for water line breaks]

3. Not Fit For Human Consumption (NFFHC). Only the ICO may declare [Navy Region/Base] drinking water system Not FFHC. The ICO should convene SMEs from the IWQB, including PMA to review the circumstances and discuss courses of action. If a system outage or break occurs that requires declaration of water Not FFHC, the ICO and PWO will request the IWQB to either meet formally, or discuss via email. PMA roles include evaluation of current water in the distribution system (or site of concern) to determine what, if any, health concerns are present. The PMA will consult with NMCPHC on recommended guidance for [Navy Region/Base]. PMA medical guidance may include:

(a) Boil Water Notice

(b) Do not consume hygiene use is safe

(c) Secure completely; Do Not Use; Not Fit for Human Consumption

**SECTION 7 ELECTRONIC SURVEILLANCE**

1. DOEHRS-IH-EH.

a. Purpose. The purpose of the Defense Occupational & Environmental Health Readiness System IH-EH module (DOEHRS IH-EH) integration into the drinking water program is to provide a system where water samples can be recorded into the electronic database and be used for electronic surveillance and data tracking for local commands, regions, and NMCPHC. It allows long term documentation for trends and issues that would typically be lost as annual hard copy records are destroyed.

1. Action. All medical drinking water surveillance system information must be maintained and annually updated in DOEHRS IH-EH. All medical drinking water surveillance data must be inputted into DOEHRS IH-EH within 24 hours of results.
2. A water sampling point will need to be added prior to input of a water sample. The following is a step by step guide for adding a water sampling point.
   * 1. Log into DOEHRS (check url: and program office are correct)
     2. Under Environmental Health menu, select “Location”
     3. The Locations – Search page is visible
     4. Using the “Browse by Location Tree” link select the appropriate location
     5. Using the Environmental Health menu – expand location using the + icon
     6. Expand Water Systems folder using the + icon, select Sampling Points
     7. Add a sampling point by using the + icon or the “Other Actions” drop down
     8. Complete the “Sampling Point Information” and Water System Component sections
     9. Click “Save”
3. The following is step by step guidance on access to DOEHRS IH-EH and inputting a water sample.

(1) Log into DOEHRS (check url: and program office are correct).

(2) Under Environmental Health menu, select “Location”

(3) The Locations – Search page is visible.

(4) Using the “Browse by Location Tree” link select the appropriate location.

(5) Using Environmental Health menu – expand location using the + icon.

(6) Expand samples folder using the + icon.

(7) Expand water folder using the + icon, Select “Treated Water Kit”.

(8) Add a sample by using the + icon or “Other Actions” drop down.

(9) Complete administrative data, water system sampling point or bottled water and complete grey box area of field data with pH, FAC, and colilert results.

(10) When all data has been added, change status of survey to “Ready for QA”

(11) Click “SAVE”.

**NOTE: Always Remember to click save upon completion to record the sample into DOEHRS IH-EH.**

**SAMPLE APPENDIX A POC LIST**

**Location/Name Contact Number**

**[Rank, Name]** #

[Navy Region/Base] ODW PMA

Title

Email address

**[Rank, Name]** #

Director for Public Health USNH [Location] #

Email address

**[Rank/Title/Name]** #

[Navy Region/Base] Environmental Director

Email address

**[Name]**  DSN #

[Navy Region/Base] PDW Drinking Water Program Manager

Email address

**[Name]** DSN #

NAVFAC [Region/Location] Public Works

Email address

**[Name]** DSN #

NAVFAC [Region]

Regional Drinking Water Compliance Program Manager

Email address

**[Rank, Name]**  #

Commanding Officer, NAVFAC [Region]

Regional Engineer

Email address

**[Name]** Office 757-953-0712

Navy Marine Corps Public Health Center

Environmental Health Programs DSN 377-0712

Email address

**[Name]**

Navy Medicine [Region]

Regional PMA Office #

Email address

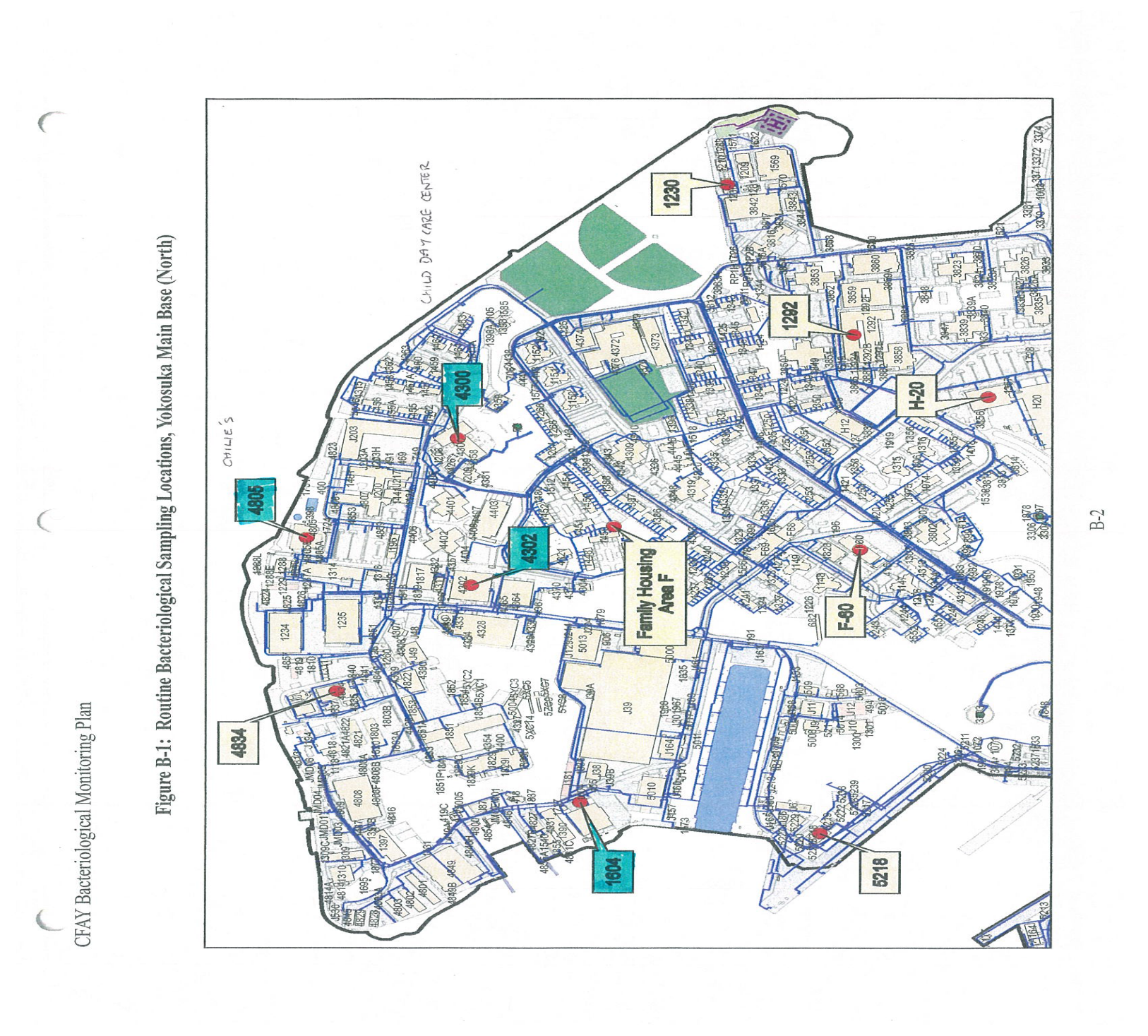
**[Rank, Name]** Office: 703-681-9329

BUMED Environmental Health Officer

Email address

**HAVING CELL NUMBERS IS A GOOD IDEA FOR AFTER HOUR CONTACT**

**SAMPLE APPENDIX B SAMPLING MAPS**



5218: Water Treatment Plant Lab Faucet

1604: Elementary School Cafeteria Hand sink

4834: Gymnasium Water Fountain

4805: Chile’s Restaurant Hand Sink

4300: Child Care Center Kitchen Sink

1230: Hospital Galley Sink

1262: Barracks 3rd Floor Hand Sink

H-20: Administration Kitchen Break Room

F-60: Medical Branch Clinic 3rd Floor Hand Sink

**APPENDIX C Drinking Water Related Policy and Guidance Documents**

[**https://www.med.navy.mil/sites/nmcphc/program-and-policy-support/water-sanitation-and-safety/Pages/default.aspx**](https://www.med.navy.mil/sites/nmcphc/program-and-policy-support/water-sanitation-and-safety/Pages/default.aspx)

* [NAVFAC Potable Water Quality Management Guidance](https://www.med.navy.mil/sites/nmcphc/Documents/program-and-policy-support/UG-2077-ENV-PWQM-Guidance.pdf) - NAVFAC Potable Water Quality Management Guidance Document
* [MARINE CORPS INSTALLATIONS COMMAND:](http://www.mcieast.marines.mil/Portals/33/Documents/Adjutant/MCICOM%20POL%20LTRS/MCICOM%20Policy%20Letter%202-14%20Lead%20in%20Drinking%20Water.pdf) - Sampling and Testing For Lead in Drinking Water in Priority Areas
* [MCO P5090.2A](https://www.med.navy.mil/sites/nmcphc/Documents/program-and-policy-support/MCO-P50902A-W-CH-1-2.pdf) - Environmental Compliance and Protection Manual
* [COMSUBLANT/COMSUBPACINST 6000.2E](https://www.med.navy.mil/sites/nmcphc/Documents/program-and-policy-support/CSLCSPINST-6000.2E.pdf) - Standard Submarine Medical Procedures Manual for Submarine Medical Departments
* [OPNAVINST 5090.1](https://www.med.navy.mil/sites/nmcphc/Documents/program-and-policy-support/5090.1D.pdf)Environmental Readiness Program Manual
  + [OPNAV M-5090.1](https://www.med.navy.mil/sites/nmcphc/Documents/program-and-policy-support/5090-1.pdf)Environmental Readiness Program Manual
* [CNICINST 5090.1A](https://www.med.navy.mil/sites/nmcphc/Documents/program-and-policy-support/CNICINST-5090.1A.pdf) Navy Overseas Drinking Water Program Ashore
  + [CNIC M-5090.1](https://www.med.navy.mil/sites/nmcphc/Documents/program-and-policy-support/CNIC-M-5090.1.pdf) Navy Overseas Drinking Water Program Ashore Manual
  + [CNIC M-5090.2](https://www.med.navy.mil/sites/nmcphc/Documents/program-and-policy-support/CNICINST_M-5090.2_dtd-26SEP2017.pdf) Certificate to Operate Criteria and Requirements for US Navy Overseas Drinking Water Systems
  + [CNIC M-5090.3](https://www.med.navy.mil/sites/nmcphc/Documents/program-and-policy-support/CNIC_M-5090.3_dtd-26SEP2017.pdf) Operator in Responsible Charge and Assistant Operator in Responsible Charge Training and Certification Program for US Navy Overseas Drinking Water Systems
* [BUMEDINST 6240.10C](https://www.med.navy.mil/sites/nmcphc/Documents/program-and-policy-support/6240.10C.pdf) - Department of the Navy Medical Drinking Water Program
* [NAVMED P-5010-5](https://www.med.navy.mil/directives/Pub/5010-5.pdf) - Water Supply Ashore
* [NAVMED P-5010-6](https://www.med.navy.mil/directives/Pub/5010-6.pdf) - Water Supply Afloat
* [NAVMED P-5010-10](https://www.med.navy.mil/directives/Pub/5010-10.pdf) - Sanitary Control and Surveillance of Field Water Supplies
* [Lead in Drinking Water in Priority Areas](https://www.med.navy.mil/sites/nmcphc/environmental-programs/Pages/Lead-in-Drinking-Water.aspx)
* [BUMEDINST 6200.14D - 30 Aug 2017](https://www.med.navy.mil/sites/nmcphc/Documents/program-and-policy-support/BUMEDINST-6200-14D.pdf)- CHILDHOOD LEAD POISONING PREVENTION
* [OPNAVINST 5090](https://www.med.navy.mil/sites/nmcphc/Documents/program-and-policy-support/Final-Navy-LIPA-Policy-Update-2018-DONTRACKER.pdf) - Update to Policy on Sampling and Testing for Lead in Drinking Water in Priority Areas
* [CNIC Guidance for Lead Testing in Priority Areas INC Encl1 and Appendices](https://www.med.navy.mil/sites/nmcphc/Documents/program-and-policy-support/CNIC-Guidance-for-Lead-Testing-in-Priority-Areas.pdf)
* [EPA PN HANDBOOK 2010](https://www.med.navy.mil/sites/nmcphc/Documents/program-and-policy-support/EPA-PN-HANDBOOK-2010.pdf)
* CNIC Shore Drinking Water Quality Reports
  + [FINAL FY17 Shore Drinking Water Quality Report](https://www.med.navy.mil/sites/nmcphc/Documents/program-and-policy-support/FY17_Navy_Shore_Drinking_Water_Quality_Report_Feb2018.pdf)
  + [FINAL FY18 Shore Drinking Water Quality Report](https://www.med.navy.mil/sites/nmcphc/Documents/program-and-policy-support/FY18-Navy-Shore-Drinking-Water-Quality-Report.pdf)
* [Navy Policy on Drinking Water Exceedances](https://www.med.navy.mil/sites/nmcphc/Documents/program-and-policy-support/Navy-Policy-on-Drinking-Water-Exceedances-14-Oct-16.pdf)